MEDIA REPORTING OF SEXUAL VIOLENCE AND FEMALE LABOR FORCE
PARTICIPATION DECISION IN RURAL BANGLADESH

by

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Dalhousie University is located in Mi'kma'ki, the
ancestral and unceded territory of the Mi'kmaq.
We are all Treaty people.

DEDICATION

To my mom. I love you.

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Abstract

Perceived fear of sexual violence victimization can have strong negative impacts on female labor force participation (FLFP). This fear is particularly dire in cultures that value female purity and stigmatize victimization. This study finds a 3.4 percentage points (5.73% of the sample average) decline in paid employment of women in *rural* Bangladesh, with a one standard deviation increase in media-reported lagged local sexual assaults. Rural women substitute paid employment for unpaid labor, which has implications for their autonomy and empowerment. Media reporting of sexual assaults perpetrated by people in authority have a stronger impact suggesting the disruption of institutional trust to be a potential pathway of aggravating one's perceived fear of victimization. The results are robust to controlling for exogenous gender-specific labor demand shocks and sensitivity checks. A better understanding of how this fear manifests is needed to reduce such non-pecuniary costs of paid employment and increase FLFP.

LIST OF ABBREVIATIONS USED

FLFP   Female Labor Force Participation
VAW   Violence Against Women
WEAI   Women Empowerment in Agriculture Index
BIHS   Bangladesh Integrated Household Survey
BPO   Bangladesh Peace Observatory

ACKNOWLEDGEMENT

Chapter 1 Introduction

Most developing countries have a pervasive gendered differential in labor force participation. Pertinacious cultural tenets and social hierarchy (Jayachandran, 2015, 2020), disproportionate household work burden (Ferrant et al., 2014), limited access to credit (Asiedu et al., 2013) and ownership of assets (Fakir and Abedin, 2021) are a few of the documented pathways that constrain the labor force participation of women. Such barriers misallocate women's time and talents and constrain their contribution to a country's GDP (Ostry et al., 2018; Hsieh et al., 2019). This labor force participation differential also carries downstream life impacts and may contribute to persistent adverse impacts on women's welfare and reinforce existing patriarchy (Griffin, 2015). Developing a more nuanced understanding of the socio-cultural facets constraining female labor force participation is thus apposite to curbing this gender gap.

This study explores an additional constraint on female labor force participation (FLFP) that has recently received attention in the academic literature — the distortive effects of fear or perceived risk from media-reported violence against women (VAW) incidents. Specifically, the study aims to examine how media-reported local sexual assaults and other VAW incidents affect rural Bangladeshi women's decision to participate in the labor force. A growing body of work shows that fear or perceived risk can affect individual behaviour (Becker and Rubinstein, 2011). Borker et al. (2021) and Velásquez (2020), respectively, showed that the perceived risks of experiencing sexual or physical violence affect a woman's choice of colleges in India and the decision to work in Mexico. Perceptions of and access to safety are also known to affect women's mobility patterns and decisions in Sub-Saharan Africa (Porter et al., 2011), Mexico City (Aguilar et al., 2021), Rio de Janeiro (Kondylis et al., 2023), and urban India (Amaral et al., 2023).[1] Similarly, media coverage of sexual assaults can induce stress and anxiety, increasing one's fear of public spaces, and deter women from going out for work. Therefore, one can posit that with an increase in media-reported sexual assaults and other VAW incidents, more women may elect to quit the labor force as an avoidance tactic, affected by a heightened sense of pervasive fear.[2] In highly patriarchal societies, this decision may not be-

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[1] Borker (2024) provides an excellent narrative review.

[2] Some past studies have reported a positive correlation between media-reported violence against women and female labor force participation (Mukherjee et al., 2001; Iyer et al., 2012). However, the authors indicated this association to be likely due to more active crime reporting prompted by

long to the women alone, but rather jointly with their partner or parents(-in-laws), potentially further limiting their labor force participation and empowerment.

Siddique (2022) showed that media-reported sexual assaults lower female labor force participation in urban India, and Chakraborty et al. (2018) showed that self-reported perception of crime in their locality has a similar effect. However, both studies restricted their analysis to urban women only.[3] This study contributes to the literature by revealing a similar effect for *rural* Bangladeshi women. In addition to providing evidence from a previously unexplored South Asian country context, where previous studies examined the relationship using cross-sectional data, this study utilizes a panel dataset that enables controlling for unobserved heterogeneity across individuals. Moreover, while the aforementioned papers were limited in their exploration of the pathways through which such perceived risk can impact individual decision-making, this study contributes by exploring two significant channels — how the conservativeness of females relative to their male counterparts affects labor market participation decisions, and whether sexual assaults by particular perpetrator groups can affect FLFP more. Finally, adding to the discourse, downstream associations of media-reported sexual assaults and VAW incidents with female empowerment are also explored.

Theoretically, there is no reason why the distortive effects of fear or perceived risk from media-reported sexual assaults and other VAW incidents should not affect individual decision-making in labor force participation for rural women. Additionally, given that rural regions tend to be more patriarchal and religiously conservative than urban regions in many developing countries, with parents and partners exerting stronger control over a woman's decision-making, one can suspect additional pathways of impact. This would be particularly prevalent in a society with strong patriarchal values that view the body of a woman "as pure and as a property of some male member — her prospective husband" (Chakraborty et al., 2018, p.227). Unfortunately, such a view remains prevalent in much of rural South Asia, giving rise to a society with high stigma costs by making the consequences of being a vic-

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an increase in the female working population.

[3]Chakraborty et al. (2018) does report checking with rural women but finds no significant impact of the perception of local crime on female labor force participation, attributing this result to a high percentage of rural women working in agriculture in India. On the other hand, Siddique (2022) does report a negative, small (compared to that on urban women) but statistically insignificant impact of media-reported sexual assaults on FLFP of rural Indian women.

tim more salient (Kabeer, 2011). The choice of conducting the study in Bangladesh is, therefore, intentional. Bangladesh loses 2.10% of its GDP to VAW incidents that account for 14% of all maternal deaths (Ibrahim et al., 2018). With four rapes reported per day on average in 2020, Al Jazeera dubbed the situation as a "rape epidemic" (Khan, 2020).[4] The costs to human capital are likely to be greater in a society with such high incidents of media-reported violence against women. It is therefore imperative to better understand the consequences of such reporting to help develop the required support infrastructure to alleviate adverse impacts.

This study uses nationally representative household data from the Bangladesh Integrated Household Survey (BIHS) waves II and III merged with daily data on media-reported sexual assaults and VAW incidents from the Bangladesh Peace Observatory (BPO)[5] and police-reported VAW case data from Justice Audit Reports for analyses. By exploiting the variation in media reports of local sexual assaults within upazilas of Bangladesh, during 2014-2019, the effects of such media reports on FLFP is examined. The estimations include individual fixed effects to control for time-invariant differences across individuals. Potential biases from regional unobservables, upazila-specific time shocks, and upazila-level time-varying changes, such as the economic or political environment, are additionally controlled for using upazila $\times$ time fixed effects. Additionally, the estimation results are robust against a host of placebo checks and variations in the empirical specification and the estimation sample.

A one standard deviation increase in media-reported lagged local sexual assaults is found to reduce paid employment for rural women by about 3.4 percentage points, equivalent to 5.73 percent of the paid employment sample average. Muslim middle-aged married women from richer households, and those with relatively more conservative male partners, are impacted most by such media reports. In-

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[4]The situation only worsened during the COVID-19 pandemic (Sifat, 2020; Al Mamun et al., 2021). Monthly country-level statistics from Ain-o Salish Kendra (ASK), a local human rights organization, reveal 673 rapes, 125 women murdered by husbands, 121 incidents of dowry-related violence against women, 64 incidents of sexual harassment, and 11 acid attacks against women between January and June 2021.

[5]Most organizations that track violence against women incidents in Bangladesh sadly report only monthly country-level aggregates that do little to aid development, human rights, and legal organizations (both governmental and non-governmental) in designing targeted policies. Only the BPO collates information following a daily geo-referenced panel on all violence against women incidents reported in the local Bangladeshi newspapers, similar to the Armed Conflict Location & Events Data.

terestingly, the majority of the women who disengage with paid employment due to increases in media reporting of sexual assaults are found to substitute paid employment for unpaid labor in the family business. Reporting of other forms of VAW incidents does not have any impact on FLFP, and unsurprisingly, media reports of sexual assaults or other VAW incidents do not affect male labor force participation decisions. The perceived sense of a lack of personal safety or fear of a hostile environment outside of the home, therefore, significantly impedes a *woman's* decision to engage in paid employment. In the context of rural Bangladesh, such findings have strong policy implications.

The study contributes to a small but emerging literature on how fear of safety impacts individual labor market decision-making. Increases in local media reports of sexual assaults are most likely to drive concerns for women's safety outside their households in cultures with high stigma costs associated with being a victim of sexual crimes. Strong religious tenets and conservative patriarchy dominate much of the culture of rural Bangladesh and curtail women's bargaining power both within the household and within the local community. The fear of victimization can aggravate women's empowerment further.[6] In addition to such "purity" concerns, reporting the affiliation of the perpetrator is found to impact FLFP decisions of rural women differentially. Reported sexual assaults by perpetrators belonging to influential groups in the society (being politically affiliated, or being in the government administration) have the strongest negative impact on FLFP decisions. This suggests that the trust one places in institutional and community figureheads plays a role in the extent of fear such media reporting can impart, and breaking such trust has a strong negative impact on one's perceived sense of safety.

The rest of the paper is outlined as follows: Section Chapter 2 provides a brief description of the data, section Chapter 3 outlines the estimation strategy, section Chapter 4 discusses the estimation results, and section Chapter 5 concludes the study with policy suggestions specific to rural Bangladesh.

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[6]Consistent with previous literature, the substitution to unpaid labor is also found to be associated with lower levels of empowerment and household bargaining power, with reduced production autonomy and control over income (Sen, 1987; Kessler-Harris, 2003; Kabeer, 2008). However, further work needs to be done to confirm this relationship causally.

Chapter 2   Data

2.1   Female Labor Force Participation

Information on female labor force participation (FLFP) is taken from waves II (2015) and III (2018-19) of the longitudinal Bangladesh Integrated Household Survey (BIHS) conducted by the International Food Policy Research Institute (IFPRI).[7] The BIHS data is nationally representative of *rural* Bangladesh and consists of detailed household data from 325 randomly selected primary sampling units (PSUs) across the seven administrative divisions of Bangladesh. The second wave, conducted between January and June 2015, enumerated 6,438 households (with $< 1\%$ attrition from the first wave of 6,503 households) following proportional random sampling within each PSU. However, in the third wave, fielded between November 2018 and April 2019, the enumerated sample dropped to 5,605 households (86% of the original sample). This study uses a balanced panel for the analysis. The longitudinal nature of the BIHS allows the study to explicitly control for potential biases from time-invariant individual and upazila[8] characteristics when empirically evaluating the impact of changes in the level of media-reported sexual assaults and other VAW on the employment outcome of the respondents.

The outcome variable of interest is whether the female respondent in a household is active in the labor force. The BIHS asks respondents about their daily activity status over the past week. Specifically, the BIHS inquires if they spent any time in paid or unpaid employment, including the nature of employment in the following categories: waged employment, salaried employment, self-employment, or unpaid employment. A binary labor supply measure, paid employment, is then constructed using this information, where paid employment takes a value of one if the individual spent any non-zero fraction of time in paid employment during the past 7 days.[9] Similarly, measures for unpaid employment and paid/unpaid employment during

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[7]This study does not use wave I (2011-12) of BIHS since corresponding data on lagged media-reported sexual violence is unavailable in the Bangladesh Peace Observatory (BPO) dataset.

[8]An upazila is the administrative level 3, or second lowest tier of regional administration in Bangladesh, and can be considered as sub-districts. There are 495 upazilas in Bangladesh as of 2021.

[9]It is reasonable to assume that most paid employment would involve at least some work outside the home. Sadly the BIHS does not explicitly distinguish between work done outside and inside the home. Formal and informal employment are also not distinguished in the dataset. However, considering the rural context in Bangladesh, one can expect the majority of employment to be informal.

the past week are constructed.[10] BIHS also reports about the occupation industry related to reported weekly economic activity, which is manually matched to the Bangladesh Standard Industrial Classification (BSIC) code (BBS, 2020) to construct the labor demand index later used in the analysis (see section Chapter 3 for details).

The BIHS also includes detailed information on individual and household income, food and non-food consumption expenditure, women's and men's empowerment measures, usage of *pardah* [11] and prayer time, and other socio-economic characteristics. These are later used in the empirical analysis to explore potential pathways of the impact of media-reported sexual violence on female employment.

2.2 Media-Reported Sexual Violence

Data on media-reported violence, between 2014 and 2019, is sourced from the Bangladesh Peace Observatory (BPO). The BPO, funded by the United Nations Development Program (UNDP) Bangladesh, collates and organizes violent incident data from online, digitized, and selected English and Bangla print news media sources in Bangladesh.[12] Importantly, BPO provides the exact date and geo-coded origin location of the incident which allows matching the incidents with the survey date and location of households at the upazila level in the BIHS.[13] The BPO also

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[10]It is worth noting that unpaid employment does not include females who are only involved in household work. Since the focus of this work is not on labor market discrimination arising from this form of classification (Bidisha and Raihan, 2018), females who are only involved in household work are instead identified as unemployed in line with the classification used by the Bangladesh Bureau of Statistics in their labor force surveys. Unpaid employment thus refers to females involved with their family business or apprenticeship for which they do not get any monetary benefit. Self-employment females, on the other hand, identify females who are engaged in any entrepreneurial activity, such as raising livestock or poultry, for which they receive some monetary benefit.

[11]*Pardah*, also known as *purdah*, screen, or veil, is a religious and social practice of gender separation that is common in several Muslim and Hindu societies. It manifests itself in two ways: societal gender division and the necessity for women to cover their bodies to conceal their skin and shape from male members (outside of family).

[12]Sepcifically, BPO collates data from 23 media sources: Ajker Barta (Barisal), Ajker Mymensingh (Mymensingh), Banglanews24.com, Bdnews24.com, Cox's Bazaar Journal, Cox's Bazaar News, The Daily Star, Dainik Purbanchal (Khulna), Independent, Ittefaq, Karatoa (Bogura), New Age, Prothom Alo, Purbokone (Chittagong), Samakaal, Teknaf News, The Daily Bangladesh Observer, The Daily Bhorer Kagoj, The Daily Janakantha, The Daily Jugantar, The Daily Sylheter Dak (Sylhet), The Dainik Bangla, and Ukhiya News.

[13]A similar but more widely used data source is the Armed Conflict Location and Event Data (ACLED) Project (Raleigh et al., 2010). However, the BPO better suits the purposes of this study. The BPO is more specific to Bangladesh and contains additional print media sources in the local language, Bangla, which the ACLED does not. Further, unlike the ACLED, BPO categorizes sexual violence and gender-based violence media-reported incidents which is an important identifier in the study.

includes an extract from the media source which permits cross-checking of the incident type.

BPO categorizes each incident into cross-cutting categories including "Sexual and Gender-based Violence".[14] This category is then further broken down to identify a "Sexual Assault" sub-category. BPO defines sexual assaults as "One-sided sexual violence, such as rape or attempted rape, by an individual or small group against another individual or small group" (BPO, 2024). This method of identifying sexual assault reporting is useful as it confirms the dominant motive behind the incident. However, this definition does not accurately identify sexual and gender-based violence targeted against women. BPO also contains a target group variable identifying whether the primary victim of the sexual and gender-based violence incident was a female, male, or a particular group. We use this target group variable to identify all sexual assaults and gender-based violence reporting with female or female-dominant groups as primary victims. This particular definition is then used to identify media reports of "Sexual Assault" and "Other VAW", where female or female-dominant groups were the primary victims, for the empirical analysis. Incidents and the number of media reports are then aggregated at the upazila and quarter-year level of aggregation before being matched with the BIHS household-level dataset at the daily upazila level.

2.3   Police Reported Violence Against Women Cases

The study additionally sources data on police-reported VAW cases from the Justice Audit (JA) Bangladesh Report 2018. This is used to examine how the impact of media reporting of sexual assaults compares with the impact of police-reported VAW. The police-reported VAW measure includes all formally reported cases in a district including rape, acid throwing, eve-teasing, and domestic violence, in a year. Since the data is only available as annual aggregates between 2014 and 2017, police-reported VAW is matched from the previous year to the BIHS survey year. Additionally, the yearly aggregate data are converted into quarterly measures

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[14]Cross-cutting categories are used to link reported incidents, when relevant, with issues of particular interest and offer a shortcut to track categories more easily. However, it is important to note that not all "sexual and gender-based violence" cross-cutting incidents have sexual and gender-based violence as the dominant motive. For example, an incident whose dominant motive was elections but whose victims were primarily women would still be categorized under the 'sexual and gender-based violence' category. The other cross-cutting categories include Violence against minorities, Violent extremism, Rohingya Issue, Hartal, Election, Cross-border, Chittagong Hill Tracts, and Others.

(per 10,000 population in the district) to make them comparable to the quarterly media-reported sexual assaults and other VAW measures from the BPO. The police-reported VAW measure is then matched with the BIHS dataset at the district level.

2.4 Women Empowerment in Agriculture Index (WEAI)

While one's economic activity is an important indicator of empowerment (Sell and Minot, 2018), one's agency [15] is also a key dimension necessary for the decision-making process behind labor force participation. Therefore, it is important to explore how increased fear from media-reported local sexual assaults affects empowerment. The study utilizes the Women's Empowerment in Agricultural Index (WEAI) to explore this.

The WEAI was originally developed by the International Food Policy Research Institute (IFPRI) and Oxford Poverty and Human Development Initiative(Alkire et al., 2013). The WEAI is a multifaceted empowerment index which accounts for women's and men's achievements in the following five domains: production, access to and decision-making power on productive resources, control over the use of income, leadership in the community, and time allocation. Each of the five domains is constructed using specific indicators, which are, production decision and production autonomy (production), assets ownership, assets purchase/sale/transfer, credit access and decision (productive resources), control over income (income), group member and speaking in public (leadership), workload allocation and leisure satisfaction (time). The five domains are then weighted to construct the 5DE empowerment score index by gender.[16]. A 5DE gender parity index is also constructed as the difference between men's 5DE and women's 5DE scores.

2.5 Estimation Sample Description

All empirical analyses are restricted to women aged between 18 and 59 from rural households. They are most likely to be employed and aware of media coverage of sexual assaults and other VAW in their communities. Table 1 provides descriptive

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[15]Agency is the freedom and capability of making individual life choices (Sen, 1995, 2000, 2008; Desai, 2010).

[16]Details of these domains and constructions weights used in the 5DE score construction are given in table A15. Please see Alkire et al. (2013) for details on index construction. An individual is considered empowered if they have adequate achievement in four of the five domains, or the weighted indicators have 80% total adequacy or more.

statistics of the primary variables of interest and sample characteristics. Table A2 further statistically compares female and male employment rates and table A3 provides the summary statistics for additional variables used in the study.

The primary outcome of interest is paid employment. Among the estimation sample, about 59% of women were in paid employment,[17] about 21% in unpaid employment, and about 81% in either paid or unpaid employment.[18] The study considers a woman to have paid employment if they spent a non-zero fraction of time in the past seven days in salaried, waged, or self-employment. However, among the share of women in paid employment, over 90% were self-employed, the majority of whom worked in raising either livestock (about 20%) or poultry (about 35%).[19] Conditional on paid employment, rural women also tend to earn a much lower monthly income (average of BDT 613) relative to their male counterparts (average of BDT 11,042), with only about 6.2% of the women engaging with mobile banking products.[20]

The average woman in the sample is about 37 years old. Women from the minority Hindu households form 11% of the estimation sample. About 58% of women reported watching television regularly, whereas only 2% and 3% reported listening to the radio and reading the newspaper, respectively. A fairly large number of women, about 37%, reported never receiving any schooling, 30% received some schooling up to primary, while 33% attained a secondary or higher level of education.

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[17]The 2022 labor Force Survey of Bangladesh shows an increase in overall female labor force participation: from 36.3% in 2016/17 to 42.7% in 2022. Interestingly, if we disaggregate this, the increase is fully driven by an increase in rural female labor force participation – from 38.6% in 2016/17 to 50.89% in 2022. This 12.3 percentage point increase is unprecedented from previous survey trends and is driven mostly by increases in self-employment. Conversely, the urban female labor force participation actually fell — from 34.5% in 2010 to 31% in 2016, and again to 23.6% in 2022. Urban female employment is predominantly for pay/profit (93.2%) which is almost at par with urban male employment for pay/profit (99.6%). In contrast, rural female employment is dominated by own use production of goods — 62.5% for rural female employment compared to only 2.15% for rural male employment.

[18]In contrast, during 2017-18 in rural India, about 42.3% were in paid employment (10.5% in regular wage/salaried employment and 31.8% in casual employment) and 57.7% in self-employment. Among the self-employed women, 67% were active in unpaid labor (NSO, 2019).

[19]It is worth noting that even though these women were self-employed, the nature of work would require them to go outside their home, such as for securing feed and for arranging the sale of produce.

[20]Unconditional monthly income average for rural women is BDT 427, while that for their male counterparts is BDT 10,976 (see table 1).

Table 1: Descriptive statistics: Female Sample

	(1) n	(2) Mean	(3) sd
Employment			
Paid Employment (past 7 days)	9,908	0.59	0.49
Unpaid Employment (past 7 days)	9,908	0.21	0.41
Paid/Unpaid Employment (past 7 days)	9,908	0.81	0.40
Nature of Employment			
Salaried Employment	9,908	0.02	0.15
Waged Employment	9,908	0.02	0.15
Self Employment	9,908	0.55	0.50
Unpaid Employment	9,908	0.21	0.41
Individual/Household Characteristics			
Age	9,908	37.19	10.12
Married	9,908	0.89	0.32
Household Size	9,908	5.50	2.17
Religion: Hindu	9,908	0.11	0.32
Community/Microfinance Group Membership	9,888	0.42	0.49
Practices Pardah	9,888	0.93	0.25
Practices Pardah for Religious/Safety Purpose (if $Pardah = 1$)	8,057	0.40	0.49
Time Allocated to Prayer (past 24 hours): Female Respondent	9,888	0.82	1.19
Time Allocated to Prayer (past 24 hours): Male Respondent	8,348	0.65	1.13
Income (in BDT)			
Average Monthly Household Income	9,908	12,369.71	8,380.88
Average Monthly Income by Female Respondent	9,908	426.59	822.13
Average Monthly Income by Male Respondent	6,946	10,975.52	6,509.30
Female Use of Mobile Banking	9,888	0.06	0.23
Household Use of Mobile Banking	9,908	0.30	0.46
BPO Sexual Assault and GBV			
All VAW at $(t-1)$	9,908	0.41	0.82
Sexual Assaults at $(t-1)$	9,908	0.15	0.44
Other VAW at $(t-1)$	9,908	0.26	0.63
Police Reported Violence Against Women (VAW) Incidents			
Police Reported VAW Cases by Upazila (Quarter Average)	9,908	53.29	43.45
Police Reported Rape Cases by Upazila (Quarter Average)	9,908	14.19	10.59
Police Reported Acid Throw Cases by Upazila (Quarter Average)	9,908	0.20	0.37

Data Sources: BPO, BIHS Waves II and III, & Justice Audit
Notes: $(t-1)$ denotes the quarter (3 months) prior to the respondents' interview date.
Demographic and labor market characteristic data are taken from II (2015) and III (2018-2019) round of Bangladesh Integrated Household Survey (BIHS). Data on media reported VAW incidents are taken from the Bangladesh Peace Observatory (BPO) dataset and merged with individual level BIHS data at the upazila and quarter-year level aggregation. Police reports of VAW case data are taken from the Justice Audit (JA) report. The sample is restricted to rural women aged between 18 to 59.

Surprisingly, 93% of the women reported wearing the *Pardah* as a regular practice, 80% of whom reported wearing the *Pardah* for religious purposes, reflecting the overall societal conservative setting of *rural* Bangladesh.[21] Women in the sam-

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[21]Chakraborty et al. (2018) also uses the *Pardah* practice as a proxy for societal conservativeness

ple also tend to allocate more time to prayer than their male counterparts. While this can be due to greater levels of religiosity among females, this can also potentially reflect a way to obtain a longer period of relief from household chores and responsibilities.

A total of 7,653 VAW incidents are reported in the BPO dataset, of which 3,117 incidents (about 41%) were sexual assaults, between January 2014 and December 2019 spatially distributed across Bangladesh. BPO also identifies the main perpetrator of the sexual assault and VAW media-reported incidents, where possible. Table A1 reports this. While the majority of sexual assault reports identified members of the general public to be the main perpetrator (about 80%), the majority of other forms of VAW were reported with known family members as the main perpetrator (about 50%).

There is significant variance in media reporting of sexual assaults and VAW both spatially and temporally. Figure 1 shows that while the reporting of both sexual assaults and VAW have been increasing over time, media reporting of sexual assaults saw a sharp increase from January 2018.[22] Figure 5, on the other hand, shows the spatial variance in media-reported sexual assaults (while Figure A1 shows the spatial variance in all media-reported VAW) across Bangladesh, aggregated at the district level. Unsurprisingly, media reports of both sexual assault and other VAW are highest in the capital city, Dhaka, followed by Narayanganj, Chittagong, and Mymensingh districts respectively.[23]

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in India, citing that "the stigma cost that the society attaches to a victim of sexual crime is expected to be higher in a more conservative society. This is because a conservative society is expected to place a high value on a girl's chastity." (Chakraborty et al., 2018, p.234) It is important to note that wearing the *Pardah* does not automatically translate to social or religious conservatism. However, in Bangladesh, Islamic veiling among women has become a ubiquitous marker of the population's "hardening" Islamic identities and values (Siddiqi, 2006) constructing the *Pardah* as a cultural symbol reinforced as a social norm. As such, especially in rural areas, where women's empowerment remains a pertinent issue, equating the *Pardah* with social and religious conservatism is not unreasonable.

[22]While this sharp increase in sexual assault reporting overlaps with the #MeToo movement worldwide, which began on 15 October 2017, it is difficult to say how much the #MeToo movement contributed to this increased reporting, especially in rural regions of Bangladesh. The #MeToo movement built awareness against all forms of sexual assault by encouraging people to publicize their experiences of sexual abuse or sexual harassment.

[23]This is expected as these are all districts with a significantly larger urban/peri-urban population than rural population. They are treated as potential outliers and excluded in a robustness check; see section 4.3.

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Figure 1: Sexual Assault and VAW: Temporal Variation
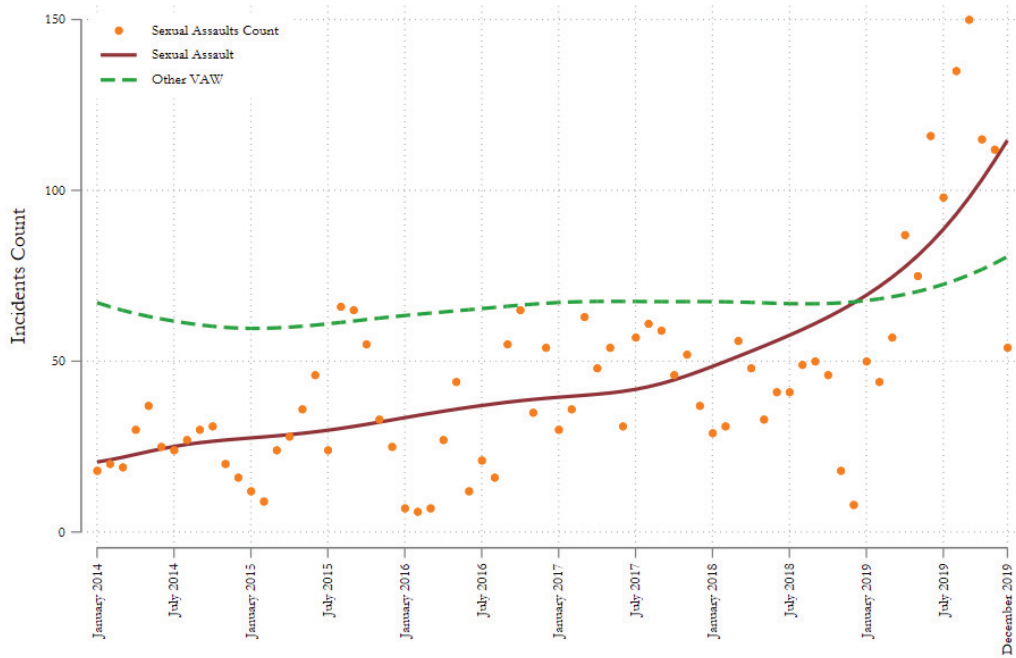
Source: BPO

Figure 2: Correlation between FLFP and Sexual Assault
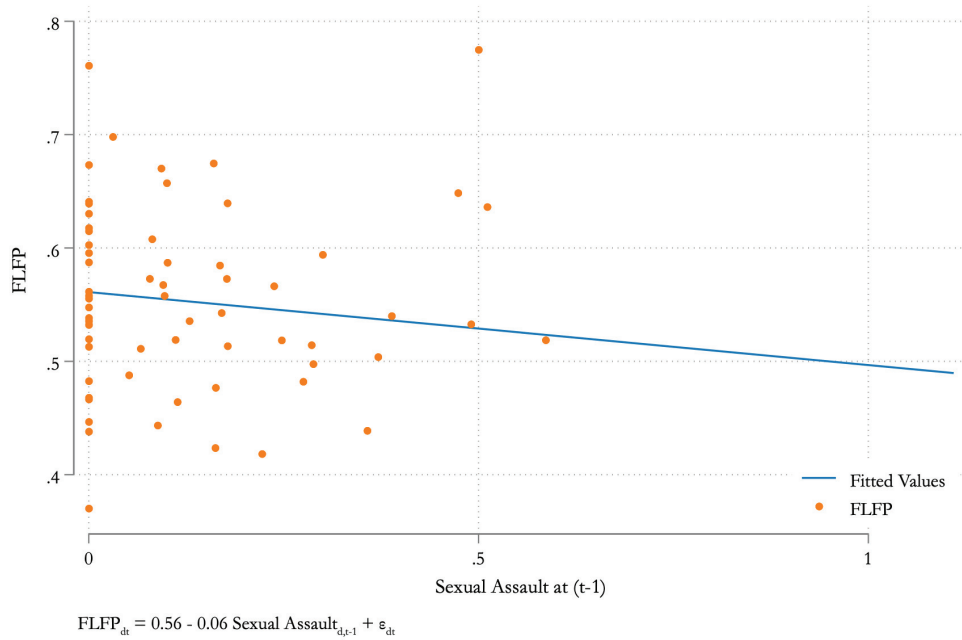
$$\text{FLFP}_{dt} = 0.56 - 0.06 \text{ Sexual Assault}_{d,t-1} + \varepsilon_{dt}$$

Sources: BPO & BIHS Waves II and III.
Notes: The binary employment measure *paid employment* is used as measure of female labor force participation (FLFP).

How does female labor force participation vary with media-reported sexual assaults? Figure 2 shows this correlation at the district level using a simple scatter plot of paid employment against 3-month lagged media-reported sexual assaults (while figure A2 shows the same against other forms of media-reported VAW and figure A3 shows against all media-reported VAW). The figure clearly shows a negative correlation where increased reporting is associated with a fall in female participation in paid employment, although the relationship is statistically insignificant.

As mentioned in section 2.3, this study also sources data on police-reported VAW cases. Figure A4 plots the correlation between police-registered VAW cases and media-reported VAW incidents, showing a generally positive association between the two. On the other hand, figure A5 plots annualized police-registered VAW cases and media-reported VAW incidents by district from 2014 to 2017 with a 45-degree line. Expectedly, police-reported VAW cases always exceed the number of media-reported VAW incidents (with almost all the points being above the 45-degree line) meaning that most VAW crimes reported to the police are not reported in media outlets.[24]

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[24]Given this right-skewed distribution of media-reported sexual assaults, an additional robustness check using the inverse hyperbolic sine transformation of media reports is reported in table A4. The overall results remain consistent.

Chapter 3   Estimation Strategy

This study builds on the estimation strategy of Siddique (2022) to investigate the relation between FLFP and media-reported sexual assaults and other VAW incidents. For the base specification, variations of the following reduced-form equation are estimated:

$$FLFP_{ist} = \beta_0 + \beta_1 SA_{s,t-1} + \beta_2 VAW_{s,t-1} + \beta_3 X_{ist} + \gamma_i + \psi_{s \times t} + u_{ist} \qquad (1)$$

The dependent variable $FLFP_{ist}$ is the outcome of interest and is constructed using information on the respondent's activity status over the past seven days. Depending on the specification, $FLFP_{ist}$ can represent either paid employment, unpaid employment, or paid/unpaid employment, all binary indicator variables, for respondent i, from a rural household from upazila s, interviewed at date-time t. Each indicator outcome gets a value of 1 if the respondent spent a non-zero fraction of time in respective employment during the past 7 days, and 0 otherwise.

The primary variables of interest are $SA_{s,t-1}$ and $VAW_{s,t-1}$. Here $SA_{s,t-1}$ is the aggregate number of media-reported sexual assaults in respondent i's upazila s, during the three months $(t-1)$ prior to the date of the respondent's interview. Similarly, $VAW_{s,t-1}$ is the aggregate number of media reports of other VAW incidents in respondent i's upazila s, during the three months $(t-1)$ prior to the date of the respondent's interview. Including $SA_{s,t-1}$ and $VAW_{s,t-1}$ separately allows the study to capture their differential impacts on labor force participation. The impacts of locally reported sexual assaults and other VAW incidents in the media are captured by the coefficients β_1 and β_2, respectively. The coefficient β_1 is the effect of one additional media report of local sexual assault during the past quarter, on labor force participation today, while holding the number of media reports of other local VAW incidents in the past quarter constant.

Any control variable that could be affected by a woman's employment decision may not be plausibly exogenous and is excluded from the estimation. X_{ist}, therefore, includes the time-varying age (quadratic) of the female respondent as a control.[25] To control for time-invariant differences across individuals, such as re-

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[25]For example, working may change what kind of media one consumes, how many children one has (and, therefore, household size), and would also directly impact household income. It is however worth mentioning that including these controls does not change substantially the estimates (see table A5).

ligion or the level of education, the estimation includes individual fixed effects γ_i. Time-varying changes at the upazila level, like local elections or local development policies, could also affect both FLFP rates and media reporting of sexual assault and other VAW incidents. To control for these potential unobserved sources of heterogeneity which are upazila and time specific, upazila × quarter-year fixed effect ($\psi_{s \times t}$) is also included. This can be particularly important in the study context as it not only helps rule out upazila and time-varying cultural norms but also any upazila and time-varying macroeconomic shocks that may affect both FLFP and media reporting of sexual assault and other VAW incidents. Since not all households from sampled villages were enumerated by BIHS, standard errors are clustered at the upazila level following Abadie et al. (2023). While it is still possible for omitted variable bias to exist in these specifications, for example, through village-specific time-varying factors which are correlated with lagged media reports of VAW incidents and labor supply, the study conducts several robustness and placebo checks (detailed in section 4.3) which indicate that to be unlikely or negligible.

Building on the base specification, and similar to Siddique (2022), the study next explores how the impacts of media-reported sexual assaults and other VAW are affected by the inclusion of additional context-specific controls. First, the following equation 2 is estimated to examine how the effects of media-reported sexual assaults and other VAW incidents further in the past impact current FLFP:

$$FLFP_{ist} = \rho_0 + \sum_{l=-4}^{-1} \rho_1 SA_{s,t+l} + \sum_{l=-4}^{-1} \rho_2 VAW_{s,t+l} + \rho_3 X_{ist} + \gamma_i + \psi_{s \times t} + \omega_{ist} \quad (2)$$

Equation (2) is similar to equation (1) in all aspects, except for the inclusion of up to four lags of SA and VAW as additional covariates.

Second, to understand the differential effect of media-reported sexual assaults and other VAW incidents and police-reported VAW cases in one's local area, the following equation 3 is estimated:

$$FLFP_{isdt} = \pi_0 + \pi_1 SA_{sd,t-1} + \pi_2 VAW_{sd,t-1} + \pi_3 X_{isdt} + \pi_4 PVAW_{d,t-1} + \gamma_i + \psi_{s \times t} + \nu_{isdt}$$
$$(3)$$

The construction of $PVAW_{d,t-1}$ is as described in section 2.3. The total number

of police-reported local VAW cases in district d, in the year prior to the survey, is taken and divided by four to be converted to comparable quarterly aggregates (per 10,000 population in the district). Equation 3 is the same as 1 in all aspects, except for the inclusion of $PVAW_{d,t-1}$. The estimation allows the study to investigate whether there is any effect of an increase in the media reports of sexual assault and VAW incidents on FLFP while holding the past level of police-reported VAW cases in the district constant.

Third, it is still possible for the estimation in equation 1 to be biased from unobserved changes in the labor demand that can impact both the female labor supply and the local VAW incidents. For example, selective closure of ready-made garment factories, which are female-dominated, in an upazila might impart a negative labor demand shock, reducing FLFP and their household bargaining power. This fall in their bargaining power within the household may in turn lead to an increase in VAW incidents. This would manifest as a negative correlation between media-reported VAW incidents and female labor supply. A change in the labor demand for male-dominated industries can also similarly bias the estimation in equation 1. For example, selective dismissal of males for females in order to conform to local female empowerment policies (such as industry-specific quota setting) may result in a fall in the male labor demand while increasing FLFP. This would reduce male income but may lead to an increase in VAW incidents, positively biasing the estimation between media-reported VAW incidents and female labor supply.

To control for such plausible exogenous labor demand shocks, gender-specific industry-weighted labor demand indices reflecting upazila level labor demand shifts at varying rates are constructed following Bartik (1991), Autor and Duggan (2003), Aizer (2010), and Siddique (2022). These indices are constructed by exploiting the cross-upazila variation in gender-specific industrial composition along with national changes in industry-specific employment. Specifically, the two indices are a weighted sum of national industry employment changes (excluding own upazila employment) projected onto upazila industry composition to predict labor demand for each upazila and quarter by gender. The following equation 4 details the construction of the indices:

$$ln(\widehat{Emp}_{st}^{g}) = \sum_{ind} k_{s,ind}^{g} ln(Emp_{-st,ind}) \tag{4}$$

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Here ind represents the two-digit Bangladesh Standard Industrial Classification (BSIC) 2020 code[26] and gender is indexed by $g \in f, m$. As before, s represents upazila, and t represents quarter-year. To identify whether an industry is female or male employment-intensive, the proportion of female or male labor in industry ind, in upazila s, in wave II of BIHS is represented by the variable $k_{s,ind}^g$, which is fixed over time. This ensures that changes in employment do not reflect selective sorting across industries. The log of the fraction of labor employed nationally in industry ind among the working-age population, excluding upazila s, is denoted by $ln(Emp_{-st,ind})$. Excluding upazila s from the national average controls for any biases arising from changes in the attributes of the local labor force that may influence changes in employment. The gender-specific index is then a weighted sum of the two parameters.

The study exclusively tests whether the relationship between media-reported local VAW and FLFP is affected by exogenous labor demand shocks by estimating the following equation 5:

$$FLFP_{ist} = \delta_0 + \delta_1 SA_{s,t-1} + \delta_2 VAW_{s,t-1} + \delta_3 X_{ist} +$$
$$\delta_4 ln(\widehat{Emp}_{st}^f) + \delta_4 ln(\widehat{Emp}_{st}^m) + \gamma_i + \psi_{s \times t} + \phi_{ist}$$
(5)

The specification in equation 5 is the same in all aspects as equation 1 except for the inclusion of female- and male-specific exogenous labor demand indices constructed following equation 4.

Compositional differences in groups of women can have differential impacts, driven by variances in their incentive to overcome fear and stay active in the labor force. To explore such heterogeneity, equation 1 is estimated on different subsamples of women. The effect of $SA_{s,t-1}$ on female labor supply is first examined across different age groups of rural women, and second, across total household income quartiles. Heterogeneity by gender, marital status, community group membership, and degree of conservativeness/stigma cost is also explored to better understand potential pathways of impact and who is affected more by media reporting of sexual assaults. Following this method of heterogeneity analysis provides the advantage of allowing all covariates, including $SA_{s,t-1}$, to have differing effects on FLFP across

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[26]The primary occupation of the respondent is used to manually match with the Bangladesh Standard Industrial Classification (BSIC) 2020 code.

the sub-samples. Finally, to better understand the downstream effects of media reporting of sexual assaults, the study also explores impacts on individual monthly income, relevant expenditure categories, and empowerment measures using the Women Empowerment in Agriculture Index (WEAI) indicators.

Chapter 4 Estimation Result and Discussion

4.1 Baseline Regressions

Understanding the effect of media reports of local sexual assaults and other VAW incidents on FLFP demands an exhaustive investigation. The study parsimoniously builds the estimation to examine the impact on a woman's decision to participate in the labor force. Estimation results following equation 1 is provided in table 2 where columns (1) - (4) present the results on paid employment, and column (5) presents the result on paid/unpaid employment.

Results from the preferred specification are reported in column (4). The effect of $SA_{s,t-1}$ on FLFP is negative and moderately large, while also being highly significant at the 1% significance level. The probability of a woman engaging in paid employment reduces by about 3.4 percentage points, using the sample of rural women aged 18-59, when there is a one standard deviation increase in $SA_{s,t-1}$ (= 0.49). This effect is equivalent to 5.73% of the sample average of paid employment.[27] There is no effect of $VAW_{s,t-1}$, which is similar to the findings of Siddique (2022) where they found no impact of media-reported *physical* assaults on FLFP. Changing the outcome from paid employment to paid/unpaid employment, reported in Column (5), shows that $SA_{s,t-1}$ continues to have a negative impact, however, the coefficient is much smaller and less significant.

It is worth noting that the effects in the preferred specification, however, do not manifest without controlling for individual unobserved heterogeneity. Column (1) presents the association between the primary variables of interest and paid employment without any controls or fixed effects. Although, the coefficient on $SA_{s,t-1}$ is statistically insignificant, the direction indicates a negative correlation between media reports of local sexual assault incidents and FLFP. The coefficient on $VAW_{s,t-1}$

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[27]This is calculated as follows: $(-0.069 \times 0.49)/0.59 = -0.0573$. Siddique (2022, p.1352) reports an effect size equivalent to 5.5% for urban India. Chakraborty et al. (2018, p.234) reports a 17% reduction in women's workforce participation, also in urban India, from a 1% increase in the fraction of people who perceive crime against women to be high in the neighborhood. This study finds a smaller effect size for rural Bangladesh. It is important to note that whether the effect size should be smaller in rural vis-a-vis urban areas is not straightforward. While urban employment generally requires more time outside of home which can contribute to an increase in the fear factor, the relatively more conservative setting in rural areas can lead to greater stigma cost. Further, the effect is likely underestimated as the specification does not include spillover effects of local sexual assaults from neighbouring upazilas, which is also likely to negatively affect FLFP.

is also negative and statistically insignificant but with negligible magnitude. The inclusion of additional controls, X_{ist}, in column (2) yields very similar estimates as column (1). In column (3) however, with the inclusion of individual fixed effects, even though $VAW_{s,t-1}$ still has no effect on FLFP, $SA_{s,t-1}$ now has a significant and negative effect, albeit only at a 10% significance level. This indicates a likely correlation of individual-specific unobservables with *paid employment* and with $SA_{s,t-1}$. Exploiting the within-individual variation using individual fixed effects, by removing time-invariant biases from individual-specific unobservables, reveals a negative effect of $SA_{s,t-1}$ on FLFP.

Table 2: Media-reported Sexual Assault on *Female* labor Force Participation (FLFP)

	(1) Paid Employment	(2) Paid Employment	(3) Paid Employment	(4) Paid Employment	(5) Paid/Unpaid Employment
Sexual Assaults at $t-1$	-0.022	-0.027	-0.029*	-0.069***	-0.029*
	(0.017)	(0.017)	(0.015)	(0.023)	(0.017)
Other VAW at $t-1$	-0.001	-0.002	0.015	0.015	-0.009
	(0.013)	(0.012)	(0.009)	(0.016)	(0.015)
Observations	9,908	9,908	9,908	9,880	9,880
Controls	✗	✓	✓	✓	✓
Individual FE	✗	✗	✓	✓	✓
Upazila × Quarter-Year FE	✗	✗	✗	✓	✓
Mean of DV	0.59	0.59	0.59	0.59	0.81

Data Sources: BPO & BIHS Waves II and III
Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors clustered at the upazila are reported in parentheses. Column (1) - (4) reports the parsimonious set of regressions estimating 1 on the binary outcome measure *paid employment* for individuals active in casual or formal employment. In column (5) the binary outcome measure takes a value of one if the individual was active in the labor force despite their payment status. Regression samples are restricted to rural women aged between 18 to 59.

Equation 1 is also estimated using the inverse hyperbolic sine transformation of media reports of local sexual assaults and other VAW incidents, as the distribution of media reports is right-skewed with a high fraction of zeros (see figure A5). Table A4 reports the results. The sign and significance of the coefficients remain relatively unchanged compared to the results in table 2. Including additional (potentially endogenous) socio-economic controls also does not affect the results, reported in table A5. As a quick robustness check, equation 1 is also estimated using upazila fixed effects instead of individual fixed effects, shown in table A6. The results remain consistent but with a smaller magnitude for the preferred specification coefficient on $SA_{s,t-1}$. The results also remain consistent to including upazila and quarter-year fixed effects separately in the specification, shown in table A7. Finally, estimating

equation 1 on the corresponding sample of rural men, aged 18-59, reveals an interesting contrast between labor force participation decisions of men and women and media reporting of local sexual assaults. Table A8 reports this set of results. Unsurprisingly, neither $SA_{s,t-1}$ or $VAW_{s,t-1}$ has any effect on men's paid, unpaid, or paid/unpaid employment.[28]

A natural question that follows is whether the women who disengage with paid employment, due to an increase in media reporting of sexual assaults, stop working entirely or substitute for other forms of employment. As mentioned in section 2.1, BIHS also reports on the nature of employment in the following categories: waged employment, salaried employment, self-employment, and unpaid employment.[29] To explore this, equation 1 is estimated at the intensive margin of employment (that is, conditional on working) to see the effect of media reports of sexual assaults on the nature of employment. The results are provided in table 3.[30] It is first important to contextualize the nature of these employment categories for rural Bangladesh. The majority of women in the sample are engaged in either self-employment or unpaid employment, about 68% and 26% at the intensive margin, respectively. Unpaid employment is primarily defined as working in a family business, while self-employment is comprised mostly of small businesses, such as raising poultry or livestock.

Table 3 reports an almost perfect substitution effect where women switch from self-employment (column 3) to unpaid employment (column 4) caused by an increase in the media reports of local sexual assault. This is a concern because paid employment is known to confer more autonomy, household bargaining power, and societal influence, than unpaid labor, despite women contributing more economic value than men to domestic chores and child care (Sen, 1987; Kessler-Harris, 2003; Kabeer, 2008).

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[28]The results also remain consistent when a probit estimation is used instead of a linear regression estimation.

[29]It is worthwhile to remind the reader here that paid employment comprises of waged employment, salaried employment, and self-employment.

[30]Table A9 reports the results replacing individual fixed effects with upazila fixed effects. The results remain consistent.

Table 3: Impact on FLFP by Nature of Employment (Intensive Margin)

	(1) Salaried Employment	(2) Waged Employment	(3) Self Employment	(4) Unpaid Employment
Sexual Assaults at $t-1$	0.010	-0.005	-0.072***	0.067***
	(0.009)	(0.006)	(0.026)	(0.025)
Other VAW at $t-1$	-0.002	0.007	0.030	-0.035*
	(0.011)	(0.006)	(0.021)	(0.021)
Observations	6,896	6,896	6,896	6,896
Controls	✓	✓	✓	✓
Individual FE	✓	✓	✓	✓
Upazila × Quarter-Year FE	✓	✓	✓	✓
Mean of DV	0.03	0.03	0.68	0.26

Data Sources: BPO & BIHS Waves II and III
Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors clustered at the upazila are reported in parentheses. Each column provides estimation results from different regressions. Equation 1 is estimated on four different outcome variables based on the nature of employment. The binary outcome measures take a value of one if the individual has spent a non-zero time during the past week in salaried, waged, self, or without pay employment. Regression samples are restricted to rural women aged between 18 to 59.

This substitution decision is likely driven by two potential sources (or a combination of the two) both driven by increased fear — either by the woman herself causing her to decide to switch from self-employment, which involves at least some work outside of the home, to unpaid employment in a family business in the supervision or protection of other family members; or by the woman's partner or parents (including in-laws) who enforce this substitution decision on the woman. Whomever the decision-maker, media reports of sexual assaults cause rural women previously engaged with working outside to be more likely to work in their family business, alongside other family members, where they feel safer.[31]

4.2   Inclusion of Additional Controls

To ensure that the results from equation 1 are unbiased, results from including additional context-specific controls are presented in table 4. Estimates from equation 2 with additional lags are reported in the column (1). Lags of media reports of other local VAW incidents still do not affect the paid employment probability of rural women. However, the impact of $SA_{s,t-1}$ on paid employment still holds after the inclusion of up to four lag periods. The remaining lag coefficients on media-reported sexual assaults, while all statistically insignificant, show an interesting

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[31]While this is explored further in section 4.4, unfortunately, BIHS does not have the granular level of individual data necessary to distinguish between these two potential impact sources on decision-making.

pattern. The coefficient on $SA_{s,t-2}$ becomes positive but is smaller in magnitude than the coefficient on $SA_{s,t-1}$. The coefficients on $SA_{s,t-3}$ and $SA_{s,t-4}$ are both negative but much smaller than the coefficient on $SA_{s,t-1}$. This sign reversal and then a slow climb of the coefficients towards zero provides suggestive evidence that even though there is an immediate response in the labor market with an increase in media reports of sexual assaults, the market tries to catch up later.[32] The effect of $SA_{s,t-1}$ on paid/unpaid employment is also estimated following equation 2 with additional lags in column (1) of table A10, where a similar trend can be seen. On a brighter note, this indicates that the effects of media-reported sexual assaults on FLFP might not persist in the long run.

The result from equation 3 is presented in column (2) of table 4, which includes police-reported VAW cases, $PVAW_{d,t-1}$, as an additional covariate. The coefficient on $PVAW_{d,t-1}$ is statistically insignificant. On the other hand, the impact of media reports of local sexual assaults remains negative and statistically significant on paid employment of rural women while additionally holding the number of police-reported VAW incidents in the past quarter constant. This suggests that the crime itself may not be the primary pathway of driving the impact, but rather the pathway is the underlying probability of being assaulted. It is the fear that acts as the primary driver, in other words, the perceived sense of security or lack thereof. A persistent negative and statistically significant coefficient on $SA_{s,t-1}$, even after comparing women across districts with the same level of police-reported VAW cases, suggests the effect to be behavioral in nature. However, the coefficient on $PVAW_{d,t-1}$ is substantially large here, although statistically insignificant because of the large standard error. This points to a worrisome conclusion that the cumulative effects of media reports of sexual assaults and the underlying VAW cases on female labor supply may be substantially larger than the estimated coefficient on $SA_{s,t-1}$ alone. A similar result for paid/unpaid employment can be seen in column (2) of table A10.

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[32]This pattern of immediate overreaction by rural women is also documented by Siddique (2022) for urban women in India.

Table 4: Media-reported Sexual Assault on FLFP: Additional Controls

	(1) Paid Employment	(2) Paid Employment	(3) Paid Employment
Sexual Assaults at $t-1$	-0.062*	-0.069**	-0.071***
	(0.037)	(0.034)	(0.024)
Other VAW at $t-1$	0.004	0.016	0.015
	(0.025)	(0.028)	(0.020)
Sexual Assaults at $t-2$	0.050		
	(0.033)		
Other VAW at $t-2$	0.015		
	(0.025)		
Sexual Assaults at $t-3$	-0.014		
	(0.031)		
Other VAW at $t-3$	0.004		
	(0.026)		
Sexual Assaults at $t-4$	-0.042		
	(0.035)		
Other VAW at $t-4$	0.011		
	(0.025)		
Police Reported VAW		-0.236	
		(1.198)	
Industry-weighted Female Employment (log)			0.499
			(0.701)
Industry-weighted Male Employment (log)			-0.158
			(0.323)
Observations	9,880	9,880	9,578
Controls	✓	✓	✓
Individual FE	✓	✓	✓
Upazila × Quarter-Year FE	✓	✓	✓
Mean of DV	0.59	0.59	0.59

Data Sources: BPO, BIHS Waves II and III, & Justice Audit
Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors clustered at the upazila are reported in parentheses. Each column provides estimation results from different regressions. Results estimating equation 2 are reported in column (1), 3 in column (2), and 4 in column (3). Regressions are estimated on the binary outcome measure *paid employment* for individuals active in casual or formal employment during past week. Regression samples are restricted to rural women aged between 18 to 59.

The labor supply of rural women can also decrease as a response to a contemporaneous decrease in labor demand. To test this, the study employs equation 5, estimated in column (3) of table 4. The variable $VAW_{s,t-1}$ continues to have no effect, while the statistical significance and negative impact remain consistent for the coefficient on $SA_{s,t-1}$. When there is a contemporaneous increase in labor demand in female-dominated industries, paid employment for rural women tends to go up as indicated by the positive coefficient on $ln(\widehat{Emp}_{st}^{f})$. Conversely, paid employment for rural women decreases with a contemporaneous increase in labor demand in male-dominated industries. However, as the relationships are not statistically sig-

nificant, it is safe to rule out potential spurious correlations between media reports of local sexual assaults and paid employment due to changes in labor demand. Column (3) of table A10 reports a consistent result for paid/unpaid employment.

4.3 Robustness

A number of robustness estimations are conducted to check the persistence of the negative relationship between media reports of local sexual assaults and female labor supply. These checks include removing potential outliers, altering the empirical specification, and placebo experiments. Overall, the negative relationship between media-reported sexual assaults and female labor supply continues to persist. The results are presented in table 5.

There is a large number of media-reported sexual assault incidents in Dhaka (> 400), Narayanganj (> 120), Chittagong (> 120), and Mymensingh (> 120) districts between January 2014 and December 2019 as indicated by figure 5. To remove the influence of potential outliers, equation 1 is re-estimated on a smaller subsample excluding these four districts. The effect of media reports of sexual assaults, reported in column (1), continues to be negative and statistically significant. Equation 1 is again re-estimated using a smaller subsample excluding women who are currently studying in an educational institution. The results are reported in column (2). Once again, the coefficient on $SA_{s,t-1}$ remains negatively significant and of similar magnitude.

Additionally, the following equation is estimated:

$$FLFP_{ist} = \kappa_0 + \sum_{l=-1}^{+1} \kappa_{1,l} SA_{s,t+l} + \sum_{l=-1}^{+1} \kappa_{2,l} VAW_{s,t+l} + \kappa_3 X_{ist} + \gamma_i + \psi_{s \times t} + \omega_{ist} \quad (6)$$

This alternative specification includes (t) and ($t + 1$) lead measures of media reports of local sexual assaults and other local VAW incidents along with the lagged media reports of the incidents as covariates. Everything else in equation 6 is the same as equation 1. The estimation results are reported in column (3), which provides an important placebo experiment. While, the coefficient on future media-reported sexual assaults, $SA_{s,t+1}$, is positive, that on contemporaneous $SA_{s,t}$ is negative.

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Table 5: Media-reported Sexual Assault on FLFP: Robustness & Placebo

	(1)	(2)	(3)	(4)	(5)
			Paid Employment		
	Excluding Outliers	Excluding Students	Alternative Specifications		Placebo Experiment
Sexual Assaults at $t+1$			0.004	0.004	
			(0.019)	(0.019)	
Other VAW at $t+1$			-0.007	-0.010	
			(0.024)	(0.026)	
Sexual Assaults at t			-0.012	-0.013	
			(0.029)	(0.029)	
Other VAW at t			0.010	0.011	
			(0.030)	(0.030)	
Sexual Assaults at $t-1$	-0.072*	-0.070**	-0.073*	-0.067*	-0.032
	(0.042)	(0.033)	(0.037)	(0.038)	(0.045)
Other VAW at $t-1$	0.010	0.015	0.020	0.015	0.038
	(0.031)	(0.027)	(0.031)	(0.030)	(0.037)
Sexual Assaults at $t-2$				0.040	
				(0.034)	
Other VAW at $t-2$				0.012	
				(0.025)	
Sexual Assaults at $t-3$				-0.006	
				(0.033)	
Other VAW at $t-3$				0.000	
				(0.025)	
Observations	8,934	9,846	9,880	9,880	10,600
Controls	✓	✓	✓	✓	✓
Individual FE	✓	✓	✓	✓	✓
Upazila × Quarter-Year FE	✓	✓	✓	✓	✓
Mean of DV	0.59	0.60	0.59	0.59	0.64

Data Sources: BPO & BIHS Waves II and III
Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors clustered at the upazila are reported in parentheses. Each column provides estimation results from different regressions. Column (1) & 2 provides results of estimating equation 1 on different samples of rural women. Estimation results from equation 6 and 7 are provided in columns (3) and (4) respectively. Column (5) reports the results of the placebo experiment described in section 4.3. Regression samples are restricted to rural women aged between 18 to 59.

Assuringly, the coefficients on $SA_{s,t}$, $SA_{s,t+1}$, $VAW_{s,t}$ and $VAW_{s,t+1}$ are all small and statistically insignificant. On the other hand, the negative relationship between the lagged media reports of local sexual assaults continues to be negative and statistically significant. This indicates that the effect of media reports of local sexual assaults comes into play with a one-period ($t-1$) lag — rural FLFP reacts quickly to media-reported local sexual assaults, but not immediately.

Does the result from equation 6 still hold with the inclusion of additional lags of

media reports of local sexual assaults and local VAW incidents? This is checked in equation 7:

$$FLFP_{ist} = \theta_0 + \sum_{l=-3}^{+1} \theta_{1,l} SA_{s,t+l} + \sum_{l=-3}^{+1} \theta_{2,l} VAW_{s,t+l} + \theta_3 X_{ist} + \gamma_i + \psi_{s \times t} + \phi_{ist} \quad (7)$$

The results are reported in column (4). Contemporaneous and one-period leads of media reports of local sexual assaults and other local VAW incidents continue to not have any effect on female labor supply, even after controlling for multiple lagged periods of media-reported sexual assaults and other VAW incidents. The coefficient on $SA_{s,t-1}$ continues to be negative with statistical significance. Interestingly, and consistent with Siddique (2022), column (4) also shows that these effects are short-term and do not persist over consecutively lagged quarters, with smaller coefficients on $SA_{s,t+l}$.

A final placebo test is conducted using a four-year lead of media reports of local sexual assaults and other local VAW incidents. Media-reporting data from 2022-2023 is matched with the third wave of BIHS, while 2019 data is matched with the second wave. There is no reason why future reporting of sexual assaults and other VAW incidents can affect the present female labor supply. The results are reported in column (5), where the coefficient on both $SA_{s,t-1}$ and $VAW_{s,t-1}$ are statistically insignificant, with the coefficient on $SA_{s,t-1}$ also much smaller in magnitude.[33]

4.4 Heterogeneity

This section explores whether rural women with particular characteristics are differentially affected by media-reported sexual assaults. In doing so, potential pathways through which the female labor supply is impacted are also investigated.

4.4.1 Age Cohorts

Figure A6 shows the prevalence rate of self-reported sexual violence experienced during the past 12 months by age group from the 2015 Bangladesh Violence Against Women (VAW) Survey (BBS, 2016). There are two important things to note from this figure. First, the share of self-reported sexual violence experienced by females

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[33]Table A11 reports the robustness results for paid/unpaid employment, which remain consistent with table 5.

from partners is much higher than the share from non-partners. This is interesting because sexual violence experienced by females from partners is much less likely to be media-reported (see table A1) potentially contributing to the large gap seen between police-reported VAW cases and media-reported VAW in figure A5. Second, and expectedly, with increasing age, the share of females who experienced sexual violence during the past 12 months from their partner (if married) goes down. But, strikingly, the share of females who experienced sexual violence during the past 12 months from non-partners remains fairly consistent with age. Taken together, one would expect the impact of media-reported sexual assaults and other VAW incidents to impact the youngest cohort of women the most, given that purity concerns are also likely to be more important for younger than older cohorts.

Equation 1 is first estimated on subsamples of women of varying age groups, reported in Panel A of table 6. Surprisingly, we find a statistically insignificant impact of $SA_{s,t-1}$ on women aged between $18-26$ years, but a significant impact for women aged between $27-35$ and $36-44$ age groups.[34] This counter-intuitive finding in the case of rural Bangladesh might be due to two factors. First, the paid employment rate among females aged between $18-26$ is half (only 30%) of that in the older cohorts (60% for the $27-35$ age cohort, and 66% for the $36-44$ age cohort). Those who haven't entered into employment have no decision to make regarding leaving employment due to increased media-reported sexual assaults.[35] Second, about 77% of women in the $18-26$ age cohort are married, compared to 94% of women in the next $27-35$ age bracket. The effect of increased media-reported sexual assaults on employment decision-making is likely to be stronger for married women who may face a greater stigma cost or stronger employment decision imposition from their partners. This is shown in Panel **A** of figure 3 which plots the coefficients on $SA_{s,t-1}$ by marital status following equation 1, even though the effect between married and not married women is statistically insignificant from each other. A combination of these two factors is likely contributing to the impact heterogeneity pattern for the age cohorts. Unsurprisingly, there is no effect of increased media-reported sexual assaults on female labor supply decisions for the $45-59$ age cohort.

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[34]A similar result is reported by Chakraborty et al. (2018) where the authors find significant impacts of perceived crimes against women in the neighborhood on FLFP for $21-30$ and $31-40$ age cohorts but not on younger $15-20$ or older $41-50$ and $51-60$ age cohorts in urban India. Siddique (2022), on the other hand, finds a significant impact of media reporting only for the $18-25$ age cohort, also in urban India.

[35]They do, however, have a decision to make about entering into employment, which is not explored in this paper.

4.4.2 Economic & Social Status

Next, equation 1 is estimated on subsamples of women of varying economic status by monthly household income quartiles. The social stigma cost of women engaging in paid employment in developing countries is well acknowledged in the academic literature (see, for example, Klasen et al. (2021)). Avoiding the stigma and responding more to the fear from increased media reports of local sexual assaults is more "affordable" by more affluent households (Jayachandran, 2020). On the other hand, poorer households may have an economic incentive to overcome the feelings of anxiety and fear arising from media reporting of local sexual assaults and still engage in paid employment out of economic necessity. This is reflected in the results reported in Panel B of table 6.

The impact of media reports of both local sexual assaults and other local VAW incidents is positive, although statistically insignificant, among the women belonging to households in the first quartile in column (1) with monthly household income below the 25th percentile. The effect of $SA_{s,t-1}$ progressively grows more negative over the subsequent quartile groups, indicating more affordability to remove oneself from paid employment with more financial stability in the household. However, the impact is statistically significant only for women belonging to the third and fourth quartiles in columns (3) and (4), with monthly household income above the 50th percentile. This pattern is consistent with the fear channel arising from media reporting of local sexual assaults.[36]

Rural Muslim women, on average, have a greater paid employment rate (about 55%) compared to rural Hindu women (about 46%). However, Hindus are a minority group in Bangladesh comprising only 11% of the sample. Panel **B** of figure 3 shows the effect impact of media-reported local sexual assaults by religion. While there is a significant negative effect on rural Muslim women to disengage with paid employment due to increases in $SA_{s,t-1}$, there is no such effect on rural Hindu women.[37] The effect for rural Muslim women is, however, not statistically signifi-

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[36]Siddique (2022) also reports a similar pattern. However, she only finds statistical significance for *urban* women above the 75th percentile in India.

[37]At the outset, it is unclear why such a difference emerges. Rural Hindu women may be less affected by purity concerns. For example, only 60% of rural Hindu women wear the *parda* (mostly for cultural integration as opposed to religious/safety concerns) compared to 97% of rural Muslim women wearing the *parda*. Rural Hindu women may also come from closer-knit communities, as is common for minority groups, providing a better sense of protection compared to rural Muslim women. There is also some evidence in the literature that income likely acts as a resilience factor that

cantly different from that for rural Hindu women.

Table 6: Heterogeneity by Age and Household Income

	(1) Paid Employment	(2) Paid Employment	(3) Paid Employment	(4) Paid Employment
Panel A:				
Age	18-26	27-35	36-44	45-59
Sexual Assaults at $t-1$	-0.043	-0.091**	-0.082**	-0.026
	(0.041)	(0.040)	(0.041)	(0.041)
Other VAW at $t-1$	-0.027	0.020	-0.005	0.009
	(0.026)	(0.032)	(0.036)	(0.029)
Observations	3,075	3,342	2,715	3,102
Mean of DV	0.30	0.60	0.66	0.60
Share of Married Women	0.77	0.94	0.90	0.76
Panel B:				
Household Income	First Quartile	Second Quartile	Third Quartile	Fourth Quartile
Sexual Assaults at $t-1$	0.021	-0.058	-0.090**	-0.069***
	(0.073)	(0.042)	(0.045)	(0.026)
Other VAW at $t-1$	0.058	0.023	0.011	-0.045
	(0.043)	(0.038)	(0.030)	(0.034)
Observations	2,764	2,778	2,780	2,759
Mean of DV	0.59	0.56	0.55	0.49
Controls	✓	✓	✓	✓
Upazila FE	✓	✓	✓	✓
Upazila × Quarter-Year FE	✓	✓	✓	✓

Data Sources: BPO & BIHS Waves II and III
Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors clustered at the upazila are reported in parentheses. Each column in each panel provides estimation results from different regressions. Panel **A** shows the estimation results of equation 1 for different age groups of women by splitting the sample into 4. Panel **B** shows the estimation results for four groups based on monthly household income quartiles. Individual FE controls for any time-invariant differences across individuals. However, age is time-varying, and as a result, the inclusion of individual FE drops out observations for individuals whose age have crossed the upper cutoff of the age groups, reducing the sample size substantially. To counter this issue, upazila FE is used in this set of regressions instead of individual FE, while everything else is as in equation 1. Regression samples are restricted to rural women aged between 18 to 59. Panel B additionally removes household income outliers by winsoring the sample at 95%.

buffers and compensates for the negative effects of discrimination on minority groups (Youngmann and Kushnirovich, 2020). If this is the case, rural Hindu women may have a stronger incentive to overcome the fear effects of increased media reports of local sexual assaults and remain in paid employment.

Figure 3: Sexual assault at $(t-1)$ impact heterogeneity

Non-government organizations (NGOs) and other community-based organizations are active in their interventions to increase women's empowerment in Bangladesh. Women's affiliation with these organizations can potentially enhance their status within the household (Fattah and Camellia, 2020). Often these organizations create groups for women belonging to the same area[38] to work as a support mecha-

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[38]The peer-mechanism of microfinance groups by BRAC is one such example with impacts extending beyond the beneficiary status via social networking effects (Bandiera et al., 2009).

nism for them in various aspects such as economic shocks, violence prevention, or social empowerment.[39] Panel **C** of figure 3 explore this. Women belonging to a group affiliated with NGOs or other community-based organizations experience a smaller impact on paid employment of media-reported sexual assault compared to non-members. This indicates that there may be a positive impact of belonging to such groups, helping rural women to become more resilient. However, the impact between groups remains statistically insignificant.

Panel **C** of figure 3 explore this. Women belonging to a group affiliated with NGOs or other community-based organizations experience a smaller impact on paid employment of media-reported sexual assault compared to non-members. This indicates that there may be a positive impact of belonging to such groups, helping rural women to become more resilient. However, the impact between groups remains statistically insignificant.

4.4.3 Conservativeness

Ahmed and Sen (2018) report that women from more conservative households are less likely to be active in the labor force in rural Bangladesh. One of the reasons behind this could be that conservative families stigmatise sexual violence victimization more. Chakraborty et al. (2018) argued that the high cost and fear women associate with sexual assault stems from a patriarchal mindset that places a higher value on women's purity out of a sense of ownership (in most cases, by the current or potential future husband). Such values, and the associated cost, tend to be stronger for families with more conservative values. Therefore, women from such families will associate a greater stigma cost to the trauma from (potential) sexual violence victimization and have a greater incentive to deter away from employment with increases in media-reported sexual assaults. To ascertain this, equation 1 is estimated on subsamples of women using two proxy measures for conservatives — the practice of wearing *pardah* and individual prayer time allocation.

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[39]Relatedly, it is worthwhile to note that there have been conflicting results regarding the relationship between intimate partner violence prevention and group membership in the literature. Wahed and Bhuiya (2007) report that members of microcredit groups are likely to experience twice as much intimate partner violence (IPV) than non-members, and Chowdhury and Bhuiya (2000) found similar results for physical violence. On the other hand Schuler et al. (2013) and Hadi (2005) found the opposite where group members (women) experience less violence than non-group members with similar sociodemographic attributes.
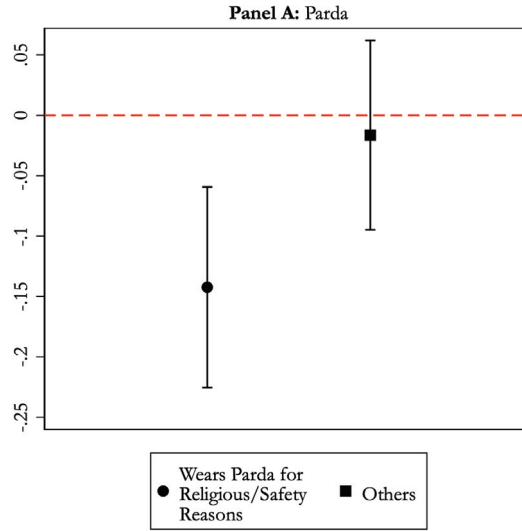
Panel A: Parda

(a) Female practices wearing *Parda*

Panel B: Female's Time Allocated to Prayer
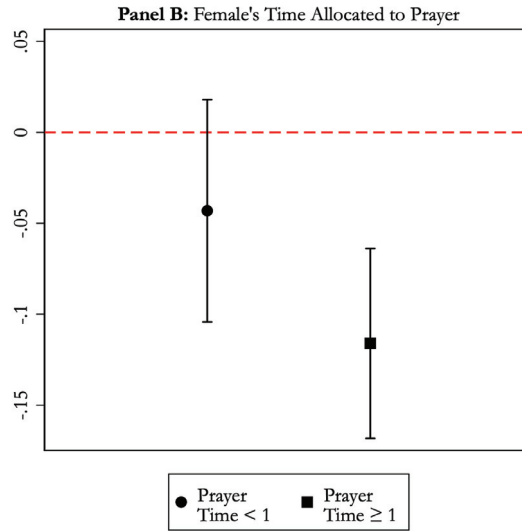
(b) Female's Time Allocated to Prayer (past 24 hours)

Sources: BPO & BIHS Waves II and III.

Notes: Coefficient plots from estimating equation 1 on different outcome variables. Panel **A** shows the heterogeneous impact of lagged media-reported local sexual assaults by a binary measure for wearing *parda* for religion/safety reasons, and = 0 otherwise. Similarly, panel **B** shows the coefficient plot for female time spent less than an hour, and equal to or more than an hour (total hour spent in past 24 hours) in prayer. Vertical capped bars represent 95% confidence intervals. The sample is restricted to rural women aged between 18 to 59.

The proxy variables operate under the following implicit assumptions. First, the *pardah* practice in Bangladesh stems from the Islamic religious interpretation/practice of screening women from men or strangers by covering their face and body struc-

ture with clothing. The stigma cost is thus expected to be higher for women who practice wearing the *pardah* under the assumption that they face a relatively more conservative household or have more conservative values themselves. However, as discussed in section 2.5, given the relative conservativeness of rural Bangladesh, over 93% of women in the sample practice wearing the *pardah*. As such, another variable is utilized in this study. Among the women who wear *pardah*, BIHS inquired why they engage with the practice. Women who engage with the practice for religious and/or safety reasons are coded as $= 1$, while the alternate category includes women who wear *parda* for other reasons[40] and who do not engage with the practice. Following a similar train of thought, individuals who allocate more time to daily prayer are likelier to belong to households with more conservative values and exhibit similar trends. The results are reported in figure 4.

Panel **A** shows the coefficient plots of $SA_{s,t-1}$ separately for women who self-reported wearing the *pardah* for religious and/or safety reasons and other women. The effect of media reports of local sexual assaults is statistically significant for women who wear the *pardah* for religious and/or safety reasons; it is insignificant for other women.

This is in line with the conservativeness argument of Chakraborty et al. (2018) that women with more conservative values or from more conservative households are likelier to experience a greater impact of media-reported local sexual assaults on their decision to be active in the labor force stemming from increased fear for their safety and societal repercussions. There is, however, no statistically significant difference between the two groups. Panel **B** shows the coefficient plots of $SA_{s,t-1}$ for the effects of media reports of local sexual assaults on women who spend less than an hour on prayer and women who spend an hour or more on prayer. As expected, the effect is significant and larger for women who spend an hour or more on prayer, whereas the effect on women who spend less than an hour on prayer remains insignificant. However, like Panel **A**, there is no statistically significant difference between the two groups.

As discussed in section 4.1, the extent to which $SA_{s,t-1}$ impacts FLFP is intertwined with the broader household dynamics where the decision to move away from paid employment may come from the women themselves or from family mem-

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[40]Unfortunately, BIHS did not code the "other" reasons.

bers who may fear for the safety of the female working member. The family might influence the women to leave their work outside of the home and join the family business where they will be in proximity. Unfortunately, BIHS does not have the relevant variables necessary to disentangle these two pathways, so it is not possible to cleanly identify the separate impacts. However, BIHS also has information on the time allocated to prayer (in the past 24 hours) by male respondents for married couples, potentially reflecting their degree of conservativeness. This information is used to construct a measure of relative conservativeness as a ratio of female-to-male time allocated to prayer.

A female-to-male prayer time ratio < 1 then reflects households where the male is potentially more conservative than females allocating relatively more time to prayer, and vice versa for a ratio of ≥ 1.[41] If women from households with relatively more conservative males have a greater reaction to media-reported local sexual violence, it may provide some indication that the women from these households face stronger imposition from their partners on their decision to engage in paid employment. Conservative males are more likely to stigmatize sexual violence victimization and exert control over their partners, out of concern for their safety outside the home, and choose to restrict women's FLFP decisions where they have no control over the work environment and cannot "protect" them. Panel **D** of figure 3 presents the results, restricted to married females aged 18-59. The effect of $SA_{s,t-1}$ is much stronger for women who are from households with relatively more conservative male partners, while it is smaller and statistically insignificant for women who are from households with a female-to-male prayer time ratio ≥ 1. This potentially indicates that conservative male partners have a strong influence on the women's decisions regarding their work status. This is, however, indicative only and warrants a more thorough investigation to establish the pathway of impact with certainty.

4.4.4 Perpetrators of Sexual Assaults

The BPO dataset also contains information on the perpetrator of media-reported local sexual assaults and other VAW incidents (shown in table A1). It is possible that media reporting of local sexual assaults by different perpetrator groups can

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[41]It is important to note that there is likely selection bias here arising from assortative matching in the marriage market by religious conservativeness, similar to assortative matching by education (Furtado and Theodoropoulos, 2011) and economic status (Zhou, 2019).

affect the fear channel to different degrees leading to varying impacts on FLFP. For example, media reporting of local sexual assaults by community figureheads, government officials or political leaders, on whom the mass public generally imparts their trust, may affect people more relative to media reporting of local sexual assaults by unknown perpetrators. The following equation is estimated to explore this:

$$FLFP_{ist} = \tau_0 + \tau_1 SAPP_{s,t-1} + \tau_2 SAO_{s,t-1} + \tau_3 VAW_{s,t-1} + \tau_4 X_{ist} + \gamma_i + \psi_{s \times t} + \epsilon_{ist} \quad (8)$$

Equation 8 separates media reports of local sexual assaults by types of perpetrators. $SAPP_{s,t-1}$ captures the media reports of local sexual assaults committed by perpetrators affiliated with a political party[42] or who are in positions of power as government officials or national military enforcement entities[43], while $SAO_{s,t-1}$ captures the media reports of local sexual assaults by any other perpetrators. $SAPP_{s,t-1}$ and $SAO_{s,t-1}$ together equals $SA_{s,t-1}$. Everything else in equation 7 is the same as equation 1.

Table 7 reports the results. Columns (1) to (3) provide the results for rural female labor force participation, and columns (4) to (6) provide the results for rural male labor force participation. Media reports of local sexual assaults by perpetrators affiliated with political parties or government administration tend to have a greater impact on female paid employment compared to the impact of media reports of local sexual assaults by any other individuals/entities (column 1). The substitution to unpaid employment (column 2) is also mostly driven by women who disengage with paid employment due to increases in $SAPP_{s,t-1}$, although this is now statistically insignificant.

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[42]This includes political parties (such as Awami League, Bangladesh Nationalist Party, Jamaat-e-Islami) and their student and non-student wings (such as Bangladesh Chhatra League, Jatiotabadi Chatra Dal, Islami Chhatra Shibir) among others.

[43]This includes affiliations with the Bangladesh Army, Bangladesh Ansars and Village Defence party, Bangladesh Police, Border Guard Bangladesh, Civil Service/Executive Magistrate, Coast Guard Bangladesh, Customs Intelligence and Investigation Unit, Department of Narcotics Control, Election Commission, Human Rights Commission, Judicial Institution, Local Government, Bangladesh Navy, Rapid Action Battalion (RAB) and other state actors.

Table 7: Sexual Assault on Female and Male LFP by Perpetrator

	(1)	(2)	(3)	(4)	(5)	(6)
		Female			Male	
	Paid Emp.	Unpaid Emp.	Paid/Unpaid Emp.	Paid Emp.	Unpaid Emp.	Paid/Unpaid Emp.
Sexual Assaults						
by Political/Govt. Official at $t-1$	-0.169**	0.110	-0.055	0.031	-0.026	0.012
	(0.074)	(0.070)	(0.058)	(0.057)	(0.051)	(0.037)
Sexual Assaults by Others at $t-1$	-0.050*	0.011	-0.039*	0.003	-0.001	-0.007
	(0.028)	(0.027)	(0.023)	(0.018)	(0.017)	(0.005)
Other VAW at $t-1$	0.014	0.027*	-0.009	0.025	-0.015	0.013
	(0.016)	(0.015)	(0.015)	(0.016)	(0.010)	(0.011)
p-value $(\beta_1 - \beta_2)$	0.15	0.20	0.81	0.66	0.65	0.62
Observations	9,880	9,880	9,880	6,924	6,924	6,924
Controls	✓	✓	✓	✓	✓	✓
Individual FE	✓	✓	✓	✓	✓	✓
Upazila × Quarter-Year FE	✓	✓	✓	✓	✓	✓
Mean of DV	0.59	0.21	0.81	0.90	0.09	0.99

Data Sources: BPO & BIHS Waves II and III
Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors clustered at the upazila are reported in parentheses. Each column provides estimation results from different regressions. Equation 8 is estimated on three different outcome variables based on the nature of employment. The binary outcome measures take a value of one if the individual has spent a non-zero time during the past week in paid, or unpaid employment, and if the individual was active in the labor force despite their payment status. Regression samples are restricted to rural women aged between 18 to 59.

This is interesting because the share of media-reported sexual assaults by perpetrators affiliated with political parties or government administration is low (about 5.5% of all media-reported sexual assaults). However, the result is not surprising. Media reporting of local sexual assaults by people of trust or in power likely increases fear by breaking pre-existing institutional/social trust and imparts a much stronger impact on FLFP. In other words, the fear channel is much stronger when it stems from perpetrators who are influential in the local community or society. However, the coefficients on $SAPP_{s,t-1}$ and $SAO_{s,t-1}$ are not statistically significantly different. On the other hand, there is no significant differential impact of media-reported local sexual assaults by any group of perpetrators on male labor force participation.

4.5 Downstream Impacts on Income and Empowerment

The impact of media-reported local sexual assaults on paid employment for rural women may manifest as downstream impacts on their income, expenditure, and empowerment. This section conducts a set of exploratory analyses to investigate such associations. First, equation 1 is estimated on household income and individ-

ual income by gender as outcome variables. Table A12 shows that media reports of local sexual assaults have a statistically significant negative effect on female income (column 2), but no effect on household income (column 1) or male income (column 3). On average, female income falls by about 22%, equivalent to about BDT 94 from the mean. Interestingly, usage of mobile banking by rural women is also significantly affected, dropping by about 8.3% (column 4). Mobile banking has gained substantial popularity in Bangladesh over the years and has flourished with increasing mobile phone users (about 120.73 million user as of October 2016) (Akhter and Khalily, 2020). Mobile banking is a convenient choice for smaller transactions, especially for individuals involved in entrepreneurial activities requiring frequent transactions (Akhter and Khalily, 2020). The fall in mobile banking with increases in $SA_{s,t-1}$ is thus in line with the fall in women's self-employment due to increases in $SA_{s,t-1}$ reported in column (3) of table 3. As rural women move away from self-employment, they are less likely to use mobile banking as well.

A fall in female income may concurrently lead to a decrease in household expenditure on female-specific items, also potentially signifying a decrease in their bargaining power within the household (Anderson and Eswaran, 2009). Table A13 explores this using categories of expenditures as outcome variables. Columns (1) and (2) report the results behind household food and non-food consumption expenditure, respectively, with no significant effect of $SA_{s,t-1}$ on either of the two broad categories. However, expenditure behind both female personal items (column 3) and female cosmetics (column 5) significantly decreases with increases in $SA_{s,t-1}$. This provides suggestive evidence that media reports of local sexual assaults may have downstream negative impacts on female bargaining power within the household. Columns (6) to (8), on the other hand, provide the results for estimating equation 1 on children's educational expenses as the outcome. School tuition expenditure in column (6) and school supplies expenditure in column (7) both fall with an increase in $SA_{s,t-1}$, however, remain statically insignificant.[44] However, expenditure behind personal coaching for children, reported in column (8), significantly falls with increases in media reports of local sexual assaults. If mothers are responsible for the decision-making regarding providing their children with private

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[44]Given that education up to primary level for every child is compulsory along with free textbooks in Bangladesh, and free education for girls up to standard eight (Chowdhury et al., 2001), monthly household expenses behind tuition and education supplies are somewhat consistent and stable for the majority of the households in rural Bangladesh.

tutors[45] in rural Bangladesh, this may also suggest a fall in their household bargaining power as they move away from paid employment with increases in $SA_{s,t-1}$.

One of the strengths of the BIHS dataset is its measurement of the women's empowerment in agriculture index (WEAI), described in section 2.4. The impact of media-reported sexual assaults and other VAW incidents on the 5DE sub-index of WEAI along with its indicators are estimated following equation 1 and reported in table 8. Column (1) reports the results on the overall weighted 5DE empowerment score, columns (2) to (11) report the results on each of the 10 composite indicators from the five domains, and column (12) reports the results on the gender parity gap (the difference between men's 5DE and women's 5DE score).[46] Consistent with the results on income and expenditure, media reports of local sexual assaults reduce the overall empowerment of women (column 1). This fall in the overall weighted 5DE empowerment score for women due to increases in $SA_{s,t-1}$ seems to be driven primarily by reductions in their production autonomy (column 3) and their control over income (column 7).[47] As women leave self-employment and move into the family business (reported in table 3), their production autonomy and control over income are most affected. Moreover, the gender parity gap (column 12) increases with every additional media report of local sexual assaults, indicating increasing inequality between men's and women's empowerment levels. On the other hand, male empowerment, reported in table A14, is largely unimpeded by increases in $SA_{s,t-1}$ or $VAW_{s,t-1}$.[48]

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[45]This is not an unreasonable assumption to make. For example, Tansel and Bircan (2006) found that single-mother households spend more towards private tutors in Turkey. According to Qian and Smyth (2011), single-father households tend to spend significantly less on education compared to two-parent households in China. The fall in expenses towards children's private coaching, female personal items, and female cosmetics together explains about 75% of the fall in female monthly income.

[46]It is important to note that these results are associations and not causal identifications. Fear from increased media reporting of local sexual assaults may reduce one's empowerment, while those with initially low levels of empowerment may experience greater fear. Therefore, it is advised to interpret these downstream exploratory analyses with caution.

[47]There is also a fall in women's production autonomy and asset ownership due to increase in media-reported other VAW incidents. However, they do not manifest in the overall fall in empowerment due to increases in $VAW_{s,t-1}$.

[48]The effect of media reports of local sexual assaults on the gender parity gap (column 12) continues to be positive but is now statistically insignificant. The relatively large positive but insignificant coefficient of $SA_{s,t-1}$ for workload allocation (column 10) is interesting. This indicates that with increases in $SA_{s,t-1}$, more males have a workload lower than 10.5 hours in the past 24 hours and thus are more empowered in this indicator. While there is a corresponding fall in empowerment for females in this indicator with increases in $SA_{s,t-1}$ (column 10 of table 8), meaning more females have a workload of 10.5 hours or more in the past 24 hours, it is not statistically significant.

Chapter 5   Conclusion

There is substantial literature exploring the determinants of FLFP, both in the context of developed[49] and developing countries.[50]   However, the role of one's perceived sense of safety is only recently being considered as a determinant of FLFP (Mukherjee et al., 2001; Iyer et al., 2012; Chakraborty et al., 2018; Velásquez, 2020; Siddique, 2022).   Unlike previous studies exploring the urban developing country context, to the best of our knowledge, this is the first study to evidence the impacts of media reporting of local sexual assaults on rural FLFP.

Siddique (2022) and Chakraborty et al. (2018), using cross-sectional data, had previously established that media-reported sexual assaults and perceived local crime reduce urban Indian women's labor force participation.   This study expands the scope by demonstrating similar effects for rural Bangladeshi women using a panel dataset.   The use of panel data, over cross-sectional data, allows the study to control for time-invariant unobserved individual heterogeneity as well as time-varying upazila-time factors, providing a more robust set of results.   The results remain consistent against placebo checks and variations in the empirical specification and the estimation sample.   This study further explores how relative female conservativeness and differential media reporting by perpetrator's identity can influence one's perceived fear from increased media reporting of sexual assaults and differentially affect women's decisions regarding labor force participation. By exploring these channels and providing evidence from a rural developing country, the study contributes to a better understanding of the interplay between perceived risk and women's economic activities in South Asia.

Labor force participation by rural women in Bangladesh is found to be adversely affected by lagged media reporting of local sexual assaults.   The effects remain consistent even after ruling out several sources of unobserved heterogeneity and remain robust to alternative specifications.   Out of fear for their perceived sense

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[49]See Goldin (1980, 1983); Smith and Ward (1985); Fuchs (1986); Goldin (1989) and Blau and Kahn (2012) for studies done on the USA; Nakamura et al. (1979); Boothby (1984); Smith and Ward (1985) and Robinson and Tomes (1985) for Canada; Nakamura and Nakamura (1981) for a comparison between the USA and Canada; Joshi and Owen (1984, 1985) and Martin et al. (1984) in the context of Britain; Renaud and Siegers (1984); Van der Veen and Evers (1984) and Kooreman and Kapteyn (1987) for the Netherlands; and Hill (1984); Yamada and Yamada (1984); Yamada et al. (1985) and Yamada and Yamada (1985) for Japan.

[50]See Polachek (1981); Becker (1985); Schultz (1990); Macpherson and Hirsch (1995); Heim (2007) and Luke and Munshi (2011).

of security with increases in lagged media reporting of local sexual assaults, rural women substitute paid employment outside of the home for unpaid employment in the family business. Middle-aged Muslim women, from relatively richer and more conservative households are most affected, although the effects are mostly short-lived. Lagged media reporting of local sexual assaults perpetrated by influential people in the local community or society also impacts FLFP the most. Exploratory analysis suggests that the decision to disengage with paid employment may (at least partly) be imposed by more conservative male partners of married women, indicating that the decision for FLFP may be most restrictive in contexts where stigmatization is highest within the household. Impacted women are also associated with lower levels of empowerment and household bargaining, with reduced production autonomy and control over income.

The results presented in this paper, taken together, therefore highlight the importance of addressing the heightened perceived sense of fear stemming from media reporting of local sexual assaults. It is important to emphasize that rural women substituting from self-employment to providing unpaid labor in their family business by itself would not have been a problem had they been compensated adequately. However, given the cultural context of rural Bangladesh, such a substitution is often unpaid and associated with reductions in their empowerment and financial autonomy.[51] Moreover, such a decision is often imposed on them by their partners, given the patriarchal gender norms prevalent in most regions of rural Bangladesh. Better understanding these fear channels is therefore essential in designing policies aimed towards the improvement of FLFP conditions in Bangladesh.

Policy suggestions normally proposed to tackle this problem in urban areas, such as female-only transportation, are unlikely to be as effective or sustainable in rural regions of developing countries. The explorations in this paper indicate that policies leveraging peer-network effects and gender norms may instead be more effective. There is suggestive evidence that women engaged with microfinance or community-based groups are better able to resist the fear effects of such media reporting. However, this study did not identify the specific pathway through which the effects were mitigated. This could stem from increased social capital or self-confidence with

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[51]To reiterate this point, Roy et al. (2015) finds that even direct asset transfers alone to rural women in Bangladesh can counter-intuitively reduce women's relative resource control, mobility, and control over income. Careful considerations need to be made in the design of interventions targeted to improve women's empowerment.

more community engagement, support from peer groups, improved household bargaining power, group-specific benefits, or a combination of the factors.[52] A deeper exploration is required to identify the specific mitigating mechanism(s). Addressing gender norms is trickier but is arguably more pertinent. Field et al. (2021) find that opening bank accounts for rural women in India where their wages were directly deposited coupled with financial training not only increased their labor supply in the public and private sectors but also liberalized gender norms with their husbands perceiving fewer social costs to having a wife who works. Given that we have suggestive evidence that the decision to leave paid employment may be imposed by the male counterparts of rural women, it may be worthwhile to assess if similar interventions can help attenuate the effects of media-reported local sexual assaults through liberalized gender norms. However, such policy prescriptions to address women's safety concerns need careful thought about potential unintended consequences[53] for effective implementation.

Victims of VAW incidents need to have enough trust in the legal system to feel safe to seek justice. According to the 2018 Justice Audit Bangladesh Report, only 6% of existing rape cases were given verdicts convicting the accused in 2016, while 3,734 new cases were filed which is a staggering 78% of the existing cases. Victims of VAW are often reluctant to seek justice given the high societal stigma cost attached to the process in the first place (Faruk et al., 2021). Additionally, the slow pace of the judiciary system likely further deters justice-seeking as victims have to bear the cost of stigma for a longer time without receiving justice.[54] Revamping existing policies with a focus on protecting the victim,[55] and expediting VAW cases might provide that positive nudge needed towards building institutional trust and improving a woman's perceived sense of safety.

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[52]For example, Roy et al. (2019) finds that a nutrition behavioral change campaign coupled with asset transfers to women in rural Bangladesh reduced physical violence from their partners by 26% driven by a combination of effects on women's "threat points," men's social costs of violence, and household well-being.

[53]For example, Fakir et al. (2016) report increased intimate partner violence with an increase in female mobility autonomy in Bangladesh.

[54]An alternative or complementary policy often advocated is male-targeted sexual assault prevention programs. However, a meta-analysis by Wright et al. (2020, p.865) reports that "it is fair to conclude that there is little evidence that sexual assault prevention programs reduce the incidence of sexual assault."

[55]Currently, there are no independent laws for ensuring victim's rights and their protection in Bangladesh (Faruk et al., 2021)

Table 8: Impact on Female's Five Domains of Empowerment (5DE)

| | 5DE Score | Production | | Resources | | | Income | Leadership | | Time | | 5DE Gender Parity Gap |
		Productive Decisions (Sole/Joint)	Production Autonomy	Assets Ownership (Sole/Joint)	Assets Purchase/ Sale/Transfer (Sole/Joint)	Credit Access & Decisions (Sole/Joint)	Control over Income (Sole/Joint)	Group Member	Speaking in Public	Workload Allocation	Leisure Satisfaction	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Sexual Assaults at $t-1$	-0.019**	-0.007	-0.032***	0.008	-0.007	-0.018	-0.023**	0.016	0.021	-0.024	-0.030	0.026**
	(0.009)	(0.010)	(0.011)	(0.011)	(0.023)	(0.024)	(0.012)	(0.029)	(0.023)	(0.022)	(0.019)	(0.011)
Other VAW at $t-1$	-0.006	0.017	-0.048***	-0.023*	-0.021	0.019	-0.008	-0.001	-0.016	-0.008	-0.016	0.001
	(0.008)	(0.010)	(0.018)	(0.013)	(0.026)	(0.022)	(0.013)	(0.023)	(0.020)	(0.017)	(0.022)	(0.010)
Observations	8,632	7,872	8,632	8,632	8,632	8,620	8,620	8,632	8,494	8,606	8,598	6,140
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Individual FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Upazila × Quarter-Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mean of DV	0.80	0.96	0.86	0.93	0.71	0.65	0.94	0.49	0.68	0.83	0.82	0.04

Data Sources: BPO & BIHS Waves II and III

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors clustered at the upazila are reported in parentheses.
Each column provides estimation results from different regressions. The 5DE Score in column (1) is the first WEAI sub-index that assesses the degree to which women are empowered in the following five domains using 10 indicators with associated weights (see Alkire et al. (2013) for methodological details): production decisions (columns 2 and 3), access to and decision-making power over productive resources (columns 4 to 6), control over the use of income (column 7), leadership roles within the community (columns 8 and 9), and time allocation (columns 10 and 11). Each indicator assesses an individual's level of accomplishment relative to a certain threshold. The 5DE sub-index considers a woman empowered if she has acceptable achievements in four of the five domains (or 80% of the weighted indicators). The 5DE Gender Parity Gap in column (12) is the difference between men's 5DE and women's 5DE scores. Regression samples are restricted to married rural women aged between 18 to 59.

Figure 5: Sexual Assault: Spatial Variation
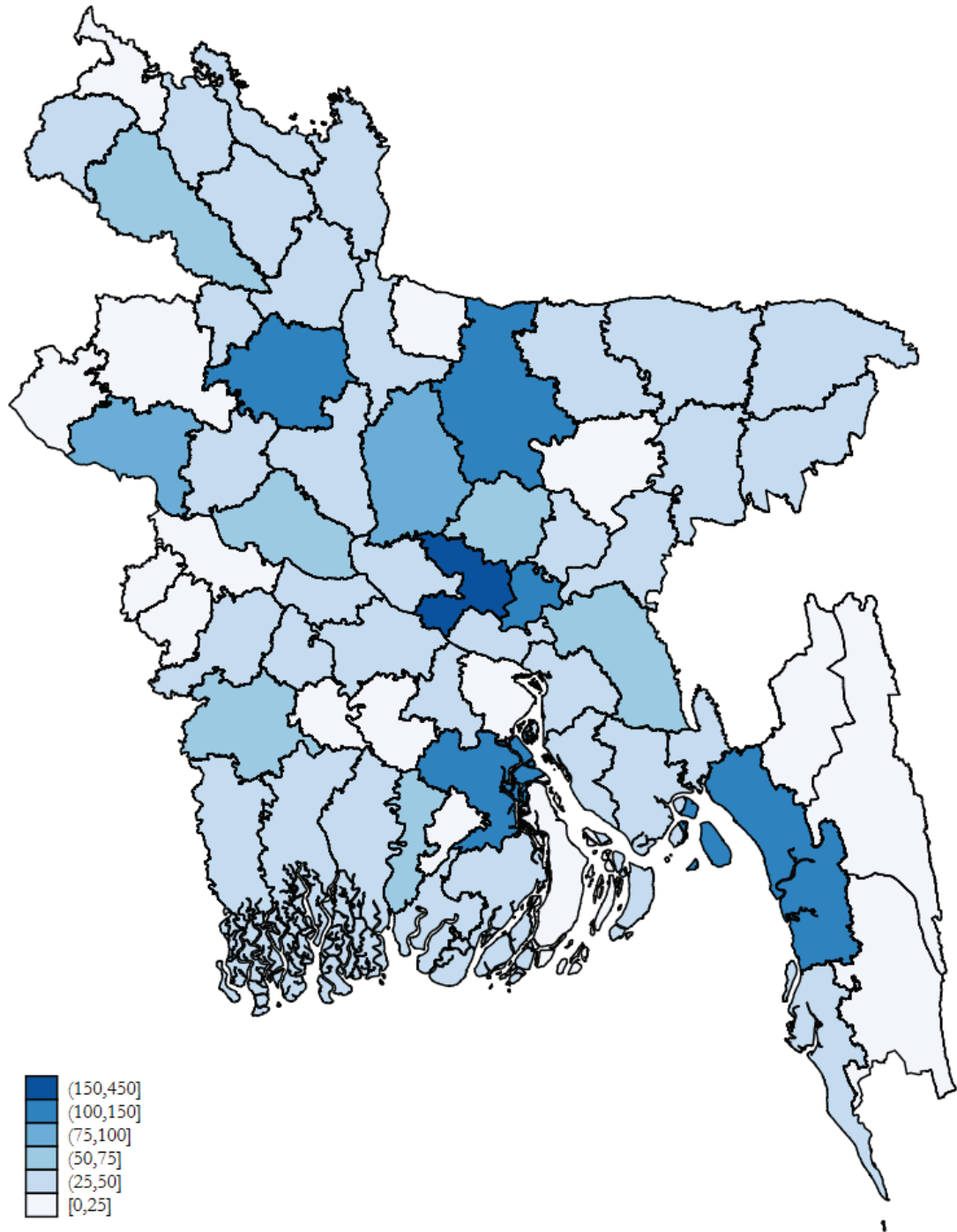
Source: BPO
Notes: Media reports of sexual assault between January 2014 and December 2019 by district.

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Appendix

Figures

Figure A1: All VAW: Spatial Variation

	(500,1000]
	(300,500]
	(200,300]
	(150,200]
	(100,150]
	(50,100]
	[0,50]
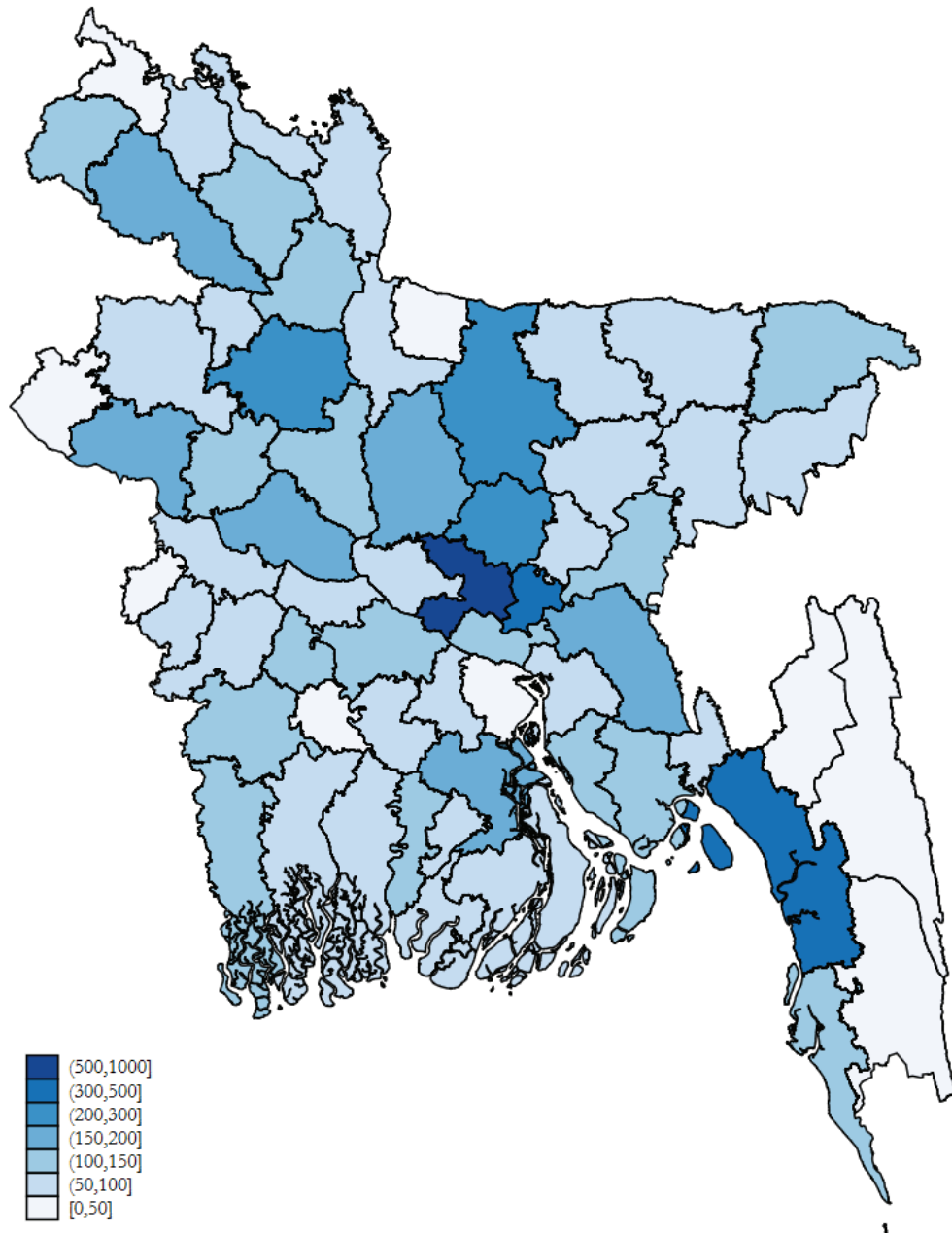
Sources: BPO
Notes: Media reports of all VAW incidents between January 2014 and December 2019 by district.

Figure A2: Correlation between FLFP and Other VAW
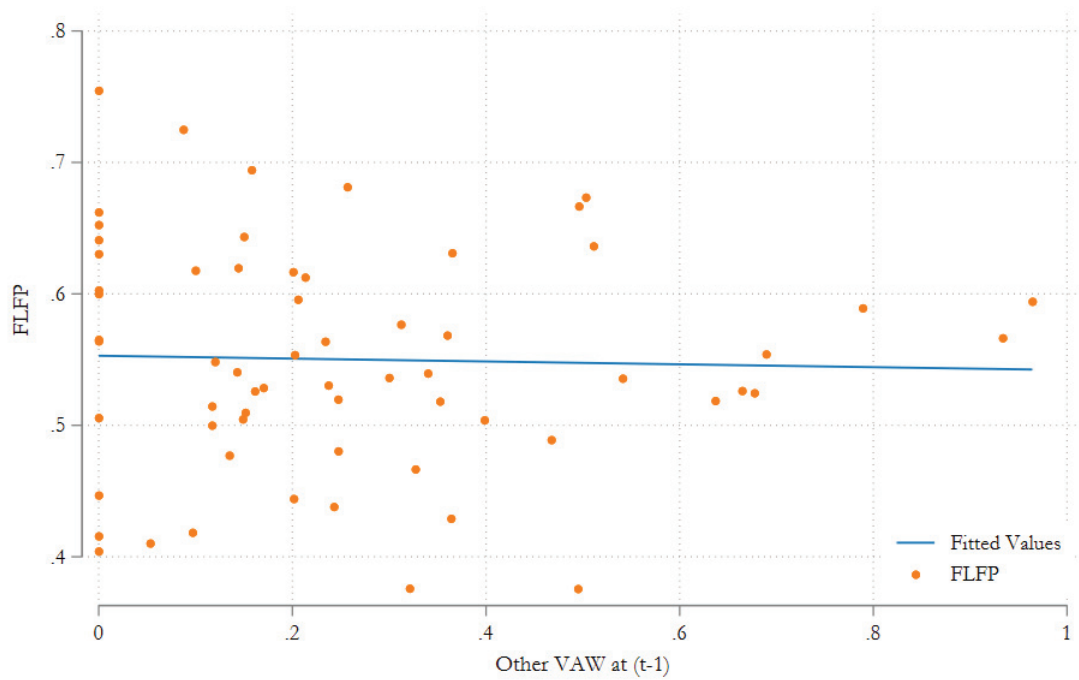
$$FLFP_{dt} = 0.55 - 0.01 \text{ Other VAW}_{d,t\text{-}1} + \varepsilon_{dt}$$

Sources: BPO & BIHS Waves II and III.
Notes: The binary employment measure *paid employment* is used as measure of female labor force participation (FLFP).

Figure A3: Correlation between FLFP and All VAW
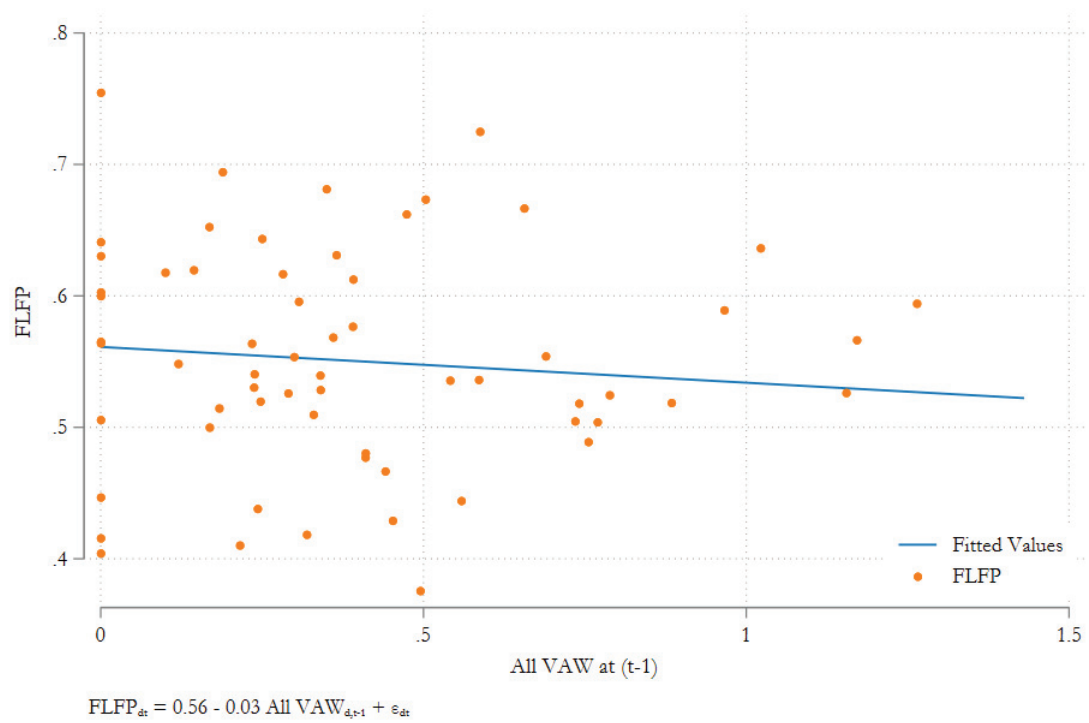
$$FLFP_{dt} = 0.56 - 0.03 \; All \; VAW_{d,t-1} + \varepsilon_{dt}$$

Sources: BPO & BIHS Waves II and III.
Notes: The binary employment measure *paid employment* is used as measure of female labor force participation (FLFP).

Figure A4: Correlation between Police Registered VAW Cases and Media Reported VAW Incidents
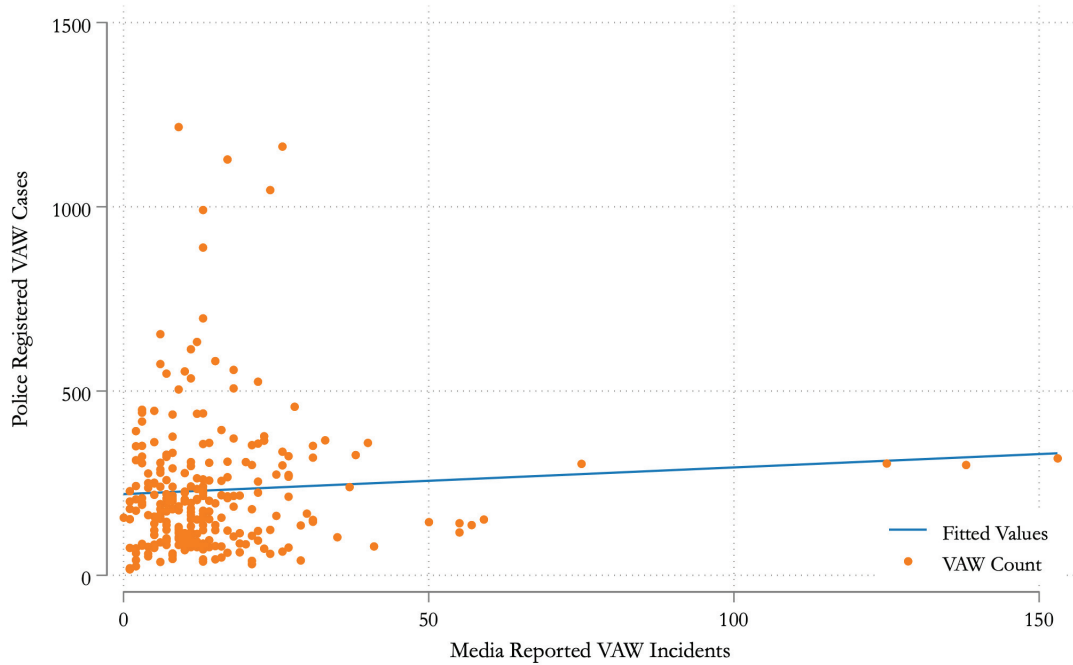
$$\text{Police Reported}_{dt} = 220.27 + 0.72 \text{ Media Reported}_{dt} + \varepsilon_{dt}$$

Sources: Justice Audit Report & BPO.
Notes: Each point on the scatterplot provides the combination of media reported VAW incidents and police registered VAW cases for a district. Superimposed is the line for fitted values.

Figure A5: Police Registered VAW Cases and Media Reported VAW Incidents: Reporting Bias
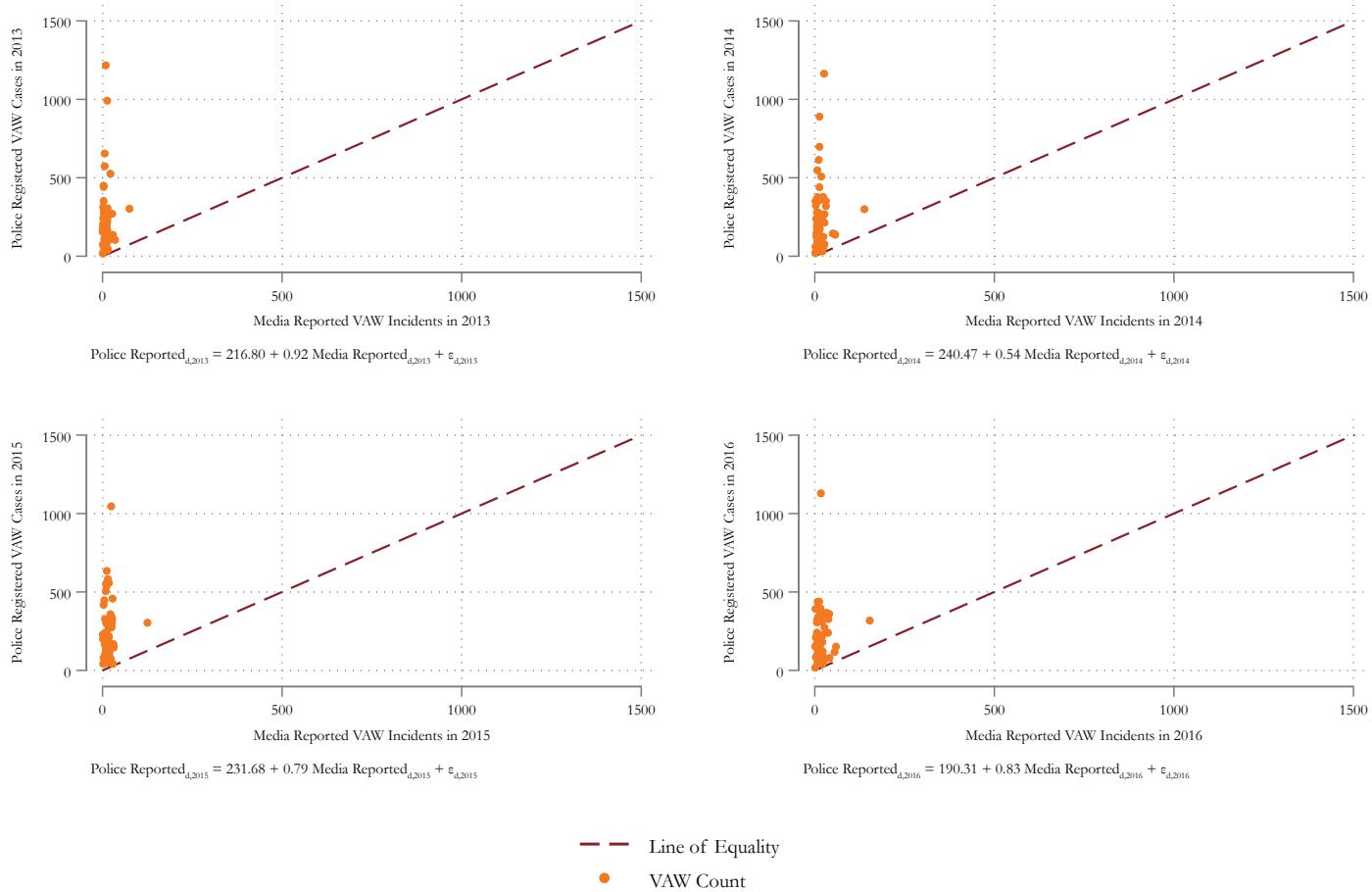
Police Reported$_{d,2013}$ = 216.80 + 0.92 Media Reported$_{d,2013}$ + $\epsilon_{d,2013}$

Police Reported$_{d,2014}$ = 240.47 + 0.54 Media Reported$_{d,2014}$ + $\epsilon_{d,2014}$

Police Reported$_{d,2015}$ = 231.68 + 0.79 Media Reported$_{d,2015}$ + $\epsilon_{d,2015}$

Police Reported$_{d,2016}$ = 190.31 + 0.83 Media Reported$_{d,2016}$ + $\epsilon_{d,2016}$

— — — Line of Equality

● VAW Count

Sources: Justice Audit Report & BPO.
Notes: Each point on the scatterplot provides the combination of media reported VAW incidents and police registered VAW cases for a district. Superimposed is the 45 degree line of equality.

Figure A6: Prevalence of Sexual Violence during Past 12 Months
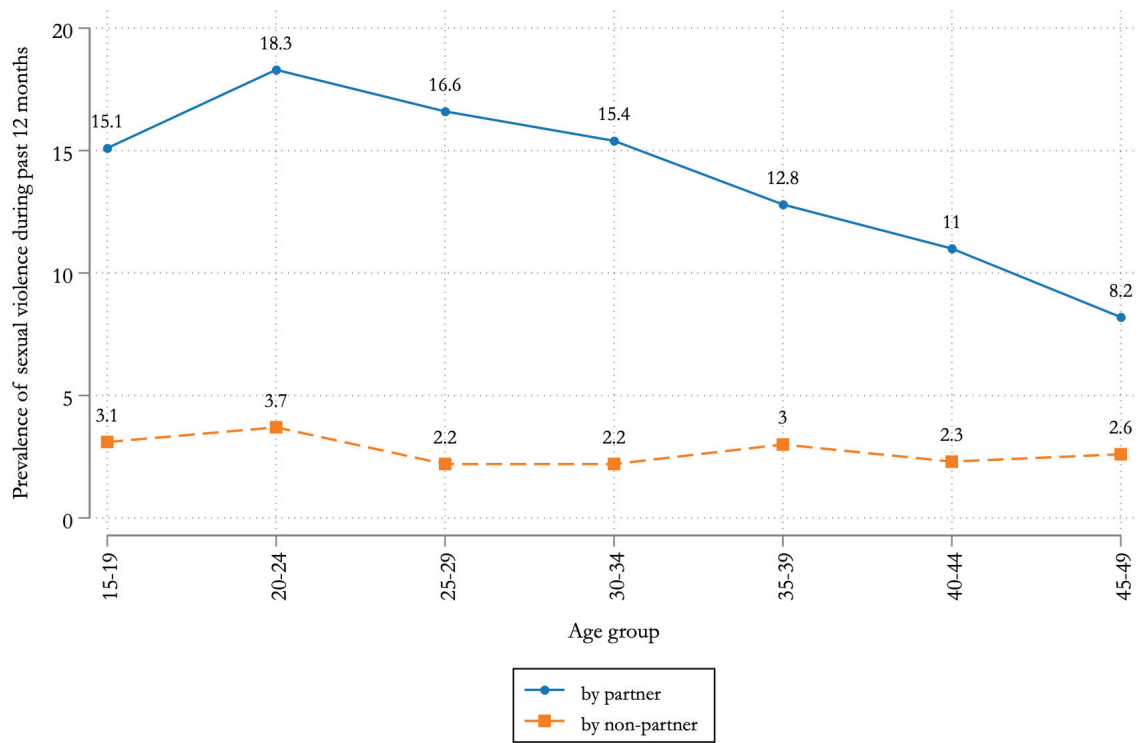
Tables

Table A1: Media-reported Sexual Assault on FLFP by Perpetrator

		(1) Political Party Member	(2) Govt. Official	(3) Family Member	(4) General Public	(5) Unknown	(6) Total
Sexual Assault	n	154	17	131	2,432	383	3,117
	%	2.01	0.22	1.71	31.78	5.00	40.73
Other VAW	n	44	13	2,288	1,734	457	4,536
	%	0.57	0.17	29.90	22.66	5.97	59.27
All VAW	n	198	30	2,419	4,166	840	7,653
	%	2.59	0.39	31.61	54.44	10.98	100.00

Data Sources: BPO
Notes: Data on media reports of VAW incidents are collected from Bangladesh peace observatory.

Table A2: Descriptive Statistics: Difference between Females & Males

	Total (n=16,854)		Female (n=9,908)		Male (n=6,946)		(Female - Male)	
	Mean	SD	Mean	SD	Mean	SD	Difference	p-value
Employment								
Paid Employment (past 7 days)	0.72	0.45	0.59	0.49	0.90	0.30	-0.31	0.00
Unpaid Employment (past 7 days)	0.15	0.36	0.21	0.41	0.07	0.26	0.13	0.00
Paid/Unpaid Employment (past 7 days)	0.88	0.32	0.81	0.40	0.99	0.11	-0.18	0.00
Nature of Employment								
Salaried Employment	0.04	0.20	0.02	0.15	0.07	0.25	-0.04	0.00
Waged Employment	0.10	0.30	0.02	0.15	0.21	0.41	-0.19	0.00
Self Employment	0.58	0.49	0.55	0.50	0.63	0.48	-0.08	0.00
Without Pay Employment	0.16	0.36	0.21	0.41	0.08	0.27	0.13	0.00
Individual Characteristics								
Age	37.84	10.31	37.19	10.12	38.78	10.50	-1.59	0.00
No Education	0.37	0.48	0.37	0.48	0.37	0.48	-0.01	0.28
Primary Education	0.30	0.46	0.30	0.46	0.29	0.46	0.01	0.98
> Secondary Education	0.33	0.47	0.33	0.47	0.34	0.47	0.00	0.29
Married	0.88	0.33	0.89	0.32	0.86	0.35	0.03	0.00
Watches Television	0.59	0.49	0.58	0.49	0.59	0.49	-0.01	0.20
Listens to Radio	0.02	0.15	0.02	0.15	0.03	0.16	0.00	0.33
Reads Newspaper	0.03	0.18	0.03	0.17	0.03	0.18	0.00	0.68

Data Sources: BPO & BIHS Waves II and III
Notes: Demographic and labor market characteristic data are taken from II (2015) and III (2018-2019) round of Bangladesh Integrated Household Survey (BIHS). The sample is restricted to rural women aged between 18 to 59.

Table A3: Descriptive statistics: Additional Variables (Female Sample)

	n	Mean	SD
Expenditure (in BDT)			
Household food consumption (past 7 days)	9,908	1,090.32	647.06
HH non-food consumption (past 30 days)	9,907	8,518.54	6,049.76
Female personal items (past 30 days)	9,907	44.72	84.87
Cooking equipment (past 30 days)	9,907	97.45	377.33
Cosmetics (past 30 days)	9,907	263.465	192.257
Transportation (past 30 days)	9,907	565.71	911.39
Children's Coaching (past 30 days)	9,907	176.53	253.45
Labor Demand Index			
Female labor demand index by quarter	8,488	-0.06	0.12
Male labor demand index by quarter	8,488	-0.18	0.34
Women's Empowerment Measures			
5DE score	9,136	0.79	0.19
Productive Decision (Sole/Joint)	9,136	0.96	0.20
Production Autonomy	9,136	0.86	0.35
Asset Ownership (Sole/Joint)	9,136	0.93	0.25
Assets Purchase/sale/transfer (Sole/Joint)	9,136	0.69	0.46
Credit Access & Decision (Sole/Joint)	9,131	0.65	0.48
Control Over Income (Sole/Joint)	9,128	0.93	0.25
Group member	9,136	0.49	0.50
Speaking in public	9,059	0.67	0.47
Workload Allocation	9,123	0.83	0.37
Leisure Satisfaction	9,119	0.82	0.38
5DE Gender Parity Gap	7,255	0.03	0.20
Sexual Assault (SA) & GBV by Perpetrator			
Sexual Assault by Political/Public at (t-1)	9,908	0.01	0.12
Sexual Assault by Others at (t-1)	9,908	0.13	0.37
Other GBV by Political/Public at(t-1)	9,908	0.01	0.07
Other GBV by Others at(t-1)	9,908	0.28	0.64

Data Sources: BPO & BIHS Waves II and III

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors clustered at the upazila are reported in parentheses. Demographic and labor market characteristic data are taken from II (2015) and III (2018-2019) round of Bangladesh Integrated Household Survey (BIHS). Data on media reported VAW incidents are taken from the Bangladesh Peace Observatory (BPO) dataset and merged with individual level BIHS data at the upazila and quarter-year level aggregation. Police reports of VAW case data are taken from the Justice Audit (JA) report. The sample is restricted to rural women aged between 18 to 59.

Table A4: Media-reported Sexual Assault on FLFP (with Inverse Hyperbolic Sine Transformation)

	(1) Paid Employment	(2) Paid Employment	(3) Paid Employment	(4) Paid Employment	(5) Paid/Unpaid Employment
Sexual Assaults at $t-1$	-0.024	-0.030	-0.030	-0.085***	-0.041*
	(0.022)	(0.021)	(0.019)	(0.031)	(0.023)
Other VAW at $t-1$	0.009	0.007	0.021	0.030	-0.010
	(0.018)	(0.017)	(0.014)	(0.023)	(0.020)
Observations	9,908	9,908	9,908	9,880	9,880
Controls	✗	✓	✓	✓	✓
Individual FE	✗	✗	✓	✓	✓
Upazila × Quarter-Year FE	✗	✗	✗	✓	✓
Mean of DV	0.59	0.59	0.59	0.59	0.81

Data Sources: BPO & BIHS Waves II and III

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors clustered at the upazila are reported in parentheses. Column (1) - (4) reports the parsimonious set of regressions estimating 1 on the binary outcome measure *paid employment* for individuals active in casual or formal employment. In column (5) the binary outcome measure takes a value of one if the individual was active in the labor force despite their payment status. Inverse hyperbolic sine transformed measures of lagged media-reported sexual assaults and other VAW are used as regressors. Regression samples are restricted to rural women aged between 18 to 59.

Table A5: Media-reported Sexual Assault on FLFP (with Additional Socio-economic Controls)

	(1) Paid Employment	(2) Paid Employment	(3) Paid Employment	(4) Paid Employment	(5) Paid/Unpaid Employment
Sexual Assaults at $t-1$	-0.022	-0.020	-0.026*	-0.069***	-0.029*
	(0.017)	(0.017)	(0.015)	(0.023)	(0.017)
Other VAW at $t-1$	-0.001	-0.003	0.015	0.017	-0.008
	(0.013)	(0.011)	(0.009)	(0.016)	(0.015)
Observations	9,908	9,887	9,866	9,838	9,838
Controls	✗	✓	✓	✓	✓
Additional Socio-economic Controls	✗	✓	✓	✓	✓
Individual FE	✗	✗	✓	✓	✓
Upazila × Quarter-Year FE	✗	✗	✗	✓	✓
Mean of DV	0.59	0.59	0.59	0.59	0.81

Data Sources: BPO & BIHS Waves II and III

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors clustered at the upazila are reported in parentheses. Column (1) - (4) reports the parsimonious set of regressions estimating 1 with additional socio-economics controls on the binary outcome measure *paid employment* for individuals active in casual or formal employment. In column (5) the binary outcome measure takes a value of one if the individual was active in the labor force despite their payment status. Regression samples are restricted to rural women aged between 18 to 59. Additional socio-economic controls include binary indicators for the female respondent's media exposure (regularly watching television, listening to the radio, and reading the newspaper), the number of children under 5 years of age, household size, and the (log of) total monthly household income. It is important to note that some of the additional socio-economics controls may be endogenous: if a woman works outside the home this may affect what media she consumes, how many children she has (and therefore, HH size), and will certainly affect total HH income. Therefore, these controls are not included in the preferred specification.

Table A6: Media-reported Sexual Assault on FLFP (with Upazila FE)

	(1) Paid Employment	(2) Paid Employment	(3) Paid Employment	(4) Paid Employment	(5) Paid/Unpaid Employment
Sexual Assaults at $t-1$	-0.022	-0.027	-0.034**	-0.062***	-0.018
	(0.017)	(0.017)	(0.015)	(0.021)	(0.016)
Other VAW at $t-1$	-0.001	-0.002	0.011	0.004	-0.023
	(0.013)	(0.012)	(0.009)	(0.016)	(0.015)
Observations	9,908	9,908	9,908	9,894	9,894
Controls	✗	✓	✓	✓	✓
Upazila FE	✗	✗	✓	✓	✓
Upazila × Quarter-Year FE	✗	✗	✗	✓	✓
Mean of DV	0.59	0.59	0.59	0.59	0.81

Data Sources: BPO & BIHS Waves II and III
Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors clustered at the upazila are reported in parentheses. Column (1) - (4) reports the parsimonious set of regressions estimating 1 replacing individual fixed effects with upazila fixed effects on the binary outcome measure *paid employment* for individuals active in casual or formal employment. In column (5) the binary outcome measure takes a value of one if the individual was active in the labor force despite their payment status. Regression samples are restricted to rural women aged between 18 to 59.

Table A7: Media-reported Sexual Assault on FLFP (with Additional FE)

	(1) Paid Employment	(2) Paid Employment	(3) Paid Employment	(4) Paid Employment	(5) Paid/Unpaid Employment
Sexual Assaults at $t-1$	-0.029*	-0.030**	-0.031**	-0.069***	-0.029*
	(0.015)	(0.015)	(0.015)	(0.023)	(0.017)
Other VAW at $t-1$	0.015	0.012	0.013	0.015	-0.009
	(0.009)	(0.009)	(0.009)	(0.016)	(0.015)
Observations	9,908	9,908	9,908	9,880	9,880
Controls	✓	✓	✓	✓	✓
Individual FE	✓	✓	✓	✓	✓
Upazila FE	✗	✓	✓	✓	✓
Quarter-Year FE	✗	✗	✓	✓	✓
Upazila × Quarter-Year FE	✗	✗	✗	✓	✓
Mean of DV	0.59	0.59	0.59	0.59	0.81

Data Sources: BPO & BIHS Waves II and III
Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors clustered at the upazila are reported in parentheses. Column (1) - (4) reports the parsimonious set of regressions estimating 1 but including upazila and quarter-year as separate fixed effects (along with their interaction) on the binary outcome measure *paid employment* for individuals active in casual or formal employment. In column (5) the binary outcome measure takes a value of one if the individual was active in the labor force despite their payment status. Regression samples are restricted to rural women aged between 18 to 59.

Table A8: Media-reported Sexual Assault on *Male* LFP

	(1) Paid Employment	(2) Unpaid Employment	(3) Paid/Unpaid Employment
Sexual Assaults at $t-1$	0.001	-0.004	-0.008
	(0.021)	(0.020)	(0.005)
Other VAW at $t-1$	0.024	-0.015	0.013
	(0.018)	(0.016)	(0.015)
Observations	6,924	6,924	6,924
Controls	✓	✓	✓
Individual FE	✓	✓	✓
Upazila × Quarter-Year FE	✓	✓	✓
Mean of DV	0.90	0.09	0.99

Data Sources: BPO & BIHS Waves II and III
Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors clustered at the upazila are reported in parentheses. Each column provides estimation results from different regressions. Equation 1 is estimated on three different outcome variables based on the nature of employment. The binary outcome measures take a value of one if the individual has spent a non-zero time during the past week in paid (column 1) or unpaid (column 2) employment. In column (3) the binary outcome measure takes a value of one if the individual was active in the labor force despite their payment status. Regression samples are restricted to rural men aged between 18 to 59.

Table A9: Impact on FLFP by Nature of Employment (Intensive Margin) with Upazila FE

	(1) Salaried Employment	(2) Waged Employment	(3) Self Employment	(4) Unpaid Employment
Sexual Assaults at $t-1$	0.006	0.002	-0.066***	0.058***
	(0.006)	(0.005)	(0.022)	(0.021)
Other VAW at $t-1$	0.005	0.005	0.009	-0.019
	(0.008)	(0.005)	(0.017)	(0.016)
Observations	9,381	9,381	9,381	9,381
Controls	✓	✓	✓	✓
Upazila FE	✓	✓	✓	✓
Upazila × Quarter-Year FE	✓	✓	✓	✓
Mean of DV	0.03	0.03	0.64	0.30

Data Sources: BPO & BIHS Waves II and III
Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors clustered at the upazila are reported in parentheses. Each column provides estimation results from different regressions. Equation 1 is estimated on four different outcome variables based on the nature of employment. The binary outcome measures take a value of one if the individual has spent a non-zero time during the past week in salaried, waged, self, or without-pay employment. With the only exception being the inclusion of upazila FE instead of individual FE. Regression samples are restricted to rural women aged between 18 to 59.

Table A10: Media-reported Sexual Assault on Paid/Unpaid Employment: Additional Controls

	(1) Paid/Unpaid Employment	(2) Paid/Unpaid Employment	(3) Paid/Unpaid Employment
Sexual Assaults at $t-1$	-0.036**	-0.026	-0.032*
	(0.018)	(0.017)	(0.017)
Other VAW at $t-1$	-0.021	-0.006	-0.007
	(0.017)	(0.015)	(0.016)
Sexual Assaults at $t-2$	0.015		
	(0.018)		
Other VAW at $t-2$	0.016		
	(0.015)		
Sexual Assaults at $t-3$	0.012		
	(0.018)		
Other VAW at $t-3$	0.021		
	(0.013)		
Sexual Assaults at $t-4$	-0.028		
	(0.019)		
Other VAW at $t-4$	0.009		
	(0.014)		
Police Reported VAW		-0.100	
		(0.083)	
Industry-weighted Female Employment (log)			0.114
			(0.507)
Industry-weighted Male Employment (log)			-0.049
			(0.242)
Observations	9,880	9,880	9,578
Controls	✓	✓	✓
Individual FE	✓	✓	✓
Upazila × Quarter-Year FE	✓	✓	✓
Mean of DV	0.81	0.81	0.80

Data Sources: BPO, BIHS Waves II and III, & Justice Audit
Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors clustered at the upazila are reported in parentheses. Each column provides estimation results from different regressions. Equation 1 is estimated on four different outcome variables based on the nature of employment. The binary outcome measure takes a value of one if the individual was active in the labor force despite their payment status. Regression samples are restricted to rural women aged between 18 to 59.

Table A11: Media-reported Sexual Assault on Paid/Unpaid Employment: Robustness & Placebo

	(1)	(2)	(3)	(4)	(5)
			Paid/Unpaid Employment		
	Excluding Outlier	Excluding Students	Alternative Specifications		Placebo Experiment
Sexual Assaults at $t+1$			0.015	0.012	
			(0.010)	(0.012)	
Other VAW at $t+1$			-0.016	-0.017	
			(0.012)	(0.012)	
Sexual Assaults at t			-0.021	-0.019	
			(0.019)	(0.018)	
Other VAW at t			0.015	0.012	
			(0.013)	(0.016)	
Sexual Assaults at $t-1$	-0.034*	-0.030*	-0.041**	-0.045*	0.051
	(0.019)	(0.017)	(0.018)	(0.025)	(0.068)
Other VAW at $t-1$	-0.018	-0.008	-0.000	-0.008	0.085
	(0.019)	(0.015)	(0.017)	(0.019)	(0.062)
Sexual Assaults at $t-2$				0.009	
				(0.014)	
Other VAW at $t-2$				0.013	
				(0.020)	
Sexual Assaults at $t-3$				0.015	
				(0.017)	
Other VAW at $t-3$				0.017	
				(0.012)	
Observations	9,108	9,846	9,880	9,880	10,620
Controls	✓	✓	✓	✓	✓
Individual FE	✓	✓	✓	✓	✓
Upazila × Quarter-Year FE	✓	✓	✓	✓	✓
Mean of DV	0.81	0.81	0.81	0.81	0.76

Data Sources: BPO, & BIHS Waves II and III

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors clustered at the upazila are reported in parentheses. Each column provides estimation results from different regressions. Column (1) & 2 provides results of estimating equation 1 on different samples of rural women. The binary outcome measure takes a value of one if the individual was active in the labor force despite their payment status. Estimation results from equation 6 and 7 are provided in column (3) and (4) respectively. Column (5) reports the results of placebo experiment described in section 4.3. Regression samples are restricted to rural women aged between 18 to 59.

Table A12: Impact on Income

	(1) Monthly Household Income (log)	(2) Monthly Female Income (log)	(3) Monthly Male Income (log)	(4) Female Mobile Banking
Sexual Assaults at $t-1$	-0.072	-0.248*	-0.138	-0.083*
	(0.060)	(0.138)	(0.097)	(0.043)
Other VAW at $t-1$	0.007	0.065	-0.018	0.048
	(0.053)	(0.111)	(0.084)	(0.030)
Observations	9,878	9,878	7,390	9,878
Controls	✓	✓	✓	✓
Individual FE	✓	✓	✓	✓
Upazila × Quarter-Year FE	✓	✓	✓	✓
Mean of DV	9.15	3.61	8.87	0.30

Data Sources: BPO & BIHS Waves II and III
Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors clustered at the upazila are reported in parentheses. Each column provides estimation results from different regressions. Results from estimating equation 1 on the outcome variables natural log of monthly household income, monthly female income, and monthly male income are reported in column (1) - (3). Column (4) provides the estimation result for the binary outcome variable mobile banking usage. All income values are expressed in Bangladeshi Taka (BDT). Regression samples are restricted to rural women aged between 18 to 59 except for column (3), where it is restricted for the same-aged males.

Table A13: Impact on Expenditure

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			Female-Specific Sub-Categories			Children's Education		
	Household Food Exp. (log)	Household Nonfood Exp. (log)	Female Personal Items Exp. (log)	Cooking Equipment Exp. (log)	Female Cosmetics Exp. (log)	School Tuition Exp. (log)	School Supplies Exp. (log)	Personal Coaching Exp. (log)
Sexual Assaults at $t-1$	0.050	-0.029	-0.203**	-0.099	-0.096***	-0.117	-0.045	-0.235*
	(0.047)	(0.026)	(0.103)	(0.097)	(0.026)	(0.112)	(0.086)	(0.124)
Other VAW at $t-1$	0.022	0.005	-0.090	0.089	0.037	-0.080	0.048	-0.010
	(0.033)	(0.020)	(0.083)	(0.083)	(0.023)	(0.097)	(0.079)	(0.112)
Observations	9,880	9,878	9,878	9,878	9,878	9,878	9,878	9,878
Controls	✓	✓	✓	✓	✓	✓	✓	✓
Individual FE	✓	✓	✓	✓	✓	✓	✓	✓
Upazila × Quarter-Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Mean of DV	6.80	8.81	2.18	2.46	5.33	4.19	3.38	2.71

Data Sources: BPO & BIHS Waves II and III
Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors clustered at the upazila are reported in parentheses. Each column provides estimation results from different regressions. Column (1) & 2 provides results of estimating equation 1, using household food, and non-food consumption expenditure as outcome variables. Column (3) - (5) provides result for expenses related to female specific sub-categories: female personal item, cooking equipment, female cosmetics. Column (6) - (8) provides result for expenses regarding children's education: school tuition, school supplies, personal coaching (private tutor). Regression samples are restricted to rural women aged between 18 to 59.

Table A14: Impact on *Male's* Five Domains of Empowerment (5DE)

| | 5DE Score | Production | | Resources | | | Income | Leadership | | Time | | 5DE Gender Parity Gap |
| | | Productive Decisions (Sole/Joint) | Production Autonomy | Assets Ownership (Sole/Joint) | Assets Purchase/ Sale/Transfer (Sole/Joint) | Credit Access & Decisions (Sole/Joint) | Control over Income (Sole/Joint) | Group Member | Speaking in Public | Workload Allocation | Leisure Satisfaction | |
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Sexual Assaults at $t-1$	0.013	0.008	-0.024	0.000	-0.032	0.004	-0.004	0.076	0.030	0.086	-0.018	0.019
	(0.020)	(0.017)	(0.027)	(0.003)	(0.023)	(0.028)	(0.004)	(0.059)	(0.070)	(0.054)	(0.055)	(0.012)
Other VAW at $t-1$	0.004	0.010	-0.026	-0.002	-0.017	0.033	0.002	-0.015	0.035	0.008	0.010	-0.002
	(0.014)	(0.018)	(0.021)	(0.007)	(0.021)	(0.029)	(0.007)	(0.050)	(0.052)	(0.041)	(0.050)	(0.011)
Observations	6,132	5,588	6,132	6,132	6,132	6,130	6,132	6,132	6,124	6,132	6,132	5,490
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Individual FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Upazila × Quarter-Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mean of DV	0.83	0.96	0.93	1.00	0.88	0.81	0.99	0.45	0.78	0.73	0.76	0.03

Data Sources: BPO & BIHS Waves II and III

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Standard errors clustered at the upazila are reported in parentheses.

Each column provides estimation results from different regressions. The 5DE Score in column (1) is the first WEAI sub-index that assesses the degree to which men are empowered in the following five domains using 10 indicators with associated weights (see Alkire et al. (2013) for methodological details): production decisions (columns 2 and 3), access to and decision-making power over productive resources (columns 4 to 6), control over the use of income (column 7), leadership roles within the community (columns 8 and 9), and time allocation (columns 10 and 11). Each indicator assesses an individual's level of accomplishment relative to a certain threshold. The 5DE sub-index considers a man empowered if he has acceptable achievements in four of the five domains (or 80% of the weighted indicators). The 5DE Gender Parity Gap sub-index in column (12) on the other hand measures the relative empowerment of women to men, which reflects women's achievements in the five domains relative to the men in their households. Regression samples are restricted to rural women aged between 18 to 59.

Table A15: WEAI 5DE Empowerment Score construction weights

Domain	Indicator	Definition of Indicator	Weight
1. Production	1.1 Input in productive decisions	Sole or joint decision making over food and cash-crop farming, livestock, and fisheries	1/10
	1.2 Autonomy in production	This reflects the respondent's motivation for decision making reflecting their own values rather than conforming to external pressure	1/10
2. Resources	2.1 Ownership of assets	Sole or joint ownership of major household assets	1/15
	2.2 Purchase, sale, or transfer of assets	Respondent's participation in decision to buy, sell, or transfer assets	1/15
	2.3 Access to and decisions about credit	Access to and participation in decision making concerning credit	1/15
3. Income	3.1 Control over use of income	Sole or joint control over income and expenditures	1/5
4. Leadership	4.1 Group member	Respondent's activity status in at least one economic or social group	1/10
	4.2 Speaking in public	Respondent's comfort in speaking in public concerning issues pertinent to themselves or their community	1/10
5. Time	5.1 Workload	Allocation of time to productive and domestic tasks	1/10
	5.2 Leisure	Satisfaction with time for leisure activities	1/10

Source: Alkire et al. (2013)

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