

Shreemoyee, Shreemoyee; Roychowdhury, Punarjit; Dhamija, Gaurav

Working Paper

The Double-Edged Sword: How Women's Financial Inclusion Affects Intimate Partner Violence in India

GLO Discussion Paper, No. 1599

Provided in Cooperation with:

Global Labor Organization (GLO)

Suggested Citation: Shreemoyee, Shreemoyee; Roychowdhury, Punarjit; Dhamija, Gaurav (2025) : The Double-Edged Sword: How Women's Financial Inclusion Affects Intimate Partner Violence in India, GLO Discussion Paper, No. 1599, Global Labor Organization (GLO), Essen

This Version is available at:

<https://hdl.handle.net/10419/315277>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

**The Double-Edged Sword:
How Women's Financial Inclusion Affects Intimate Partner Violence in India**

Shreemoyee Shreemoyee

Ph.D. Research Scholar, Department of Liberal Arts, Indian Institute of Technology
Hyderabad. Email: la21resch11004@iith.ac.in

Punarjit Roychowdhury
Assistant Professor, Shiv Nadar University, Delhi NCR. Fellow, Global Labor Organization
(GLO). Non-Resident Fellow at the Centre for Development Economics and Sustainability
(CDES), Monash University.

Email: punarjitroychowdhury@gmail.com

Gaurav Dhamija
Assistant Professor, Department of Liberal Arts, Indian Institute of Technology Hyderabad,
IITH Road, Near NH-65, Kandi, Sangareddy, Telangana 502285, India. Member, Center for
Research on Economics of Climate, Food, Environment and Energy, Indian Statistical Institute,
New Delhi. Email: gauravdhamija@la.iith.ac.in

**The Double-Edged Sword:
How Women's Financial Inclusion Affects Intimate Partner Violence in India**

Abstract

We empirically examine the causal impact of women's financial inclusion on their exposure to Intimate Partner Violence (IPV) in India using data from the fifth round of the National Family Health Survey. However, establishing a causal link between women's financial inclusion and IPV is challenging due to unobserved confounders and reverse causality. To overcome these obstacles, we adopt a nonparametric bounds approach. We find robust evidence that women's financial inclusion significantly increases their exposure to IPV by at least 7.8 percentage points. We provide suggestive evidence that this result arises because women's financial inclusion is likely to disrupt patriarchal beliefs about gender roles, lead to female guilt, and increase husbands' use of IPV for instrumental reasons. Our findings suggest that empowering women financially, while crucial, may inadvertently increase their vulnerability to IPV unless such initiatives are paired with efforts to shift underlying cultural norms surrounding gender.

JEL Classification numbers: J12, J16, O12

Keywords: Intimate Partner Violence, Financial Inclusion, Partial Identification, India.

1. Introduction

Intimate partner violence (IPV), defined as "any behavior within an intimate relationship that causes physical, psychological, or sexual harm to those in the relationship," is the most pervasive form of violence perpetrated by men against women (WHO, 2021). The World Health Organization (WHO) claims IPV to be a global 'hidden pandemic,' affecting around 30% of women worldwide (Garcia-Moreno et al., 2006). IPV can lead to a range of severe consequences for women, including physical injuries, mental depression, reproductive health issues, and increased risk of homicide or suicide (Campbell, 2002; Ellsberg et al., 2008). The economic burden of IPV extends beyond the immediate suffering of victims, encompassing significant expenditures on medical care, lost productivity, judicial processes, and the monetary loss associated with the incarceration of offenders (Lomborg & Williams, 2018; Peterson et al., 2018). Fearon & Hoeffler (2014) estimate the global costs of IPV at approximately USD 4.4 trillion.

Given the significant socioeconomic costs of IPV, considerable attention has been devoted to understanding its underlying drivers. Over the past decade, a growing body of research has examined how factors commonly viewed as contributors to women's empowerment impact IPV. These include education (Akyol & Kirdar, 2022; Erten & Keskin, 2018; Weitzman, 2018), labor force participation (Alonso-Borrego & Carrasco, 2017; Anderberg et al., 2016; Dhanaraj & Mahambare, 2022; Erten & Keskin, 2021; Tur-Prats, 2021), cash transfers (Bobonis et al., 2013; Hidrobo & Fernald, 2013), access to financial services (Bhukta et al., 2025), and improvements in intra-household bargaining power (Yilmaz, 2018) among others. The findings indicate that while some of these factors reduce IPV, others may inadvertently increase the risk of violence, reflecting the complex and context-specific nature of this relationship.

In this paper, we contribute to this growing body of literature by empirically examining the relationship between women's financial inclusion and IPV—an area that remains relatively underexplored. Specifically, we investigate whether financial inclusion—a potentially important driver of women's empowerment—mitigates or exacerbates the risk of IPV. The World Bank (2023) defines financial inclusion as access to and the regular use of a range of financial products and services, including credit, savings, payments, and insurance, delivered in a responsible and sustainable manner. It is recognized as a critical tool for advancing women's economic empowerment by enhancing their control over financial resources, facilitating savings, and improving their ability to manage risks and invest in their well-being

(Swamy, 2014; Yang et al., 2022). We focus on India, where the prevalence of IPV remains alarmingly high. As per the fifth round of the National Family Health Survey (NFHS 2019-21),¹ nearly one in three ever-married women aged 18–49 in India report experiencing physical, sexual, or emotional violence from their husbands.

The relationship between women's financial inclusion and IPV is theoretically ambiguous. Drawing on intrahousehold bargaining models (Farmer & Tiefenthaler, 1997; Tauchen et al., 1991), increased financial inclusion can strengthen women's bargaining power and reduce IPV. As women gain access to financial resources, the implicit cost of violence rises—partners must compensate more to maintain the status quo—creating an incentive for men to reduce violence (Roychowdhury & Dhamija, 2022). Financial inclusion also improves women's exit options by providing economic independence (Bonilla et al., 2017) and can bolster household economic security, thereby reducing stress-induced conflicts that may trigger violence (Hidrobo et al., 2016; Roy et al., 2019).

However, financial inclusion may also increase IPV if it disrupts traditional gender norms that define men as breadwinners and women as caregivers (Eagly & Wood, 2016; Dhanaraj & Mahambare, 2022). Economic empowerment may provoke backlash from male partners who perceive it as a threat to their identity and authority within the household (Jewkes, 2002). This dynamic aligns with social identity theory, which posits that violating prescribed gender roles can carry social costs (Akerlof & Kranton, 2000, 2010). Further, women's own internalization of these norms may lead to feelings of guilt—what Dhanaraj & Mahambare (2022) term the "female-guilt" channel—prompting them to tolerate violence as a form of overcompensation. Instrumental theories of violence (Bloch & Rao, 2002; Eswaran & Malhotra, 2011) also suggest that men may use violence strategically—to extract resources or limit women's labor market participation. Taken together, these opposing channels highlight the complex and context-specific nature of the relationship between financial inclusion and IPV.

We use the data from the fifth round of NFHS that was conducted between 2019-21. It is a widely used nationwide survey and provides detailed information on women's exposure to IPV, socioeconomic characteristics, utilization of financial services, health, etc. We focus on four types of IPV: physical, sexual, emotional, and any IPV. We construct our variable of interest

¹ NFHS is a part of the Demographic and Health Surveys (DHS) programs.

(or treatment variable), women's financial inclusion, using information on women's utilization of bank accounts, mobile money, and health insurance coverage.

Identifying the causal impact of women's financial inclusion on their exposure to IPV is challenging due to the non-random distribution of utilization of financial instruments within the population. Even after accounting for observable characteristics available in the data, there may be significant unobserved confounders, such as patriarchal social structures, women's unobserved abilities, confidence, etc., that correlated with financial inclusion and IPV exposure. Additionally, the possibility of reverse causality, where women's exposure to IPV influences their likelihood of financial inclusion, further complicates the causal identification of women's financial inclusion on their exposure to IPV.

To address the identification challenge, we use a nonparametric partial identification method (Manski, 1995; Manski & Pepper, 2000; Pepper, 2000)². Tamer (2010) highlights the significance of the nonparametric partial identification approach in econometric models and acknowledges that identification is not a binary concept. Even when models do not provide point identification of parameters of interest, they still offer valuable information about these parameters and allow a meaningful inference within identified bounds (Tamer, 2010). The nonparametric partial identification approach enables us to estimate sharp bounds on the average treatment effect (ATE) of women's financial inclusion on their exposure to IPV, accounting for the non-random distribution of women's utilization of financial instruments.

Unlike traditional causal methods like instrumental variables (IV), which depend on stronger assumptions, the nonparametric partial identification approach uses weaker (nonparametric) assumptions. Consequently, this approach yields bounds on the ATE instead of obtaining point estimates. These bounds, however, provide valuable insights into what can be inferred under different assumptions about the nature of the selection process. Tamer (2010) summarizes the advantages of this approach: "This partial identification approach favors the principle that inference— and conclusions and actions— based on empirical models with fewer suspect assumptions is more robust, hence more sensible and believable. Stronger assumptions will lead to more information about a parameter, but less credible inferences can be conducted."

² For notable extensions and applications of this method, see Acerenza (2024), Cygan-Rehm et al. (2017), de Haan (2011), Gundersen et al. (2012), Gundersen & Kreider (2008, 2009), Huber & Mellace (2015), Kreider & Pepper (2007, 2008), Mariotti & Meinecke (2015), Millimet & Roy (2015), Molinari (2008), and Roychowdhury & Dhamija (2022, 2024).

Our results are compelling. Based on reasonably weak assumptions regarding the selection process, we find that the bounds on the ATE of women's financial inclusion on their exposure to IPV are strictly positive and statistically significant, indicating that women's financial inclusion increases their likelihood of facing IPV. Specifically, our analysis shows that a woman who is financially included is at least 7.8 percentage points more likely to experience at least one form of IPV than a woman who is not financially included.

Further, we provide suggestive evidence that these results are driven by three key mechanisms: male backlash due to violation of gender norms, female guilt, and the instrumental use of violence by husbands. Specifically, financially included women are more likely to challenge traditional patriarchal expectations about gender roles, which can provoke male backlash. This backlash may manifest as increased IPV, as men attempt to reassert dominance in response to shifting power dynamics. Additionally, financially included women may experience guilt for not conforming to socially prescribed gender identities, which could make them more susceptible to coercion and control. Lastly, husbands may strategically use violence to undermine their wives' labor market participation, reinforcing their economic dependence and maintaining household power structures.

Our findings highlight that policies seeking to empower women, such as initiatives promoting financial inclusion, may have unintended consequences. These policies might inadvertently increase women's vulnerability to IPV. While these results do not advocate for the abandonment of such initiatives, they underscore the need for complementary measures to address IPV effectively. Policies aiming to empower women must be complemented with well-designed interventions to shift entrenched gender norms and beliefs and their influence on men's and women's attitudes. While it is widely acknowledged that gender norms are resistant to change, recent research highlights the potential of policy measures and nudges that have an impact on attitudes towards IPV and gender biases. For instance, exposure to entertainment television (Banerjee et al., 2019), engaging adolescent girls and boys in classroom discussions about gender equality (Dhar et al., 2022), or providing opportunities for them to interact with female role models (Kipchumba et al., 2021), are highly effective strategies.

The rest of the paper is organized as follows. Section 2 presents a brief review of the existing literature. Section 3 describes the financial situation in India and the conceptual framework. Sections 4 and 5 discuss the data and the empirical framework, respectively. The last section concludes.

2. Literature Review

Our study contributes to the burgeoning literature that looks at the relationship between women's financial inclusion and their exposure to IPV. Important studies in this literature include Bhukta et al., (2025), McDougal et al., (2019), and Raj et al., (2018). The findings of this literature have been largely mixed. For example, through their longitudinal study in Maharashtra, Raj et al. (2018), identify a negative association between women's bank account ownership and IPV. Similarly, Bhukta et al. (2025) provide evidence that financial inclusion through banking expansion has led to reduced dowry-related deaths and cruelty by husbands. On the other hand, a multi-country study finds that women's bank account ownership or mobile money usage in low and middle-income countries increases their risk of facing IPV (McDougal et al., 2019).

Among these studies our work is most closely related to Bhukta et al. (2025). Their study provides valuable insights into how banking expansion, driven by the Reserve Bank of India's 2005 policy, impacts dowry-related deaths and cruelty against women in India. Using a rigorous fuzzy regression discontinuity design (RDD), they show that banking expansion leads to a reduction in these forms of violence.

Our study complements this important contribution but differs in several key respects. First, while Bhukta et al. (2025) focus on the effects of banking expansion, we measure women's financial inclusion more broadly. Specifically, we incorporate not only utilisation of formal banking services but also women's use of digital financial services such as mobile money and coverage under health insurance schemes. This approach likely captures a more comprehensive view of women's engagement with the formal financial system. Second, while Bhukta et al. (2025) rely on administrative crime data from the National Crime Records Bureau (NCRB) and examine aggregate measures of violence—such as dowry-related deaths and reported cases of cruelty by husbands or their relatives—our study uses self-reported microdata from the National Family Health Survey (NFHS). This enables us to study IPV in a more nuanced manner, focusing specifically on physical, sexual, and emotional violence perpetrated by husbands. Given the well-documented issue of underreporting in administrative data (Dandona et al., 2022), particularly in contexts where women may face significant barriers to reporting (Erten & Keskin, 2018), we believe our approach allows us to capture a broader and potentially

more representative range of IPV experiences. Notably, data constraints prevent Bhukta et al. (2025) from examining sexual and emotional IPV—both critical and pervasive forms of violence—an aspect our study is able to address.

Our identification strategies also differ. While Bhukta et al. (2025) employ a fuzzy RDD design leveraging policy-driven variation in banking expansion, we adopt a nonparametric partial identification approach. Although our methodology does not point identify the average treatment effect (ATE), it allows us to estimate sharp bounds on the ATE under transparent assumptions. Finally, our findings speak to a different dimension of the relationship between financial inclusion and IPV. While Bhukta et al. (2025) emphasize the protective role of banking expansion in reducing certain forms of violence against women, our study highlights the complex nature of this relationship. Specifically, we provide causal evidence that, while financial inclusion may empower women, it can also—through mechanisms such as challenges to traditional gender norms, feelings of guilt, and the instrumental use of violence by husbands—inadvertently increase women’s vulnerability to IPV.

Our work also has links to the literature that looks at the effect of women's financial inclusion on their economic well-being measured along various dimensions, including their labor force participation (Zelu et al., 2024), entrepreneurship opportunities (Yang et al., 2022), and income levels (Swamy, 2014). Additionally, our study contributes to the literature on the economics of households that show the adverse outcomes of the women's deviation from their traditional gender identities of ‘housework and caregiving.’ Rocca et al. (2009) in their study, find women engaged in income-generating activities are considered to be violating traditional gender identities of being homemakers and caregivers. Mogford (2011) finds that women's increased status in the public domain is seen as a threat to the husband's masculinity. In contrast, women's status in the domestic realm is more acceptable, where they can be supervised and controlled. Similarly, women in service sectors tend to face more male backlash from their husbands because of their menial jobs where they have to come out of their homes to meet other men and independent women at the workplace, which makes men feel more insecure (Iregui-Bohórquez et al., 2019).

Finally, our study is related to the broader literature on determinants of IPV. This literature has focused on several determinants including education (Erten & Keskin, 2018; Weitzman, 2018), employment (Erten & Keskin, 2021; Dhanaraj & Mahambare, 2022), gender wage gap (Aizer, 2010), divorce laws (Stevenson & Wolfers, 2006), culture and social norms (González &

Rodríguez-Planas, 2020; Tur-Prats, 2021), attitudes justifying IPV (Mookerjee et al., 2021), gender ratios (Amaral & Bhalotra, 2017), marriage type (Roychowdhury & Dhamija, 2022), age at marriage (Roychowdhury & Dhamija, 2021), decision to use contraception (Ojha & Babbar, 2024), urbanization (Dhamija et al., 2025), electrification (Bhukta et al., 2024), sports (Dickson et al., 2016), and historical factors (Guarnieri & Rainer, 2021).

3. Background

3.1. Financial Inclusion in India

Financial access and inclusion are related yet distinct concepts within the broader financial ecosystem. Financial access refers to an individual's legal right, eligibility, and capacity to open, afford, and sustain the use of financial products and services such as banking, savings, credit, loans, and insurance (Birkenmaier et al., 2019). In contrast, financial inclusion extends beyond access by emphasizing the actual utilization of financial services. For instance, (Demirgüç-Kunt et al., 2017) define financial inclusion as both access to and active use of financial products. It further highlights that mere access does not necessarily translate into meaningful financial participation if the services remain underutilized. Over the years, financial inclusion has gained widespread recognition for its critical role in boosting social, economic, and sustainable development (World Bank, 2014).

Globally, substantial progress has been made in expanding financial inclusion. According to the World Bank (2023), the percentage of adults with a bank account increased from 51% in 2011 to 76% in 2021. In developing countries, bank account ownership increased by eight percentage points from 2017 to 2021. It is partly driven by the widespread adoption of digital financial services through mobile phones. Despite this progress, a persistent gender gap remains, with women in low-income countries being 6% less likely than men to have a bank account (Demirgüç-Kunt et al., 2022).

The Reserve Bank of India (RBI) has implemented numerous policies over the last two decades to promote financial inclusion nationwide by increasing bank penetration, digital financial services, credit access, and health insurance coverage. One of the landmark initiatives is the Pradhan Mantri Jan-Dhan Yojana (PMJDY), launched in 2014, which aimed to provide zero-balance bank accounts to millions of unbanked citizens (Ghosh, 2024). A decade after its implementation, the PMJDY has facilitated the opening of over 0.5 billion bank accounts, with

women owning 60% of these accounts (The Economic Times, 2024). Bank account ownership among women in India has seen a remarkable rise, increasing from 26 percent in 2011 to 78 percent in 2021 (The Economic Times, 2024). Women are actively utilizing their PMJDY accounts to access transfers provided through various government initiatives (Ajayan, 2023). Apart from PMJDY, the 'Unified Payments Interface (UPI) for Her' initiative has played a pivotal role in enhancing women's digital financial service accessibility (NPCI & WWB, 2024). Approximately 30% of women utilize UPI for financial transactions (Gaur, 2023).

Health insurance is vital in reducing out-of-pocket healthcare expenditures and is a crucial financial tool against medical emergencies. According to NFHS-5 (2019-21), 29.8% of women aged 15-49 and 33.9% of men aged 15-54 are covered under a health insurance scheme. Among women with health insurance, 48.8% are covered under a state health insurance scheme, and 16.4% are covered under Rashtriya Swasthya Bima Yojana (RSBY). Around 3-6% of women are covered under the Employee State Insurance Scheme (ESIS) or the Central Government Health Scheme (CGHS). Additionally, around 1-2% of women utilize health insurance through their employers, community-based programs, or privately purchasing commercial health insurance (IIPS & ICF, 2022).

3.2. Financial Inclusion and IPV

According to the theories of intrahousehold bargaining (Farmer & Tiefenthaler, 1997; Tauchen et al., 1991), women's financial inclusion can reduce their probability of facing IPV by increasing their bargaining power within the household. These theories assume that IPV may persist because women receive compensatory transfers from their partners in exchange for tolerating violence. As women's economic status increases due to financial inclusion (Holloway et al., 2017), the implicit cost of violence rises because they demand larger transfers to endure the same level of violence. As men anticipate this increased cost, they are incentivized to reduce the level of violence within the relationship or risk its dissolution. (Roychowdhury & Dhamija, 2022). Moreover, financial inclusion can strengthen a woman's exit options by providing her with the resources to support herself outside the relationship (Bonilla et al., 2017) and enabling her to leave or present a credible threat to do so. Women's financial inclusion can also bolster the household's economic security (Hidrobo et al., 2016; Roy et al., 2019), reducing stress and potential conflicts that may lead to IPV (Buller et al., 2016).

On the contrary, women's financial inclusion can increase the risk of IPV if it is perceived as a challenge to traditional gender norms (McDougal et al., 2019), which assign "household chores and caregiving" as women's primary responsibilities (Eagly & Wood, 2016) and "breadwinner and provider for the family" as men's responsibility (Dhanaraj & Mahambare, 2022). This shift in economic dynamics may provoke a *male backlash* from partners who view women's financial autonomy as a threat to established gender identities and roles within the household (Jewkes, 2002; Weitzman, 2014). This line of argument aligns with Akerlof & Kranton's (2000, 2010) seminal work on the influence of social identity on economic outcomes. Akerlof & Kranton (2000) propose that individuals inherently belong to specific social categories and carry associated behavioral prescriptions. Deviation from these prescribed behaviors may incur significant social costs, as such violations can diminish the perceived value of others' social identity. In the context of this study, the relevant social categories are "man" and "woman," each associated with distinct behavioral norms and expectations.

Women's financial inclusion may inadvertently increase the risk of IPV by eliciting feelings of guilt among women who perceive their economic empowerment as a deviation from traditional gender norms. In Indian society, where caregiving and household responsibilities are considered a woman's primary roles (Eagly & Wood, 2016), financial inclusion can create internal conflicts, leading women to overcompensate for their perceived transgressions. This overcompensation may manifest as greater tolerance of violence from their partners as women attempt to "make up" for their financial autonomy by conforming to other patriarchal expectations. Dhanaraj & Mahambare (2022) describe this phenomenon as the "*female-guilt*" channel.

Additionally, women's financial inclusion could also increase IPV for *instrumental reasons*. The instrumental theories of violence (Anderberg & Rainer, 2013; Eswaran & Malhotra, 2011) provide an explanatory framework suggesting that men may resort to violence as a means of extracting financial resources from their partners (Bloch & Rao, 2002) or as a strategy to undermine their wives' labor market opportunities. The latter may stem from feelings of jealousy or insecurity regarding the potential interactions of their wives with other men in the workplace (Anderberg & Rainer, 2013; Eswaran & Malhotra, 2011). These theories postulate that financial inclusion for women—characterized by improved access to income-generating opportunities, credit, and savings—could inadvertently elevate their susceptibility to IPV.

Thus, the impact of women's financial inclusion on IPV remains theoretically unclear. On the one hand, financial inclusion may reduce IPV by enhancing women's bargaining power within the household and the household's economic security. On the other hand, it may exacerbate IPV due to violation of established gender norms, feelings of guilt among women, and husbands' instrumental use of IPV.

4. Data

Our analysis utilizes data from the fifth round of the National Family Health Survey (NFHS-5) conducted in India between June 2019 and April 2021. The NFHS is a nationally representative demographic and health survey that provides comprehensive information on population demographics, health, and nutrition across the country. Conducted by the International Institute for Population Sciences (IIPS), Mumbai, under the Ministry of Health and Family Welfare (MoHFW), Government of India, it forms a part of the global Demographic and Health Survey (DHS) program.³ The NFHS-5 covered 636,669 households from 707 districts in 28 states and 8 union territories of India. The sample was drawn using stratified random sampling (refer to IIPS & ICF (2022) for details on the survey methodology).

The NFHS-5 administered separate questionnaires to collect data from eligible women aged 15-49 and eligible men aged 15-54 in the sampled households. The questionnaires collected information on a wide range of topics, including background characteristics, reproduction, husband's background, women's empowerment, and domestic violence. However, questions on specific topics, including sexual behavior, domestic violence, and attitudes, were administered only to a subset of eligible women from households selected for the state module.⁴ Following World Health Organization guidelines for the ethical collection of domestic violence data, only one eligible woman per household was randomly selected for participation. The domestic violence module was administered to 72,320 women, ensuring their privacy during the survey.

Using the broad classification of the types of IPV from the NFHS data, we categorise women's exposure to IPV into three categories: physical, sexual, and emotional. Table A1 provides a detailed categorization of the various acts of violence classified under each type of IPV. Each

³ NFHS data is publicly accessible through the DHS website. See <https://dhsprogram.com/Countries/Country-Main.cfm?ctry>

⁴ A subsample comprising 15 percent of households was selected from the district sample for the implementation of the state module. Indicators included in the state module provide estimates at the state level (IIPS & ICF, 2022).

category of IPV is represented by a binary variable that takes a value of one if a woman reports experiencing at least one kind of underlying act of violence in the last twelve months and zero otherwise. We construct an additional indicator, any IPV, which takes a value of one if a woman reports experiencing at least one of the three types of IPV and zero otherwise. These indicators form the core set of outcome variables in our study.

The treatment variable, women's financial inclusion, is measured using a binary indicator based on women's utilization of financial services. Specifically, the treatment variable takes a value of one if a woman has at least one of the following: a bank account that she uses, a mobile phone that she uses for financial transactions, and is covered by health insurance. Otherwise, the variable takes a value of zero.

In addition to information on financial inclusion and types of IPV, we also incorporate data on state-level literacy rates and Gross State Domestic Product (GSDP) per capita, which are used as Monotone Instrument Variables (MIVs). Since this information is unavailable in the NFHS, we obtain state-level literacy rates from the Indian Census of 2011 and GSDP per capita (for 2018-19, measured at 2011-12 constant prices) from the directorate of economics and statistics of respective state governments.

Table 1 presents the summary statistics of all the variables used in the analysis and some background characteristics. Our analytical sample consists of 60,480 currently married women with non-missing and valid information on different categories of IPV and their financial inclusion status (Figure A1). Among these women, 22% have reported exposure to physical IPV, 5% have reported sexual IPV, 11.6% have reported emotional IPV, and 26% have reported exposure to any form of IPV in the past twelve months. The percentage of women who have a bank account that they use for themselves is 79.5%, those who possess and use a mobile phone for financial transactions is 10.5%, and those who are covered by health insurance is 30.9%. Overall, 84.6% of women are classified as financially included based on these three financial instruments. On average, women in our analytical sample are 34 years old and completed 6.7 years of schooling. The average age at marriage and number of living children are 18.5 years and 2.2, respectively. Around 30.22% of women report joint ownership of property, while 15.17% report sole ownership. Based on the household wealth index, 38.5% of women belong to the bottom two quintiles. Around 79% of women are Hindus, 71.7% are from backward social groups such as scheduled caste (SC), scheduled tribe (ST), and other

backward classes (OBC), 69.7% reside in rural areas, and 59.7% reside in southern, eastern or north-eastern states.

5. Empirical Framework

We focus on the partial identification of the ATE to examine the causal relationship between women's financial inclusion and their exposure to IPV. The ATE captures the impact of women's financial inclusion on IPV experienced by a randomly chosen woman from the entire population. We define the conditional ATE as follows:

$$ATE(1, 0 | X \in \Omega) = P[Y(1) = 1 | X \in \Omega] - P[Y(0) = 1 | X \in \Omega] \quad (1)$$

where Y represents the realized IPV outcome (which is binary in nature), $Y(1)$ denotes the potential IPV faced by a woman if the woman was financially included, $Y(0)$ denotes the corresponding outcome if the same woman was financially excluded, and $X \in \Omega$ denotes the observed covariates whose values lie in the set Ω . $Y = 1$ represents that the woman has experienced IPV in the last 12 months, and $Y = 0$ otherwise. Thus, the ATE indicates the difference in the average likelihood of facing IPV if all women were financially included compared to the average likelihood of facing IPV if all these women were financially excluded.

To simplify the notation, we suppress the conditioning on subpopulations of interest captured in X ($X \in \Omega$). In the traditional regression framework, researchers aim to "correctly" choose a set of control variables to ensure the exogeneity of the treatment variable. This approach often results in a considerable debate about omitting "important" confounding variables. In our approach, however, conditioning on the covariates only helps to define the subpopulations of interest as there are no regression orthogonality conditions to be satisfied (since we are not estimating a regression model). Regardless of how the subpopulations are specified, the problem remains well-defined (Pepper, 2000).

While evaluating the causal effect of women's financial inclusion on IPV, the primary identification problem lies in the counterfactual nature of potential outcomes. Specifically, the potential outcome $Y(1)$ is (unobserved) counterfactual for all women who are financially excluded, while $Y(0)$ is (unobserved) counterfactual for all women who are financially included. This is known as the *selection* problem; only one of two potential outcomes is

observed for any woman. We further explain this identification problem by the Law of Total Probability:

$$P[Y(1) = 1] = P[Y(1) = 1|F = 1]P(F = 1) + P[Y(1) = 1|F = 0]P(F = 0) \quad (2)$$

$$P[Y(0) = 1] = P[Y(0) = 1|F = 1]P(F = 1) + P[Y(0) = 1|F = 0]P(F = 0) \quad (3)$$

where $F = 1$ signifies that a woman is financially included, and $F = 0$ otherwise. Through the sampling process, we can identify $P(F = 1)$, $P(F = 0)$ and the conditional probability $P[Y(1) = 1|F = 1]$ in (2). However, the probability, $P[Y(1) = 1|F = 0]$, remains unidentifiable based on the observed data. Therefore, $P[Y(1) = 1]$ cannot be point-identified by the sampling process alone. Without additional information, this value could lie between 0 and 1. A similar result applies to $P[Y(0) = 1]$ in (3).

Given this identification problem, we derive bounds on the ATE based on minimal and transparent assumptions. To derive the bounds in the absence of nonparametric identification of the ATE, we rely on various assumptions concerning the nature of the selection process, as discussed below.

5.1. Assumption 1. *No Selection Assumption*

As an initial step, we estimate the bounds on the ATE of women's financial inclusion on their exposure to IPV without imposing any assumptions to address the selection problem. Manski (1995) refers to the bounds estimated using this approach as "worst-case bounds."

In the absence of any assumption addressing the selection into the treatment assignment, we can only assume that the missing counterfactuals $P[Y(1) = 1 | F = 0]$ and $P[Y(0) = 1 | F = 1]$ must lie within $[0, 1]$ since they represent latent probabilities. Using this information on missing counterfactuals in (2) and (3), we determine the bounds for the individual components of the ATE, $P[Y(1) = 1]$ and $P[Y(0) = 1]$, as follows:

$$P(Y = 1, F = 1) \leq P[Y(1) = 1] \leq P(Y = 1, F = 1) + P(F = 0) \quad (4)$$

$$P(Y = 1, F = 0) \leq P[Y(0) = 1] \leq P(Y = 1, F = 0) + P(F = 1) \quad (5)$$

The observed data can determine each of the terms in these bounds. We can obtain a sharp upper bound on the ATE by calculating the difference between the upper bound on $P[Y(1) = 1]$ in (4) and the lower bound on $P[Y(0) = 1]$ in (5). Similarly, the difference between the lower bound on $P[Y(1) = 1]$ and the upper bound on $P[Y(0) = 1]$ gives the sharp lower bound on the ATE as follows:

$$UB_{ATE} = P(Y = 1, F = 1) + P(F = 0) - P(Y = 1, F = 0) \quad (6)$$

$$LB_{ATE} = P(Y = 1, F = 1) - P(Y = 1, F = 0) - P(F = 1) \quad (7)$$

However, these bounds have a width that equals unity and includes zero. Hence, in this scenario, we cannot identify the sign of the ATE without invoking assumptions on the selection mechanism. To be able to make any meaningful inference and tighten the bounds on the ATE, we assess the identifying power of two types of fairly weak monotonicity assumptions: monotone treatment selection (MTS) and a monotone instrumental variable (MIV) restriction.

5.2. Assumption 2. Monotone Treatment Selection (MTS)

The MTS assumption (Manski & Pepper, 2000) imposes structure on the selection mechanism. To be more precise, it assumes that the expected potential outcomes move in a particular direction conditional on the treatment assignment (i.e., when individuals are compared across the treatment as well as the control group). In our analysis, we assume that financially excluded women are potentially more likely to experience IPV compared to financially included women, conditional on the treatment assignment (i.e., holding the treatment status fixed). More formally:

$$P[Y(1) = 1 \mid F = 1] \leq P[Y(1) = 1 \mid F = 0] \quad (8)$$

$$P[Y(0) = 1 \mid F = 1] \leq P[Y(0) = 1 \mid F = 0] \quad (9)$$

Before delving into the justification of the MTS assumption, it is necessary to clarify an apparent contradiction. At first glance, the MTS assumption might seem somewhat inconsistent

with the theoretical framework proposed in Section 3.2. However, this is not the case. The theory posits that financially included women could have a higher *actual* likelihood of IPV compared to financially excluded women, owing to their differing treatment statuses (i.e., financial exclusion versus inclusion). This is essentially a prediction about the impact of a *change in a woman's treatment status* (from financial exclusion to inclusion) on her *actual outcome* (exposure to IPV). In contrast, the MTS assumption suggests that, in terms of *potential outcomes*, women in the control group (financially excluded) are inherently more likely to face IPV than their counterparts in the treatment group (financially included), *holding treatment status constant*.

The MTS assumption is reasonable in our context because financially excluded women are likely to be disadvantaged across several economic, social, and demographic characteristics compared to financially included women. For instance, we find that financially excluded women tend to have lower educational attainment and marry at a younger age compared to financially included women (see Table A2 in the Appendix). These disadvantages are more likely to leave them with lower options outside of marriage to sustain themselves and, therefore, decrease their likelihood of leaving an abusive relationship (Erten & Keskin, 2018). Moreover, Farmer & Tiefenthaler (1997) demonstrate that reduction in women's options outside of marriage and their likelihood of exiting an abusive relationship is positively associated with the exposure to IPV. Therefore, financially excluded women, *conditional on treatment status*, are potentially more likely to face IPV than financially included women.

In addition to disadvantages in observed socioeconomic factors such as education and age at marriage, financially excluded women are also likely to face significant disadvantages in unobserved attributes. Research indicates that unobserved abilities and personality traits, including motivation and confidence—often categorized as non-cognitive skills—are positively associated with financial literacy (Pinjisakikool, 2017). Given that financially excluded women tend to have lower levels of financial literacy, it is plausible that they are similarly disadvantaged in these unobserved traits (Eckhoff et al., 2019). Importantly, lower levels of unobserved ability are associated with a higher likelihood of experiencing IPV, as women with these attributes may be more resistant to abusive relationships and better equipped to navigate challenging circumstances (Cherrier et al., 2023). Hence, it is likely that disadvantages in terms of these unobserved attributes would cause financially excluded

women, *conditional on treatment status*, to be potentially more likely to face IPV than financially included women.

Additionally, in comparison to financially included women, financially excluded women are more likely to belong to patriarchal households (Eckhoff et al., 2019), where women's financial inclusion contradicts societal gender norms (McDougal et al., 2019). Women coming from such patriarchal backgrounds are more likely to face IPV because "such violence by men may even be considered legitimate" (Sultana, 2010) in patriarchal societies. The prevalence of patriarchal norms is likely to exacerbate women's vulnerability to IPV due to extortionary reasons as well. Households characterized by heightened patriarchy often perpetuate the perception of women as economic liabilities, resulting in sustained demands for monetary or in-kind transfers even after marriage (Bloch & Rao, 2002). The literature highlights a positive correlation between these demands and IPV exposure (Naved & Persson, 2010). Given that financially excluded women are more likely to belong to patriarchal households than financially included women, these two explanations also suggest that financially excluded women, *conditional on treatment status*, face a significantly higher risk of IPV than their financially included counterparts.

Under the MTS assumption, the bounds on the ATE are estimated following Manski & Pepper (2000) and Kreider et al. (2012).

$$UB_{ATE} = P(Y = 1, F = 1) - P(Y = 1, F = 0) + P(F = 0) \quad (10)$$

$$LB_{ATE} = \frac{P(Y = 1, F = 1)}{P(F = 1)} - \frac{P(Y = 1, F = 0)}{P(F = 0)} \quad (11)$$

5.3. Assumption 3. Monotone Instrumental Variable (MIV)

Next, we use MIV to further tighten the bounds of ATE. As described by Millimet & Roy (2015), a MIV differs fundamentally from a conventional instrumental variable. Unlike traditional instrumental variables, a valid MIV must satisfy only one condition: that *potential* outcomes exhibit monotonic variation with respect to the variable employed as the MIV (Manski & Pepper, 2000). Formally, the MIV assumption imposes the following structure (Kreider et al., 2012):

$$P[Y(1) = 1 | v = u_2] \leq P[Y(1) = 1 | v = u] \leq P[Y(1) = 1 | v = u_1] \quad (12)$$

$$P[Y(0) = 1 | v = u_2] \leq P[Y(0) = 1 | v = u] \leq P[Y(0) = 1 | v = u_1] \quad (13)$$

Where v represents the MIV and $u_1 < u < u_2$. In simpler words, lower values of v are associated with adverse potential outcomes.

Following Roychowdhury & Dhamija (2022), we use two alternative MIVs, i.e., MIV1 as the literacy rate and MIV2 as the gross state domestic product (GSDP) per capita (measured at constant prices) of the woman's state of residence. High literacy rates and GSDP per capita indicate greater economic development in the state. By fostering improved governance, strengthening the criminal justice system, and diminishing patriarchal norms, such development is likely to reduce the probability of IPV against women, regardless of their financial inclusion status.

Following Proposition 1 from Manski & Pepper (2000), the joint MTS-MIV assumption implies

$$\sup_{u_2 \geq u} LB(u_2) \leq P[Y(t) = 1 | v = u] \leq \inf_{u_1 \leq u} UB(u_1), t = 0, 1 \quad (14)$$

where $UB(u)$ and $LB(u)$ represent the upper and lower bounds of the individual components of the ATE derived under the MTS assumption assessed conditional on $v = u$.

In practice, we divide the sample into five roughly equally sized cells based on the MIV values. Subsequently, for each cell, we calculate the MTS bounds for $P[Y(1) = 1]$ and $P[Y(0) = 1]$. Following Corollary 1 of Proposition 1 in Manski & Pepper (2000), we derive joint MTS-MIV bounds on the individual components of the ATE by computing weighted averages of the UB and LB across these five cells. After obtaining bounds for the individual components of ATE using this method, we estimate the sharp bounds of the ATE based on the MTS-MIV assumption. Since the MIV estimator is biased in finite samples (Manski & Pepper, 2000), we use a nonparametric finite sample bias-corrected MIV estimator (Kreider & Pepper, 2007) to address this concern. Moreover, we report the Imbens & Manski (2004) 95% confidence intervals along with presenting the bounds to address the uncertainty that may stem from sampling variability (Kreider et al., 2012).

6. Results

6.1. Main Results

The main empirical results for ATE of women's financial inclusion on their exposure to IPV are presented in Figure 1. The results are displayed across four different graphs, each representing a distinct category of IPV: physical, sexual, emotional, and any IPV. Each graph reports sharp bounds on the ATE and 95% confidence intervals (Imbens & Manski 2004) based on various assumptions about the selection process. Specifically, the ATE and confidence intervals are reported under no selection assumption (i.e., the worst-case bounds), under the MTS assumption, under the combined assumption of MTS and MIV1, and then under the combined assumption of MTS and MIV2.

The following findings can be noted in Figure 1. First, without imposing any assumptions regarding the selection process, as discussed in Section 5, the bounds have a width of one and necessarily include zero. Under this no-selection assumption, the bounds on the ATE of women's financial inclusion on their exposure to physical IPV are $[-0.710, 0.290]$, on sexual IPV are $[-0.830, 0.170]$, and on emotional IPV are $[-0.789, 0.211]$. Thus, these bounds help in excluding a considerable range of values of the ATE, especially in the positive domain.

Second, the MTS assumption helps in tightening the bounds of the ATE. The bounds obtained under MTS are significantly narrower than the bounds obtained without any assumption regarding the selection process. With the imposition of MTS, the bounds on the ATE of women's financial inclusion on their exposure to physical IPV shrink from $[-0.710, 0.290]$ to $[-0.009, 0.290]$. Similarly, under MTS assumption, the bounds on the ATE of women's financial inclusion on their exposure to sexual IPV shrink from $[-0.830, 0.170]$ to $[-0.008, 0.170]$, and for emotional IPV, the bounds reduce from $[-0.789, 0.211]$ to $[-0.018, 0.211]$. The MTS assumption helps tighten the bounds, but we are unable to determine the sign of the ATEs. We cannot say whether women's financial inclusion increases or decreases their likelihood of exposure to IPV.

Third, the imposition of the MIV restrictions, combined with the MTS assumption, helps further tighten the bounds. For both MIV1 and MIV2 (imposed in addition to MTS), the estimated bounds on all the ATEs are now strictly positive, with the 95% confidence interval excluding zero. Specifically, under MIV1, the bounds on the ATE of women's financial inclusion on their exposure to physical IPV are $[0.085, 0.234]$, on sexual IPV are $[0.019, 0.136]$,

on emotional IPV are [0.029, 0.160]; and on any IPV are [0.078, 0.255]. Similar results are observed when MIV2 is used in place of MIV1. From the MTS-MIV bounds, we can now clearly claim that a woman's financial inclusion increases her likelihood of experiencing all categories of IPV used in our analysis.

Overall, from our results, we can infer that women's financial inclusion significantly increases their exposure to IPV. To explain the importance of the magnitude of this effect, we focus on the bounds of ATE of women's financial inclusion on their exposure to any IPV under the combined MTS-MIV assumption. Under MTS and MIV1 assumption, the bounds on the ATE for women's financial inclusion indicate that women's use of a bank account, mobile money, or access to health insurance increases their likelihood of exposure to any IPV by at least 7.8 percentage points (p.p.). Similarly, under MTS and MIV2, the bounds on the ATE show that women's financial inclusion increases their exposure to any IPV by 12.4 p.p. Considering that these figures represent only the lower bound of the actual ATE, our findings strongly imply that women's financial inclusion results in a severe increase in IPV. This finding is broadly consistent with those of Bulte & Lensink (2019), Dhanaraj & Mahambare (2022), and McDougal et al. (2019), all of which suggest that an increase in women's economic autonomy increases their risk of facing IPV.

We carry out a series of multiple checks to assess the robustness of our results (Tables A4-A8 and Figure A2). To examine the effect of women's financial inclusion on IPV across different subsamples, we cut our analytical sample in several ways and estimate the bounds for each subsample (Tables A10-A20). Due to the brevity of space, a detailed discussion of the robustness checks and heterogeneity analysis is provided in the Appendix.

6.2. Mechanisms

Our results show that women's financial inclusion increases their likelihood of exposure to IPV. In this section, we examine the potential channels through which this effect might be operating, namely, (a) the likelihood of violating patriarchal norms about gender roles, (b) the likelihood of women suffering from the guilt of not conforming to their traditional gender identities, and (c) the likelihood of husbands displaying behaviors that might lead to IPV due to instrumental use of violence.

6.2.1. Violation of Patriarchal Norms about Gender Roles

Traditional patriarchal beliefs uphold the notion of male dominance, positioning men as the primary breadwinners while relegating women to roles centered on childbearing, caregiving, and economic dependency within the household (Dhanaraj & Mahambare, 2022; Eagly & Wood, 2016). Women's use of financial instruments, such as bank accounts, mobile money, and coverage of health insurance, could lead to the violation of patriarchal norms and expectations regarding gender roles. This disruption can generate stress and tension among married couples, potentially leading to an increased risk of IPV as a form of male backlash against shifting intrahousehold power dynamics.

We explore this potential channel by estimating the ATE of women's financial inclusion on three binary variables, each indicating whether patriarchal gender norms are violated in a specific type of decision-making. These variables are violations of norms regarding the purchase of large household goods, visiting relatives/family, and deciding how the wife's earnings should be spent. Each indicator of patriarchal gender norm violation takes a value of one if the husband reports to believe that he alone should have the final say in a particular decision, but in reality, the decision is made by the woman alone or jointly by the husband and woman, and zero otherwise (see Table A3 in the Appendix for the summary statistics).

Patriarchal gender norms dictate that men should be the sole decision-makers. Therefore, a value of one for a given patriarchal norm violation variable signifies that, although the woman's husband aims to adhere to these norms for that specific decision-making, in reality, the norm is actually violated within the household. Conversely, a value of zero indicates either that the husband does not intend to follow these gender norms (where the violation of norms becomes irrelevant) or that these are not violated.

Figure 2 displays the results of the impact of women's financial inclusion on the violation of patriarchal norms about gender roles. Our findings, derived from the combined MTS-MIV assumptions, suggest that women's financial inclusion increases the probability of violation of patriarchal norms about gender roles for all three decisions. Specifically, under MTS and MIV1 (MIV2) assumption, the bounds on the ATE reveal that women's financial inclusion increases the likelihood of violation of patriarchal gender norms regarding decisions on purchase of large household goods by at least 2.9 p.p. (3 p.p.), regarding decisions on visiting family/relatives by at least 4.6 p.p. (5.3 p.p.), and regarding decisions on spending of wife's earnings by at least 5.1 p.p. (3.1 p.p.). These findings suggest that women's financial inclusion leads to the violation of patriarchal gender norms.

6.2.2. Female Guilt

Another potential mechanism underlying the effects we observe is a sense of guilt among financially included women. The utilization of financial instruments may induce feelings of guilt in women for deviating from traditional gender identities. As a result, they may attempt to compensate for this perceived transgression by rationalizing IPV and increasing their sexual submission to their partners, thereby heightening their exposure to IPV.

We examine the female guilt channel by estimating the ATE of women's financial inclusion on their likelihood of justifying physical IPV and justifying the wife's sexual submission to the husband. A woman's justification of physical IPV takes a value of one if she agrees that her husband is justified in beating his wife in at least one of the seven circumstances: she goes out without telling him, neglects the house or the children, argues with him, refuses to have sex with him, doesn't cook food properly, shows disrespect for her in-laws, and husband suspects her of being unfaithful. Otherwise, the variable takes a value of zero. Meanwhile, women's justification of sexual submission to the husband takes a value of one if she justifies that a wife should have sex with her husband even if she knows he has a sexually transmitted disease or he has sex with other women, or she is tired or not in the mood. Otherwise, the variable takes a value of zero.

Figure 3 illustrates the impact of women's financial inclusion on female guilt. Our findings, derived from the combined MTS-MIV assumptions, suggest that women's financial inclusion increases the likelihood of women suffering from a sense of guilt for not conforming to their traditional gendered identities. Specifically, under MTS and MIV1 (MIV2) assumption, the bounds on the ATE reveal that women's financial inclusion increases the likelihood of women justifying physical IPV by at least 6.8 p.p. (8.7 p.p.) and wife's sexual submission to the husband by at least 1.9 p.p. (3.5 p.p.).

6.2.3. Instrumental Use of IPV

With increased financial inclusion, women are more likely to gain access to savings and credit and, hence, more likely to participate in the labor market (Swamy, 2014; Yang et al., 2022;). However, according to the instrumental theories of violence (Anderberg & Rainer, 2013; Eswaran & Malhotra, 2011), men may employ IPV as a strategic tool either to extract financial

resources from their wives or to hinder their labor market participation. The latter, also classified as *economic abuse* (Anderberg & Rainer, 2013), may stem from feelings of jealousy or insecurity regarding the prospect of their wives interacting with other men in the workplace. Consequently, if IPV serves these instrumental purposes, women's financial inclusion may paradoxically increase IPV, as it enhances their access to financial resources and/or their likelihood of labor market engagement.

We examine this potential channel of instrumental use of IPV by estimating the ATE of women's financial inclusion on various indicators capturing husbands' marital controlling behavior. These variables could potentially act as factors perpetuating IPV due to instrumental reasons. These include the husband exerting full control over their wife's earnings, feeling jealous if the wife talks with other men, accusing the wife of unfaithfulness, and insisting on knowing the wife's whereabouts. Each of these variables is binary. A given variable takes a value of one if the woman confirms the action related to the statement and zero otherwise.

The estimated bounds on the ATE of women's financial inclusion on husbands' controlling behaviors that may exacerbate IPV due to instrumental reasons are depicted in Figure 4. Our findings reveal that these bounds under the MTS-MIV1 and MTS-MIV2 assumptions are positive for all the outcomes. However, the bounds on the ATE of financial inclusion for husbands extracting wives' earnings are statistically insignificant. These findings suggest that financial inclusion significantly increases husbands' feelings of jealousy, the likelihood of accusing their wives of infidelity, and their tendency to monitor their wives' movements. These controlling behaviors, likely to stem from jealousy and insecurity, may create barriers for their wives to utilize these financial instruments and participate in the labor market. These results suggest that women's financial inclusion may increase their exposure to IPV through changes in husbands' likelihood of using IPV as a strategic tool to thwart their access to financial resources or labor market opportunities.

7. Conclusion

This study examines the causal impact of women's financial inclusion on their exposure to IPV. In theory, the effect could be either negative or positive. Compared to financially excluded women, those with access to and control over financial instruments may have greater intrahousehold bargaining power and a stronger ability to exit abusive relationships, thereby

mitigating their risk of IPV. Conversely, financially included women may face a heightened risk of IPV due to their deviation from patriarchal gender norms, the psychological burden of *female guilt* (Dhanaraj & Mahambare, 2022), or their husband's strategic use of IPV as a means to extract financial resources or undermine their labor market opportunities.

To examine the causal relationship between women's financial inclusion and their exposure to IPV, we use the NFHS-5 data and employ a nonparametric bounds approach. Relying on fairly weak and transparent assumptions to achieve causal identification, we find clear evidence that, compared to financially excluded women, financially included women are significantly more likely to face IPV. Further, we provide suggestive evidence that this result emerges because financially included women are more likely to violate patriarchal gender beliefs, experience female guilt, and face a higher likelihood of their husbands using IPV as a strategic tool to undermine their labor market opportunities.

In societies like India, where divorce is stigmatized, and girls are psychologically conditioned to adopt caregiving roles within the family, women's financial independence may increase their risk of IPV (Bueno & Henderson, 2017; Dhanaraj & Mahambare, 2022;). Under such cultural constraints, financial autonomy may be less effective in enhancing women's bargaining power (Kabeer, 2001). Instead, husbands may respond with a *male backlash* to reassert their dominance and control over their wives. Moreover, financially included women may experience a gender identity crisis, leading them to internalize feelings of *female guilt* and attach shame to their pursuit of economic stability. Consequently, these women may be more likely to justify IPV, further increasing their vulnerability to IPV.

Our results highlight the challenges policymakers face in patriarchal societies like India, where increased access to financial instruments may inadvertently heighten women's risk of IPV. However, our findings do not diminish the importance of welfare policies empowering women through financial inclusion. Instead, they underscore the need for complementary interventions that address non-economic factors leading to IPV, such as deeply entrenched gender norms, societal beliefs, and the stigma associated with deviating from traditional gender roles.

Programs aiming at women's financial inclusion should also incorporate awareness campaigns and community engagement initiatives to reshape gender norms. Working with men, especially husbands, to foster more equitable household dynamics could effectively reduce male backlash. Recent research suggests that policy measures targeting gender biases from an early age can

be highly effective. Strategies such as engaging adolescent girls and boys in classroom discussions on gender equality (Dhar et al., 2022), facilitating interactions with female role models (Kipchumba et al., 2021), and leveraging entertainment television to shift social perceptions (Banerjee et al., 2019) offer promising approaches to foster change in beliefs about traditional gender roles.

References

1. Acerenza, S. (2024). Partial Identification of Marginal Treatment Effects with Discrete Instruments and Misreported Treatment*. *Oxford Bulletin of Economics and Statistics*, 86(1), 74–100. <https://doi.org/10.1111/obes.12581>
2. Aizer, A. (2010). The gender wage gap and domestic violence. *American Economic Review*, 100(4), 1847–1859. <https://doi.org/DOI: 10.1257/aer.100.4.1847>
3. Ajayan, K. (2023). How banks can enable women's financial inclusion. *The Times of India*. <https://timesofindia.indiatimes.com/blogs/developing-contemporary-india/how-banks-can-enable-womens-financial-inclusion/>
4. Akerlof, G. A., & Kranton, R. E. (2000). Economics and Identity*. *The Quarterly Journal of Economics*, 115(3), 715–753. <https://doi.org/10.1162/003355300554881>
5. Akerlof, G. A., & Kranton, R. E. (2010). *Identity Economics: How Our Identities Shape Our Work, Wages, and Well-Being*. Princeton University Press. <https://doi.org/10.1515/9781400834181>
6. Akyol, P., & Kırdar, M. G. (2022). Compulsory schooling reform and intimate partner violence in Turkey. *European Economic Review*, 150, 104313. <https://doi.org/10.1016/j.eurocorev.2022.104313>
7. Amaral, S., & Bhalotra, S. R. (2017). *Population sex ratios and violence against women: The long-run effects of sex selection in India*. ISER Working Paper Series. <https://hdl.handle.net/10419/200361>
8. Anderberg, D., & Rainer, H. (2013). Economic abuse: A theory of intrahousehold sabotage. *Journal of Public Economics*, 97, 282–295. <https://doi.org/10.1016/j.jpubeco.2012.10.008>

9. Anderberg, D., Rainer, H., Wadsworth, J., & Wilson, T. (2016). Unemployment and domestic violence: Theory and evidence. *The Economic Journal*, 126(597), 1947–1979. <https://doi.org/10.1111/ecoj.12246>
10. Banerjee, A., Ferrara, E. L., & Orozco, V. (2019). Entertainment, Education, and Attitudes Toward Domestic Violence. *AEA Papers and Proceedings*, 109, 133–137. <https://doi.org/10.1257/pandp.20191073>
11. Bhukta, R., Pakrashi, D., Saha, S., & Sedai, A. (2024). Community electrification and women's autonomy. *Energy Economics*, 137, 107792. <https://doi.org/10.1016/j.eneco.2024.107792>
12. Bhukta, R., Jha, C. K., Joshi, S., & Sedai, A. K. (2025). Does bank expansion reduce domestic violence? Causal evidence from India. *Journal of Economic Behavior & Organization*, 231, 106933. <https://doi.org/10.1016/j.jebo.2025.106933>
13. Birkenmaier, J., Despard, M., Friedline, T., & Huang, J. (2019). Financial Inclusion and Financial Access. In *Encyclopedia of Social Work*. <https://oxfordre.com/socialwork/display/10.1093/acrefore/9780199975839.001.0001/acrefore-9780199975839-e-1331>
14. Bloch, F., & Rao, V. (2002). Terror as a bargaining instrument: A case study of dowry violence in rural India. *American Economic Review*, 92(4), 1029–1043. <https://doi.org/DOI: 10.1257/00028280260344588>
15. Bobonis, G. J., González-Brenes, M., & Castro, R. (2013). Public transfers and domestic violence: The roles of private information and spousal control. *American Economic Journal: Economic Policy*, 5(1), 179–205. <https://doi.org/DOI: 10.1257/pol.5.1.179>
16. Bonilla, J., Zarzur, R. C., Handa, S., Nowlin, C., Peterman, A., Ring, H., & Seidenfeld, D. (2017). Cash for Women's Empowerment? A Mixed-Methods Evaluation of the Government of Zambia's Child Grant Program. *World Development*, 95, 55–72. <https://doi.org/10.1016/j.worlddev.2017.02.017>
17. Bueno, C. C., & Henderson, E. A. (2017). Bargaining or Backlash? Evidence on Intimate Partner Violence from the Dominican Republic. *Feminist Economics*, 23(4), 90–116. <https://doi.org/10.1080/13545701.2017.1292360>
18. Buller, A. M., Hidrobo, M., Peterman, A., & Heise, L. (2016). The way to a man's heart is through his stomach?: A mixed methods study on causal mechanisms through which cash and in-kind food transfers decreased intimate partner violence. *BMC Public Health*, 16, 1–13.

19. Bulte, E., & Lensink, R. (2019). Women's empowerment and domestic abuse: Experimental evidence from Vietnam. *European Economic Review*, 115, 172–191.
20. Campbell, J. C. (2002). Health consequences of intimate partner violence. *The Lancet*, 359(9314), 1331–1336. [https://doi.org/10.1016/S0140-6736\(02\)08336-8](https://doi.org/10.1016/S0140-6736(02)08336-8)
21. Cherrier, C., Courtois, R., Rusch, E., & Potard, C. (2023). Self-Esteem, Social Problem Solving and Intimate Partner Violence Victimization in Emerging Adulthood. *Behavioral Sciences*, 13(4), Article 4. <https://doi.org/10.3390/bs13040327>
22. Cygan-Rehm, K., Kühnle, D., & Oberfichtner, M. (2017). *Bounding the Causal Effect of Unemployment on Mental Health: Nonparametric Evidence from Four Countries*.
23. Dandona, R., Gupta, A., George, S., Kishan, S., & Kumar, G. A. (2022). Domestic violence in Indian women: Lessons from nearly 20 years of surveillance. *BMC Women's Health*, 22(1), 1–14.
24. de Haan, M. (2011). The Effect of Parents' Schooling on Child's Schooling: A Nonparametric Bounds Analysis. *Journal of Labor Economics*, 29(4), 859–892. <https://doi.org/10.1086/660798>
25. Demirgüç-Kunt, A., Klapper, L., & Singer, D. (2017). *Financial Inclusion and Inclusive Growth: A Review of Recent Empirical Evidence* (No. 8040; Policy Research Working Papers). World Bank, Washington, DC. <https://doi.org/10.1596/1813-9450-8040>
26. Demirgüç-Kunt, A., Klapper, L., Singer, D., & Ansar, S. (2022). *The Global Findex Database 2021: Financial Inclusion, Digital Payments, and Resilience in the Age of COVID-19*. World Bank. <https://doi.org/10.1596/978-1-4648-1897-4>
27. Dhamija, G., Roychowdhury, P., & Shankar, B. (2025). Does urbanization empower women? Evidence from India. *Journal of Population Economics*, 38(1), 27. <https://doi.org/10.1007/s00148-025-01085-4>
28. Dhanaraj, S., & Mahambare, V. (2022). Male backlash and female guilt: Women's employment and intimate Partner Violence in Urban India. *Feminist Economics*, 28(1), 170–198. <https://doi.org/10.1080/13545701.2021.1986226>
29. Dhar, D., Jain, T., & Jayachandran, S. (2022). Reshaping Adolescents' Gender Attitudes: Evidence from a School-Based Experiment in India. *American Economic Review*, 112(3), 899–927. <https://doi.org/10.1257/aer.20201112>
30. Dickson, A., Jennings, C., & Koop, G. (2016). Domestic violence and football in Glasgow: Are reference points relevant? *Oxford Bulletin of Economics and Statistics*, 78(1), 1–21.

31. Eagly, A. H., & Wood, W. (2016). Social Role Theory of Sex Differences. In *The Wiley Blackwell Encyclopedia of Gender and Sexuality Studies* (pp. 1–3). John Wiley & Sons, Ltd. <https://doi.org/10.1002/9781118663219.wbegss183>
32. Eckhoff, S., Kibombo, G. M., Natukunda, M. M., Pennotti, C., & Vandergaag, K. (2019). What works to increase financial inclusion and women's financial autonomy? Intentional designs showing promise. *Development in Practice*, 29(8), 974–987.
33. Ellsberg, M., Jansen, H. A., Heise, L., Watts, C. H., & Garcia-Moreno, C. (2008). Intimate partner violence and women's physical and mental health in the WHO multi-country study on women's health and domestic violence: An observational study. *The Lancet*, 371(9619), 1165–1172.
34. Erten, B., & Keskin, P. (2018). For better or for worse?: Education and the prevalence of domestic violence in turkey. *American Economic Journal: Applied Economics*, 10(1), 64–105. <https://doi.org/DOI: 10.1257/app.20160278>
35. Erten, B., & Keskin, P. (2021). Female employment and intimate partner violence: Evidence from Syrian refugee inflows to Turkey. *Journal of Development Economics*, 150, 102607.
36. Eswaran, M., & Malhotra, N. (2011). Domestic violence and women's autonomy in developing countries: Theory and evidence. *Canadian Journal of Economics/Revue Canadienne d'économie*, 44(4), 1222–1263. <https://doi.org/10.1111/j.1540-5982.2011.01673.x>
37. Farmer, A., & Tiefenthaler, J. (1997). An economic analysis of domestic violence. *Review of Social Economy*, 55(3), 337–358.
38. Fearon, J., & Hoeffler, A. (2014). *Benefits and Costs of the Conflict and Violence Targets for the Post-2015 Development Agenda*.
39. Garcia-Moreno, C., Jansen, H. A., Ellsberg, M., Heise, L., & Watts, C. H. (2006). Prevalence of intimate partner violence: Findings from the WHO multi-country study on women's health and domestic violence. *The Lancet*, 368(9543), 1260–1269.
40. Gaur, V. (2023, May 25). UPI use among women low, assisted onboarding can drive uptake: GPay's Arati Deo. *The Economic Times*. <https://economictimes.indiatimes.com/industry/banking/finance/upi-use-among-women-low-assisted-onboarding-can-drive-uptake-gpays-arati-deo/articleshow/100497224.cms?from=mdr>
41. Ghosh, S. K. (2024, August 28). PM Jan Dhan Yojana has accelerated financial inclusion, reduced inequalities. *The Indian Express*.

- <https://indianexpress.com/article/opinion/columns/pm-jan-dhan-yojana-has-accelerated-financial-inclusion-reduced-inequalities-9536553/>
42. González, L., & Rodríguez-Planas, N. (2020). Gender norms and intimate partner violence. *Journal of Economic Behavior & Organization*, 178, 223–248.
<https://doi.org/10.1016/j.jebo.2020.07.024>
 43. Guarnieri, E., & Rainer, H. (2021). Colonialism and female empowerment: A two-sided legacy. *Journal of Development Economics*, 151, 102666.
<https://doi.org/10.1016/j.jdeveco.2021.102666>
 44. Gundersen, C., & Kreider, B. (2009). Bounding the effects of food insecurity on children's health outcomes. *Journal of Health Economics*, 28(5), 971–983.
<https://doi.org/10.1016/j.jhealeco.2009.06.012>
 45. Gundersen, C., Kreider, B., & Pepper, J. (2012). The impact of the National School Lunch Program on child health: A nonparametric bounds analysis. *Journal of Econometrics*, 166(1), 79–91. <https://doi.org/10.1016/j.jeconom.2011.06.007>
 46. Gunderson, C., & Kreider, B. (2008). Food Stamps and Food Insecurity: What Can Be Learned in the Presence of Non-Classical Measurement Error? *Journal of Human Resources*, 43(2), 352–382. <https://doi.org/10.3368/jhr.43.2.352>
 47. Hidrobo, M., & Fernald, L. (2013). Cash transfers and domestic violence. *Journal of Health Economics*, 32(1), 304–319. <https://doi.org/10.1016/j.jhealeco.2012.11.002>
 48. Hidrobo, M., Peterman, A., & Heise, L. (2016). The Effect of Cash, Vouchers, and Food Transfers on Intimate Partner Violence: Evidence from a Randomized Experiment in Northern Ecuador. *American Economic Journal: Applied Economics*, 8(3), 284–303.
<https://doi.org/10.1257/app.20150048>
 49. Holloway, K., Niazi, Z., & Rouse, R. (2017). Women's economic empowerment through financial inclusion: A review of existing evidence and remaining knowledge gaps. *Innovations for Poverty Action*.
 50. Huber, M., & Mellace, G. (2015). Sharp Bounds on Causal Effects under Sample Selection. *Oxford Bulletin of Economics and Statistics*, 77(1), 129–151.
<https://doi.org/10.1111/obes.12056>
 51. IIPS, & ICF. (2022). *National Family Health Survey (NFHS-5), 2019-21*. International Institute for Population Sciences (IIPS), Mumbai, India.
 52. Imbens, G. W., & Manski, C. F. (2004). Confidence intervals for partially identified parameters. *Econometrica*, 72(6), 1845–1857.

53. Iregui-Bohórquez, A. M., Ramírez-Giraldo, M. T., & Tribín-Urbe, A. M. (2019). Domestic violence against rural women in Colombia: The role of labor income. *Feminist Economics*, 25(2), 146–172.
54. Jewkes, R. (2002). Intimate partner violence: Causes and prevention. *The Lancet*, 359(9315), 1423–1429. [https://doi.org/10.1016/S0140-6736\(02\)08357-5](https://doi.org/10.1016/S0140-6736(02)08357-5)
55. Kabeer, N. (2001). Conflicts Over Credit: Re-Evaluating the Empowerment Potential of Loans to Women in Rural Bangladesh. *World Development*, 29(1), 63–84. [https://doi.org/10.1016/S0305-750X\(00\)00081-4](https://doi.org/10.1016/S0305-750X(00)00081-4)
56. Kipchumba, E. K., Porter, C., Serra, D., & Sulaiman, M. (2021). *Influencing youths' aspirations and gender attitudes through role models: Evidence from Somali schools*.
57. Kreider, B., & Pepper, J. (2008). Inferring disability status from corrupt data. *Journal of Applied Econometrics*, 23(3), 329–349. <https://doi.org/10.1002/jae.979>
58. Kreider, B., & Pepper, J. V. (2007). Disability and employment: Reevaluating the evidence in light of reporting errors. *Journal of the American Statistical Association*, 102(478), 432–441.
59. Kreider, B., Pepper, J. V., Gundersen, C., & Jolliffe, D. (2012). Identifying the effects of SNAP (food stamps) on child health outcomes when participation is endogenous and misreported. *Journal of the American Statistical Association*, 107(499), 958–975.
60. Lomborg, B., & Williams, M. A. (2018, February 22). Opinion | The cost of domestic violence is astonishing. *Washington Post*. https://www.washingtonpost.com/opinions/the-cost-of-domestic-violence-is-astonishing/2018/02/22/f8c9a88a-0cf5-11e8-8b0d-891602206fb7_story.html
61. Mariotti, M., & Meinecke, J. (2015). Partial Identification and Bound Estimation of the Average Treatment Effect of Education on Earnings for South Africa. *Oxford Bulletin of Economics and Statistics*, 77(2), 210–233. <https://doi.org/10.1111/obes.12059>
62. Manski, C. F. (1995). *Identification problems in the social sciences*. Harvard University Press.
63. Manski, C. F., & Pepper, J. V. (2000). Monotone Instrumental Variables with an Application to the Returns to Schooling. *Econometrica*. <https://doi.org/10.3386/t0224>
64. McDougal, L., Klugman, J., Dehingia, N., Trivedi, A., & Raj, A. (2019). Financial inclusion and intimate partner violence: What does the evidence suggest? *PLoS One*, 14(10), e0223721.
65. Millimet, D. L., & Roy, M. (2015). Partial identification of the long-run causal effect of food security on child health. *Empirical Economics*, 48, 83–141.

66. Mogford, E. (2011). When status hurts: Dimensions of women's status and domestic abuse in rural Northern India. *Violence against Women*, 17(7), 835–857.
67. Molinari, F. (2008). Partial identification of probability distributions with misclassified data. *Journal of Econometrics*, 144(1), 81–117.
<https://doi.org/10.1016/j.jeconom.2007.12.003>
68. Mookerjee, M., Ojha, M., & Roy, S. (2021). Spousal beliefs and intimate partner violence: Are we conditioned to internalize patriarchal norms? *Economics Letters*, 202, 109811. <https://doi.org/10.1016/j.econlet.2021.109811>
69. Naved, R. T., & Persson, L. A. (2010). Dowry and spousal physical violence against women in Bangladesh. *Journal of Family Issues*, 31(6), 830–856.
70. Ojha, M., & Babbar, K. (2024). Power to choose? Examining the link between contraceptive use decision and domestic violence. *Economics & Human Biology*, 101416. <https://doi.org/10.1016/j.ehb.2024.101416>
71. Pepper, J. V. (2000). The intergenerational transmission of welfare receipt: A nonparametric bounds analysis. *Review of Economics and Statistics*, 82(3), 472–488.
72. Peterson, C., Kearns, M. C., McIntosh, W. L., Estefan, L. F., Nicolaidis, C., McCollister, K. E., Gordon, A., & Florence, C. (2018). Lifetime Economic Burden of Intimate Partner Violence Among U.S. Adults. *American Journal of Preventive Medicine*, 55(4), 433–444. <https://doi.org/10.1016/j.amepre.2018.04.049>
73. Pinjisakikool, T. (2017). The effect of personality traits on households' financial literacy. *Citizenship, Social and Economics Education*, 16(1), 39–51. <https://doi.org/10.1177/2047173417690005>
74. Raj, A., Silverman, J. G., Klugman, J., Saggurti, N., Donta, B., & Shakya, H. B. (2018). Longitudinal analysis of the impact of economic empowerment on risk for intimate partner violence among married women in rural Maharashtra, India. *Social Science & Medicine*, 196, 197–203.
75. Rocca, C. H., Rathod, S., Falle, T., Pande, R. P., & Krishnan, S. (2009). Challenging assumptions about women's empowerment: Social and economic resources and domestic violence among young married women in urban South India. *International Journal of Epidemiology*, 38(2), 577–585.
76. Roy, S., Hidrobo, M., Hoddinott, J., & Ahmed, A. (2019). Transfers, Behavior Change Communication, and Intimate Partner Violence: Postprogram Evidence from Rural Bangladesh. *The Review of Economics and Statistics*, 101(5), 865–877. https://doi.org/10.1162/rest_a_00791

77. Roychowdhury, P., & Dhamija, G. (2021). The causal impact of women's age at marriage on domestic violence in India. *Feminist Economics*, 27(3), 188–220.
<https://doi.org/10.1080/13545701.2021.1910721>
78. Roychowdhury, P., & Dhamija, G. (2022). Don't cross the line: Bounding the causal effect of hypergamy violation on domestic violence in India. *Journal of the Royal Statistical Society Series A: Statistics in Society*, 185(4), 1952–1978.
<https://doi.org/10.1111/rssa.12858>
79. Roychowdhury, P., & Dhamija, G. (2024). Educational hypogamy and female employment in rural India. *Empirical Economics*, 1–39.
80. Stevenson, B., & Wolfers, J. (2006). Bargaining in the shadow of the law: Divorce laws and family distress. *The Quarterly Journal of Economics*, 121(1), 267–288.
<https://doi.org/10.1093/qje/121.1.267>
81. Sultana, A. (2010). Patriarchy and women's subordination: A theoretical analysis. *Arts Faculty Journal*, 4, 1–18.
82. Swamy, V. (2014). Financial Inclusion, Gender Dimension, and Economic Impact on Poor Households. *World Development*, 56, 1–15.
<https://doi.org/10.1016/j.worlddev.2013.10.019>
83. Tamer, E. (2010). Partial identification in econometrics. *Annu. Rev. Econ.*, 2(1), 167–195.
84. Tauchen, H. V., Witte, A. D., & Long, S. K. (1991). Domestic violence: A nonrandom affair. *International Economic Review*, 491–511. <https://doi.org/10.2307/2526888>
85. The Economic Times. (2024). *With ₹2.31 lakh crore deposits and over 53 cr accounts, PM Jan Dhan Yojana completes ten years. The Economic Times.* The Economic Times.
<https://economictimes.indiatimes.com/news/economy/policy/with-2-31-lakh-crore-deposits-and-over-53-cr-accounts-pm-jan-dhan-yojana-completes-ten-years/articleshow/112853366.cms>
86. Tur-Prats, A. (2021). Unemployment and intimate partner violence: A cultural approach. *Journal of Economic Behavior & Organization*, 185, 27–49.
<https://doi.org/10.1016/j.jebo.2021.02.006>
87. Weitzman, A. (2014). Women's and men's relative status and intimate partner violence in India. *Population and Development Review*, 40(1), 55–75.
88. Weitzman, A. (2018). Does Increasing Women's Education Reduce Their Risk of Intimate Partner Violence? Evidence from an Education Policy Reform. *Criminology*, 56(3), 574–607. <https://doi.org/10.1111/1745-9125.12181>

89. WHO. (2021). *Violence against women*. <https://www.who.int/news-room/fact-sheets/detail/violence-against-women>
90. World Bank. (2014). *Global Financial Development Report 2014: Financial Inclusion*. World Bank. <https://doi.org/10.1596/978-0-8213-9985-9>
91. World Bank. (2023). *Financial Inclusion: Lessons from World Bank Group Experience, Fiscal Years 2014–22*. World Bank Group. <http://documents.worldbank.org/curated/en/099305408252329233>
92. Yang, X., Huang, Y., & Gao, M. (2022). Can digital financial inclusion promote female entrepreneurship? Evidence and mechanisms. *The North American Journal of Economics and Finance*, 63, 101800. <https://doi.org/10.1016/j.najef.2022.101800>
93. Yilmaz, O. (2018). Female Autonomy, Social Norms and Intimate Partner Violence against Women in Turkey. *The Journal of Development Studies*, 54(8), 1321–1337. <https://doi.org/10.1080/00220388.2017.1414185>
94. Zelu, B. A., Iranzo, S., & Perez-Laborda, A. (2024). Financial inclusion and women economic empowerment in Ghana. *Emerging Markets Review*, 62, 101190. <https://doi.org/10.1016/j.ememar.2024.101190>

TABLES AND FIGURES

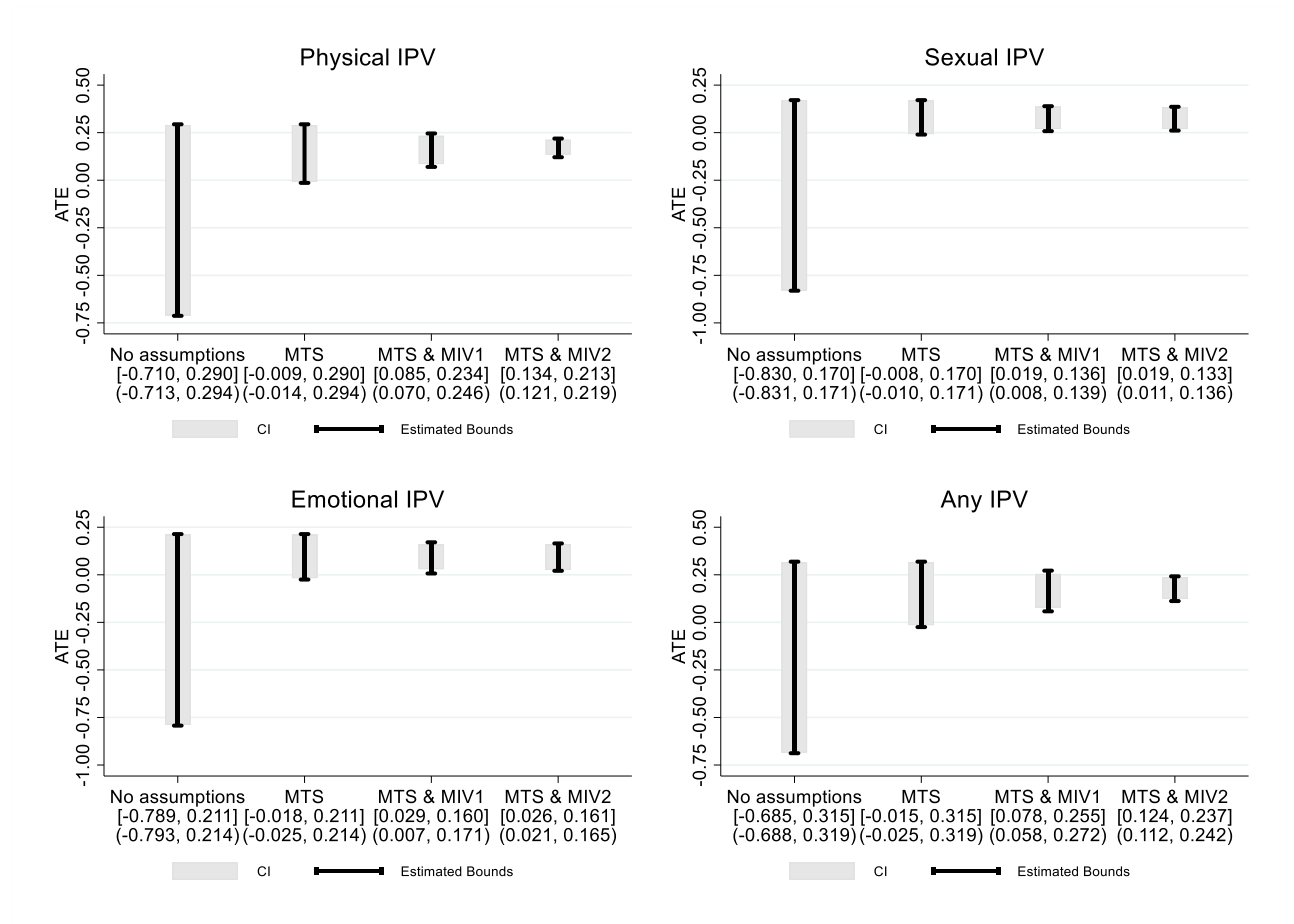
Table 1. Summary Statistics

	Mean	SD
<u>Panel A: Main outcomes</u>		
Physical IPV	0.22	0.42
Sexual IPV	0.05	0.22
Emotional IPV	0.12	0.32
Any IPV	0.26	0.44
<u>Panel B: Treatment variable</u>		
Financial Inclusion	0.85	0.36
Bank account ownership	0.80	0.40
Use mobile for financial transactions	0.10	0.31
Covered by health insurance	0.31	0.46
<u>Panel C: Background characteristics</u>		
Age at marriage (in years)	33.86	8.37
Education (in years)	6.66	5.20
Age at marriage (in years)	18.48	3.92
Number of living children	2.23	1.38
Property ownership		
No ownership	0.55	0.50
Joint ownership	0.30	0.46
Sole ownership	0.15	0.36
Wealth index		
Poorest	0.19	0.40
Poor	0.21	0.41
Middle	0.21	0.41
Rich	0.21	0.40
Richest	0.18	0.38
Religion		
Hindu	0.79	0.41
Muslim	0.16	0.37
Others	0.02	0.16
Don't know/Missing	0.02	0.15
Social Group		
Upper Caste (UC)	0.21	0.40
Schedule Caste (SC)	0.21	0.41
Schedule Tribe (ST)	0.09	0.28
Other Backward Class (OBC)	0.42	0.49
Don't know/Missing	0.08	0.27
Place of residence		
Urban	0.30	0.46

Rural	0.70	0.46
Region		
North	0.08	0.26
West	0.22	0.41
Central	0.11	0.31
East	0.30	0.46
North-East	0.05	0.23
South	0.24	0.43
<hr/>		
<i>N</i>	60480	
<hr/>		
<u>Panel D: MIVs</u>		
Literacy rate	77.55	8.66
GSDP per capita (2011-12 const prices)	121148	66342
<hr/>		
<i>N</i>	36	

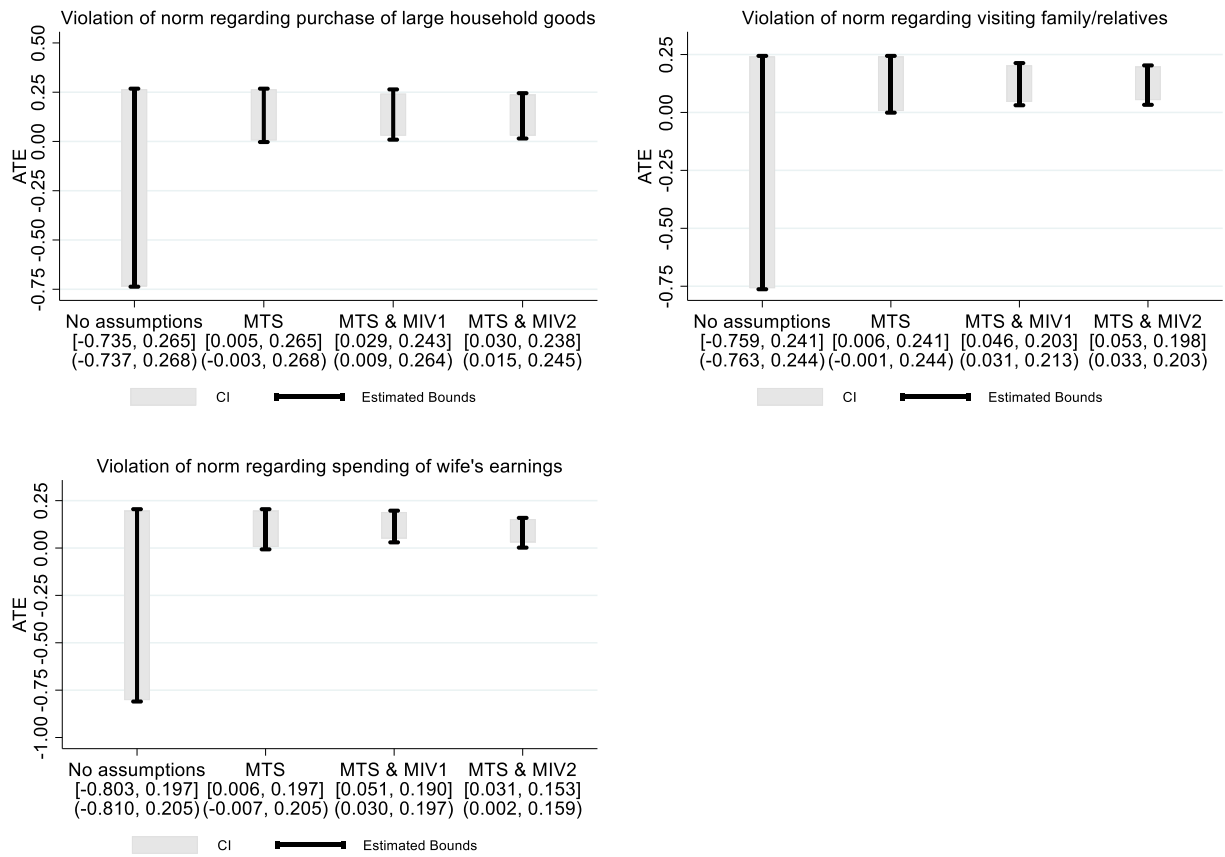
Notes: Financial Inclusion includes women who utilize their own bank accounts, use mobile phones for financial transactions, or are covered by health insurance. Property ownership takes the value of 1 if a woman reports to own a house or land jointly; it takes the value of 2 if the woman reports to solely own a house or land; and takes 0 if she doesn't own any. The Northern region includes Jammu and Kashmir, Uttarakhand, Himachal Pradesh, Punjab, Haryana, Chandigarh, Delhi, and Rajasthan. The Western region includes Gujarat, Maharashtra, Goa, Daman and Diu, and Dadra and Nagar Haveli. Central region includes Uttar Pradesh, Madhya Pradesh, and Chhattisgarh. The Eastern region includes Bihar, Jharkhand, Odisha, and West Bengal. The North-Eastern region includes Sikkim, Assam, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, and Meghalaya. Southern region includes Karnataka, Andhra Pradesh, Telangana, Tamil Nadu, Kerala, Puducherry, Andaman and Nicobar, and Lakshadweep.

Figure 1: Bounds on ATE of women's financial inclusion on IPV.



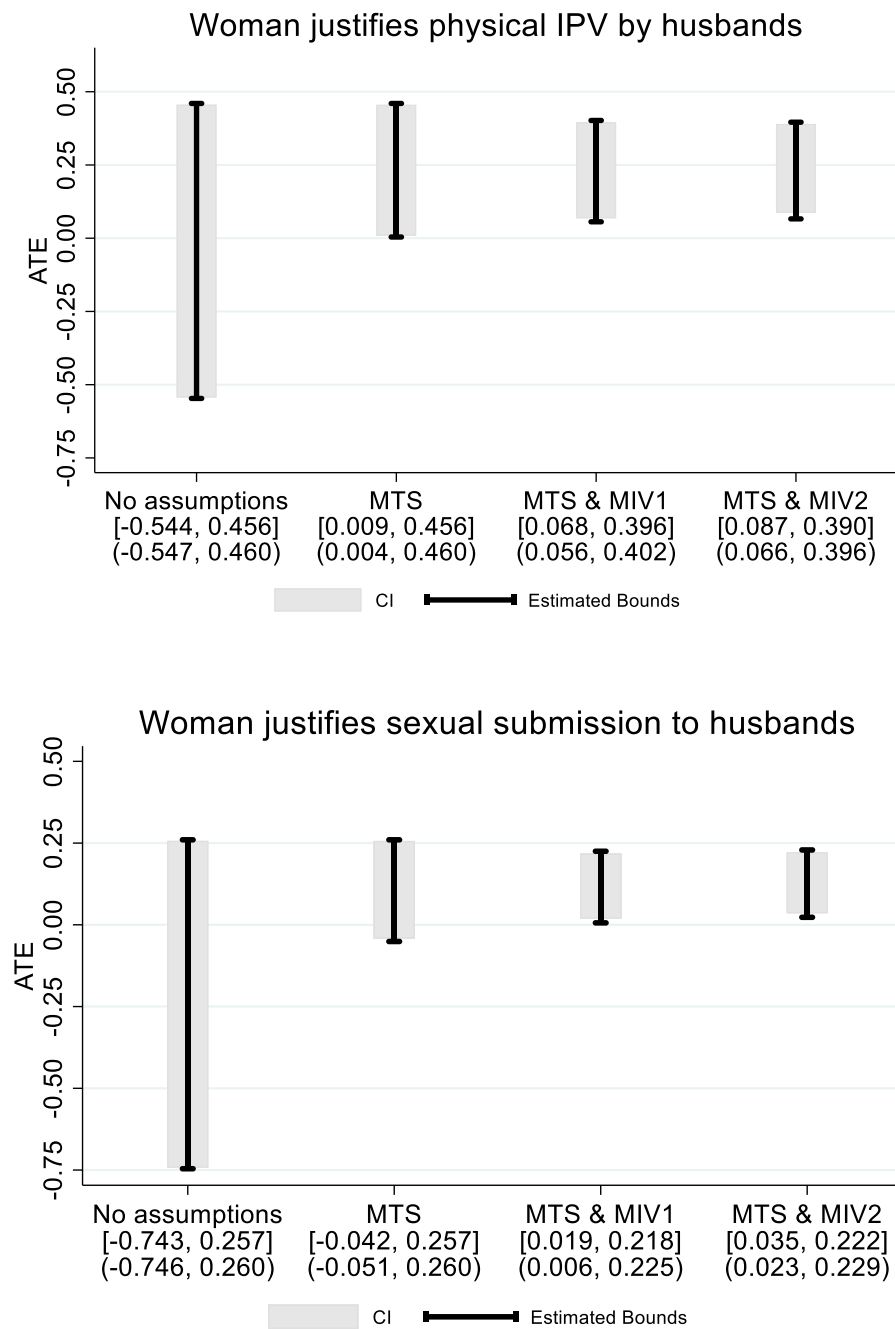
Notes: Point estimates of LB and UB around the unknown parameter Ψ in brackets; 95% Imbens–Manski confidence intervals calculated using bootstrap method in parentheses. See text for further details.

Figure 2: Bounds on ATE of women's financial inclusion on traditional gender norm violation.



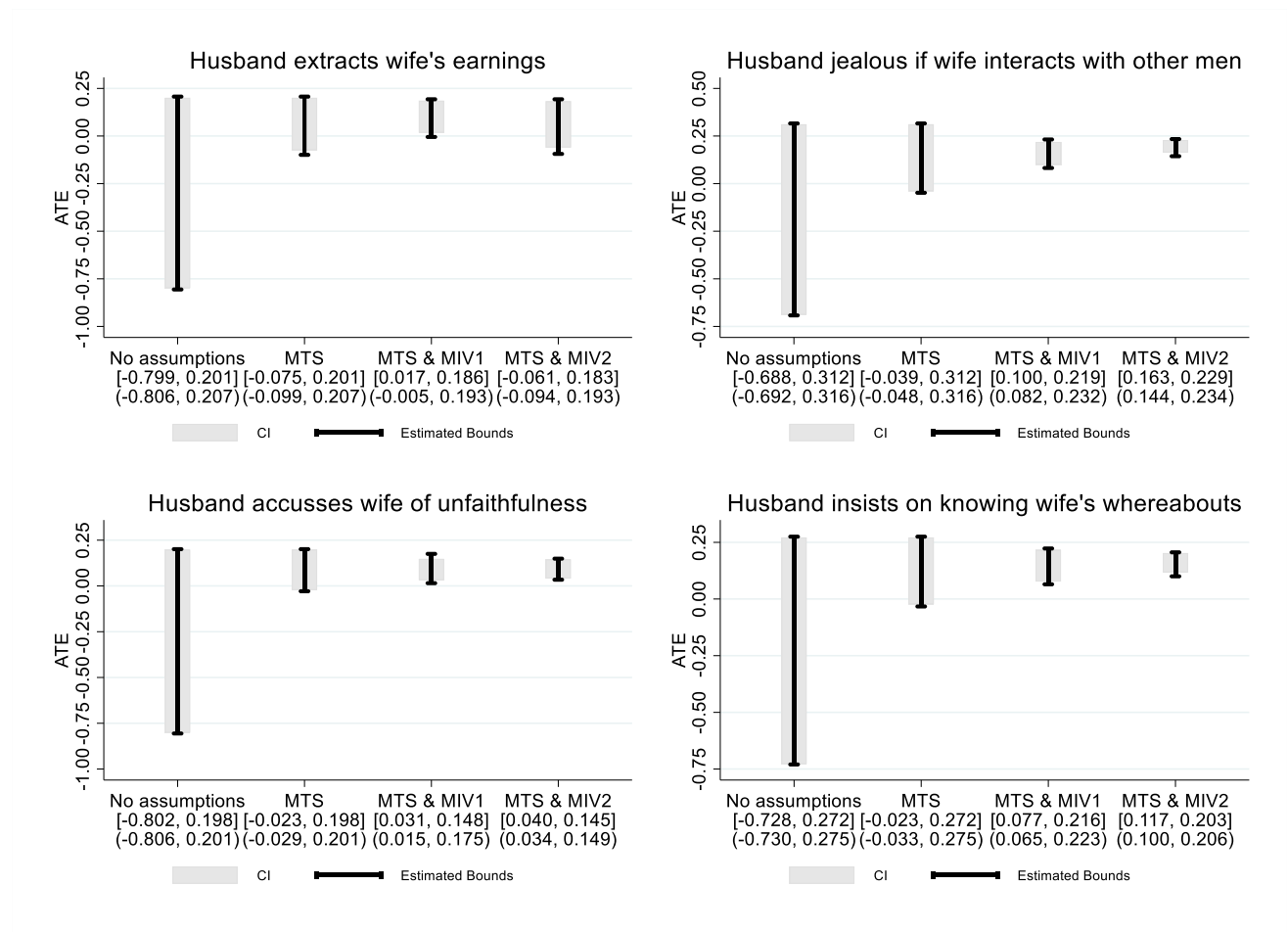
Notes: Point estimates of LB and UB around the unknown parameter Ψ in brackets; 95% Imbens–Manski confidence intervals calculated using bootstrap method in parentheses. See text for further details.

Figure 3: Bounds on ATE of women's financial inclusion on female guilt.



Notes: Point estimates of LB and UB around the unknown parameter Ψ in brackets; 95% Imbens–Manski confidence intervals calculated using bootstrap method in parentheses. See text for further details.

Figure 4: Bounds on ATE of women's financial inclusion on husbands' instrumental use of violence.



Notes: Point estimates of LB and UB around the unknown parameter Ψ in brackets; 95% Imbens–Manski confidence intervals calculated using bootstrap method in parentheses. See text for further details.

APPENDIX

1. Robustness Checks

We carry out the following series of checks to assess the robustness of our results.

1.1. Alternative Treatment Group

First, we redefine our treatment group by altering the criteria for a woman to be financially included. Initially, for our baseline analysis, we identified a woman as financially included if a woman has at least one of the following: a bank account that she uses, a mobile phone that she uses for financial transactions, and is covered by health insurance. In this robustness check, we identify a woman as financially included ($= 1$) if a woman has at least two of the financial instruments and financially excluded ($= 0$) otherwise. Table A4 shows the updated results, which remain consistent with our main findings, thus assuring the robustness of our initial conclusions.

1.2. Alternative Measures of IPV

Second, we use intensity-score-based measures of physical, sexual, and emotional IPV. Following (González & Rodríguez-Planas, 2020) and (Roychowdhury & Dhamija, 2022), we define intensity-score-based IPV variables by summing binary variables for different acts of underlying violence a woman may have experienced in the 12 months preceding the survey. However, we cannot use these intensity-based non-binary IPV measures in our analysis as it requires binary outcome variables. Hence, we classify each category of IPV (physical, sexual, and emotional) into three groups: no exposure to IPV (intensity-score $= 0$), exposure to mild IPV (intensity-score $= 1$), and exposure to severe IPV (intensity-score > 1). Based on this classification, we analyze how women's financial inclusion affects their exposure to mild IPV and severe IPV (see Table A5).

1.3. Misreporting of IPV

Third, we examine if our results are sensitive to misreporting of women's experience of IPV. Specifically, misreporting of IPV exposure would be a concern if financially excluded women underreport IPV due to fear of more violence for disclosing the true status of their IPV exposure. We do the following exercise to evaluate the effect of such misreporting.

We assume that 5% of the financially excluded women ($F = 0$) underreport their IPV exposure; that is, they report no incidence of IPV ($Y = 0$) despite actually being exposed to it ($Y = 1$). Since we cannot directly identify these women who are misreporting, we randomly select 5% of financially excluded women ($F = 0$) who have reported no IPV ($Y = 0$) in our analytical sample. We, then, change the

responses of these women from not exposed ($Y = 0$) to exposed ($Y = 1$), and repeat this process 100 times to generate 100 simulated samples. For each simulated sample, we evaluate the impact of financial inclusion on IPV exposure under the MTS-MIV1 and MTS-MIV2 assumptions. We then compare the results based on these 100 samples with our initial results to determine how our results would have changed if 5% of financially excluded women had underreported IPV episodes.

Figure A2 portrays the results of ATE of financial inclusion on women's exposure to any IPV based on the MTS-MIV1 and MTS-MIV2 assumptions. The lower (upper) bounds presented in the horizontal (vertical) axis of each graph indicate that the bounds on the ATE for every simulated sample are strictly positive. This finding confirms the robustness of our results, that even if 5% of women in the control group (financially excluded) were to underreport IPV, our results would remain qualitatively the same.

1.4. Alternate Number of MIV Cells

In this robustness check, we split our sample into a number of MIV cells different from our baseline analysis. In the nonparametric bounds literature, some studies, such as (Millimet & Roy, 2015a, 2015b) choose to split it into 4-5 MIV cells, whereas (Kreider et al., 2012) split the sample into 20 MIV cells. This is because there is no strict guideline on the ideal number of MIV cells and the only requirement is to ensure that each cell contains a sufficient number of observations in both the treatment and control groups.

Therefore, our decision to divide the sample into 5 MIV cells should not pose any threats. However, to examine the robustness of our findings, we re-estimate our baseline analysis splitting the sample into fewer (3) as well as higher (10) number of MIV cells. The results, presented in Table A6, remain qualitatively similar to our baseline results, with the bounds on the ATE remaining strictly positive and statistically significant.

1.5. Using Sampling Weights

The NFHS employs a complex survey design mechanism for the collection of data. Therefore, we re-estimate our main results after including survey weights. The findings reported in Table A7, suggest that the bounds on ATE estimated using the sampling weights closely align with our baseline results. This confirms that the inclusion or exclusion of sampling weights does not alter the qualitative or quantitative interpretation of our results.

1.6. Placebo Test

In addition to these checks, we carry out a placebo test to check if we capture some confounding effects. Specifically, we estimate the ATE of women's month of survey on their exposure to IPV. Women's month of survey should not have any effect on women's IPV exposure, and therefore, the ATE should be zero. We convert women's month of survey into a binary variable (=1 if the month of the survey is an odd number and 0 if it is an even number) and use it as our treatment variable.

We invoke the exogenous selection assumption to estimate the ATE of our newly constructed treatment variable (women's month of the survey) on IPV. This assumption is relevant in this case because there is no reason why women in the treatment group (women surveyed in odd months) would be more or less likely to experience IPV than women in the control group (women surveyed in even months). As expected, the ATE of women's month of survey on their exposure to IPV is zero (Table A8).

2. Heterogeneity Analysis

In this section, we explore how the impact of women's financial inclusion on IPV varies across different subsamples. We conduct heterogeneity analysis by cutting our main analytical sample based on different demographic, economic, and social factors. Specifically, we run the heterogeneity tests by:

- 1) Women's age
- 2) Education level
- 3) Type of marriage
- 4) Labor force Participation
- 5) Decision-making power
- 6) Physical Mobility
- 7) Household wealth
- 8) Religion
- 9) Social group
- 10) Area of residence
- 11) Region

A detailed description of the construction of different subsamples is available in Table A9. Tables A10-A20 present the results from the heterogeneity analysis. The findings indicate that across most subpopulations, the ATEs of women's financial inclusion on IPV are strictly positive and almost always statistically significant. This reflects that particular demographic or socioeconomic subgroups in Indian society do not drive our main results. Women who are financially included face higher risks of IPV than financially excluded women ubiquitously, regardless of their age, levels of education, employment

status, decision-making, physical mobility, economic background, religion, social group, place, or region of residence.

References

1. González, L., & Rodríguez-Planas, N. (2020). Gender norms and intimate partner violence. *Journal of Economic Behavior & Organization*, 178, 223–248.
<https://doi.org/10.1016/j.jebo.2020.07.024>
2. Kreider, B., Pepper, J. V., Gundersen, C., & Jolliffe, D. (2012). Identifying the effects of SNAP (food stamps) on child health outcomes when participation is endogenous and misreported. *Journal of the American Statistical Association*, 107(499), 958–975.
3. Millimet, D. L., & Roy, J. (2015a). Multilateral environmental agreements and the WTO. *Economics Letters*, 134, 20–23.
4. Millimet, D. L., & Roy, M. (2015b). Partial identification of the long-run causal effect of food security on child health. *Empirical Economics*, 48(1), 83–141. <https://doi.org/10.1007/s00181-014-0867-x>
5. Roychowdhury, P., & Dhamija, G. (2022). Don't cross the line: Bounding the causal effect of hypergamy violation on domestic violence in India. *Journal of the Royal Statistical Society Series A: Statistics in Society*, 185(4), 1952–1978. <https://doi.org/10.1111/rssa.12858>

APPENDIX TABLES AND FIGURES

Table A1. Violences underlying each IPV

Type of IPV	Underlying Violence
Physical IPV	Acts of pushing, shaking, throwing something, twisting arm, pulling hair, slapping, punching with fist or something else, kicking, beating, choking, burning, threatening or attacking with any kind of weapon by partner
Sexual IPV	Forced sexual acts or humiliating sexual acts forced by partner
Emotional IPV	Partner's activities leading to humiliation, insult, or various kinds of threats to hurt wife or her closed ones

Table A2. Summary Statistics, Treatment and Control Group

	Financially Included	Financially Excluded	Difference	
	Mean	Mean	Mean	SD
<u>Panel A: Main outcomes</u>				
Physical IPV	0.22	0.22	-0.00	(0.01)
Sexual IPV	0.05	0.05	-0.00	(0.00)
Emotional IPV	0.12	0.12	-0.00	(0.01)
Any IPV	0.26	0.26	0.00	(0.01)
<u>Panel B: Background characteristics</u>				
Age at marriage (in years)	34.17	32.17	2.00***	(0.22)
Education (in years)	6.84	5.67	1.18***	(0.11)
Age at marriage (in years)	18.55	18.13	0.41***	(0.08)
Number of living children	2.24	2.17	0.06**	(0.03)
Property ownership				
No	0.53	0.63	-0.10***	(0.01)
Joint ownership	0.31	0.28	0.02**	(0.01)
Sole ownership	0.16	0.09	0.07***	(0.01)
Wealth index				
Poorest	0.18	0.25	-0.07***	(0.01)
Poor	0.21	0.23	-0.02**	(0.01)
Middle	0.21	0.19	0.02**	(0.01)
Rich	0.21	0.20	0.01	(0.01)
Richest	0.19	0.13	0.06***	(0.01)
Religion			0.04***	(0.01)
Hindu	0.80	0.75		
Muslim	0.16	0.20	-0.04***	(0.01)
Others	0.03	0.02	0.01***	(0.00)
Don't know/Missing	0.02	0.03	-0.01	(0.01)
Social Group				
Upper Caste (UC)	0.20	0.22	-0.02	(0.01)
Schedule Caste (SC)	0.21	0.21	0.00	(0.01)
Schedule Tribe (ST)	0.08	0.10	-0.02***	(0.01)
Other Backward Class (OBC)	0.43	0.37	0.06***	(0.01)
Don't know/Missing	0.07	0.10	-0.02***	(0.01)
Place of residence				
Urban	0.31	0.29	0.02	(0.01)
Rural	0.69	0.71	-0.02	(0.01)
Region				
North	0.08	0.06	0.02***	(0.00)
West	0.19	0.34	-0.15***	(0.01)
Central	0.11	0.12	-0.02***	(0.00)
East	0.30	0.33	-0.04***	(0.01)
North-East	0.06	0.04	0.02***	(0.00)
South	0.26	0.11	0.16***	(0.01)
<i>N</i>	52061	8419		

Notes: Property ownership takes the value of 1 if a woman reports to own a house or land jointly; it takes the value of 2 if the woman reports to solely own a house or land; and takes 0 if she doesn't own any. The Northern region includes Jammu and Kashmir, Uttarakhand, Himachal Pradesh, Punjab, Haryana, Chandigarh, Delhi, and Rajasthan. The western region includes Gujarat, Maharashtra, Goa, Daman and Diu, and Dadra and Nagar Haveli. Central region includes Uttar Pradesh, Madhya Pradesh, and Chhattisgarh. The Eastern region includes Bihar, Jharkhand, Odisha, and West Bengal. North-Eastern region includes Sikkim, Assam, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura and Meghalaya. Southern region includes Karnataka, Andhra Pradesh, Telangana, Tamil Nadu, Kerala, Puducherry, Andaman and Nicobar, and Lakshadweep.

Table A3. Summary Statistics, Mechanisms

	N	Mean	SD
<u>Panel A: Violation of Norms about Gender Roles</u>			
Decisions on purchase of large household goods	46,488	0.18	0.38
Decisions on visiting relatives/family	46,488	0.17	0.37
Decisions on spending of wife's earnings	13,490	0.13	0.34
<u>Panel B: Female Guilt</u>			
Woman justifying physical IPV by husbands	60,089	0.49	0.50
Woman justifying wife's sexual submission	59,849	0.20	0.40
<u>Panel C: Instrumental Use of Violence</u>			
Husbands exerting full control over wife's earnings	16,929	0.15	0.36
Husbands feeling jealous if wife talks with other men	60,275	0.26	0.44
Husbands accusing wife of unfaithfulness	60,382	0.10	0.30
Husbands insisting on knowing wife's whereabouts	60,389	0.19	0.39

Notes: See text for definition of the variables of interest.

Table A4. Robustness Check, Alternative Treatment Group

	Physical IPV	Sexual IPV	Emotional IPV	Any IPV
	(1)	(2)	(3)	(4)
MTS & MIV1	[0.046, 0.250] (0.033, 0.257)	[0.008, 0.217] (0.004, 0.226)	[0.014, 0.222] (0.009, 0.227)	[0.046, 0.259] (0.038, 0.268)
MTS & MIV2	[0.011, 0.226] (0.003, 0.236)	[0.001, 0.203] (-0.003, 0.210)	[-0.003, 0.210] (-0.009, 0.216)	[0.009, 0.232] (0.002, 0.238)

Notes: The treatment group includes women who have at least two of the following: a bank account that they use, a mobile phone that they use for financial transactions, and are covered by health insurance. Point estimates of LB and UB around the unknown parameter Ψ in brackets; 95% Imbens-Manski confidence intervals calculated using bootstrap method in parentheses. See text for further details.

Table A5. Robustness Check, Alternative Measures of IPV

	Physical IPV		Sexual IPV		Emotional IPV	
	Mild	Severe	Mild	Severe	Mild	Severe
	(1)	(2)	(3)	(4)	(5)	(6)
MTS & MIV1	[0.058, 0.189] (0.047, 0.192)	[0.070, 0.194] (0.057, 0.197)	[0.012, 0.125] (0.006, 0.130)	[0.009, 0.121] (0.003, 0.124)	[0.010, 0.142] (-0.001, 0.148)	[0.020, 0.125] (0.012, 0.139)
MTS & MIV2	[0.070, 0.169] (0.053, 0.175)	[0.099, 0.164] (0.085, 0.171)	[0.004, 0.124] (-0.001, 0.127)	[0.013, 0.120] (0.010, 0.122)	[0.008, 0.142] (-0.001, 0.144)	[0.021, 0.132] (0.011, 0.136)

Notes: Mild IPV indicates exposure to one type of underlying violence. Severe IPV indicates exposure to more than one type of underlying violence. Point estimates of LB and UB around the unknown parameter Ψ in brackets; 95% Imbens-Manski confidence intervals calculated using bootstrap method in parentheses. See text for further details.

Table A6. Robustness Check, Alternate Number of MIV Cells

	Physical IPV	Sexual IPV	Emotional IPV	Any IPV
	(1)	(2)	(3)	(4)
<i>Panel A: MIV Cells = 3</i>				
MTS & MIV1	[0.097, 0.255] (0.085, 0.259)	[0.012, 0.166] (0.007, 0.170)	[0.021, 0.204] (0.012, 0.208)	[0.090, 0.278] (0.081, 0.285)
MTS & MIV2	[0.113, 0.221] (0.101, 0.224)	[0.009, 0.144] (0.003, 0.145)	[0.015, 0.177] (0.007, 0.181)	[0.105, 0.247] (0.089, 0.251)
<i>Panel B: MIV Cells = 10</i>				
MTS & MIV1	[0.145, 0.165] (0.119, 0.172)	[0.024, 0.125] (0.019, 0.131)	[0.042, 0.141] (0.028, 0.148)	[0.139, 0.184] (0.120, 0.192)
MTS & MIV2	[0.151, 0.204] (0.137, 0.214)	[0.025, 0.083] (0.011, 0.088)	[0.029, 0.148] (0.017, 0.153)	[0.143, 0.227] (0.124, 0.234)

Notes: Point estimates of LB and UB around the unknown parameter Ψ in brackets; 95% Imbens-Manski confidence intervals calculated using bootstrap method in parentheses. See text for further details.

Table A7. Robustness Check, Using Sampling Weights

	Physical IPV	Sexual IPV	Emotional IPV	Any IPV
	(1)	(2)	(3)	(4)
MTS & MIV1	[0.152, 0.124] (0.120, 0.139)	[0.027, 0.124] (0.017, 0.135)	[0.047, 0.155] (0.007, 0.167)	[0.166, 0.150] (0.135, 0.232)
MTS & MIV2	[0.107, 0.215] (0.056, 0.229)	[0.043, 0.100] (0.025, 0.111)	[0.037, 0.157] (0.015, 0.175)	[0.111, 0.241] (0.091, 0.291)

Notes: Domestic Violence sampling weights provided in the NFHS are used. Point estimates of LB and UB around the unknown parameter Ψ in brackets; 95% Imbens-Manski confidence intervals calculated using bootstrap method in parentheses. See text for further details.

Table A8. Placebo Test: ATE of Women's Month of Survey

	Physical IPV	Sexual IPV	Emotional IPV	Any IPV
	(1)	(2)	(3)	(4)
Exogenous Selection	[-0.005, -0.005] (-0.012, 0.003)	[-0.001, -0.001] (-0.004, 0.002)	[0.003, 0.003] (-0.001, 0.007)	[-0.003, -0.003] (-0.006, -0.001)

Notes: Treatment variable is binary and takes a value one if woman was surveyed in the odd month, i.e. January, March, May, July, September, or November, and zero if otherwise. Point estimates of LB and UB around the unknown parameter Ψ in brackets; 95% Imbens-Manski confidence intervals calculated using bootstrap method in parentheses. See text for further details.

Table A9. Details of subsamples

Characteristic	Description
Age	Young (=1) if woman is aged 18 to 33; Old (=0) if women is aged 34 to 49
Education	Low (=1) if woman has 0 to 7 years of education; More (=0) if woman has more than 7 years of education
Type of marriage	Educationally hypergamous (=1) if woman's years of education are less than her husbands's educational years; Educationally non-hypergamous (=0) if woman's years of education equals or is more than that of her husband
Labor market participation	Yes (=1) if woman has worked in the last 12 months; No (=0) otherwise
Decision making power	Yes (=1) if woman has some decision making power related to her healthcare, large household purchases, visit to family/friends, husband's earnings; No (=0) otherwise
Physical mobility	Yes (=1) if woman has the freedom to go to the market, health facility or village alone; No (=0) otherwise
Household wealth	Poor (=1) if woman comes from poorest and poorer households; Non-poor (=0) if woman comes from middle class, richer, and richest households
Religion	Hindu women (=1); and Others (=0) including women belonging to Muslim, Christian, Sikh, Jain and other religions
Social Group	Women belonging to SC/ST/OBC backgrounds (=1); and UC (=0) including women belonging to Other Castes
Area of Residence	Rural (=1); and Urban (=0) Women
Region	Women from North/West/Central regions (=1); Women from East/North-East/South regions (=0)

Table A10. Subsample Analysis, ATE of Financial Inclusion on IPV by women's age.

	Physical IPV	Sexual IPV	Emotional IPV	Any IPV
	(1)	(2)	(3)	(4)
<i>Panel A: Young</i>				
MTS & MIV1	[0.070, 0.262] (0.056, 0.274)	[0.015, 0.168] (0.005, 0.187)	[0.018, 0.195] (0.000, 0.220)	[0.065, 0.281] (0.052, 0.289)
MTS & MIV2	[0.125, 0.205] (0.103, 0.211)	[0.017, 0.135] (0.008, 0.140)	[0.028, 0.158] (0.017, 0.165)	[0.123, 0.226] (0.109, 0.234)
<i>Panel B: Old</i>				
MTS & MIV1	[0.131, 0.236] (0.114, 0.244)	[0.022, 0.123] (0.013, 0.130)	[0.022, 0.166] (0.012, 0.179)	[0.114, 0.260] (0.095, 0.271)
MTS & MIV2	[0.142, 0.208] (0.114, 0.219)	[0.016, 0.107] (0.003, 0.120)	[0.033, 0.143] (0.013, 0.156)	[0.130, 0.234] (0.099, 0.242)

Notes: Point estimates of LB and UB around the unknown parameter Ψ in brackets; 95% Imbens-Manski confidence intervals calculated using bootstrap method in parentheses. See text for further details.

Table A11. Subsample Analysis, ATE of Financial Inclusion on IPV by women's education.

	Physical IPV	Sexual IPV	Emotional IPV	Any IPV
	(1)	(2)	(3)	(4)
<i>Panel A: Low</i>				
MTS & MIV1	[0.124, 0.324] (0.091, 0.330)	[0.017, 0.200] (0.010, 0.204)	[0.030, 0.242] (0.012, 0.249)	[0.112, 0.350] (0.089, 0.360)
MTS & MIV2	[0.159, 0.261] (0.130, 0.269)	[0.015, 0.172] (0.002, 0.194)	[0.035, 0.203] (0.017, 0.219)	[0.143, 0.285] (0.120, 0.296)
<i>Panel B: High</i>				
MTS & MIV1	[0.070, 0.202] (0.059, 0.210)	[0.016, 0.127] (0.011, 0.133)	[0.016, 0.160] (0.003, 0.165)	[0.066, 0.223] (0.050, 0.233)
MTS & MIV2	[0.104, 0.179] (0.089, 0.185)	[0.027, 0.108] (0.019, 0.114)	[0.013, 0.135] (0.004, 0.141)	[0.100, 0.202] (0.076, 0.212)

Notes: Point estimates of LB and UB around the unknown parameter Ψ in brackets; 95% Imbens-Manski confidence intervals calculated using bootstrap method in parentheses. See text for further details.

Table A12. Subsample Analysis, ATE of Financial Inclusion on IPV by type of marriage

	Physical IPV	Sexual IPV	Emotional IPV	Any IPV
	(1)	(2)	(3)	(4)
<i>Panel A: Educationally Hypergamous Marriage</i>				
MTS & MIV1	[0.079, 0.272] (0.065, 0.285)	[0.002, 0.164] (-0.006, 0.175)	[0.016, 0.203] (-0.002, 0.217)	[0.064, 0.294] (0.046, 0.306)
MTS & MIV2	[0.125, 0.212] (0.105, 0.222)	[0.015, 0.129] (0.002, 0.135)	[0.028, 0.161] (0.011, 0.172)	[0.117, 0.235] (0.093, 0.244)
<i>Panel B: Educationally Non-Hypergamous Marriage</i>				
MTS & MIV1	[0.113, 0.241] (0.094, 0.260)	[0.024, 0.149] (0.011, 0.155)	[0.024, 0.190] (0.008, 0.200)	[0.102, 0.259] (0.087, 0.273)
MTS & MIV2	[0.134, 0.200] (0.118, 0.210)	[0.019, 0.122] (0.009, 0.128)	[0.011, 0.152] (-0.005, 0.159)	[0.127, 0.221] (0.102, 0.237)

Notes: Point estimates of LB and UB around the unknown parameter Ψ in brackets; 95% Imbens-Manski confidence intervals calculated using bootstrap method in parentheses. See text for further details.

Table A13. Subsample Analysis, ATE of Financial Inclusion on IPV by women's labor force participation.

	Physical IPV	Sexual IPV	Emotional IPV	Any IPV
	(1)	(2)	(3)	(4)
<i>Panel B: Employed</i>				
MTS & MIV1	[0.122, 0.267] (0.102, 0.282)	[0.035, 0.130] (0.024, 0.133)	[0.048, 0.190] (0.022, 0.197)	[0.099, 0.300] (0.074, 0.313)
MTS & MIV2	[0.123, 0.231] (0.100, 0.242)	[0.022, 0.118] (0.008, 0.123)	[0.014, 0.166] (0.000, 0.172)	[0.099, 0.261] (0.067, 0.270)
<i>Panel A: Not Employed</i>				
MTS & MIV1	[0.083, 0.225] (0.066, 0.247)	[0.014, 0.163] (0.009, 0.171)	[0.003, 0.183] (-0.007, 0.193)	[0.072, 0.241] (0.056, 0.265)
MTS & MIV2	[0.138, 0.208] (0.123, 0.230)	[0.023, 0.153] (0.015, 0.171)	[0.029, 0.173] (0.012, 0.193)	[0.140, 0.226] (0.121, 0.240)

Notes: Point estimates of LB and UB around the unknown parameter Ψ in brackets; 95% Imbens-Manski confidence intervals calculated using bootstrap method in parentheses. See text for further details.

Table A14. Subsample Analysis, ATE of Financial Inclusion on IPV by women's decision-making power.

	Physical IPV	Sexual IPV	Emotional IPV	Any IPV
	(1)	(2)	(3)	(4)
<i>Panel B: Yes</i>				
MTS & MIV1	[0.114, 0.238] (0.097, 0.248)	[0.021, 0.133] (0.013, 0.138)	[0.025, 0.168] (0.012, 0.178)	[0.109, 0.259] (0.098, 0.267)
MTS & MIV2	[0.140, 0.208] (0.124, 0.214)	[0.015, 0.128] (0.007, 0.132)	[0.025, 0.156] (0.015, 0.159)	[0.129, 0.233] (0.105, 0.239)
<i>Panel A: No</i>				
MTS & MIV1	[0.006, 0.369] (-0.029, 0.378)	[0.037, 0.261] (0.015, 0.270)	[0.038, 0.315] (-0.001, 0.331)	[0.027, 0.396] (-0.023, 0.408)
MTS & MIV2	[0.127, 0.257] (0.076, 0.276)	[0.033, 0.188] (0.010, 0.206)	[0.044, 0.227] (0.011, 0.247)	[0.121, 0.280] (0.068, 0.297)

Notes: Point estimates of LB and UB around the unknown parameter Ψ in brackets; 95% Imbens-Manski confidence intervals calculated using bootstrap method in parentheses. See text for further details.

Table A15. Subsample Analysis, ATE of Financial Inclusion on IPV by mobility.

	Physical IPV	Sexual IPV	Emotional IPV	Any IPV
	(1)	(2)	(3)	(4)
<i>Panel B: Yes</i>				
MTS & MIV1	[0.139, 0.231] (0.123, 0.238)	[0.021, 0.122] (0.012, 0.124)	[0.029, 0.161] (0.013, 0.166)	[0.130, 0.257] (0.111, 0.265)
MTS & MIV2	[0.156, 0.205] (0.138, 0.212)	[0.026, 0.114] (0.017, 0.119)	[0.025, 0.149] (0.011, 0.153)	[0.162, 0.229] (0.136, 0.237)
<i>Panel A: No</i>				
MTS & MIV1	[0.051, 0.275] (0.028, 0.283)	[0.015, 0.193] (-0.001, 0.201)	[0.015, 0.211] (-0.001, 0.222)	[0.037, 0.291] (0.013, 0.307)
MTS & MIV2	[0.111, 0.235] (0.084, 0.244)	[0.002, 0.178] (-0.013, 0.185)	[0.016, 0.197] (-0.000, 0.207)	[0.107, 0.255] (0.069, 0.268)

Notes: Point estimates of LB and UB around the unknown parameter Ψ in brackets; 95% Imbens-Manski confidence intervals calculated using bootstrap method in parentheses. See text for further details.

Table A16. Subsample Analysis, ATE of Financial Inclusion on IPV by wealth.

	Physical IPV	Sexual IPV	Emotional IPV	Any IPV
	(1)	(2)	(3)	(4)
<i>Panel A: Poor</i>				
MTS & MIV1	[0.123, 0.306] (0.106, 0.314)	[0.023, 0.188] (0.016, 0.194)	[0.027, 0.224] (0.009, 0.232)	[0.114, 0.335] (0.085, 0.342)
MTS & MIV2	[0.173, 0.261] (0.160, 0.270)	[0.013, 0.157] (-0.004, 0.170)	[0.038, 0.181] (0.024, 0.195)	[0.155, 0.285] (0.133, 0.306)
<i>Panel B: Non-Poor</i>				
MTS & MIV1	[0.097, 0.229] (0.088, 0.239)	[0.012, 0.132] (0.006, 0.135)	[0.032, 0.170] (0.017, 0.176)	[0.096, 0.250] (0.079, 0.258)
MTS & MIV2	[0.124, 0.181] (0.110, 0.191)	[0.009, 0.102] (0.001, 0.106)	[0.028, 0.145] (0.016, 0.151)	[0.126, 0.205] (0.102, 0.210)

Notes: Point estimates of LB and UB around the unknown parameter Ψ in brackets; 95% Imbens-Manski confidence intervals calculated using bootstrap method in parentheses. Women in the poorest and poor background are classified as poor whereas women in the richest, rich, and middle class background are classified as non-poor. See text for further details.

Table A17. Subsample Analysis, ATE of Financial Inclusion on IPV by religion.

	Physical IPV	Sexual IPV	Emotional IPV	Any IPV
	(1)	(2)	(3)	(4)
<i>Panel A: Hindu</i>				
MTS & MIV1	[0.083, 0.233] (0.069, 0.241)	[0.013, 0.123] (0.009, 0.130)	[0.033, 0.146] (0.018, 0.153)	[0.080, 0.251] (0.068, 0.256)
MTS & MIV2	[0.129, 0.211] (0.108, 0.218)	[0.023, 0.117] (0.014, 0.122)	[0.045, 0.146] (0.025, 0.153)	[0.124, 0.233] (0.096, 0.243)
<i>Panel B: Others</i>				
MTS & MIV1	[0.091, 0.224] (0.071, 0.242)	[0.029, 0.167] (0.009, 0.180)	[0.020, 0.201] (-0.009, 0.217)	[0.079, 0.243] (0.039, 0.259)
MTS & MIV2	[0.138, 0.168] (0.116, 0.200)	[0.013, 0.137] (-0.001, 0.153)	[0.001, 0.166] (-0.034, 0.195)	[0.142, 0.179] (0.096, 0.221)

Notes: Point estimates of LB and UB around the unknown parameter Ψ in brackets; 95% Imbens-Manski confidence intervals calculated using bootstrap method in parentheses. See text for further details.

Table A18. Subsample Analysis, ATE of Financial Inclusion on IPV by caste.

	Physical IPV	Sexual IPV	Emotional IPV	Any IPV
	(1)	(2)	(3)	(4)
<i>Panel B: SC/ST/OBC</i>				
MTS & MIV1	[0.123, 0.265] (0.100, 0.293)	[0.028, 0.154] (0.020, 0.159)	[0.023, 0.189] (0.009, 0.217)	[0.114, 0.285] (0.087, 0.294)
MTS & MIV2	[0.147, 0.223] (0.132, 0.230)	[0.023, 0.133] (0.017, 0.138)	[0.030, 0.162] (0.022, 0.165)	[0.130, 0.245] (0.114, 0.252)
<i>Panel A: Upper Castes</i>				
MTS & MIV1	[0.027, 0.152] (0.001, 0.169)	[-0.003, 0.140] (-0.017, 0.148)	[0.010, 0.163] (-0.008, 0.176)	[0.035, 0.169] (-0.001, 0.193)
MTS & MIV2	[0.090, 0.174] (0.068, 0.192)	[0.005, 0.125] (-0.004, 0.132)	[-0.007, 0.156] (-0.017, 0.163)	[0.084, 0.194] (0.056, 0.209)

Notes: Point estimates of LB and UB around the unknown parameter Ψ in brackets; 95% Imbens-Manski confidence intervals calculated using bootstrap method in parentheses. See text for further details.

Table A19. Subsample Analysis, ATE of Financial Inclusion on IPV by place of residence.

	Physical IPV	Sexual IPV	Emotional IPV	Any IPV
	(1)	(2)	(3)	(4)
<i>Panel A: Rural</i>				
MTS & MIV1	[0.097, 0.255] (0.070, 0.270)	[0.029, 0.153] (0.019, 0.158)	[0.014, 0.187] (0.002, 0.192)	[0.090, 0.277] (0.080, 0.299)
MTS & MIV2	[0.141, 0.211] (0.121, 0.217)	[0.019, 0.131] (0.011, 0.137)	[0.029, 0.156] (0.016, 0.164)	[0.133, 0.235] (0.124, 0.244)
<i>Panel B: Urban</i>				
MTS & MIV1	[0.060, 0.201] (0.036, 0.214)	[0.019, 0.158] (0.007, 0.165)	[0.024, 0.190] (0.004, 0.201)	[0.043, 0.227] (0.016, 0.244)
MTS & MIV2	[0.111, 0.210] (0.090, 0.218)	[0.007, 0.118] (-0.006, 0.130)	[0.027, 0.179] (0.005, 0.192)	[0.107, 0.236] (0.085, 0.250)

Notes: Point estimates of LB and UB around the unknown parameter Ψ in brackets; 95% Imbens-Manski confidence intervals calculated using bootstrap method in parentheses. See text for further details.

Table A20. Subsample Analysis, ATE of Financial Inclusion on IPV by region.

	Physical IPV	Sexual IPV	Emotional IPV	Any IPV
	(1)	(2)	(3)	(4)
<i>Panel A: North/West/Central</i>				
MTS & MIV1	[0.093, 0.227] (0.076, 0.238)	[0.007, 0.171] (-0.004, 0.179)	[0.025, 0.189] (0.013, 0.196)	[0.086, 0.247] (0.065, 0.253)
MTS & MIV2	[0.124, 0.192] (0.111, 0.199)	[0.018, 0.138] (0.008, 0.144)	[0.029, 0.157] (0.014, 0.163)	[0.116, 0.210] (0.079, 0.219)
<i>Panel B: East/North-East/South</i>				
MTS & MIV1	[0.177, 0.198] (0.142, 0.204)	[0.055, 0.096] (0.044, 0.100)	[0.073, 0.133] (0.049, 0.140)	[0.169, 0.224] (0.124, 0.231)
MTS & MIV2	[0.135, 0.238] (0.115, 0.245)	[0.024, 0.075] (0.010, 0.080)	[0.020, 0.148] (0.008, 0.158)	[0.118, 0.262] (0.098, 0.267)

Notes: Point estimates of LB and UB around the unknown parameter Ψ in brackets; 95% Imbens-Manski confidence intervals calculated using bootstrap method in parentheses. See text for further details.

Figure A1: Schematic representation of the women included in the analytical sample.

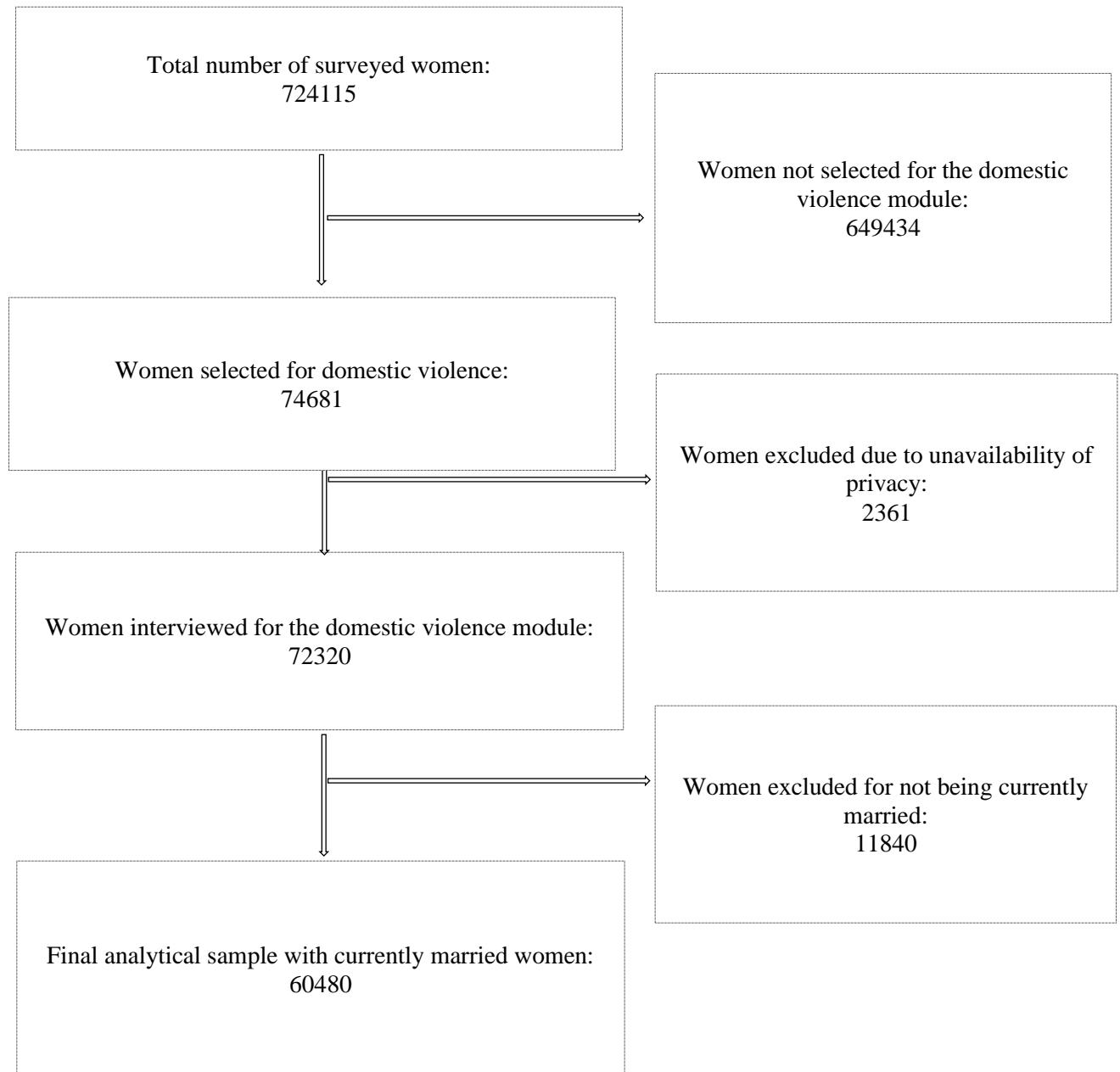
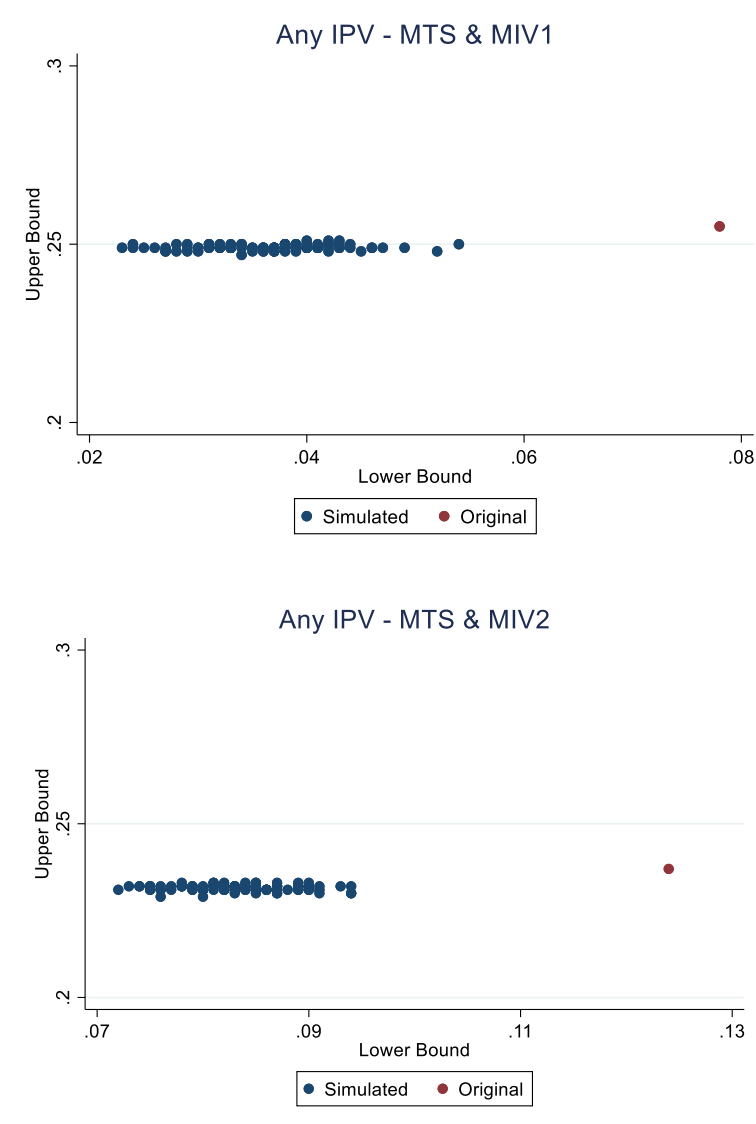


Figure A2: Assessing the impact of underreporting of IPV by financially excluded women.



Notes: A simulated sample is constructed by randomly selecting 5% of financially excluded women who have reported not being exposed to IPV (outcome=0) and changing their responses to have been exposed to IPV (i.e., their outcome variable takes a value one).