Female empowerment and male backlash: Experimental evidence from India

Claire Cullen*, Sarthak Joshi†, Joseph Vecci‡, Julia Talbot-Jones§

November 11, 2024

Abstract

Public spending on gender equality and women's empowerment is rising rapidly in many countries. However, the unintended consequences of women's empowerment is rarely measured and remains poorly understood. We study the impact of female empowerment programs on male backlash through a series of experiments involving 1,007 households in rural India. The paper has four key parts. First, we use an experiment to measure backlash, observing men's decisions to financially penalize women who participated in empowerment programs.We find that men pay to punish empowered women at double the rate of women in an otherwise identical control group (17 percent versus 8 percent). We also show that men engaging in backlash tend to hold more conservative gender attitudes and are more likely to accept or commit intimate partner violence. Second, we test multiple theories on the conditions that trigger backlash and find that backlash occurs regardless of how women become empowered. Third, we examine social image concerns as a potential behavioral mechanism and find that 18 percent of men are willing to pay to conceal their household's involvement in empowerment programs. Those who choose to conceal are more likely to engage in backlash, suggesting that reputational concerns play a key role in driving this behavior. Finally, we test several policies to reduce backlash and find that reframing empowerment programs to emphasize broader community benefits can help mitigate backlash.

***JEL*: C93, J12, J16, O12**
Keywords: Male Backlash, Female Empowerment, Social Image, Norms, Experiments

*Claire.cullen010@gmail.com

†Department of Economics, University of Warwick, sarthak.joshi@warwick.ac.uk

‡Department of Economics, University of Gothenburg, 1 Vasagatan, Gothenburg, Sweden, joseph.vecci@economics.gu.se

§School of Government, Te Herenga Waka - Victoria University of Wellington, julia.talbotjones@vuw.ac.nz

We acknowledge support from funding provided by Handelsbanken (P22-0019). Ethics approval obtained from Te Herenga Waka - Victoria University of Wellington, approval number 30828. We are thankful for feedback from Sonia Bhalotra, Annika Lindskog, Edwin Ip, and seminar participants at Gothenburg University, Warwick University, and Lund University. We are also grateful for the excellent Research Assistant support of Abigail Zylla.

1 Introduction

Governments and international organisations are dedicating increasing amounts of funding to address gender inequality and empower women in developing countries. Yet severe gender disparities persist globally, as seen by high rates of child marriage, wage gaps, and under-representation in politics.[1] In response to this persistent challenge, $49 billion—42% of all bilateral aid to low- and middle-income countries—has been allocated to initiatives targeting gender equality and women's empowerment (OECD, 2020).

While many female empowerment programs yield positive outcomes (e.g. Dhar et al., 2022; Field et al., 2021), their potential for having unintended consequences, such as male backlash to women's empowerment, remains understudied. There is growing evidence that male backlash against women can manifest in various forms including violence and threats or intimidation. Backlash against intimate female partners within the household has occurred in response to cash transfers to women (Hidrobo and Fernald, 2013; Bobonis et al., 2013; Angelucci, 2008), increases in women's relative income or job opportunities (Bhalotra et al., 2021; Guarnieri and Rainer, 2021; Erten and Keskin, 2024), female education and training (Erten and Keskin, 2018; Bulte and Lensink, 2019), and female leadership (Gangadharan et al., 2015; Anukriti et al., 2024).

Beyond domestic settings, female empowerment has also been linked to male retaliation at the community level. Men have increasingly supported far-right political movements, partly due to perceived threats to male dominance (Anduiza and Rico, 2024). This is consistent with a recent survey of over 32,000 individuals across multiple countries which finds that a majority of young men perceive the promotion of women's and girls' rights as a threat to opportunities for men and boys (Off et al., 2022). Collectively, these findings suggest that female empowerment can provoke widespread and unexpected retaliation across multiple social domains.

To assess the existing evidence on male backlash against female empowerment in developing countries, we conducted a systematic literature review of published studies on female empowerment in leading economics and development economics journals (see Appendix D for details). We find that only 26% of academic papers studying female empowerment in a developing country report a design that would allow for the measurement of backlash. Yet among those that do, almost 40% identify some form of male backlash. Nevertheless, we find that when backlash is measured it is often done poorly. Additionally, there is typically limited evidence on the underlying mechanisms causing backlash or the options available to mitigate it. This evidence gap limits policymakers' understanding of the scope and drivers of male backlash and hinders efforts to prevent it.

In this paper, we aim to comprehensively study male backlash against female empowerment in a large developing country - India. We do this in three stages: 1) We design a novel experiment to causally measure

[1] For example 4 in 10 girls are married before age 18, maternal mortality rates reach 211 per 100,000 live births, women earn only 60-75% of men's wages for the same work, and just 1 in 4 political representatives are women (OECD, 2020).

backlash against female empowerment; 2) We conduct multiple additional treatments to better understand the underlying causes of backlash, causally testing various mechanisms, including social image concerns; and 3) finally, we conduct a set of survey experiments to examine potential policy solutions that could mitigate backlash. All experiments were carried out in rural Bihar, India. Our sample comprises 1,007 households, with both husbands and wives participating from each household (2,014 individuals in total).

In stage one, we develop a novel lab-in-the-field experiment to study backlash. In its basic form, our experiment partners men with anonymised women in their local area.[2] We then elicit whether men are willing to 'punish' women at a cost to themselves, under different sets of conditions using a modified version of the 'joy of destruction/money burning' game (Abbink and Sadrieh, 2009). There are two basic variants. In the control, we elicit whether men pay to reduce the earnings of their female partner who is described as having a set of common characteristics. In the empowerment treatment, the setting is identical except the male is also informed that their female partner has participated in a female empowerment program and become more empowered as a result. We find that men who are informed that their partner participated in an empowerment program are nearly twice as likely to reduce their female partner's income compared with the control; we term this retaliation 'backlash'. Specifically, 17% of men pay to punish women who are empowered, compared with 9% in the otherwise identical control group. We find that men who engage in backlash hold more conservative gender attitudes and show greater acceptance of, and likelihood of perpetrating IPV. These results provide evidence of the external validity of the experiment. We also show that backlash behaviour is associated with a within-spouse gender attitudes gap: men who hold more conservative attitudes relative to their wife backlash at a much higher rate. This latter result is consistent with recent evidence from a couples-based gender empowerment program in Rwanda that caused a significant widening of within-couples gender attitudes and large increases in IPV (Cullen et al., 2020).

In stage two, we seek to understand why, and in what contexts, backlash occurs. We apply several theories developed in association with household bargaining models to help understand male backlash. First, status inconsistency theory argues that men may act out against women when they believe their status has been threatened using violence or other means to redress the 'inconsistency' (Angelucci, 2008; Baranov et al., 2021). Second, theories on expressive and instrumental violence both suggest that men may act out in response to women gaining control over resources (Eswaran and Malhotra, 2011). To study these two scenarios, we test additional treatments that experimentally vary whether male backlash is induced via taking away men's relative status or control over resources. Regardless of whether women gain empowerment through increased status or control over resources, men sanction empowered women at around double the rate of women in the

[2] We study backlash behaviour towards anonymised women in the community as this is both a less-studied backlash context than IPV, and avoids ethical concerns about the experiment generating potential post-experiment intra-household consequences as, within a household, partner anonymity would not be possible.

control group. This finding indicates that backlash could occur in various common empowerment settings.

We then turn to study the role of social image concerns - a potentially significant behavioral mechanism driving backlash.Social image concerns relate to how individuals are perceived by others (Bursztyn and Jensen, 2017). For instance a male may feel that others in the community perceive them as "less of a man" if their wife is working. To study social image concerns, we conduct an additional experiment partnering men, 'the main decision-maker', with anonymised men or women from their community. The partner in this experiment, whom we term 'the burner', can reduce the main decision-maker's earnings. By default, the burner is informed that the main decision-maker's household previously participated in a female empowerment program; however, the main decision-maker has an opportunity to pay to hide this information from the burner. We argue that a decision-maker's willingness to pay to conceal their household's involvement in a female empowerment program indicates that they anticipate some form of reputational cost from having their household's involvement revealed. Our results support this: 18% of men are willing to pay to hide from others that their household participated in a female empowerment program. To further understand social image concerns, we cross randomized both the burner's gender and whether *their* participation in female empowerment programs was known. We find that the burner's gender or past participation does not influence main decision-maker's decision to hide. However, we show that those who are willing to pay to hide their household's involvement in female empowerment are also more likely to believe such involvement is socially unacceptable within their community. Importantly, we also find that the men willing to hide are significantly more likely to punish an empowered female partner in the backlash experiment. This suggests social image concerns are potentially an important driver of backlash behaviour.[3]

In the final stage, we conduct an additional set of experiments to test three interventions that have the potential to help mitigate backlash. First, we explore the effectiveness of increasing the cost of backlash, a potential deterrent. This cost-increasing approach was informed by economic theory on deterrence, which posits that higher penalties can reduce undesirable behavior, for example, through fines or incarceration (Becker, 1968). By experimentally doubling the price that men must pay to reduce their partner's earnings, we observe a decrease in backlash from 17.4% to 14.3%. However, this reduction is suggestive only and only statistically significant at the 15% level; we are likely under-powered to detect a more precise estimate. Second, we investigate how the framing of empowerment programs influences men's behaviour. Prior research indicates that how policies are presented can significantly affect an individual's behavioral response (Behaghel and Blau, 2012). We find that re-framing a 'female empowerment program' as a 'community and

[3] We took several steps to validate our results and address any concerns about social desirability bias. We employed the Marlowe–Crowne Index to assess susceptibility to socially desirable responses (Crowne and Marlowe, 1960), tracked whether respondents had prior knowledge of the experiment, and queried participants about their perceptions of the study's purpose immediately after their participation (De Quidt et al., 2018). Controlling for these variables has minimal impact on treatment effects, suggesting that social desirability bias is unlikely to influence our findings.

family program' leads to an improvement in attitudes towards the program among men who backlash in our experiment. This suggests that a broader framing highlighting a program's positive-sum benefits may alleviate resistance, aligning with theories on the impact of narrative, social perception and identity (Akerlof and Kranton, 2000; Oh, 2023). Finally, we assess the impact of role models on mitigating backlash. Evidence from other contexts suggests that role models can shift gender norms and behaviors (Jensen and Oster, 2009; Porter and Serra, 2020; Riley, 2024). In our setting, we find that men are no more likely to sign a petition supporting female empowerment after being informed of a role model's (the Indian cricket captain) progressive gender attitudes, possibly because this was too 'light' an intervention. These findings contribute to our understanding of how different policy approaches can influence resistance to female empowerment programs and offer insights into designing more effective interventions.

We contribute to a broad economics literature. First, we add to the literature on female empowerment by robustly examining the unintended consequences that can arise from female empowerment interventions (e.g. Field et al., 2021; Bandiera et al., 2020). We contribute to this literature by employing a novel experimental approach to measure backlash, helping to overcome methodological and measurement bias issues observed in the female empowerment literature (Cullen, 2023). Our literature review suggests that, conditional on measuring backlash, approximately 70% of papers in the top economics and development economics journals measure backlash from the perspective of female respondents using IPV as the primary, or only, backlash indicator. This approach raises endogeneity concerns and risks a mis-reporting of men's retaliation to women's empowerment in the literature. For instance, enhancing women's awareness of their rights, educating them about what constitutes violence, and boosting their confidence to speak up could lead to an increase in the reporting of IPV, even if the actual prevalence remains unchanged. Further, the focus on IPV alone risks missing other forms of backlash threats or intimidation in the household or community. In contrast, our backlash measure uses men's observed behaviour which minimises concerns about endogeneity in women's self-reporting. Our approach also broadens ways to measure backlash beyond violence, IPV, and the household by measuring backlash against women 'in general' within a community.

Second, we present one of the first experimental studies that directly investigates possible underlying causes of male backlash. While some economic models link IPV — a common proxy for backlash — to shifts in household bargaining power, most studies do not empirically examine the specific drivers of backlash or compare causal mechanisms. Exceptions include, quasi-experimental studies by Guarnieri and Rainer (2021) who explore the impact of colonial legacies on gender norms and backlash in Cameroon, while Guarnieri and Tur-Prats (2023) examines how cultural gender norm differences between male combatants and female victims drive sexual violence in conflict. Other quasi-experimental studies of IPV also suggest that household bargaining models can explain how shifts in power dynamics, such as increased female autonomy or economic

independence, provoke male backlash in the form of IPV, though the underlying drivers are rarely isolated (e.g. Bhalotra et al., 2021; Erten and Keskin, 2018; Calvi and Keskar, 2023; Adams et al., 2024). Our study addresses this gap by holding empowerment constant while experimentally varying the potential mechanisms behind backlash. We empirically test multiple theoretical drivers of backlash, studying whether it stems from a desire for resource control, status inconsistency, or social image concerns, making us the first to investigate these drivers experimentally. In doing so, we contribute to the broader literature on social image concerns and their influence on behavior (Bursztyn et al., 2017; Bursztyn and Jensen, 2017; Butera and Horn, 2020; Butera et al., 2022). We further contribute to the literature on IPV and violence against women in developing countries (e.g., Cools and Kotsadam, 2017; Roy et al., 2019) by demonstrating that theories commonly used to explain IPV can also illuminate the dynamics of broader male backlash. By measuring backlash beyond IPV, we show that relying solely on IPV as a proxy may be insufficient, as it overlooks other forms of retaliation that occur outside the household.

Third, we contribute to the economic literature on interventions that target female empowerment (e.g., Ahmed et al., 2024; Dhar et al., 2022; Bandiera et al., 2020; Andrew et al., 2024; Porter and Serra, 2020) by directly testing strategies to mitigate male backlash. While evidence of backlash in response to female empowerment exists, research on how to prevent it remains limited. We test three different strategies and examine if they are effective on those who commit backlash. We find that re-framing a program to emphasize broader community benefits can potentially help reduce backlash.

2 Context

2.1 Setting

Our study took place in Bihar, India's third most-populous state, and amongst its poorest. With a population of nearly 130 million, it is equivalent to the world's 10^{th} most-populous country, yet it is only 178^{th} in terms of GDP per capita (PPP). 80% of households in Bihar report agriculture as their main source of income. 83% of Bihar's residents are Hindu (GoI, 2011). Bihar has lower female labour force participation and higher maternal mortality than the Indian national average. Like in many developing countries, women in Bihar face high rates of domestic violence. In 2019, 35% of women in the state reported experiencing physical or sexual violence from their spouse over the previous 12 months, a rate higher than the national average of 24%. Acceptability of domestic violence is also high, with 37% of women and 34% of men agreeing with the statement that it is justified to beat one's wife for reasons such as not cooking food properly or showing disrespect to her in-laws (DHS, 2019).

2.2 Sample

Data was collected between December 2023 and January 2024 across five districts of Bihar: Vaishali, Muzaffarpur, Lakhisarai, Nalanda, and Gaya. These districts are roughly equidistant from the capital city of Patna and are similar in terms of socio-economic, demographic, and agro-climatic conditions (See Appendix Figure A1). In each district, study villages were selected randomly from a list of villages that had previously been exposed to JEEViKA, a flagship women's empowerment program that aims to foster economic independence and entrepreneurship amongst women and their families. JEEViKA works by establishing Women's Self-Help Groups (SHGs) at the village level to encourage savings and credit activities amongst small groups of 10-20 members that meet regularly. By 2022, JEEViKA had been implemented in almost all villages in Bihar (Rural Development Department, GoB, 2023). Previous surveys of JEEViKA participants have revealed the presence of unanticipated male backlash after participation in the program (Gangadharan et al., 2015).[4]

While our study is conducted in JEEViKA villages, it does not focus on the impact of any specific female empowerment program. Instead, we aim to understand the broader consequences of female empowerment, such as increased women's autonomy and intra-household bargaining power, that may arise from participation in broadly defined female empowerment programs. Further, JEEViKA is not the only women's empowerment programs running in Bihar.[5] For example, the Chief Minister's Bicycle Program provides girls enrolled in secondary school with a free bicycle to enable them to get to school more easily (Muralidharan and Prakash, 2017). Another example includes gender quotas in local government, which were launched across the country in 1992. By 2023, most villages in Bihar (and nationally) have had at least one female village chief as a result of the village-level reservation policy.

Nevertheless, we chose to work in JEEViKA villages for two main reasons. First, working in JEEViKA villages guarantees that participants have had some direct or indirect previous exposure to female empowerment programs.[6] At the same time, given that JEEViKa was first launched in 2006, the intensity of current exposure and salience of the program varies widely. This provides the ideal setting for our experiment. Second, the ubiquity of JEEViKA program participation in these villages allows us to confidently state in our experiments that a subject's partner has previously participated in such a program without engaging in deception.

[4] A recent experimental evaluation of a women's empowerment intervention amongst JEEViKA members in Bihar that caused women's gender attitudes to become more egalitarian was also found to significantly increase the experience of emotional IPV amongst participating individuals, again suggesting male backlash in this context (Santhya and Jejeebhoy, 2017).

[5] According to a recent mapping exercise conducted by the NGO IWWAGE there were at least 21 other female empowerment programs running in Bihar in 2020. See here. In general, female empowerment programs are widespread in India. For example, the Prime Minister's Housing Scheme provides homes to the rural poor that are registered in the name of at least one female member of the household, thereby empowering women with property rights. Women's SHGs are particularly common across the country. In 2022, 142 million families had total saving deposits of $560 million across a total of 12 million SHGs in India. 88% of these SHGs were women-only (Government of India, 2023).

[6] In our sample, nearly all households (95%) have heard of JEEViKA.

Within each study village, households consisting of husband-wife pairs were selected.[7] The final sample contains 1,007 married couples (including 1,007 men and 1,007 women) across 42 villages. Selected households were randomised into study arms consisting of one pure control arm and three treatment arms which we aggregate into one combined treatment arm for our primary analysis. Treatments were randomised at the household level. Each village contained a similar number of treated households.

Table 1 reports a range of household and individual-level characteristics. We focus on column 1 which reports characteristics for the whole sample. Our sample is predominantly Hindu (98%), with a majority belonging to the historically disadvantaged caste groups of SC/ST (24%), and OBC (51%).[8] On average, households have just over six members. The males, the main focus of this study, are on average 44 years old, employed, and have over eight years of education.

3 Experimental Design

We use a set of novel lab-in-the-field experiments to study male backlash stemming from female empowerment. The objective of these experiments is to identify whether male backlash exists and to understand why it occurs. We assess male backlash under three distinct settings, each corresponding to a different form of female empowerment. We also examine possible behavioural mechanisms underlying backlash. Finally, we conduct a number of experiments to test potential policy interventions to reduce backlash.

Since our focus is to study male backlash, nearly all decision-making participants are men. We measure backlash using a variant of the 'joy of destruction/money burning' game (see e.g. Abbink and Sadrieh (2009); Zizzo and Oswald (2001)). These games are widely used to measure anti-social behaviour as they reduce experimenter demand effects by using real stakes. In our version of the money burning game, male decision-makers (DMs) are paired with a real anonymous female partner from their community.[9] Both participants are provided with an initial endowment of Rs 300 ($\sim$ 3.5 USD), equivalent to one day's unskilled agricultural wage. Male DMs are then given the option to reduce their female partner's endowment by Rs 100 at a cost to themselves in the form of a one-shot take-it-or-leave-it offer. To assess whether men's decisions are sensitive to cost, the cost is randomised across individuals to be either Rs 10 or Rs 20. The female partner does not make a decision and is not informed of the actual identity of their male partner in the experiment.

[7] In most cases, 24 households were selected in each village. Around half of these were selected randomly from a list of JEEViKA households provided by survey partners. The remaining half were selected randomly by enumerators by approaching every fifth household starting from the center of the village. While care was taken to ensure coverage across socio-economic groups in each village, the lack of random sampling means that the final sample is not necessarily representative of the underlying population. Details on field protocols are described in section A of the online Appendix.

[8] Scheduled castes (SC), Scheduled Tribes (ST), and Other Backward Classes (OBS) are official categories in India that refer to groups of people who have been historically disadvantaged. 'Other' refers to the residual category. The caste composition in our sample matches closely with the state caste composition (DHS, 2019).

[9] In practice, DMs are partnered with the (unnamed, anonymous) wife of other males in their community.

Table 1: Household Characteristics and Balance across treatment arms

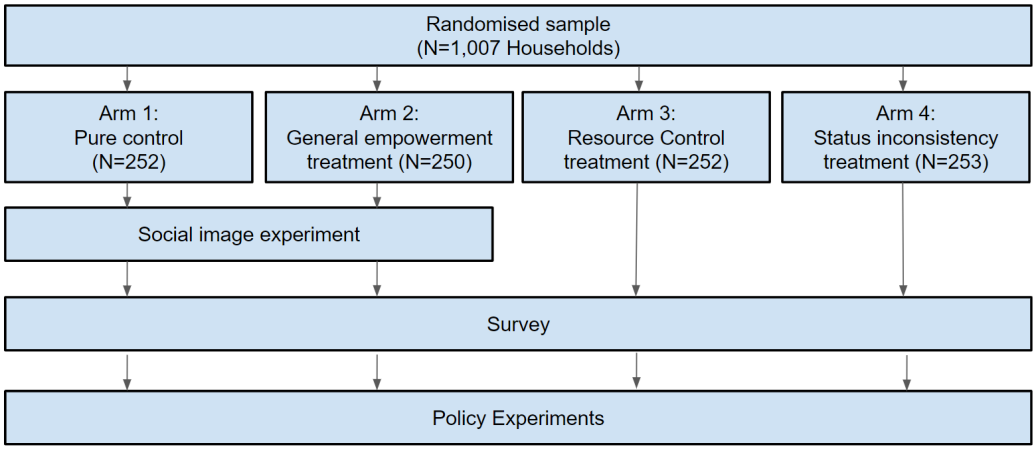
Variable	(1) All	(2) Pure Control	(3) Treatment (Combined)	(4) Difference (2)-(1)	(5) Treatment 1 (General Empowerment)	(6) Treatment 2 (Resource)	(7) Treatment 3 (Status)	(8) KW test p-value
Households								
ln(Annual Earnings)	11.78	11.81	11.78	-0.04	11.74	11.78	11.82	0.5
	(0.91)	(0.73)	(0.96)	(0.07)	(0.97)	(0.88)	(1.02)	
Hindu	0.98	1.00	0.98	-0.02*	0.98	0.97	0.98	0.98
	(0.14)	(0.07)	(0.15)	(0.01)	(0.15)	(0.17)	(0.14)	
Caste: SC/ST	0.24	0.25	0.24	-0.01	0.22	0.26	0.25	0.86
	(0.43)	(0.43)	(0.43)	(0.03)	(0.41)	(0.44)	(0.43)	
Caste: OBC	0.51	0.52	0.51	-0.01	0.54	0.49	0.49	0.72
	(0.50)	(0.50)	(0.50)	(0.04)	(0.50)	(0.50)	(0.50)	
Caste: Other	0.24	0.23	0.25	0.02	0.24	0.25	0.26	0.96
	(0.43)	(0.42)	(0.44)	(0.03)	(0.43)	(0.44)	(0.44)	
Household size	6.76	6.77	6.76	-0.01	6.81	6.68	6.79	0.94
	(3.09)	(2.98)	(3.13)	(0.25)	(3.13)	(3.39)	(2.86)	
Men								
Age	43.92	42.49	44.39	1.90**	43.47	45.46	44.23	0.1
	(13.21)	(12.76)	(13.33)	(0.96)	(13.03)	(13.79)	(13.14)	
Years of education	8.23	8.23	8.23	0.00	7.70	8.23	8.76	0.2
	(4.66)	(4.67)	(4.66)	(0.34)	(4.79)	(4.89)	(4.24)	
Share employed	0.96	0.96	0.96	0.00	0.96	0.96	0.96	1
	(0.19)	(0.20)	(0.19)	(0.01)	(0.19)	(0.19)	(0.20)	
Employed in ag.	0.49	0.46	0.50	0.04	0.50	0.50	0.51	0.74
	(0.50)	(0.50)	(0.50)	(0.04)	(0.50)	(0.50)	(0.50)	
Women								
Age	39.19	37.86	39.63	1.77**	39.21	40.48	39.21	0.16
	(12.20)	(12.04)	(12.23)	(0.89)	(12.05)	(12.88)	(11.72)	
Years of education	7.14	7.83	6.92	-0.92**	7.22	6.54	6.99	0.14
	(6.00)	(5.92)	(6.01)	(0.44)	(5.84)	(6.21)	(5.97)	
Share employed	0.33	0.32	0.34	0.01	0.37	0.32	0.32	0.72
	(0.471)	(0.47)	(0.47)	(0.03)	(0.48)	(0.47)	(0.47)	
Employed in ag	0.81	0.77	0.83	0.07	0.86	0.86	0.78	0.58
	(0.39)	(0.43)	(0.37)	(0.05)	(0.35)	(0.35)	(0.42)	
Observations	1007	252	755	1,007	250	253	252	

Notes: Significance levels in column (4) are denoted by: *** p<0.01, ** p<0.05, * p<0.1. Standard errors in parentheses have been clustered at the individual level. Column (8) reports p-values from a non-parametric Kruskal–Wallis test that performs a joint test of the hypothesis that subsamples across the four treatment arms are from the same population. Employed in ag refers to the percentage employed in agriculture.

Consistent with the literature, we call a decision to reduce a partner's earnings as a decision to 'burn' or reduce the partner's endowment.

Male DMs are provided with randomly selected information about their partner's empowerment status before deciding whether they wish to burn their partner's endowment or not. We employ a between-subject design with randomisation at the household level. Each male DM is randomized into one of four broad experimental arms; either a pure control arm or one of three treatment arms. In the control arm, male DMs are not provided with any information about the empowerment status of their partner. In the three treatment arms, male DMs are provided with information corresponding to different forms of female empowerment: behaviours indicating increased female autonomy ('General Empowerment'), gaining control over resources ('Resource Control'), or an improvement in relative status ('Status Inconsistency'). The average rate of burning in the pure control arm is our measure of baseline anti-social retaliatory behaviour against women in our setting. We assess male backlash in response to different forms of female empowerment by taking the difference in average burning rates between the pure control arm and the treatment arms. Half of all male DMs take part in a further 'social image experiment' designed to assess the role of social image concerns in driving male backlash. Figure 1 shows how randomization was implemented and the flow of the experiments and surveys. Details on the different study arms and the social image experiment are provided in the subsections that follow.

Figure 1: Experimental design flow chart



After completing the experiment, all men respond to a survey containing questions on background characteristics, such as age, education, caste, religion, and household income, along with a set of questions on gender attitudes and beliefs around gender norms and IPV. Wives of participating men completed a female survey in parallel. As well as general background characteristics, the female survey contains questions about gender and IPV attitudes and the perceived likelihood or perpetuation. The prevalence and frequency of

domestic violence perpetrated by male DMs against their wives is measured using an Audio Computer-Assisted Self-Interview (ACASI)-based method which has been shown to reduce under-reporting in some contexts (Cullen, 2023; Peterman et al., 2023).[10]

All surveys were conducted in private by enumerators of the same sex as the respondent. Respondents knew that their answers and decisions were private and would not be shared with their partners or husbands. The experiment and survey lasted 45 minutes on average. Each respondent received a flat participation fee (paid separately, in private) as well as additional payments depending on the decision in the experiment. Surveys were conducted in accordance with the WHO ethics guidelines for research on IPV (WHO, 2016).

3.1 Pure Control arm

To generate a benchmark measure of anti-social retaliatory behaviour of men against women we establish a 'pure control' condition. In the control condition, male DMs are initially provided basic, general information about their experimental partner, including that she is female, resides in their local area, has completed primary schooling, and lives in a similar house to their own. These additional characteristics were kept very broad (e.g., one characteristic was that the partner lived in the same area as them, which was always true) and therefore were constant across individuals. Consistent with the literature, we provide these additional characteristics (e.g., accommodation type) to reduce the salience of the partner's gender and empowerment characteristics and mitigate socially desirable response bias or experimenter demand effects that could arise from making the research question salient (e.g. Bhalotra et al., 2023; Benjamin et al., 2016; De Quidt et al., 2018).[11] This information also allows us to provide additional context to DMs to reduce the noise around male DMs' perceptions of their experiment partner.

Male DMs are also shown illustrated representations of women with similar traits to their experiment partner. In the control condition, the two images shown are of women doing common household activities.[12] The images selected for the experiment and the additional information provided about female partners were selected because they represent normal behaviour that is consistent with prevailing social norms about the common behaviour of women in our context. The images and accompanying text shown to male DMs regarding the partner in the control arm as they appeared on the interview tablet are displayed in Appendix Figure A4. The images were systematically selected based on a survey of 100 adults in India conducted before the experiment. Survey respondents were presented with 3 of 8 possible images and asked to rate

[10] In this method, women listen to a pre-recorded audio of the standard Demographic and Health Survey (DHS) IPV questions read through headphones and select the answers themselves on a tablet, likely circumventing some drivers of reporting bias, such as shame or fear.

[11] As discussed below, we also control for a survey-based measure of social desirability bias across all regression specification, and conduct tests for experimenter demand effects.

[12] Men were shown both images to minimise the risk of any one image driving results.

the level of empowerment of the women depicted on a scale from 0 to 10. These control condition images had a lower rating of empowerment (relative to the alternative 'empowered' women images discussed below), but were still rated as 'moderate' empowerment, and we interpret them as portraying very normal 'average' activities that are standard for all women in general in this setting.

3.2 Treatment arm 1: General empowerment

While the average rate of burning in the control arm measures anti-social behaviour towards women, it does not tell us anything about backlash in response to female empowerment. To study this we implement three treatment arms. The general setup of the game in the treatment arms is identical to the control arm. We detail differences below.

We label the first treatment arm 'general empowerment'. In this treatment condition, male DMs are informed that their partner participated in a female empowerment program. They are also informed that, as a result of participating in the program, their female partner is likely to spend more time outside the household, more likely to have her own opinions and interests, and be less dependent on her husband.

In this treatment, the additional empowerment information provided to men about their female partner was systematically selected using the following approach. First, we reviewed the literature to identify the most widely understood meaning of 'female empowerment´. Our review suggests that most programs that aim to empower women seek to enhance their independence and autonomy. For example, a typical empowerment initiative might focus on improving women's education, enabling them to make informed decisions, increase their employment prospects, earn an income, and thereby decrease their dependence and increase their autonomy. With this, we then generated 21 descriptions of possible characteristics of an empowered woman, such as "A woman who participated in a female empowerment program, for example a women's self-help group that aims to improve access to economic opportunities". Based on the 21 possible descriptions of empowered women, we then conducted a survey of 100 adult Indians to understand which statements best represented female empowerment. Survey respondents were randomly shown five out of the list of 21 descriptions of empowered women. They were asked to assess on a scale between 0-10 how empowered the women in the statement were. We chose the statement that received the highest consensus among participants as a representation of female empowerment. We call this Information set A and it is as follows:

> **Information A**: She participates in a female empowerment program, for example a women's self-help group that aims to improve women's ability to determine their own choices. Meaning they will spend more time outside the household and are more likely to develop their own opinions and interests and are less likely to be dependent on their husband.

Our aim here was not to focus specifically on only one definition of empowerment such as obtaining a job, but to capture a broad form of empowerment which contained multiple components. Nevertheless, given the detailed nature of the statement, we randomised parts of the sentence describing the empowered female partner to better understand the characteristics that may trigger backlash. In particular, we randomised men to see one of the three variants below. Information A was the information that most represented empowerment (i.e., the variant selected by survey respondents), information B omits dependency on the husband and information C further omits the development of opinions and interests.[13][14] These are shown below

> **Information B**: She participates in a female empowerment program, for example a women's self-help group that aims to improve women's ability to determine their own choices. Meaning they will spend more time outside the household and are more likely to develop their own opinions and interests.
>
> **Information C**: She participates in a female empowerment program, for example a women's self-help group that aims to improve women's ability to determine their own choices. Meaning they will spend more time outside the household.

Additionally, rather than the control images, male DMs are shown illustrations depicting a woman going to work or to the market. Based on the survey of 100 India adults, respondents agreed that women were empowered in these images. Figure A5 in the Appendix shows how this information and images were presented to male DMs in practice.[15] We argue that comparing average burn rates between the control arm and this treatment arm allows us to study whether male DMs punish women more if women have been empowered through an empowerment program. This is our first measure of retaliatory behaviour of men against women who have been 'empowered'.

A feature of this design is that we measure men's backlash towards women within the community and not explicitly towards their wife. We made this design choice for a number of reasons. First, empowerment programs have the potential to provoke broad-based backlash in a community, while research has primarily

[13] As discussed above, we minimise deception by selecting statements that apply to women in our partner sample. and expressing these statement in a way that does not guarantee that a DMs partner has them. The empowerment characteristics convey that the program is designed to increase the likelihood of outcomes, such as developing personal opinions and interests.

[14] There may be an important distinction in behavioural responses depending on whether people believe that participation in empowerment is a choice or whether it is exogenously imposed. For instance, if a male DM believes that participation in empowerment programs was the female partner's choice, they may believe backlash is more appropriate than if the household had no choice. In India, participation in most empowerment programs is a choice. In our experiment, it is never made explicit whether participation was a choice or exogenous imposition. Future research could study this potential relevant variation.

[15] We specifically use two figures to avoid the participant focusing on a single representation. Further, even without these figures we observe similar rates of backlash in the general empowerment arm and the control variants of the status and resource control arms, which use the same images as the pure control. This suggests that the images themselves are unlikely to be driving the results

studied such effects within the context of the household. Secondly, conducting a similar experiment using men's wives as a participant raises ethical concerns. With no anonymity, the experiment could provoke backlash beyond the confines of the experimental setting. Our experimental approach also allows for greater experimental control compared to involving men's wives directly. Third, we argue that it is reasonable to assume that individuals who harm anonymous women in their community due to their empowerment are also likely to harm similar people in real life, where the costs of empowerment (on the male) are likely to be greater and more salient.

3.3 Treatment arm 2: Resource Control

In this treatment arm we focus on female empowerment via taking control over economic resources ('Resource Control').The rationale for this treatment comes from non-cooperative intra-household bargaining models (Baranov et al., 2021; Haushofer et al., 2019). In some of these models, the husband engages in violence driven by emotions and the need to express feelings such as frustration (often termed expressive violence), related models suggest that this violence is used by males to assert control over scarce resources (often termed instrumental violence) (Chin, 2012; Eswaran and Malhotra, 2011). For instance, men may retaliate against a woman who takes control over resource allocation within the household or community because they feel frustrated.[16] [17]

Empirically, research has shown that shifts in household consumption away from the preferences of the husband towards the wife are associated with greater rates of IPV within the household (Luke and Munshi, 2011; Schuler et al., 1996). Similarly, cash transfers given to women but not men and new employment opportunities prioritising women have been shown to increase backlash in the form of male violence (Luke and Munshi, 2011; Hidrobo and Fernald, 2013; Erten and Keskin, 2024; Bulte and Lensink, 2019; Bhalotra et al., 2021). Drawing inspiration from these models of expressive and instrumental violence, we argue that backlash can arise as punishment for women taking control of resources.[18]

To study this, one-quarter of male DMs in our study are randomly assigned to the second treatment arm. Similar to the setup in the other treatment arms, the resource control setting starts with each male DM being paired with an anonymous female partner. The key difference is that male DMs are told that they have been tasked with the responsibility of allocating a pot of resources among different community programs of their choosing. Before they can decide on their preferred allocations, however, male DMs are

[16] The wife's empowerment can reduce the equilibrium level of violence in these models. For example, when empowerment improves the wife's outside option, the threat of leaving the relationship becomes more credible.

[17] Note that instrumental violence can be interpreted broadly, and sometimes refers to the male using violence to take resources back from the woman. In our case, we consider instrumental as being men punishing women for taking control over resources.

[18] These models would also suggest men may commit backlash as a way to regain control of resources. Our experimental design is not able to measure this possibility

informed that the power to allocate resources is being taken from them and given to their female partner to ensure women have more input in the decision-making process. At this point, we elicit male DMs' willingness to pay to reduce their partners' income, exactly in the same manner as the control and first treatment arm. The design of this treatment arm essentially provides a frame in which men initially control resources but then have this control retracted by women.

We conduct two variants of this treatment by randomly varying the additional information male DMs are shown about their partner. In the first variant, labelled 'Resource Control Control' male DMs are not informed that their partner participated in a female empowerment program. In the second variant, labelled 'Resource Control Treatment' male DMs are informed that their partner participated in an empowerment program.[19] Comparing the Resource Control Control to the pure control allows us to estimate whether male retaliation is greater when men lose decision-making power to women. This provides a measure of backlash stemming from threats to male control over resources. This is our main focus. Comparing the Resource Control Treatment to the Resource Control Control allows us to study whether participation in a female empowerment program leads to a marginal increase in backlash in a setting where empowerment is obtained by taking control over resources from the male.

3.4 Treatment arm 3: Status Inconsistency

In this treatment arm we investigate the relationship between relative status and backlash. Non-cooperative intra-household bargaining models also argues that men can have negative reactions to perceived changes in their relative status (Angelucci, 2008; Baranov et al., 2021).[20] In particular, status inconsistency theory posits that male backlash may occur when women's status improves relative to men's, particularly when women's status surpasses that of men, causing men to feel threatened. In line with this theory, empowering women in a household or community decreases men's status relative to women. Men may then backlash to either restore their dominance and status or to punish women for the loss of status (Angelucci, 2008). For example, Gangadharan et al. (2015) shows that reserving leadership positions for women in the community increases retaliation against women. This theory is grounded in the notion that traditional gender roles and

[19] This information is shown to male DMs in the same way as in the control arm and general empowerment treatment arm described above. For the variant with participation in an empowerment program, we only provide male DMs the information shown in set C. This is because we would have been underpowered to detect any differences between A, B, and C in this sub-experiment. Recall that information set A contains all the information in set B and C, as well as " less likely to be dependent on their husband".

[20] It is reasonable to argue that men may not be threatened by only women who gain status, but rather with anyone who ascends or overtakes them on the status hierarchy. As our aim is to study backlash as a result of female empowerment, we specifically examine whether an increase in women's status triggers backlash, rather than investigating whether men are threatened differently by changes in status of women and men. Moreover, in real life, female empowerment and moving up the status hierarchy are inherently linked; women who become empowered also move up the status hierarchy. Further research could study whether this is specific to women.

societal expectations often position men as the primary decision-maker within society. When women gain higher status it can lead to a perceived threat to the traditional male identity and their role within society, potentially resulting in attempts to punish women through violence or other forms of backlash.

To study this, in the status inconsistency treatment arm male DMs are again paired with anonymous female partners. The key difference is that the DMs are initially told that they have been assigned the role of 'leader' while their female partner has been assigned the role of 'ordinary worker'.[21] Male DMs are then informed that their leadership role has been reassigned to their female partner to ensure women have more input in the decision-making process. After this, similar to the other treatments the DMs' willingness to pay to reduce their partners' income is measured. This treatment arm is designed to test the theory that perceived status inconsistencies that disrupt traditional gender hierarchies, such as those associated with losing a leadership position, can provoke male backlash. Similar to the Resource Control arm, we conduct two variants within the status inconsistency setting, one where males are not told anything about their partner's empowerment ('Status Control') and another where they are told their partner participated in an empowerment program ('Status Treatment').

We acknowledge that an increase in status may also correlate with greater control over resources. For instance, a woman who takes a leadership position may also gain control over resources. Nevertheless, it may only be the change in status, or the change in control over resources (or both) that generate backlash. Our design is able to isolate these drivers of backlash. In the Status Treatment variant, we distinguish status from resource control by varying status while keeping resource control constant. Similarly, in the Resource Control Treatment variant, we experimentally vary resource control without explicitly varying status. Finally, it is worth highlighting again that although male backlash in response to losing status or control over resources can occur either as a means to take back control or as a punishment ('lashing out'), our design specifically focuses on the latter. This is because men cannot regain status or control over resources within the context of the one-shot game we implement.

3.5 Balance

In Table 1 we report means of key demographics and test for differences across treatments. Column 4 reports the difference between the pure control arm and the combined treatment arms. In nearly all cases, there is no difference is characteristics across treatments. While, we find differences in average age and years of education across control and the combined treatment arm, the magnitude of these differences are very small and likely random. We then report characteristics in the treatment arms in Columns 5-7. A non-parametric

[21] These are meant to be just labels - 'leaders' and 'ordinary workers' have no explicitly defined roles in this experiment.

test of equality across the four study arms using the Kruskal–Wallis test is shown in Column 8. We find that characteristics are balanced. Regardless, we control for demographic characteristics, including age and education, across all regression specifications.

3.6 Behavioural mechanism: Social Image Experiment

In addition to the above treatments, we run an additional experiment to test whether social image concerns are a behavioral mechanism that explains backlash in our setting. Social image concerns relate to individuals' perceptions of how others see them (Bursztyn and Jensen, 2017). Concerns about social image can significantly influence behaviour, particularly in contexts where traditional gender roles are deeply valued. In many cultures, men are expected to uphold an image of dominance and authority within the household and wider community. Female empowerment, which often leads to women gaining more control over personal and financial decisions, can be perceived by men as a direct threat to their social image. There is increasing evidence that concerns about social image influence a wide range of behaviours (Bursztyn and Jensen, 2017; Tradenta et al., 2017; Andreoni and Bernheim, 2009). In experimental settings this is typically assessed by varying the observability of a person's actions: if someone behaves differently when their actions are unobserved compared to when they are observable, it suggests that social image concerns are influencing their behavior (Bursztyn et al., 2017; Andreoni and Petrie, 2004; Butera and Horn, 2020; Butera et al., 2022; Castillo et al., 2015). In our context, social image concerns may drive backlash behaviour if men act out due to shame or fear of ostracism to assuage concerns about how others may perceive them as a result of their household's involvement in female empowerment.

The social image experiment was conducted as a second-stage, directly after the first stage (the backlash experiment). The task was given only to those in the pure control arm and the general empowerment treatment arm (512 individuals).[22] Similar to the main backlash experiments, the social image task starts with each male DM being paired with an anonymous partner, with each individual having an endowment of Rs 300. Subjects are aware that they have been assigned a new partner who is unrelated to stage one. The social image task inverts the decision-making dynamic of the first stage task, so that new partners can now decide whether to burn the male DM's earnings by Rs 100 or not. Male DMs are told that their partner will be informed that the male DM's household participated in a female empowerment program before the partner

[22] We made this design choice for a number of reasons: 1) Conducting a second stage for all participants would have added significant time and financial costs. 2) We did not have clear expectations that losing status or control of resources would have a differential impact on social image concerns relative to the impact of female empowerment. 3) Instructions for a second stage in the status and resource control arms would have been complicated, increasing noise in our estimates (due to the additional information in these treatments). In summary, given the significant costs associated with conducting additional experiments, coupled with our ex-ante expectation that participation in the other treatment arms will not introduce additional variation in social image concerns, we made the decision to forego gathering this data in the resource control and status treatment arms.

is asked to make a decision. At this point, male DMs are offered an opportunity to hide this information from their partner at a cost of either Rs 10 or Rs 20 (varied randomly). We argue that the only reason a male DM should be willing to pay to avoid their partner knowing about their households participation in an empowerment program is if they believe this information will lead to retaliation (i.e. greater burning).

For social image concerns to explain backlash behaviour, two things must be true. First, one's household's involvement in female empowerment programs must trigger social image concerns in men, potentially from feelings of shame or fear of retaliation or social ostracism. Second, these social image concerns must lead men to retaliate against women. For instance, a man may take on more household or childcare duties typically done by women, and may become embarrassed or mocked, later retaliating against his wife because of the social stigma from his household's transgression of socially prescribed behaviours. In our experiment, while we can measure the first stage by assessing whether people are willing to pay to hide their household's participation in female empowerment programs, the second stage is harder to measure. One indicative measure of the second stage is to examine whether men who are willing to pay to hide their household's participation (i.e. the men with social image concerns) are also the men who burn the endowment of female experiment partners in the backlash burning experiment. The caveat is that this is only correlational. Nevertheless, both measures together provide useful evidence of the existence of social image concerns in this context.

The social image experiment uses a 2×2 design, randomizing whether the partner is male or female and whether the DM is informed if the partner's household participated in a female empowerment program. This design identifies if social image concerns are triggered more by male or female partners, based on the assumption that men may care more about male awareness of their household's participation. It also assesses if social image concerns are influenced by others' participation in female empowerment programs. We argue that concerns may decrease when others are also participants.

3.7 Primary Outcomes

Common across all experiments, the primary outcome of interest is an indicator variable representing whether male DMs are willing to pay to financially penalize their female partners by reducing their income. In the social image experiment, our main interest is in an individual's willingness to pay to hide that their household participated in a female empowerment program.

3.8 Policy Experiments

We next turn to assessing potential policy solutions. We conduct survey experiments to test which policies could mitigate male backlash risk in real-world settings. We test three policy options: 1) increasing the cost of backlash; 2) changing the framing and description of female empowerment programs; and 3) establishing role models within the community.

First, we test whether increasing the cost of backlash could reduce men's anti-social behaviour (Becker, 1968). In the real world, costs arise from legal restrictions, penalties and jail time, or other 'sticks', such as increased policing. Additionally, men can experience social costs as a result of backlash in the form of reputational damage and so on. We test whether men's backlash behaviour is sensitive to cost by randomly doubling the price that male DMs must pay if they choose to retaliate against their partner (Rs 10 or Rs 20, a meaningful amount in our setting with average day labourer wages of Rs 400-600). Our experimental cost variation is designed to indicate whether increasing the costs of backlash could deter men from retaliating against women.

Second, we conduct a survey experiment to test whether the framing used to describe an empowerment program has an effect on retaliatory behaviour. Programs designed to support women or low-status groups may be more likely to lead to backlash in situations where they are perceived as zero-sum by community members. For instance, when men are not aware of the benefits to them (or the community) of empowerment. Because people's behavioural responses to a policy can be affected by how it is described or framed (Behaghel and Blau, 2012), governments and NGOs may be able to reduce the risk of male resistance to female empowerment programs if empowerment initiatives are described in positive-sum terms. Emphasising the benefits to a wider group of beneficiaries could help ensure that men don't feel like they are 'losing out' to women.

We conduct a survey experiment at the end of the men's survey to test this. Men are randomly assigned one of two 'frames' labelling the same female empowerment program. One frame states that the program is a 'female empowerment' program, while the other states it is a 'families and communities' program. This frame is followed by a description of the key components of the program, which are identical across both programs. The only thing that varies across the groups is the several words in bold.

The text was as follows:

> *"I'm going to tell you about a woman called Nisha. She attended a* ***(randomly assigned frame: 'female empowerment' or 'families and communities')*** *program that, amongst other things, helped women start their own businesses, increased the share of income they provided in their family, convened meetings outside the home for women to meet together, and provided them with additional*

education opportunities. If you were Nisha's household member, how supportive would you be of her being part of the program?"

Men then indicated whether they support the program using a 5-point likert scale. We construct a binary indicator variable equal to one if men are supportive. We then test the difference in supportiveness between those shown the empowerment frame versus the more general families and communities frame. We expect a higher share of men will be supportive when shown the families and communities frame, particularly among men that backlash in the main experiment above. This would serve as suggestive evidence that reframing female empowerment programs to advertise the broader program benefits may mitigate the risk of male backlash.

Finally, we test a third popular policy approach with the potential to mitigate backlash and promote empowerment: role models. There is some evidence that role models can change gender norms and associated behaviours. For example, Jensen and Oster (2009) find that gender attitudes become more progressive in rural India once cable television is introduced in the area. Porter and Serra (2020) find that the share of women majoring in economics at university doubles when they are exposed to successful and charismatic women who majored in economics at the same university. Positive role model effects have also been found across a wide range of domains of disadvantage, including race and socio-economic (Riley, 2024; Gershenson et al., 2022). Relatedly, persuasion by high profile individuals has also been found to improve vaccine uptake in Indonesia and health behaviours in India (Alatas et al., 2024; Banerjee et al., 2022).

Like the framing survey experiment, the role model survey experiment was conducted at the end of the men's survey (after the framing experiment and demographic survey questions). To test the impact of framing, half of the men were randomly assigned to the role model treatment. They were informed that the country's high profile national cricket captain, Virat Kohli, has publicly spoken in favour of gender equality and women's rights in India. Control arm men were not provided with this information. All men were then invited to sign a real petition that asked leaders to do more to promote gender equality. The India-hosted Cricket World Cup was underway in the same month as the experiment, and the captain of the team was one of the most recognizable people in the country, with 500 million Indians watching the World Cup, and 300 million watching the final match featuring India. In 2019 ESPN found the captain (Virat Kohli) to be the 7th most famous athlete in the world after Roger Federer. The information we use is true as Virat Kohli has many public postings on popular social media platforms stating his support for women's rights and gender equality.

Below, we include the role model text followed by the questions about the petition.

"There are a number of eminent people in India who encourage female empowerment. For instance,

Indian cricket captain, Virat Kohli, has publicly promoted gender equality and women's rights in India.

Would you be interested in signing a letter in support of the promotion of women's rights in communities like this one? Specifically, signing this letter means that you are petitioning in support of: Women being provided with the health support services they need; girls being given high-quality education; preventing domestic violence against women; and making public spaces safe for women.

Would you like to sign this petition?"

The outcome is whether the subject signed the petition. This was intended to be a higher cost to respondents than a standard survey question, thus reducing social desirability bias risks.

4 Hypothesis

In this subsection we outline our main hypotheses. These were pre-registered in our Pre-Analysis plan (Cullen et al., 2023).

Our first hypothesis states that male decision-makers will more frequently reduce their partners' earnings when informed that the partner's household participated in a female empowerment program, compared with the baseline control when this information is not provided. Essentially, this hypothesis tests the difference between the pure control and the general empowerment treatment. We argue that any observed difference between these groups in evidence of backlash. We generate this hypothesis based on the prevailing conservative gender norms in this context. As women become empowered, we hypothesize that men may perceive this as a violation of established roles and norms, leading to backlash.

Hypothesis 1: When DMs are informed about their female partner's participation in an empowerment program they will reduce their partner's endowment at a higher rate than DMs in the pure control group who are not informed their partner was empowered.

Our experimental design allows us to study whether backlash is more prevalent under different forms of female empowerment. In particular, we can examine the frequency of backlash when empowerment occurs through a general empowerment program, via increased control over resources, or by status elevation. While there is a body of literature exploring these explanations, there is no direct empirical evidence experimentally testing and comparing these theories in the same setting. It is therefore not clear ex-ante which of these settings will generate the largest backlash.

Hypothesis 2: The frequency of backlash is equal across general empowerment, status elevation and increased control over resources.

We are also interested in understanding the characteristics of men who backlash against female empowerment. We expect that men who backlash against female empowerment programs also hold more traditional values. Males with conservative gender attitudes may be more likely to retaliate against female empowerment due to their traditional beliefs about gender roles and power dynamics. They may view shifts in gender equality as a threat to their authority and status within society, fearing a loss of control and privilege. Consequently, they may perceive efforts to empower women as a challenge to their traditional role as breadwinners and decision-makers, leading to resistance and backlash. This leads us to our next hypothesis:

Hypothesis 3: DMs who are more likely to perpetrate backlash are also more likely to have perpetrated IPV and hold more conservative attitudes.

We next turn to our hypothesis about social image. We expect that social image concerns are relevant for female empowerment because some men have an emotional reaction to others' perceptions of their household's involvement in a female empowerment program. Feelings of shame by men can generate resentment and retaliation against women who have become empowered. We expect that men who are willing to pay to avoid their partner knowing about their household's involvement in an empowerment program are also more likely to reduce the income of their female partner. This leads us to our next hypothesis:

Hypothesis 4: DMs willing to pay to conceal their household's involvement in a female empowerment program are also more likely to reduce their female partner's income.

The social dynamics and norms surrounding masculinity means that social image concerns about female empowerment programs may be triggered by other men (rather than women). This may be because men derive their sense of status and identity from traditional gender roles and power dynamics. Therefore, if other men become aware of a DM's involvement in activities traditionally associated with women, such as supporting female empowerment programs, it may challenge the DMs perceived social standing among men. This threat to social image could lead to feelings of shame, embarrassment, or a loss of status among his male peers. We expect this response to be less strong when the DM's partner is a female. This generates our next hypothesis:

Hypothesis 5a: DMs are more likely to hide their participation in an empowerment program when they are assigned a male partner, relative to a female partner.

We also anticipate that if a man's partner is also engaged in an empowerment program, it would alleviate his concern about how he is perceived by others, as increased participation may signal greater acceptance.

Hypothesis 5b: When DMs are informed that their partner also participated in an empowerment program, they are less likely to hide their involvement relative to when they are not informed.

5 Results

5.1 Does backlash occur and when?

In this subsection we examine whether female empowerment generates backlash, and whether it depends on the form of female empowerment. We begin by comparing average burning rates across the different study arms (see Figure 2 and Table A3). For now, we pool the variants within the status and resource control treatment arms as they both contain some form of empowerment. In the pure control, 9% of men opt to reduce their female partner's endowment. This is lower than rates typically found in laboratory studies, where approximately 30% of subjects opt to reduce their partner's earnings (see a literature review by Sanjaya (2023)). In the general empowerment arm, where men are informed that their partner participated in a female empowerment program, burning rates almost double to 17.1%.

When we consider each of the empowerment settings separately, we find similar rates. Men burn their partner's endowment 18.6% and 18.3% of the time when women take higher status or take control over resources, respectively. The difference in burn rates between the pure control and the three different forms of empowerment are statistically significant at the 1% level (t-test). We find no difference in burn rates between the different empowerment treatments.[23] This suggests that backlash occurs across multiple common forms of female empowerment.

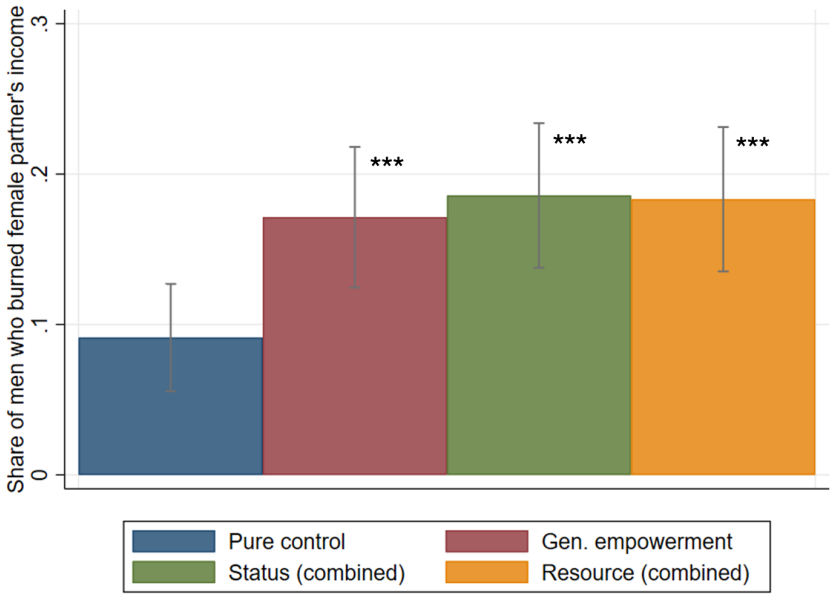
We test the robustness of these results by estimating the following equation using OLS:

$$Y_i = \beta_0 + \beta_1 Gen.Empowerment_i + \beta_2 Status_i + \beta_3 Resource_i + \gamma \mathbf{X}_i + \eta K_i + \varepsilon_i \quad (1)$$

where Y_i is a dichotomous variable equal to one when individual i chooses to reduce, or 'burn', the endowment of their partner. $Gen.Empowerment_i$ is an indicator variable for those randomly assigned to the general empowerment treatment while $Status_i$ and $Resource_i$ indicates assignment to the status inconsistency or resource control treatments, respectively. Again, we begin by pooling the sub-treatment arms within status inconsistency and resource control. The omitted category corresponds to the pure control

[23] Table A3 compares burn rates across all treatment arm pairs, including the sub-treatment arms within status and resource control treatment arms. We find that when comparing these empowerment treatments, rates of burning are between 16% and 20% and always statistically different from the pure control, at the 5% level.However, there is never any difference among the empowerment treatments

Figure 2: Burning rates across treatment arms



Note: This graph shows average burn rates across the four study arms along with 95% confidence interval bands in grey. P-values from t-tests comparing means in each treatment arm to the pure control arm are shown as stars with *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

arm. We also include a vector of individual controls ($\mathbf{X}_i$) that may influence behaviour - educational attainment, occupational status, income, age, religion, caste, and a control for the perception of the income of their partner.[24] Since we are studying a topic where answering in a particular way may be considered socially undesirable, we also include a set of controls K_i to account for potential social desirability bias. We include three measures. First, we use the Marlowe-Crowne Index, which measures susceptibility to socially desirable answers (Dhar et al., 2019). Second, we include a dummy variable if respondents had heard about the experiment from others prior to taking part. Third, at the start of the survey (directly after participation in the experiment), we ask respondents about their perceptions of the purpose of the task. We include an indicator variable equal to one if they guessed the task was about studying female empowerment.

Results are reported in Table 2. In Column 1, we estimate a model without any controls; Column 2 adds the standard set of controls ($\mathbf{X}_i$), while Column 3 includes village fixed effects and enumerator fixed effects. Finally, in Column 4, we add the controls for social desirability bias K_i. The results remain highly robust and consistent across specifications. Comparing the pure control to the general empowerment treatment, when men are informed that their partner has been empowered, they are approximately 8 percentage points more likely to reduce their partner's endowment. Accordingly, we can confirm our first hypothesis, leading

[24] In the survey we asked individuals to guess the income of their partner, where 10 is the highest income and 1 is the lowest. We include this to rule out burning as a result of perceived income differences that may reflect inequality aversion.

us to our first main result.

> **Result 1:** Men are willing to pay to reduce empowered women's endowment at around double the rate of control women.

Table 2 also shows that backlash is approximately 11 percentage points higher in the status treatment compared to the control (in the model with all controls), and over 9 percentage points higher in the resource control setting, statistically different at the 1% level. In Panel B of Table 2, we estimate the difference in burn rates between the different empowerment treatments. We find no evidence that backlash is different among the treatments (i.e, there is no difference in the burn rates between general empowerment, status, or resource control). This suggests that backlash is triggered by and equally large across multiple common empowerment settings. This is consistent with the literature on backlash which identifies it in multiple varied contexts (e.g. Cullen et al., 2020; Erten and Keskin, 2024; Bhalotra et al., 2021). Given there is no difference across treatment arms, we merge all empowerment treatments for subsequent analysis.[25] This brings us to our next result.

> **Result 2:** Men are willing to pay to reduce women's endowment, irrespective of whether they were empowered via a general empowerment program, or through elevated status or control of resources. We find no difference in backlash rates across the different empowerment settings.

[25] In the status and resource control treatments, we implement two sub-treatments: a control condition that introduces empowerment purely through either status or control over resources, and a treatment condition where the partner is also stated to be involved in an empowerment program. Table A1 reports the OLS regressions breaking results by these sub-treatments. In all cases, burning is greater than the baseline pure control case. Nevertheless, we find no difference in burning between sub-treatments.

Table 2: Do men reduce their female partner's income because of female empowerment?

	Burn			
	(1)	(2)	(3)	(4)
Panel A: Comparing burn rates to pure control arm				
General Empowerment	0.080***	0.085***	0.083***	0.085***
	(0.030)	(0.030)	(0.031)	(0.030)
Status (combined)	0.095***	0.104***	0.103***	0.109***
	(0.031)	(0.031)	(0.030)	(0.030)
Resource (combined)	0.092***	0.093***	0.092***	0.096***
	(0.030)	(0.031)	(0.031)	(0.031)
Constant	0.091***	0.095	0.074	−0.117
	(0.018)	(0.078)	(0.107)	(0.114)
Observations	1,007	1,007	1,007	1,007
R-squared	0.011	0.044	0.096	0.111
Panel B: Coefficient Differences				
General Empowerment - Status	−0.014	−0.019	−0.020	−0.024
	(0.034)	(0.034)	(0.034)	(0.033)
General Empowerment - Resource	−0.012	−0.008	−0.009	−0.011
	(0.034)	(0.034)	(0.034)	(0.034)
Status - Resource	0.003	0.011	0.011	0.013
	(0.034)	(0.034)	(0.034)	(0.034)
Basic Controls	NO	YES	YES	YES
Village Fixed Effects	NO	NO	YES	YES
Enumerator Fixed Effects	NO	NO	YES	YES
Controls for Social Desirability Bias	NO	NO	NO	YES

Note: Significance levels are denoted by: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. Robust standard errors are in parentheses. Burn is an indicator variable equal to 1 if the man chooses to burn his female partner's endowment. In panel A, the omitted category corresponds to the pure control arm. The coefficients reported in the first three rows of Panel A correspond to differences in burn rates between each of the three empowerment treatment arms with respect to this base category. Panel B tests for pair-wise differences in burn rates across the three treatment arms. General Empowerment is defined as a indicator variable equal to one for those randomly assigned to the general empowerment treatment. Status (combined) and Resource (combined) indicates assignment to the status inconsistency or resource control treatments, respectively.

5.2 The characteristics of men who backlash

We next study the characteristics of those who backlash. In particular, we focus on three key attitudes - men's likelihood of becoming violent, IPV acceptability, and gender attitudes. These are all indices taken from common existing survey modules.[26] We also estimate the relationship between burning and a set of men's demographics and other control variables that were pre-specified in the PAP.

We estimate two models. First, to study the characteristics of people who burn their partner's endowment (regardless of their empowerment status), we estimate equation 2. The coefficient β_1 measures the association between men's attitudes and men's decision to burn their partner's endowment. To examine whether men's attitudes predict backlash behaviour, defined as the additional burning men do due to their partner's empowerment, we estimate equation 3, interacting the men's attitudes index with the combined empowerment treatments. The empowerment treatment variable equals one if participants were randomly assigned to any of the three treatment arms and zero if they were in the pure control arm (where they received no information about their partner's empowerment status).

$$Y_i = \beta_0 + \beta_1 \mathbf{Attitudes}_i + \gamma \mathbf{X}_i + \eta_{Ki} + \varepsilon_i \tag{2}$$

$$\begin{aligned} Y_i =& \beta_0 + \beta_1 \mathbf{Attitudes}_i + \beta_2 \text{Empowerment Treatment} \\ &+ \beta_3 (\mathbf{Attitudes}_i \times EmpowermentTreatment_i) + \gamma \mathbf{X_i} + \eta_{K_i} + \varepsilon_i \end{aligned} \tag{3}$$

Table 3 shows these results. Panel A, B, and C report results for the indices on the likelihood of violence, acceptability of violence, and gender attitudes, respectively. We consistently observe that men who exhibit a higher acceptance of IPV, hold conservative gender attitudes, and self-report a higher likelihood of committing IPV are more inclined to reduce their partner's endowment. This association persists even after accounting for a comprehensive range of demographic controls and potential social desirability bias. On associations between burning and the control variables, we find that those with university education and higher incomes burn their partner's endowment at lower rates. Further, men in wage work reduce their partner's endowment more than men working in agriculture (Table A2 reports the full results).

[26] To measure the likelihood of violence, we create an index based on seven survey questions where men indicate if they would likely become violent or intimidating in hypothetical scenarios (e.g., if their wife made an important decision without them, ridiculed them, or disrespected them). This approach follows Vaillant et al. (2020). We also create an index for men's attitudes on the acceptability of IPV using questions from the Demographic and Health Survey (DHS) module (e.g., 'Is a husband justified in hitting his wife if she goes out without telling him?' or 'If she neglects the house or children?'). Additionally, we measure gender attitudes using ten DHS statements (e.g., 'It is shameful for a woman if her husband cooks or does housework'). Each index is the average response of its components, but results are highly robust to using the sum of components.

In Table 4, we report results from the estimation of the interaction model (equation 3). We find that men who self-report a higher likelihood of committing IPV and a higher acceptance of IPV are more likely to backlash (see Panel A and B). We find weaker evidence regarding gender attitudes. The interaction term is positive but only statistically significant at the 15% level (see Panel C). These results suggest that men with conservative attitudes about IPV acceptability are more likely to backlash. This confirms our third hypothesis and brings us to our next key result.

> **Result 3**: Men that are more accepting of IPV, and more likely to become violent, are more likely to backlash against empowered women.

Table 3: The relationship between men's attitudes and burning behaviour

	Burn			
	(1)	(2)	(3)	(4)
Panel A: Likelihood of Violence				
Higher Likelihood of Violence	0.066***	0.064***	0.071***	0.063***
	(0.014)	(0.015)	(0.017)	(0.017)
Constant	−0.006	−0.038	−0.087	−0.213*
	(0.034)	(0.089)	(0.121)	(0.124)
R-squared	0.020	0.048	0.102	0.112
Observations	1,007	1,007	1,007	1,007
Panel B: Acceptability of Violence				
Higher Acceptability of Violence	0.198***	0.194***	0.181***	0.159***
	(0.043)	(0.045)	(0.048)	(0.049)
Constant	0.109***	0.060	0.039	−0.103
	(0.013)	(0.080)	(0.110)	(0.116)
R-squared	0.026	0.054	0.100	0.110
Observations	1,007	1,007	1,007	1,007
Panel C: Conservative Gender Attitudes				
Conservative Gender Attitudes	0.100***	0.089***	0.117***	0.102***
	(0.021)	(0.022)	(0.026)	(0.026)
Constant	−0.105*	−0.118	−0.214*	−0.323**
	(0.052)	(0.098)	(0.123)	(0.126)
R-squared	0.022	0.047	0.102	0.111
Observations	1,007	1,007	1,007	1,007
Basic Controls	NO	YES	YES	YES
Village Fixed Effects	NO	NO	YES	YES
Enumerator Fixed Effects	NO	NO	YES	YES
Controls for Social Desirability Bias	NO	NO	NO	YES

Notes: Significance levels are denoted by: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. Robust standard errors are in parentheses. Burn is an indicator variable equal to 1 if the man chooses to burn his female partner's endowment. Men's likelihood of becoming violent (Panel A) is measured using an index of seven survey questions on different hypothetical scenarios (e.g., 'How likely is it that you would beat your wife or do anything to physically hurt her if your wife takes an important decision without telling you?'). The index for men's acceptability of violence (Panel B) uses questions from the DHS (e.g., 'Is a husband justified in hitting his wife if she neglects the house or children?'). Men's gender attitudes (Panel C) are also measured using questions from the DHS (e.g., 'It is shameful for a woman if her husband cooks or does housework'). Each index is constructed by taking an average of its components.

Table 4: Are men with conservative attitudes more likely to backlash?

	Burn			
	(1)	(2)	(3)	(4)
Panel A: Likelihood of Violence				
Higher Likelihood of Violence	0.038*	0.033	0.036	0.028
	(0.020)	(0.021)	(0.023)	(0.024)
Empowerment Treatment	−0.003	−0.008	−0.025	−0.022
	(0.064)	(0.065)	(0.067)	(0.067)
Higher Likelihood of violence × Empowerment Treatment	0.037	0.040	0.047*	0.047*
	(0.027)	(0.027)	(0.028)	(0.028)
Constant	−0.004	−0.010	−0.025	−0.159
	(0.048)	(0.089)	(0.123)	(0.127)
R-squared	0.033	0.062	0.115	0.126
Observations	1,007	1,007	1,007	1,007
Panel B: Acceptability of Violence				
Higher Acceptability of violence	0.022	−0.001	−0.030	−0.062
	(0.056)	(0.058)	(0.063)	(0.065)
Empowerment Treatment	0.033	0.032	0.026	0.028
	(0.027)	(0.027)	(0.028)	(0.028)
Higher Acceptability of Violence × Empowerment Treatment	0.220***	0.242***	0.262***	0.272***
	(0.076)	(0.077)	(0.079)	(0.078)
Constant	0.086***	0.064	0.055	−0.097
	(0.021)	(0.079)	(0.107)	(0.113)
R-squared	0.041	0.071	0.118	0.129
Observations	1,007	1,007	1,007	1,007
Panel C: Conservative Gender Attitude				
Conservative Gender Attitudes	0.062*	0.048	0.072*	0.053
	(0.035)	(0.036)	(0.038)	(0.037)
Empowerment Treatment	−0.046	−0.053	−0.070	−0.082
	(0.110)	(0.110)	(0.111)	(0.109)
Conservative Gender Attitudes × Empowerment Treatment	0.051	0.056	0.062	0.068
	(0.043)	(0.043)	(0.043)	(0.043)
Constant	−0.073	−0.060	−0.135	−0.242*
	(0.090)	(0.123)	(0.140)	(0.142)
R-squared	0.035	0.061	0.116	0.126
Observations	1,007	1,007	1,007	1,007
Basic Controls	NO	YES	YES	YES
Village Fixed Effects	NO	NO	YES	YES
Enumerator Fixed Effects	NO	NO	YES	YES
Controls for Social Desirability Bias	NO	NO	NO	YES

Notes: Significance levels are denoted by: *** p < 0.01; ** p < 0.05; * p < 0.1. Robust standard errors are in parentheses. Burn is an indicator variable equal to 1 if the man chooses to burn his female partner's endowment. Empowerment is an indicator variable equal to 1 if the man was randomly assigned to a treatment arm. The interaction term is also shown. Men's likelihood of becoming violent (Panel A) is measured using an index constructed using seven survey questions that ask about different hypothetical scenarios (e.g., 'How likely is it that you would beat your wife or do anything to physically hurt her if your wife takes an important decision without telling you?'). The men's acceptability of violence index (Panel B) uses questions from the DHS (e.g., 'Is a husband justified in hitting his wife if she neglects the house or children?'). Men's gender attitudes (Panel C) are also measured using questions from the DHS (e.g., 'Is it shameful for a woman if her husband cooks or does housework?'). Each index is constructed by taking an average of its components.

In addition to measuring men's attitudes, we also ask the DMs' wives about their attitudes towards IPV and gender roles, as well as their self-reported experience of IPV (measured using Audio Computer-Assisted Self Interview technology). Details about the women's survey including the full set of results are reported in Appendix C. We find that 33% of women report experiencing some form of IPV in the previous 12 months, a rate which is close to the state average of 35% (DHS, 2019). We analyze whether wives' attitudes and experience of IPV are predictive of their husband's burning behaviour in the experiment in Table A6 . We find no statistically significant relationship between a husband's burning rate and women's reported experience of IPV or women's gender attitudes. We propose two possible reasons for the difference between the relationship between men's and women's attitudes, and backlash: 1) misreporting - in Table A6 we find that women who report not experiencing any form of IPV have husbands who are more likely to backlash (these are also husbands who are more likely to report that committing IPV is acceptable). This suggests that these women may be under-reporting IPV, potentially due to lack of awareness or a form of self-preservation or denial, or because they work hard in their household to avoid provoking their husband to backlash; 2) The interpretation of self-reported gender attitudes of women and of men is typically very different (with potentially differing motivators for reporting), thus differences in results here are not incompatible (Cullen, 2023).

Given our interest in the relationship between female empowerment and male backlash, and using our husband-wife dataset, we investigate the link between men's backlash and the disparity in gender attitudes between husbands and wives. Evidence suggests that when men and women have divergent gender attitudes, particularly when women hold more progressive views, it can trigger backlash, including increased rates of male violence against women (Cullen et al., 2020; Guarnieri and Tur-Prats, 2023). Such attitude gaps may not only exacerbate tensions within households but also contribute to broader community-level gender conflicts. To analyze this effect, we focus on responses to IPV acceptability and general gender attitude questions, which were posed to both men and women. We construct a spousal attitude difference variable, defined as the husband's average conservative attitudes index minus the wife's conservative gender attitudes index. We then re-estimate Equation 2 and 3 but replace $\mathbf{Attitudes}_i$ with $(\mathbf{Attitudes}_{mi} - \mathbf{Attitudes}_{fi})$ where $\mathbf{Attitudes}_{mi}$ is the attitude index for the husband and $\mathbf{Attitudes}_{fi}$ is the attitude index of the wife. Results are reported in Table 5 and Table 6.

Overall, we find that men who hold more conservative views than their wives exhibit a greater likelihood of retaliating against a female partner in the experiment. Specifically, a marginal increase in the difference between a husband's and wife's gender attitudes corresponds to a 7-percentage-point increase in burning. Moreover, when this gap is interacted with the empowerment treatment, we observe that in households where the husband's views are more conservative than the wife's, men are more inclined to engage in backlash

Table 5: The relationship between within-household gender attitude gaps and burning behaviour

	Burn			
	(1)	(2)	(3)	(4)
Panel A: Within-Household Gap in Acceptability of Violence				
Violence Acceptability Gap (Husband-wife)	0.091***	0.091***	0.082**	0.068*
	(0.034)	(0.034)	(0.036)	(0.037)
Constant	0.155***	0.127	0.094	−0.072
	(0.011)	(0.079)	(0.109)	(0.116)
R-squared	0.009	0.040	0.090	0.102
Observations	1,007	1,007	1,007	1,007
Panel B: Within-Household Gap in Gender Attitudes				
Gender Attitudes Gap (Husband-wife)	0.069***	0.061***	0.079***	0.069***
	(0.017)	(0.017)	(0.018)	(0.019)
Constant	0.132***	0.108	0.068	−0.084
	(0.012)	(0.078)	(0.106)	(0.114)
R-squared	0.015	0.043	0.099	0.109
Observations	1,007	1,007	1,007	1,007
Basic Controls	NO	YES	YES	YES
Village Fixed Effects	NO	NO	YES	YES
Enumerator Fixed Effects	NO	NO	YES	YES
Controls for Social Desirability Bias	NO	NO	NO	YES

Notes: Significance levels are denoted by: *** p < 0.01; ** p < 0.05; * p < 0.1. Standard errors are in parentheses. Burn is an indicator variable equal to 1 if the man chooses to burn his female experimental partner's endowment. A higher value of within-household gap value implies that men hold more conservative attitudes compared to their wives. The measure for acceptability of violence (Panel A) uses questions from the DHS (e.g., 'Is a husband justified in hitting his wife if she neglects the house or children?'). Gender attitudes (Panel B) are also measured using questions from the DHS (e.g., 'It is shameful for a woman if her husband cooks or does housework'). Each index is constructed by taking an average of its components.

against empowered women. Figure 3 shows that this backlash-against-empowered women effect is larger in couples where the gap in attitudes is high and smaller amongst couples where the gap in views is low. This is consistent with results from Cullen et al. (2020), where a Rwandan female empowerment and IPV prevention program caused a greater increase in women's progressive gender attitudes than men's, and a large unintended increase in IPV for treated women and spillover women living in the same communities. This same gap in spousal attitudes was identified as a key predictor of husband's IPV backlash, suggesting that increased friction between men and women may have contributed. Similarly, Guarnieri and Tur-Prats (2023) find that the cultural distance in gender norms between male combatants and their wartime female

Table 6: Do men who backlash live in households with larger husband-wife differences in conservative gender attitudes?

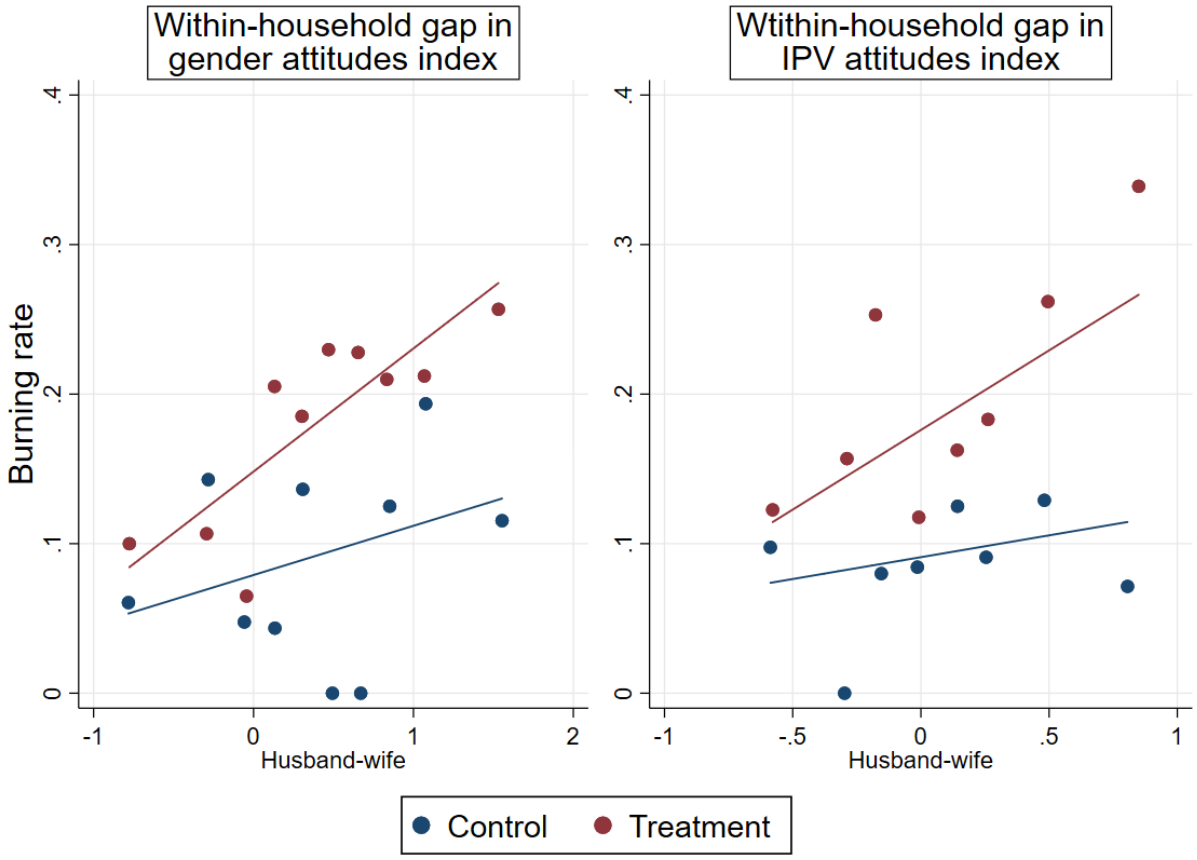
	Burn			
	(1)	(2)	(3)	(4)
Panel A: Within-Household Gap in Acceptability of Violence				
Violence Acceptability Gap (Husband-wife)	0.029	0.026	0.002	−0.019
	(0.047)	(0.049)	(0.053)	(0.053)
Empowerment Treatment	0.085***	0.090***	0.088***	0.092***
	(0.023)	(0.023)	(0.023)	(0.023)
Violence Acceptability Gap × Empowerment Treatments	0.077	0.079	0.098	0.107*
	(0.063)	(0.062)	(0.064)	(0.064)
Constant	0.091***	0.078	0.057	−0.119
	(0.018)	(0.079)	(0.106)	(0.113)
R-squared	0.021	0.053	0.103	0.116
Observations	1,007	1,007	1,007	1,007
Panel B: Within-Household Gap in Gender Attitudes				
Gender Attitudes Gap (Husband-wife)	0.033	0.021	0.030	0.014
	(0.029)	(0.031)	(0.030)	(0.030)
Empowerment Treatment	0.069***	0.072***	0.065***	0.066***
	(0.024)	(0.025)	(0.025)	(0.024)
Gender Attitudes Gap × Empowerment Treatments	0.049	0.054	0.068*	0.076**
	(0.036)	(0.037)	(0.037)	(0.036)
Constant	0.079***	0.068	0.043	−0.123
	(0.019)	(0.078)	(0.104)	(0.111)
R-squared	0.028	0.057	0.113	0.125
Observations	1,007	1,007	1,007	1,007
Basic Controls	NO	YES	YES	YES
Village Fixed Effects	NO	NO	YES	YES
Enumerator Fixed Effects	NO	NO	YES	YES
Controls for Social Desirability Bias	NO	NO	NO	YES

Notes: Significance levels are denoted by: *** p < 0.01; ** p < 0.05; * p < 0.1. Standard errors are in parentheses. Burn is an indicator variable equal to 1 if the man chooses to burn his female experimental partner's endowment. Empowerment treatment is an indicator variable equal to 1 if the man was randomly assigned to a treatment arm where the partner was empowered. The interaction term is just the interaction of these two variables. A higher value of within-household gap value implies that men hold more conservative attitudes compared to their wives. The measure for acceptability of violence (Panel A) uses questions from the DHS (e.g., 'Is a husband justified in hitting his wife if she neglects the house or children?'). Gender attitudes (Panel B) are also measured using questions from the DHS (e.g., 'It is shameful for a woman if her husband cooks or does housework'). Each index is constructed by taking a simple average of its components.

sexual violence victims predicts their use of sexual violence: violence increases when the perpetrator is more male-dominant than the victim. Together, these results support the notion that male backlash may be driven by a perceived threat to traditional gender norms, particularly when women become empowered and adopt more progressive views on gender equality. These results also show that our experimental measure of backlash is correlated with several attitudes, enhancing the external validity of our experimental task.

Result 4: In households where husbands hold more conservative gender attitudes than their wives, men are more likely to backlash against empowered women.

Figure 3: Burning rates by within-household gaps in attitudes



Note: This is a binned scatter plot showing average burning rates across 10 quantiles of within-household differences in attitudes between husbands and wives. A higher number on the x-axis denotes households where husbands are more conservative than their wives. The first panel plots burning rates against gaps in a gender attitudes index (scored on a scale from 1-4). The second panel plots burning rates against gaps in an IPV attitudes index (scored on a scale from 0-1). Separate plots are provided for households in the control arm and the combined treatment arm in each instance.

5.3 Behavioural Mechanisms

Our key results suggest that a sizable minority of men backlash across numerous contexts and different ways of empowering women, and that men with more conservative attitudes backlash more. In this subsection, we focus on the role of social image concerns as a possible explanation for backlash. We also discuss social norms as a further mechanism in Appendix Section C.0.1.

5.3.1 Social Image

In this subsection we first assess the proportion of men willing to pay to hide their involvement in a female empowerment program. We then report results by the gender of the experiment partner and whether the subject was informed that their partner participated in an empowerment program. We find that, overall, 18.4% of men are willing to pay to avoid others knowing that their household participated in a female empowerment program. This percentage is constant across the sub-treatments that varied partner characteristics. We find that 17-21% of men are willing to pay to hide their household's participation in an empowerment program from their partner, regardless of the partner's gender or their household's prior involvement in such a program. This suggests that a significant minority of men are concerned that if others in their community are aware of their association with female empowerment programs, they could be punished (recall that the social image experiment allowed the partner to burn the male DM's endowment). Regression results are reported in Table 7.The absence of treatment differences, both in terms of the partner's gender and empowerment status, leads us to reject Hypotheses 5a and 5b.

> **Result 5**: 18% of men are willing to pay to hide that their household participated in a female empowerment program. Men's social image concerns are consistent across different experiment partner characteristics (gender or previous participation in empowerment program).

To further understand these results, we collected survey responses eliciting beliefs about social image concerns. Results are reported in Table 8. In particular, we asked respondents three questions. First, "Out of 10 randomly picked men in your community, how many of them would you think support their wives' participation in female empowerment programs?". Second, "Is it socially appropriate for men in your area to hide from other men that their household participated in a female empowerment program?" and third, whether they agreed with the statement "I would be comfortable for other people to know that my family was part of a female empowerment program."[27] Consistent with expectations, we find that those who believe

[27] Responses to the first question could range between zero and 10. Responses to the second question were recorded on a four-point scale from very socially appropriate to very socially inappropriate. The aim of this question was to assess the appropriateness of hiding this information rather than an assessment of the specific social image mechanism. Finally, the third question was on a four-point scale varying from strongly agree to strongly disagree

Table 7: Willingness to hide, by partner characteristic treatment

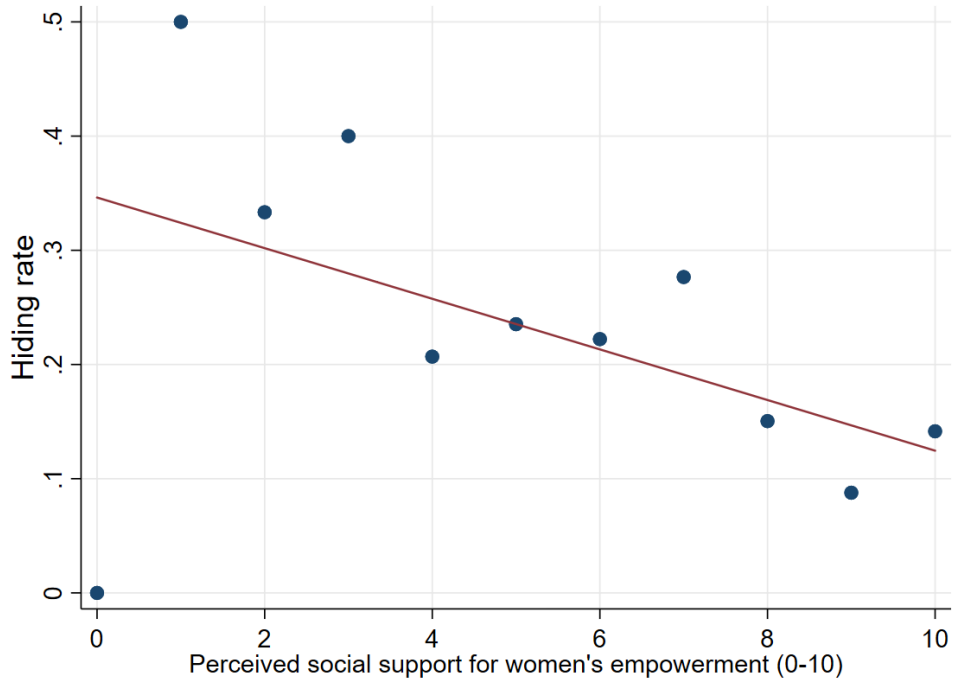
	Hide			
	(1)	(2)	(3)	(4)
Partner: Control Male	0.011	0.006	0.020	0.022
	(0.049)	(0.050)	(0.049)	(0.048)
Partner: Empowered Female	−0.003	−0.004	0.001	0.009
	(0.047)	(0.048)	(0.045)	(0.045)
Partner: Empowered Male	0.043	0.039	0.056	0.060
	(0.052)	(0.052)	(0.055)	(0.055)
Constant	0.174***	0.425***	0.569***	0.438*
	(0.035)	(0.131)	(0.188)	(0.228)
R-squared	0.002	0.058	0.202	0.209
Observations	503	503	503	503
Panel B: Coefficient Differences				
Partner: Control Male - Partner: Empowered Male	−0.031	−0.052	−0.049	−0.045
	(0.052)	(0.052)	(0.052)	(0.052)
Partner: Empower Male - Partner: Empowered Male	−0.046	−0.051	−0.060	−0.054
	(0.050)	(0.076)	(0.053)	(0.053)
Basic Controls	NO	YES	YES	YES
Village Fixed Effects	NO	NO	YES	YES
Enumerator Fixed Effects	NO	NO	YES	YES
Controls for Social Desirability Bias	NO	NO	NO	YES

Notes: Significance levels are denoted by: *** p < 0.01; ** p < 0.05; * p < 0.1. Robust standard errors are in parentheses. Hide is an indicator variable equal to 1 if the man chooses to hide his household's participation in a female empowerment program from his experiment partner. The omitted category corresponds to the case 'Control Female', in which the man is randomly paired with a female partner, and no additional information is provided about the female partner's empowerment status. 'Partner: Control Male' refers to when the DM's partner is male and they are not provided information of their partners empowerment status. 'Partner: Empowered Male' and 'Partner: Empowered Female' refers to the case where the partner is male or female respectively and the DM is informed that their partner's household has participated in an empowerment treatment. The coefficients reported in the first three rows correspond to differences in hiding rates with respect to the base category.

that other men in their village support female empowerment are less likely to pay to hide their involvement in such programs. This relationship is illustrated in Figure 4 and shown in Table 8, Panel A. In Panel B we also show that men who believe it is socially appropriate to conceal one's involvement in empowerment programs are more likely to pay to hide their participation, while in Panel C we find that men who are comfortable for others to know about their household's involvement in female empowerment programs are less likely to hide. Together, these correlations between pay-to-hide behaviour and survey results on norms, perceptions and preferences both provide external validity for our experimental measures and reinforce that there is a societal cost to men associated with involvement in empowerment programs, a potential underlying cause of backlash.

Result 6: Men pay more to conceal their participation in female empowerment programs if they perceive low community support for such programs.

Figure 4: Social Image Concerns and Attitudes



Note: This is a binned scatter plot showing average hiding rates by perceived social support for female empowerment measured by the survey question: "Out of 10 randomly picked men in your community, how many of them would you think support their wives' participation in female empowerment programs?". A higher number denotes higher perceived support.

Table 8: Relationship between willingness to hide and attitudes

	Hide			
	(1)	(2)	(3)	(4)
Panel A: Support Wife's Participation				
Support wife's participation	−0.022***	−0.021**	−0.014	−0.016*
	(0.008)	(0.008)	(0.009)	(0.009)
Constant	0.346***	0.569***	0.566***	0.386*
	(0.065)	(0.142)	(0.192)	(0.217)
R-squared	0.016	0.073	0.206	0.213
Observations	503	503	503	503
Panel B: Socially Appropriate to Hide				
Socially Appropriate to Hide	0.130***	0.1245***	0.125***	0.123***
	(0.027)	(0.026)	(0.028)	(0.028)
Constant	−0.658***	−0.793***	−0.947***	−0.792***
	(0.102)	(0.154)	(0.207)	(0.232)
R-squared	0.070	0.111	0.242	0.248
Observations	502	502	502	502
Panel C: Comfortable for other people to know				
Comfortable for other people to know	−0.012	−0.014	−0.052**	−0.050**
	(0.017)	(0.017)	(0.024)	(0.023)
Constant	0.224***	0.467***	0.627***	0.432**
	(0.059)	(0.148)	(0.202)	(0.227)
R-squared	0.001	0.056	0.207	0.214
Observations	497	497	497	497
Basic Controls	NO	YES	YES	YES
Village Fixed Effects	NO	NO	YES	YES
Enumerator Fixed Effects	NO	NO	YES	YES
Controls for Social Desirability Bias	NO	NO	NO	YES

Notes: Significance levels are denoted by: *** p < 0.01; ** p < 0.05; * p < 0.1. Robust standard errors are in parentheses. Hide is an indicator variable equal to 1 if the man chooses to hide his household's participation in a female empowerment program from their experimental partner. Support wife's participation is taken from the survey question, "Out of 10 randomly picked men in your community, how many of them would you think support their wives' participation in female empowerment programs?". Socially Appropriate to Hide is taken from the survey question, "Is it socially appropriate for men in your area to hide from other men that their household participated in a female empowerment program?". Responses were recorded on a four-point scale varying from very socially appropriate to very socially inappropriate. Finally, 'Comfortable for other people to know' is taken from the survey question "I would be comfortable for other people to know that my family was part of a female empowerment program." Responses were recorded on a four-point scale varying from strongly agree to strongly disagree.

We now turn to consider the relationship between social image concerns and male backlash. The above findings on social image concerns suggest that some community members likely disapprove of people's involvement in female empowerment program and that some men care about this disapproval. Nevertheless, public disapproval would not necessarily translate into backlash without men feeling shame or fear or being otherwise motivated to assuage a perceived threat to their masculinity by retaliating against women. While we cannot directly measure this last step, we can examine descriptively whether men who are willing to pay to conceal their involvement in empowerment (indicating they hold social image concerns) are also more likely to reduce their partner's endowment. To do this we estimate the relationship between willingness to hide and rates of burning. Results are reported in Table 9. We find a strong relationship between men's social image concerns and burning behaviour. A man who pays to hide his household's involvement in a female empowerment program is 17.4 percentage points more likely to burn his partner's income. Overall, we find strong suggestive evidence indicating that social image concerns play a role in men's backlash behaviour.

Result 7: There is a strong relationship between men's social image concerns and burning behaviour. Men who are willing to pay to hide their participation in a female empowerment program are more likely to burn their female partner's endowment.

Table 9: Relationship between burning and social image concerns

	Burn			
	(1)	(2)	(3)	(4)
Willingness to hide	0.182***	0.158***	0.178***	0.174***
	(0.049)	(0.049)	(0.048)	(0.048)
Constant	0.098***	0.212**	0.292**	0.190
	(0.015)	(0.106)	(0.148)	(0.176)
R-squared	0.044	0.106	0.194	0.197
Observations	503	503	503	503
Basic Controls	NO	YES	YES	YES
Village Fixed Effects	NO	NO	YES	YES
Enumerator Fixed Effects	NO	NO	YES	YES
Controls for Social Desirability Bias	NO	NO	NO	YES

Notes: Significance levels are denoted by: *** p < 0.01; ** p < 0.05; * p < 0.1. Robust standard errors are in parentheses. Burn is an indicator variable equal to 1 if the man chooses to burn his female experimental partner's endowment. The independent variable is an indicator equal to 1 if the man chooses to hide his household's participation in a female empowerment program from his experiment partner in the second stage.

5.4 Results: Policy Solutions

In this section, we present results from a series of experiments testing potential policies to mitigate male backlash against female empowerment.

First, we test whether increasing the cost to men of retaliation reduces their anti-social behaviour. We test whether male retaliatory behaviour is sensitive to cost by randomly doubling the price that male DMs must pay if they choose to backlash against their partner (Rs 10 or Rs 20). Pooling across all treatments, while 17.4% of men reduce their partner's earnings when the cost is low, fewer men (14.3%) do so when the cost is doubled. This difference is not statistically significant (p-value = 0.17). We also find no evidence that doubling the cost of burning reduces backlash amongst male DMs assigned to the empowerment treatment arm (see table 10). This may be due to the difference between Rs 10 and Rs 20 being too small in absolute terms to affect backlash behaviour (equivalent of 0.12 vs. 0.24 USD). Alternatively, the lack of difference could be due to being underpowered. As such, we interpret these results as being suggestive. Future research could test the deterrence effects when substantially increasing the cost of backlash.

Second, we test whether a more 'positive sum' framing of female empowerment programs affects men's support. We do this by experimentally varying how a common empowerment program is described, varying only whether it is called a 'female empowerment' program, or a 'families and communities' program. Results are reported in Table 11.

We begin by examining average effects and find that most men support the program, regardless of its label, with no significant difference in support when it is presented as a 'families and communities' program (Panel A). However, framing effects matter for men who exhibit backlash in the 'money-burning' game. In Panel B we find that men who choose to burn their partner's endowment are significantly more likely to support the program when it is labeled as a 'families and communities' program compared to when it is labeled as an 'empowerment program' (p-value = 0.012).[28]

This suggests that the labeling of empowerment programs is particularly important for men inclined to punish women. Specifically, those more likely to retaliate may be more sensitive to how programs are framed, showing greater support for initiatives that highlight a broader set of beneficiaries, even when the program details are identical and focused on activities related to women's empowerment. This sensitivity could stem from the perception of female empowerment as a zero-sum game, which may feel threatening or unfair to these men. It suggests that programs may mitigate backlash risks by emphasizing the broader benefits to communities and families, including men, rather than solely describing their primary female empowerment objectives.

[28] This effect is strongest in the female empowerment treatments relative to the pure control. The interaction effect (Empowerment Frame $\times Burn$) in the pure control has a p-value of 0.165 but is 0.055 in the combined empowerment treatments.

Finally, we test a third popular policy approach with the potential to mitigate backlash: the influence of male role models. Results reported in Table 12 A large share of male respondents signed the petition, 73 percent, regardless of being shown the role model (see Panel A) . Moreover, we find no significant differences in petition signing rates among men who burnt, irrespective of whether they were informed about the role model's support for gender equality. These results suggest that the absence of a noticeable difference may stem from the relatively low cost associated with signing the petition, which could leave us underpowered to detect an effect.[29] Alternatively, it is possible that men who might have been swayed by the role model were more apprehensive about their support for the petition becoming public, leading to social image concerns dominating any potential influence from the role model.

Result 8: Reframing female empowerment programs to highlight broader community objectives, rather than solely focusing on women's empowerment, can help mitigate backlash.

[29] We find no difference in behaviour when we further interact our model by the female empowerment treatment in the backlash experiment.

Table 10: Policy Analysis: Increasing the Cost of Backlash

	Burn			
	(1)	(2)	(3)	(4)
Panel A: Increasing cost of burning				
High Cost	−0.031	−0.027	−0.027	−0.027
	(0.023)	(0.023)	(0.023)	(0.023)
Constant	0.174***	0.284***	0.306***	0.130
	(0.017)	(0.086)	(0.117)	(0.129)
Observations	1,007	1,007	1,007	1,007
Panel B: Interacting with empowerment status				
High Cost	0.008	0.013	0.003	0.002
	(0.036)	(0.037)	(0.039)	(0.039)
Empowerment Treatment	0.113***	0.119***	0.111***	0.113***
	(0.033)	(0.034)	(0.034)	(0.034)
High Cost × Empowerment Treatment	−0.048	−0.048	−0.035	−0.033
	(0.046)	(0.047)	(0.047)	(0.047)
Constant	0.087***	0.090	0.073	−0.115
	(0.026)	(0.079)	(0.109)	(0.116)
Observations	1,007	1,007	1,007	1,007
Basic Controls	NO	YES	YES	YES
Village Fixed Effects	NO	NO	YES	YES
Enumerator Fixed Effects	NO	NO	YES	YES
Controls for Social Desirability Bias	NO	NO	NO	YES

Notes: Significance levels are denoted by: *** p < 0.01; ** p < 0.05; * p < 0.1. Robust standard errors are in parentheses. Panel A shows results from a regression where the probability of burning is regressed on a dummy equal to one when the cost of burning is high. Panel B shows results from a second regression where the dummy variable for having a high cost of burning is interacted with a dummy variable indicating whether the male DM was assigned to a treatment arm where the partner was empowered.

Table 11: Policy reframing: Women's Empowerment vs. Families and Communities

	Support			
	(1)	(2)	(3)	(4)
Panel A: Impact of framing on reported support				
Empowerment frame	−0.056	−0.055	−0.040	−0.040
	(0.039)	(0.038)	(0.038)	(0.038)
Constant	4.695***	4.546***	4.707***	4.731***
	(0.026)	(0.126)	(0.173)	(0.210)
Observations	1,007	1,007	1,007	1,007
Panel B: Interacting with burning behaviour				
Empowerment Frame	−0.015	−0.020	−0.007	−0.008
	(0.040)	(0.040)	(0.042)	(0.042)
Burn Decision	−0.009	−0.002	−0.018	−0.021
	(0.075)	(0.077)	(0.072)	(0.072)
Empowerment Frame × Burn	−0.268**	−0.240**	−0.231*	−0.225*
	(0.119)	(0.120)	(0.119)	(0.117)
Constant	4.696***	4.560***	4.733***	4.728***
	(0.027)	(0.125)	(0.172)	(0.208)
Observations	1,007	1,007	1,007	1,007
Basic Controls	NO	YES	YES	YES
Village Fixed Effects	NO	NO	YES	YES
Enumerator Fixed Effects	NO	NO	YES	YES
Controls for Social Desirability Bias	NO	NO	NO	YES

Notes: Significance levels are denoted by: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. Robust standard errors are in parentheses. Panel A shows results from a regression where reported support for the empowerment program (measured on a scale of 1-5) is regressed on a dummy variable equal to one when the program is randomly labeled as a 'female empowerment' program and zero when it is labeled as a 'families and communities' program. Panel B interacts the dummy variable for the type of program label with a dummy variable ('Burn') equal to one for those men who reduced their partner's income in the joy of destruction/money-burning game.

Table 12: Policy Analysis: The Impact of Role Models

	Sign			
	(1)	(2)	(3)	(4)
Panel A: Impact of role model on petition signing behaviour				
Role Model Treatment	0.017	0.033	0.004	0.003
	(0.028)	(0.027)	(0.028)	(0.028)
Constant	0.718***	0.728***	1.053***	1.078***
	(0.021)	(0.102)	(0.136)	(0.152)
Observations	1,007	1,007	1,007	1,007
Panel B: Interacting with burning behaviour				
Role Model Treatment	0.016	0.037	0.012	0.011
	(0.030)	(0.029)	(0.030)	(0.030)
Burn decision	−0.107*	−0.053	−0.058	−0.056
	(0.062)	(0.060)	(0.060)	(0.060)
Role Model T × Burn	0.007	−0.025	−0.048	−0.045
	(0.083)	(0.078)	(0.078)	(0.078)
Constant	0.735***	0.735***	1.053***	1.065***
	(0.023)	(0.103)	(0.138)	(0.154)
Observations	1,007	1,007	1,007	1,007
Basic Controls	NO	YES	YES	YES
Village Fixed Effects	NO	NO	YES	YES
Enumerator Fixed Effects	NO	NO	YES	YES
Controls for Social Desirability Bias	NO	NO	NO	YES

Notes: Significance levels are denoted by: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parentheses. Panel A shows results from a regression where an indicator variable capturing petition signing behavior is regressed on an indicator variable equal to 1 when the male DM is randomly assigned to receive the male role model information. Panel B interacts the male role model treatment dummy with a dummy variable ('Burn') equal to one for those men who reduced their partner's income in the money-burning game.

5.5 Robustness

We conduct several robustness tests. First, a concern in these types of experiments is social desirability bias. As discussed in Section 5.1 we implement several strategies to measure and account for social desirability bias. Specifically, we measure three different indicators of potential bias and include them as control variables. First, we measure the Crowne Marlow Index, which measures susceptibility to socially desirable answers (Dhar et al., 2019). Second, we ask respondents if they had heard about the experiment from others prior to taking part. Third, directly after they participate in the experiment, we ask respondents what they believed the issue being studied in the experiment was. We created an indicator variable equal to one if they guessed we were studying gender or female empowerment. Only 4% of respondents correctly inferred that the study was only about female empowerment (this was elicited after the experiment, but prior to the survey). Similarly, only 12.8% of respondents had heard about the experiment from others before making their decision. When we control for these variables, while sometimes statistically significant, their explanatory power is small and they do not change the estimated treatment effects. This suggests that while these biases exist, they are small and are unlikely to explain our results.

Second, in the general empowerment treatment, we randomized three types of information about the DM's partner (information A, B, and C). In the other empowerment treatments, we only used information set A. Thus, to further test the differences between the general empowerment treatment and the other empowerment treatments, we compare the general empowerment treatment (restricting to information A) with the other empowerment treatments (i.e., the treatments where empowerment program participation is made salient in the resource control and status variants). We find no evidence of a difference between information set A in the general empowerment treatment versus the other empowerment treatments. In particular, burning rates in the general empowerment Info A is 22% while this is 18.4% in the other empowerment treatments (t-test,p-value=0.32).

Finally, we assume that female partners in the backlash experiment treatments are perceived to be more empowered than in the control. To verify this, in the post-experiment survey, we measured the male DM's belief about the empowerment of their partner. We find large differences between the empowerment treatments and the pure control. Participants in the combined empowerment treatment are nearly twice as likely to rate their partner as very empowered (t-test pvalue=0.00), demonstrating the experimental treatments worked as intended. The measure is very stable across the empowerment treatments.

6 Conclusion

In this paper, we examine the unintended consequences of female empowerment programs in India. Our findings reveal that men are nearly twice as likely to retaliate against women when informed that their partner participated in a female empowerment program (17%) compared to when this information is withheld (9%). These experimental measures of male backlash behavior correlate with survey-based measures of traditional gender attitudes: men who backlash are more likely to report more support for and perpetration of IPV than men who do not backlash. Additionally, we find that larger differences in gender attitudes between husbands and wives strongly predict backlash behavior —specifically, men who hold more conservative attitudes than their wives are more likely to punish empowered women. Our experimental design provides a new, robust, risk-minimising approach for measuring and understanding backlash at the community level, and demonstrates that male backlash is not confined to husband-and-wife relationships. Researchers seeking to measure backlash while avoiding potential misreporting biases in women's self-reported IPV experiences, or those studying backlash in a non-household setting could adopt our experimental method for assessing men's backlash behavior.

We test several common theory-driven settings where backlash is hypothesized to occur in order to understand the contexts in which men may be more or less likely to backlash: when men lose control over resources and when they explicitly lose status to women. Across all settings, we find the same magnitude of male backlash, suggesting that male backlash against women's empowerment exists regardless of the form that empowerment takes. We then test a potential behavioural driver of backlash- social image concerns. Results reveal that 18% of men are willing to pay to hide their household's involvement in a female empowerment program, and these men are significantly more likely to backlash against empowered women. Furthermore, men with social image concerns are more likely to believe that others view participation in empowerment programs as inappropriate.

We conclude by conducting a set of policy survey experiments that offer valuable insights to inform the development of interventions aimed at mitigating backlash in developing countries. Our results suggest that investing in policy interventions to reduce backlash could lead to net gains for female empowerment program objectives. The most promising of our policy experiments indicates that men who backlash are more likely to support empowerment programs when these are framed in positive-sum terms,such as being for 'families and communities' rather than solely for 'female empowerment.' This suggests that re-framing empowerment programs to emphasize broader community benefits can help mitigate backlash risk as policymakers roll out such initiatives. Other promising policies include those that increase the cost of backlash, such as strengthening penalties for perpetrators of IPV, changing gender norms, and addressing social image concerns

around participation in empowerment programs. These provide promising avenues for future research.

References

Abbink, K. and A. Sadrieh (2009): "The pleasure of being nasty," *Economics Letters*, 105, 306–308.

Adams, A., K. Huttunen, E. Nix, and N. Zhang (2024): "The Dynamics of Abusive Relationships," *The Quarterly Journal of Economics*, 139, 2135–2180.

Ahmed, H., M. Mahmud, F. Said, and Z. Tirmazee (2024): "Encouraging female graduates to enter the labor force: Evidence from a role model intervention in pakistan," *Economic Development and Cultural Change*, 72, 919–957.

Akerlof, G. A. and R. E. Kranton (2000): "Economics and identity," *The Quarterly Journal of Economics*, 115, 715–753.

Alatas, V., A. G. Chandrasekhar, M. Mobius, B. A. Olken, and C. Paladines (2024): "Do Celebrity Endorsements Matter? A Twitter Experiment Promoting Vaccination in Indonesia," *The Economic Journal*, 134, 913–933.

Alesina, A., B. Brioschi, and E. La Ferrara (2021): "Violence Against Women: A Cross-cultural Analysis for Africa," *Economica*, 88, 70–104.

Andreoni, J. and B. D. Bernheim (2009): "Social Image and the 50–50 Norm: A Theoretical and Experimental Analysis of Audience Effects," *Econometrica*, 77, 1607–1636.

Andreoni, J. and R. Petrie (2004): "Public goods experiments without confidentiality: a glimpse into fund-raising," *Journal of public Economics*, 88, 1605–1623.

Andrew, A., S. Krutikova, G. Smarrelli, and H. Verma (2024): "Empowering Adolescent Girls: Does it take a Village?" .

Anduiza, E. and G. Rico (2024): "Sexism and the far-right vote: The individual dynamics of gender backlash," *American Journal of Political Science*, 68, 478–493.

Angelucci, M. (2008): "Love on the rocks: Domestic violence and alcohol abuse in rural Mexico," *The BE Journal of Economic Analysis & Policy*, 8.

Anukriti, S., B. Erten, and P. Mukherjee (2024): "Female Leaders and Intrahousehold Dynamics: Evidence from State Elections in India," .

Bandiera, O., N. Buehren, R. Burgess, M. Goldstein, S. Gulesci, I. Rasul, and M. Sulaiman (2020): "Women's empowerment in action: evidence from a randomized control trial in Africa," *American Economic Journal: Applied Economics*, 12, 210–259.

Banerjee, A., M. Alsan, E. BREZA, A. Chowdhury, E. Duflo, B. Olken, A. Chandrasekhar, and P. Goldsmith-Pinkham (2022): "Can a Trusted Messenger Change Behavior when Information is Plentiful? Evidence from the First Months of the COVID-19 Pandemic in West Bengal," *Technical report*.

Banerjee, A., E. L. Ferrara, and V. Orozco (2019): "Entertainment, Education, and Attitudes Toward Domestic Violence," *AEA Papers and Proceedings*, 109, 133–37.

Baranov, V., L. Cameron, D. Contreras Suarez, and C. Thibout (2021): "Theoretical underpinnings and meta-analysis of the effects of cash transfers on intimate partner violence in low-and middle-income countries," *The Journal of Development Studies*, 57, 1–25.

Becker, G. S. (1968): "Crime and punishment: An economic approach," *Journal of political economy*, 76, 169–217.

Behaghel, L. and D. M. Blau (2012): "Framing social security reform: Behavioral responses to changes in the full retirement age," *American Economic Journal: Economic Policy*, 4, 41–67.

Benjamin, D. J., J. J. Choi, and G. Fisher (2016): "Religious Identity and Economic Behavior," *The Review of Economics and Statistics*, 98, 617–637.

Bhalotra, S., I. Clots-Figueras, L. Iyer, and J. Vecci (2023): "Leader Identity and Coordination," *The Review of Economics and Statistics*, 105, 175–189.

Bhalotra, S., U. Kambhampati, S. Rawlings, and Z. Siddique (2021): "Intimate partner violence: The influence of job opportunities for men and women," *The World Bank Economic Review*, 35, 461–479.

Bobonis, G. J., M. Gonzalez-Brenes, and R. Castro (2013): "Public Transfers and Domestic Violence: The Roles of Private Information and Spousal Control," *American Economic Journal: Economic Policy*, 5, 179–205.

Bulte, E. and R. Lensink (2019): "Women's empowerment and domestic abuse: Experimental evidence from Vietnam," *European economic review*, 115, 172–191.

Bursztyn, L., A. W. Cappelen, B. Tungodden, A. Voena, and D. H. Yanagizawa-Drott (2023): "How are gender norms perceived?" Tech. rep., National Bureau of Economic Research.

Bursztyn, L., T. Fujiwara, and A. Pallais (2017): "'Acting wife': Marriage market incentives and labor market investments," *American Economic Review*, 107, 3288–3319.

Bursztyn, L., A. L. González, and D. Yanagizawa-Drott (2020): "Misperceived social norms: Women working outside the home in Saudi Arabia," *American economic review*, 110, 2997–3029.

Bursztyn, L. and R. Jensen (2017): "Social image and economic behavior in the field: Identifying, understanding, and shaping social pressure," *Annual Review of Economics*, 9, 131–153.

Butera, L. and J. Horn (2020): ""Give less but give smart": Experimental evidence on the effects of public information about quality on giving," *Journal of Economic Behavior Organization*, 171, 59–76.

Butera, L., R. Metcalfe, W. Morrison, and D. Taubinsky (2022): "Measuring the Welfare Effects of Shame and Pride," *American Economic Review*, 112, 122–68.

Calvi, R. and A. Keskar (2023): "'Til Dowry Do Us Part: Bargaining and Violence in Indian Families," *The Review of Economics and Statistics*, 1–45.

Castillo, M., R. Petrie, and C. Wardell (2015): "Friends Asking Friends for Charity: The Importance of Gifts and Audience," *SSRN Electronic Journal*.

Chin, Y.-M. (2012): "Male backlash, bargaining, or exposure reduction?: women's working status and physical spousal violence in India," *Journal of population Economics*, 25, 175–200.

Cools, S. and A. Kotsadam (2017): "Resources and intimate partner violence in Sub-Saharan Africa," *World Development*, 95, 211–230.

Crowne, D. P. and D. Marlowe (1960): "Marlowe-Crowne social desirability scale," *Journal of Consulting Psychology*.

Cullen, C. (2023): "Method matters: The underreporting of intimate partner violence," *The World Bank Economic Review*, 37, 49–73.

Cullen, C., A. Alik-Lagrange, M. Ngatia, and J. Vaillant (2020): "The Unintended Impacts of an Intimate Partner Violence Prevention Program: Experimental Evidence from Rwanda," in *Essays in Gender and Development Economics*, University of Oxford, chapter in Doctoral dissertation.

Cullen, C. et al. (2023): "Understanding the Consequences of Economic Empowerment in Developing Countries," AEA RCT Registry.

De Quidt, J., J. Haushofer, and C. Roth (2018): "Measuring and bounding experimenter demand," *American Economic Review*, 108, 3266–3302.

Dhar, D., T. Jain, and S. Jayachandran (2019): "Intergenerational Transmission of Gender Attitudes: Evidence from India," *The Journal of Development Studies*, 55, 2572–2592.

——— (2022): "Reshaping adolescents' gender attitudes: Evidence from a school-based experiment in India," *American Economic Review*, 112, 899–927.

DHS (2019): "India national family health survey NFHS-5 2019-21," .

Erten, B. and P. Keskin (2018): "For Better or for Worse?: Education and the Prevalence of Domestic Violence in Turkey," *American Economic Journal: Applied Economics*, 10, 64–105.

——— (2024): "Trade-offs? The impact of WTO accession on intimate partner violence in Cambodia," *Review of Economics and Statistics*, 106, 322–333.

Eswaran, M. and N. Malhotra (2011): "Domestic violence and women's autonomy in developing countries: theory and evidence," *Canadian Journal of Economics/Revue canadienne d'économique*, 44, 1222–1263.

Field, E., R. Pande, N. Rigol, S. Schaner, and C. Troyer Moore (2021): "On Her Own Account: How Strengthening Women's Financial Control Impacts Labor Supply and Gender Norms," *American Economic Review*, 111, 2342–75.

Gangadharan, L., T. Jain, P. Maitra, and J. Vecci (2015): "Social identity and governance: The behavioral response to female leaders," *European Economic Review*, 90, 302–325.

Gershenson, S., C. M. Hart, J. Hyman, C. A. Lindsay, and N. W. Papageorge (2022): "The long-run impacts of same-race teachers," *American Economic Journal: Economic Policy*, 14, 300–342.

GoI (2011): "House Listing and Housing Census Data 2011," .

Government of India (2023): "Economic Survey of India," .

Green, D. P., A. M. Wilke, and J. Cooper (2020): "Countering Violence Against Women by Encouraging Disclosure: A Mass Media Experiment in Rural Uganda," *Comparative Political Studies*, 53, 2283–2320.

Guarnieri, E. and H. Rainer (2021): "Colonialism and female empowerment: A two-sided legacy," *Journal of Development Economics*, 151, 102666.

Guarnieri, E. and A. Tur-Prats (2023): "Cultural distance and conflict-related sexual violence," *The Quarterly Journal of Economics*, 138, 1817–1861.

Haushofer, J., C. Ringdal, J. P. Shapiro, and X. Y. Wang (2019): "Income changes and intimate partner violence: Evidence from unconditional cash transfers in Kenya," Tech. rep., National Bureau of Economic Research.

Hidrobo, M. and L. C. H. Fernald (2013): "Cash transfers and domestic violence," *Journal of Health Economics*, 32, 304–319.

Jensen, R. and E. Oster (2009): "The power of TV: Cable television and women's status in India," *The Quarterly Journal of Economics*, 124, 1057–1094.

Krupka, E. and R. Weber (2013): "Identifying Social Norms Using Coordination Games: Why Does Dictator Game Sharing Vary?" *Journal of the European Economic Association*, 11, 495 – 524.

Luke, N. and K. Munshi (2011): "Women as agents of change: Female income and mobility in India," *Journal of Development Economics*, 94, 1–17.

Muralidharan, K. and N. Prakash (2017): "Cycling to School: Increasing Secondary School Enrollment for Girls in India," *American Economic Journal: Applied Economics*, 9, 321–50.

OECD (2020): "Aid Focussed on Gender Equality and Women's Empowerment: A Snapshot of Current Funding and Trends Over Time in Support of the Implementation of the Beijing Declaration and Platform for Action," https://www.oecd.org/development/gender-development/Aid-Focussed-on-Gender-Equality-and-Women-s-Empowerment-2020.pdf, accessed: 2024-08-16.

Off, G., N. Charron, and A. Alexander (2022): "Who perceives women's rights as threatening to men and boys? Explaining modern sexism among young men in Europe," *Frontiers in Political Science*, 4, https://www.frontiersin.org/articles/10.3389/fpos.2022.909811/full.

Oh, S. (2023): "Does identity affect labor supply?" *American Economic Review*, 113, 2055–2083.

Peterman, A., M. Dione, A. Le Port, J. Briaux, F. Lamesse, and M. Hidrobo (2023): *Disclosure of violence against women and girls in Senegal*, Intl Food Policy Res Inst.

Porter, C. and D. Serra (2020): "Gender differences in the choice of major: The importance of female role models," *American Economic Journal: Applied Economics*, 12, 226–254.

Riley, E. (2024): "Role models in movies: The impact of Queen of Katwe on students' educational attainment," *Review of Economics and Statistics*, 106, 334–351.

Roy, S., M. Hidrobo, J. Hoddinott, and A. Ahmed (2019): "Transfers, Behavior Change Communication, and Intimate Partner Violence: Postprogram Evidence from Rural Bangladesh," *The Review of Economics and Statistics*, 101, 865–877.

Rural Development Department, GoB (2023): "JEEViKA annual action plan and budget," .

Sanjaya, M. R. (2023): "Antisocial behavior in experiments: What have we learned from the past two decades?" *Research in Economics*, 77, 104–115.

Santhya, K. and S. J. Jejeebhoy (2017): "Empowering women and addressing marital violence through self-help groups: Evidence from rural Bihar—Policy brief," .

Schuler, S. R., S. M. Hashemi, A. P. Riley, and S. Akhter (1996): "Credit programs, patriarchy and men's violence against women in rural Bangladesh," *Social science & medicine*, 43, 1729–1742.

Tradenta, J. M., A. Neelim, and J. Vecci (2017): "Gender Differences in Self-Promotion: Understanding the Female Modesty Constraint," Available at SSRN: https://ssrn.com/abstract=3039233 or http://dx.doi.org/10.2139/ssrn.3039233.

Vaillant, J., E. Koussoubé, D. Roth, R. Pierotti, M. Hossain, and K. L. Falb (2020): "Engaging men to transform inequitable gender attitudes and prevent intimate partner violence: a cluster randomised controlled trial in North and South Kivu, Democratic Republic of Congo," *BMJ Global Health*, 5, e002223.

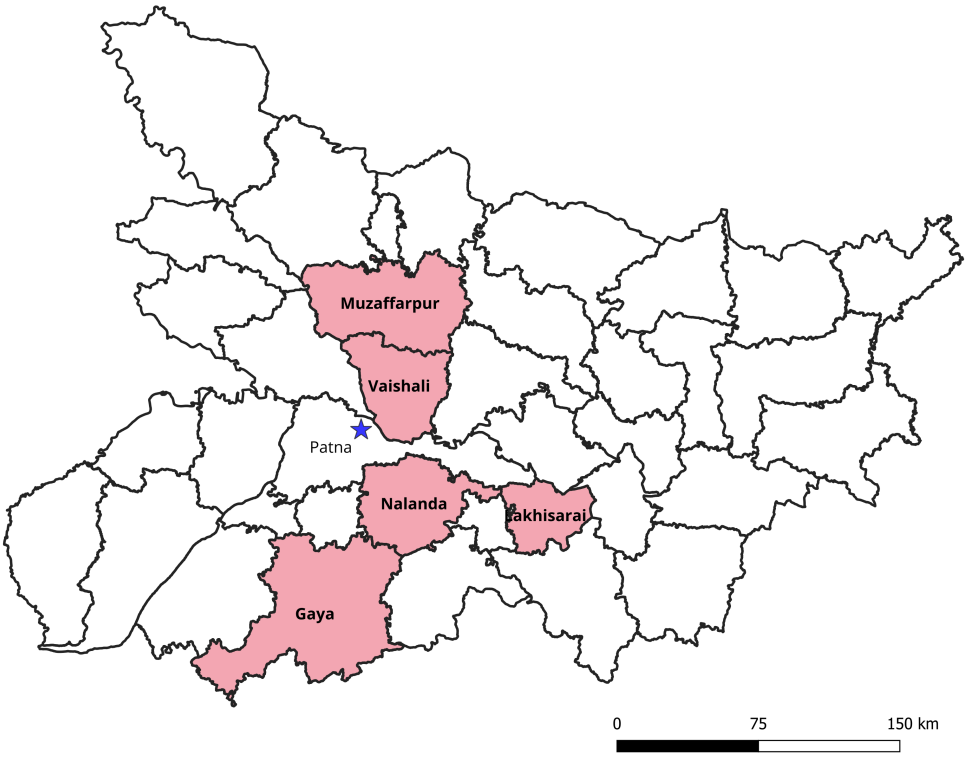
WHO (2016): *Ethical and safety recommendations for intervention research on violence against women*, World Health Organization.

Zizzo, D. J. and A. J. Oswald (2001): "Are People Willing to Pay to Reduce Others' Incomes?" *Annales d'Économie et de Statistique*, 39–65.

Appendix

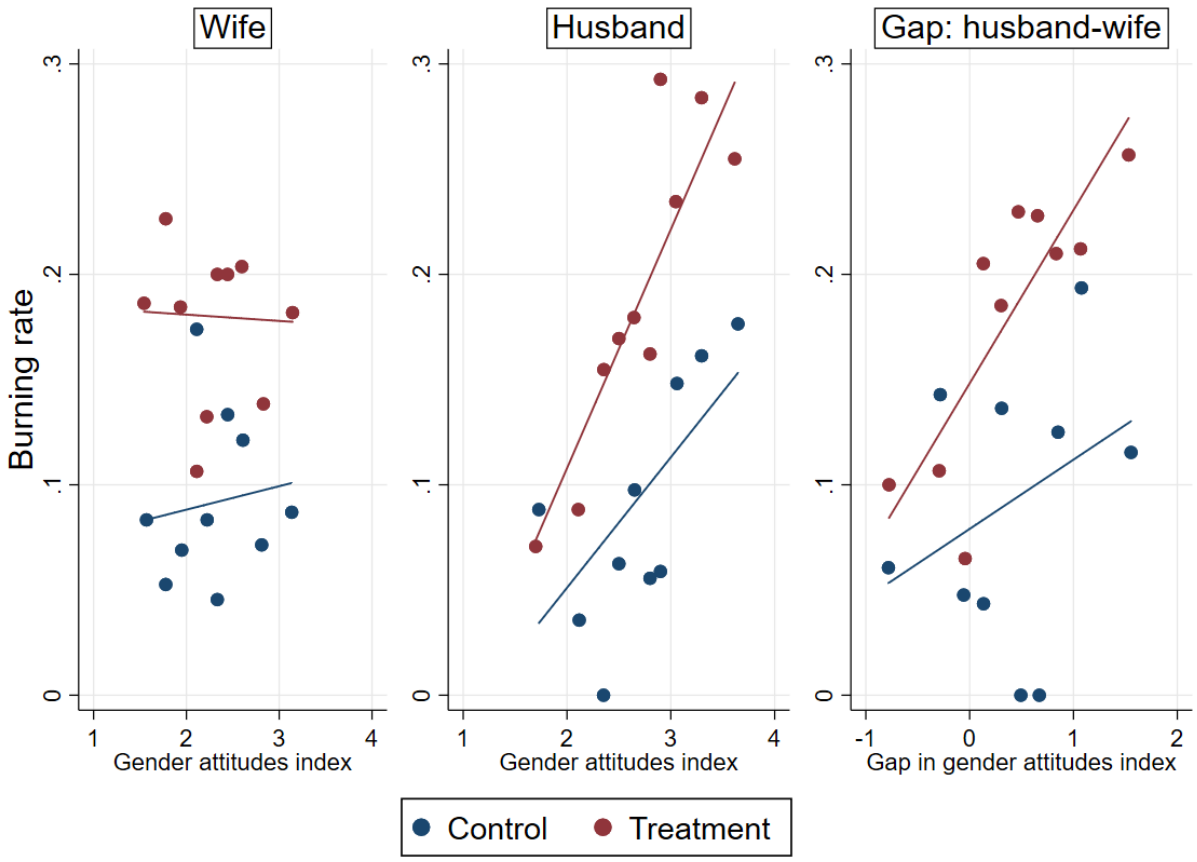
Figures

Figure A1: Location of study districts in relation to the state capital Patna



Note: This map shows the district boundaries of Bihar, a large state in North-East India. The location of the five study districts, marked in pink, are shown in relation to the state capital Patna.

Figure A2: Burning rates by gender attitudes



Note: This is a binned scatter plot showing average burning rates across 10 quantiles of our survey-based gender attitude index. A higher number denotes more conservative gender attitudes. The first panel plots burning rates against the gender attitudes index of the wife of the male DM. The second panel plots this for the gender attitudes index of the male DM. The third panel plots burning rates against the difference in the gender attitude index between the husband and wife. Separate plots are provided for the control arm and combined treatment arm in each instance.

Tables

Table A1: Burning rates across all sub-treatments

	Burn				
	(1)	(2)	(3)	(4)	(5)
Panel A: Comparing burn rates to the pure control arm					
Gen. Empowerment Treatment	0.079***	0.085***	0.085***	0.083***	0.086***
	(0.030)	(0.030)	(0.030)	(0.031)	(0.031)
Status Treatment: No empowerment	0.111	0.120***	0.121***	0.121**	0.126***
	(0.040)	(0.040)	(0.040)	(0.040)	(0.039)
Status Treatment: Empowerment	0.076**	0.088**	0.090**	0.085**	0.092**
	(0.038)	(0.039)	(0.038)	(0.038)	(0.037)
Resource Treatment: No empowerment	0.068*	0.067*	0.067*	0.067*	0.066*
	(0.038)	(0.037)	(0.038)	(0.038)	(0.038)
Resource Treatment: Empowerment	0.115	0.119***	0.120***	0.116**	0.126***
	(0.041)	(0.041)	(0.041)	(0.042)	(0.041)
Constant	0.092***	0.102	0.106	0.082	−0.109
	(0.018)	(0.078)	(0.082)	(0.108)	(0.114)
R-squared	0.013	0.045	0.084	0.098	0.114
Observations	1,007	1,007	1,007	1,007	1,007
Panel B: Coefficient Differences					
Status: No empowerment - Empowerment	0.035	0.031	0.031	0.035	0.034
	(0.049)	(0.048)	(0.048)	(0.047)	(0.047)
Resource: No empowerment - Empowerment	−0.046	−0.051	−0.053	−0.049	−0.059
	(0.048)	(0.049)	(0.049)	(0.049)	(0.049)
Basic Controls	NO	YES	YES	YES	YES
Village Fixed Effects	NO	NO	YES	YES	YES
Enumerator Fixed Effects	NO	NO	NO	YES	YES
Controls for Social Desirability Bias	NO	NO	NO	NO	YES

Note: Significance levels are denoted by: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$. Robust standard errors are in parentheses. Burn is an indicator variable equal to 1 if the man chooses to burn his female partner's endowment. In panel A, the omitted category corresponds to the pure control arm. The coefficients reported in the first five rows correspond to differences in burn rates between each of the five sub-treatment arms with respect to this base category. Panel B tests for differences in the magnitude of backlash across the two sub-treatment arms within the Status and Resource treatment arms.

Table A2: Regression Results with full set of controls

	Burn				
	(1)	(2)	(3)	(4)	(5)
General empowerment treatment	0.080***	0.085***	0.085***	0.083***	0.085***
	(0.030)	(0.030)	(0.030)	(0.031)	(0.030)
Status treatment: combined	0.095***	0.104***	0.106***	0.103***	0.109***
	(0.031)	(0.031)	(0.031)	(0.030)	(0.030)
Resource treatment: combined	0.092***	0.093***	0.094***	0.092***	0.096***
	(0.030)	(0.031)	(0.031)	(0.031)	(0.031)
What is your age (years)?		0.001	0.000	0.000	0.001
		(0.001)	(0.001)	(0.001)	(0.001)
Highest education: Secondary		-0.031	-0.042	-0.042	-0.032
		(0.034)	(0.034)	(0.034)	(0.033)
Highest education: Some university		-0.069**	-0.051*	-0.058*	-0.047
		(0.029)	(0.030)	(0.030)	(0.030)
Caste: Scheduled Caste		0.029	0.033	0.052	0.048
		(0.039)	(0.041)	(0.042)	(0.041)
Caste: Scheduled Tribe		-0.032	-0.004	0.024	0.025
		(0.091)	(0.098)	(0.097)	(0.094)
Caste: Other Backward Classes		-0.026	-0.013	0.000	-0.000
		(0.029)	(0.034)	(0.034)	(0.033)
Religion: Non-Hindu		0.014	0.007	0.038	0.059
		(0.092)	(0.095)	(0.092)	(0.093)
Employed: cultivator		0.021	0.037	0.052	0.060
		(0.052)	(0.054)	(0.054)	(0.052)
Employed: wage work - outside the home		0.072	0.091	0.105	0.111*
		(0.063)	(0.063)	(0.064)	(0.063)
Employed: wage work - inside the home		0.124**	0.125**	0.126**	0.135**
		(0.060)	(0.061)	(0.060)	(0.059)
Employed: regular work		-0.027	-0.032	-0.025	-0.009
		(0.063)	(0.066)	(0.066)	(0.064)
Employed: other work - outside the home		0.035	0.040	0.070	0.075
		(0.062)	(0.064)	(0.065)	(0.063)
Employed: other work - inside the home		0.027	0.050	0.054	0.069
		(0.061)	(0.064)	(0.063)	(0.061)
Not employed, looking for a job (unemployed)		0.123	0.098	0.108	0.128
		(0.121)	(0.122)	(0.121)	(0.121)
Not employed, not looking		-0.121**	-0.114*	-0.113*	-0.104
		(0.054)	(0.064)	(0.066)	(0.065)
Retired		-0.074	-0.086	-0.064	-0.050
		(0.077)	(0.082)	(0.085)	(0.083)
Household earnings in last 12 months (Rs)		-0.000**	-0.000***	-0.000***	-0.000**
		(0.000)	(0.000)	(0.000)	(0.000)
How wealthy was your partner (0-10)		-0.005	-0.006	-0.002	-0.001
		(0.004)	(0.005)	(0.006)	(0.006)
Did you hear about the study from others					0.029
					(0.040)
Crown-Marlo social desirability scale (0-13)					0.020***
					(0.006)
Did you think your partner was empowered					-0.128***
					(0.041)
Constant	0.091***	0.095	0.099	0.074	-0.117
	(0.018)	(0.078)	(0.082)	(0.107)	(0.114)
R-squared	0.011	0.044	0.082	0.096	0.111
Observations	1,007	1,007	1,007	1,007	1,007
Basic Controls	NO	YES	YES	YES	YES
Village Fixed Effects	NO	NO	YES	YES	YES
Enumerator Fixed Effects	NO	NO	NO	YES	YES
Controls for Social Desirability Bias	NO	NO	NO	NO	YES

Notes: Significance levels are denoted by: *** p < 0.01; ** p < 0.05; * p < 0.1. Robust standard errors are in parentheses. Burn is an indicator variable equal to 1 if the man chooses to burn his female experimental partner's endowment. The omitted category for the main dependent variable - treatment status - is the pure control arm. The coefficients reported in the first three rows correspond to differences in burn rates between each of the three treatment arms with respect to this base category. The omitted category for highest education is below secondary. The omitted category for caste is general. The omitted category for employment is agricultural labourer. The omitted category for religion is Hindu.

Table A3: Comparison of Money Burning across Different Treatments

	Panel A									
	Control	**G. Empower**	**Status**	**Resource**	**Mean Differences Across Columns**					
	(1)	(2)	(3) Merged	(4) Merged	(5) (1-2)	(6) (1-3)	(7) (1-4)	(8) (2-3)	(9) (2-4)	(10) (3-4)
Burning	0.091	0.171	0.186	0.183	0.08***	0.095***	0.092***	0.014	0.012	0.002

	Panel B											
	Control	**G. Empower**	**Status**		**Resource**		**Mean Differences Across Columns**					
	(1) C	(2) T	(3) C	(4) T	(5) C	(6) T	(7) (1-2)	(8) (1-3)	(9) (1-4)	(10) (1-5)	(11) (1-6)	(12)
Burning	0.091	0.171	0.203	0.168	0.160	0.206	0.079***	0.112***	0.076**	0.068**	0.115***	

	Panel C											
	Control	**G. Empower**	**Status**		**Resource**		**Mean Differences Across Columns**					
	(1) C	(2) T	(3) C	(4) T	(5) C	(6) T	(7) (2-4)	(8) (2-6)	(9) (3-4)	(10) (5-6)	(11) (3-5)	(12) (4-6)
Burning	0.091	0.171	0.203	0.168	0.160	0.206	0.002	0.035	0.035	-0.046	0.043	-0.038

Notes: $***p < 0.01, **p < 0.05, *p < 0.1$ This table compares the the mean treatment differences between treatments. In Panel A, we report the mean burn rate for the pure control (column 1), the general empowerment treatment (column 2), status in consistency (column 3) and resource control (column 4). Column 5 to 10 reports the mean differences. For instance column 5 compares the mean across columns 1 and 2. Panel B breaks the status and resource control treatments into their sub treatments. Column 3 and 5 report the mean burn rates for those in the status inconsistency control and resource control control respectively. Columns 7 to 11 compares the mean difference between the pure control and these subsequent control variants. Panel C, Columns 7 to 12 compares the mean differences between the control and treatment sub treatments.

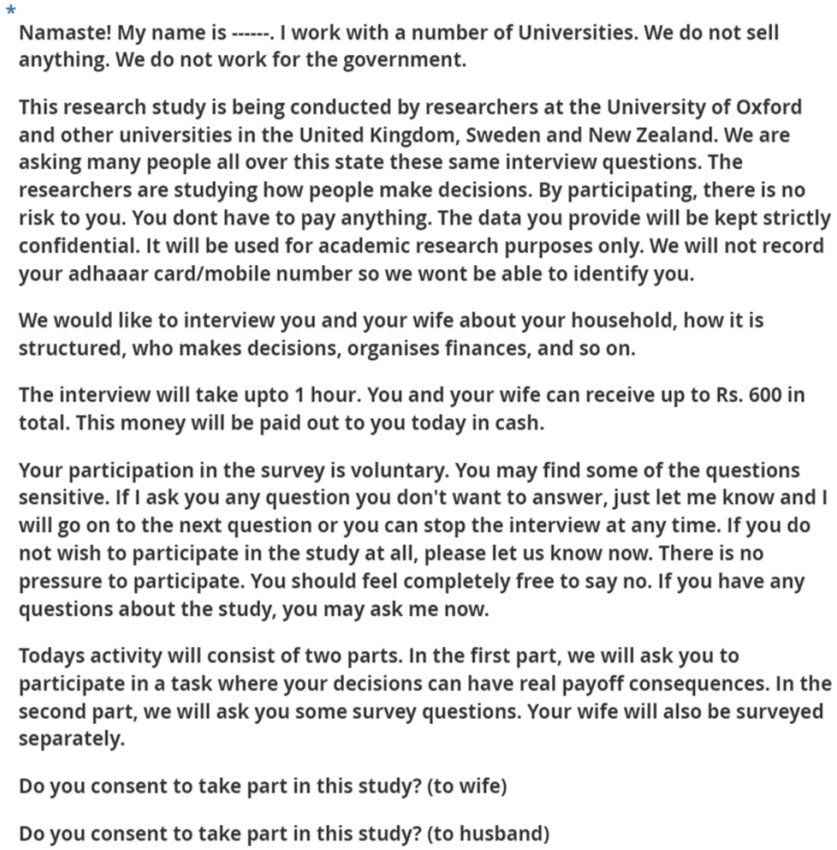
A Description of field Protocols

The study was conducted in 42 villages selected randomly from a list of villages previously exposed to JEEViKA, a broad female empowerment program being run by the government of Bihar. Households consisting of married husband-wife pairs were randomly sampled and invited to participate in the study. 1,007 households were interviewed in total (42 villages $\times$ 24 households per village). Each village was visited over two days by a team consisting of one supervisor and six enumerators (three male and three female). The following field protocol was followed in each study village.

Teams arrive at the study village between 8 and 9 AM. Upon arrival, supervisors approach local leaders to introduce themselves. They state that the general aim of the study is to understand household decision-making and behaviour of local people. Neither the research question nor the experiment or survey are discussed in detail. At this point, the six enumerators split into three teams (each consisting of one male and one female enumerator) and start approaching households to conduct interviews. Survey teams only approach households where both the husband and the wife are present. Respondents are informed that the interview consists of an experimental task followed by an interview that will take roughly 45 minutes to complete. If respondents agree to participate, the interview begins. If not, enumerators move on to the next available household.

At the beginning of the interview, one enumerator reads the consent form (see figure A3) with both the husband and wife present. Respondents are told that the study aims to understand generic decision-making in the household, with no mention of terms like 'female empowerment' or 'backlash'. After verbal consent is received from both respondents, each enumerator sets up a separate space for the husband and the wife (either at the corners of the room or in another room), and the interview begins. The male enumerator interviews the male respondent while the female enumerator interviews the female respondent. Each enumerator uses a tablet to implement the survey. Complete privacy is ensured throughout the duration of the interview. Upon completion, each enumerator discusses the total payment each respondent will receive (payments are calculated automatically and appear on each tablet separately). Payments are made in private. At the end of the interview, female enumerators offer female respondents information on helpline numbers for government agencies and local NGOs that provide support for women facing domestic violence. This information is written on a small piece of paper to ensure discreetness. Female respondents are reminded that this information can also be useful for their friends.

Figure A3: Consent form



*

Namaste! My name is ------. I work with a number of Universities. We do not sell anything. We do not work for the government.

This research study is being conducted by researchers at the University of Oxford and other universities in the United Kingdom, Sweden and New Zealand. We are asking many people all over this state these same interview questions. The researchers are studying how people make decisions. By participating, there is no risk to you. You dont have to pay anything. The data you provide will be kept strictly confidential. It will be used for academic research purposes only. We will not record your adhaaar card/mobile number so we wont be able to identify you.

We would like to interview you and your wife about your household, how it is structured, who makes decisions, organises finances, and so on.

The interview will take upto 1 hour. You and your wife can receive up to Rs. 600 in total. This money will be paid out to you today in cash.

Your participation in the survey is voluntary. You may find some of the questions sensitive. If I ask you any question you don't want to answer, just let me know and I will go on to the next question or you can stop the interview at any time. If you do not wish to participate in the study at all, please let us know now. There is no pressure to participate. You should feel completely free to say no. If you have any questions about the study, you may ask me now.

Todays activity will consist of two parts. In the first part, we will ask you to participate in a task where your decisions can have real payoff consequences. In the second part, we will ask you some survey questions. Your wife will also be surveyed separately.

Do you consent to take part in this study? (to wife)

Do you consent to take part in this study? (to husband)

How households are selected

Each survey team surveys eight households per village. Teams are provided with an ordered list with eight slots that are randomly allocated to a specific interview type (made up of experiment type × treatment arm).[30] As teams approach households, they go down this list in order and complete the interview type that corresponds to that household's order in the list. The first three to four slots in each list are pre-populated with randomly selected names taken from a list of households that previously participated in a program targeting low-income farmers. Table A4 provides an example of a typical household list received by each team.

[30] This method of pre-randomized lists was designed to ensure that we hit our intended sample size across the three experiments without making continuous real-time adjustments. It also served to reduce selection bias stemming from enumerators' decisions around which respondents to allocate to which treatment arm. Teams received a different random interview type order for each village.

Table A4: Example list of households used by survey teams

Interview order	Name	Treatment arm	Sub Treatment (if any)
1	Mr and Mrs A	Pure Control	NA
2	Mr and Mrs B	General empowerment	NA
3	Mr and Mrs C	Resource Control	Control
4		Status inconsistency	Control
5		General empowerment	NA
6		Resource Control	Control
7		General empowerment	NA
8		Status inconsistency	Treatment

In this case, the survey team starts by interviewing Mr and Mrs A and ask them questions corresponding to the 'Pure Control' treatment arm. After completing this interview, the team moves on to households with serial numbers 2 and 3. The remaining five empty slots, along with any named households that need replacement, are selected using the following 'right-hand rule'. Supervisors draw a rough map of the village and allocate each team of enumerators to a different hamlet/section of the village.[31] Each team starts from the central point of the hamlet. Facing dwellings in the center of the hamlet, they then approach every 5th dwelling from the right-hand side (e.g. 5th house, 10th house, 15th house, etc). The team continues this process until they complete their quota of eight households per village.

[31] In Bihar, hamlets are typically segregated by caste. Stratifying the sample by hamlet thus ensures that all socio-economic present in the village are represented in our sample.

B Experiment description

In this section, we describe how experimental data was collected from male respondents. The men in the sample were the husbands of the couple sampled as per the protocol outlined above. The experiment was conducted first, followed by the survey. All male interviews were conducted by male enumerators using a tablet in a private setting. Enumerators begin the interview by introducing the experiment to male DMs using the following common script:

> *"You're about to take part in a task designed to explore decision-making in your local area. We've created this task to simulate some real-life decisions that you may face. This task will have real consequences with real money that will be paid out to you in cash by the end of the day. In this task, you will be partnered with another participant from your area. This is a real person. Your partner will never know your actual identity and you will never know their's."*

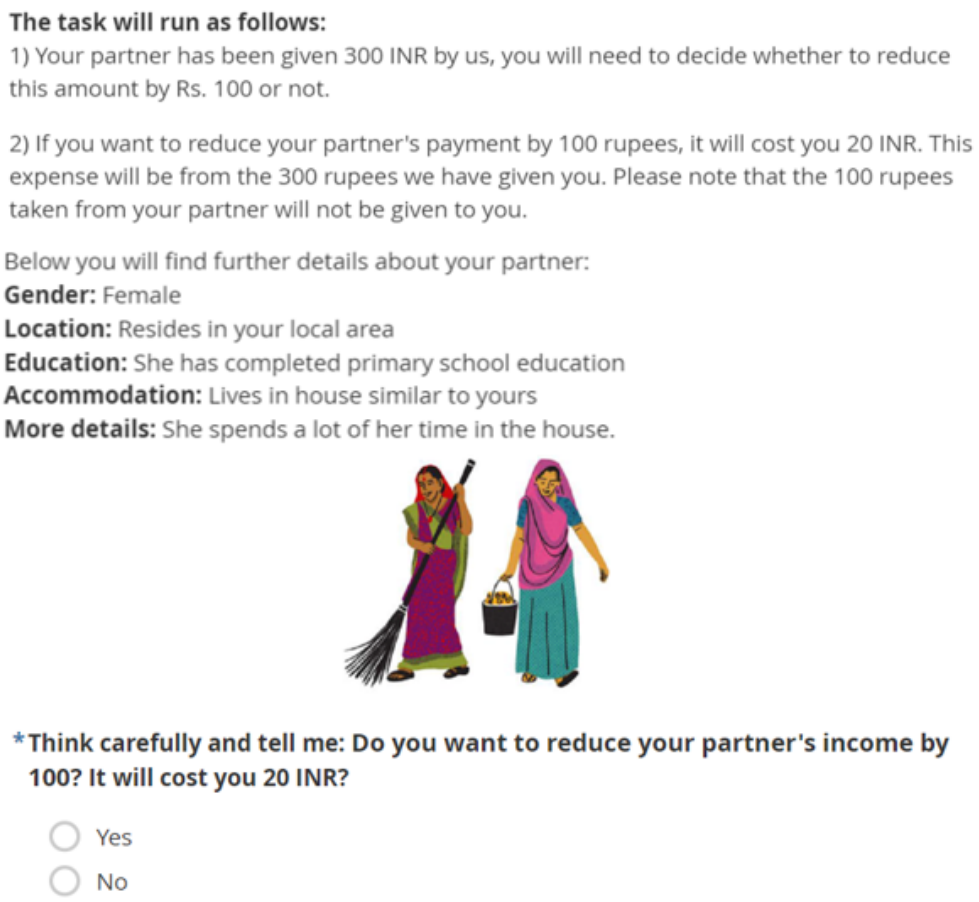
Enumerators then move on to explaining the rules of the money-burning game, pausing to answer any clarification questions along the way. They test for male DMs' understanding of the rules using a number of comprehension questions and explain the rules again if required. At this stage, male DMs are informed that they will now make a real decision about whether they wish to reduce their female partner's endowment by Rs 100 or not. This choice is presented in the form of a one-shot take-it-or-leave-it offer at a cost of either Rs 10 or Rs 20 (randomly selected). Immediately before making their decision, male DM's are provided information about their partners' empowerment status.[32] This information is varied experimentally across four different arms, each corresponding to a different form of empowerment. We describe the rationale for the type of information presented in each arm in the main body of the paper. Here, we only describe how this information was presented to male DMs in practice.

Pure control arm

Male DMs in the pure control arm are provided no information about their partner's empowerment status. Instead, they are told that their partner "spends a lot of time in the house", a common behaviour that is line with prevailing social norms in our context. To increase the salience of this information, male DMs are also shown two images that depict women performing common household chores. Figure A4 shows how this information was presented to male DMs in practice. At this point, male DMs are asked whether they wish to burn their partner's income or not.

[32] Male DMs are also provided some background information about their partner, namely that their partner is female, resides in their local area, has completed primary schooling, and lives in a house similar to their own. These characteristics are kept constant across all experiments.

Figure A4: Instructions for the pure control arm

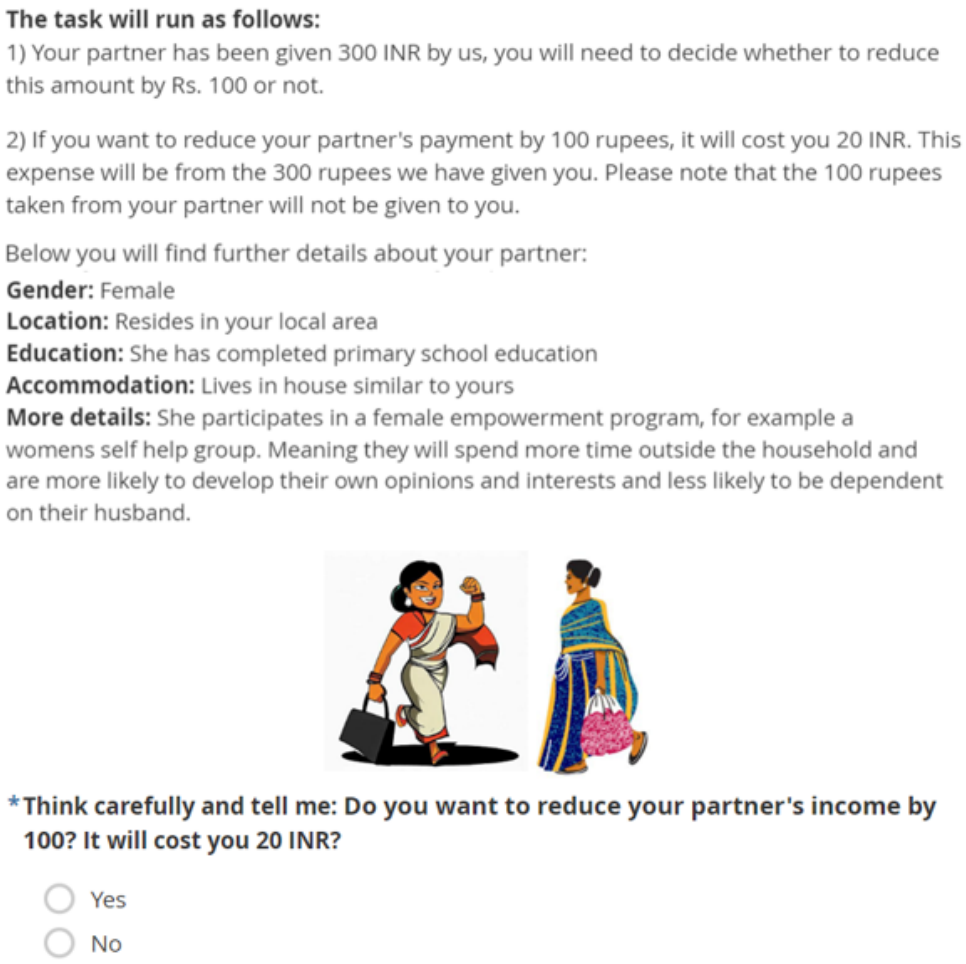


General empowerment treatment arm

Male DMs in the general empowerment treatment arm are informed that their partner participates in a female empowerment program, due to which she displays various behaviours that signal empowerment stemming from greater autonomy.[33] To increase the salience of this information, male DMs are also shown two images depicting women going to work or to the market. Like in the images shown in the pure control arm, these women are also dressed in traditional attire, although their heads are uncovered. Moreover, they are shown walking outside the home, and their body language appears stronger. Figure A5 shows how this information was presented to male DMs in practice. At this point, male DMs are asked whether they wish to burn their partner's income or not.

[33] We test three different variants of this description with increasing levels of autonomy.

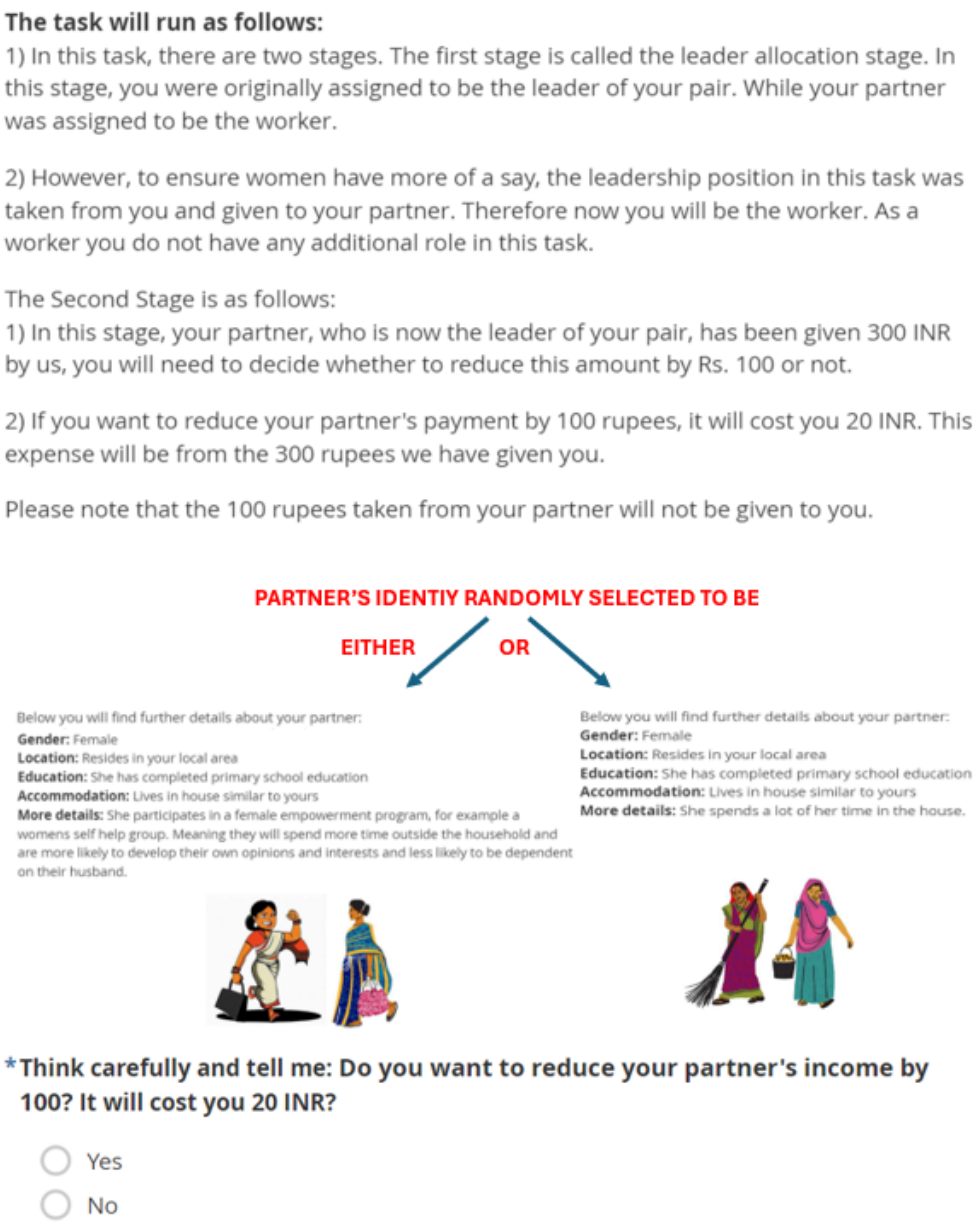
Figure A5: Instructions for the general empowerment treatment arm



Status inconsistency treatment arm

In the status inconsistency treatment arm, male DMs are informed that the task will proceed in two stages. In the first stage, a leader is chosen. Male DMs are informed that were initially chosen to be the leader in this stage. However, in order to ensure that women have more input in the decision-making process, this role was taken away from them and was assigned to their female partner instead. In the second stage, male DMs are informed about their partner's identity and then asked to decide whether they wish to burn their partner's income or not. We randomize the identity of the female partner to be either an 'empowered woman' (defined in exactly the same way as in the general empowerment treatment arm) or a 'neutral woman' (defined in exactly the same way as in the pure control arm). Figure A6 shows how this information was presented to male DMs in practice.

Figure A6: Instructions for status inconsistency treatment arm

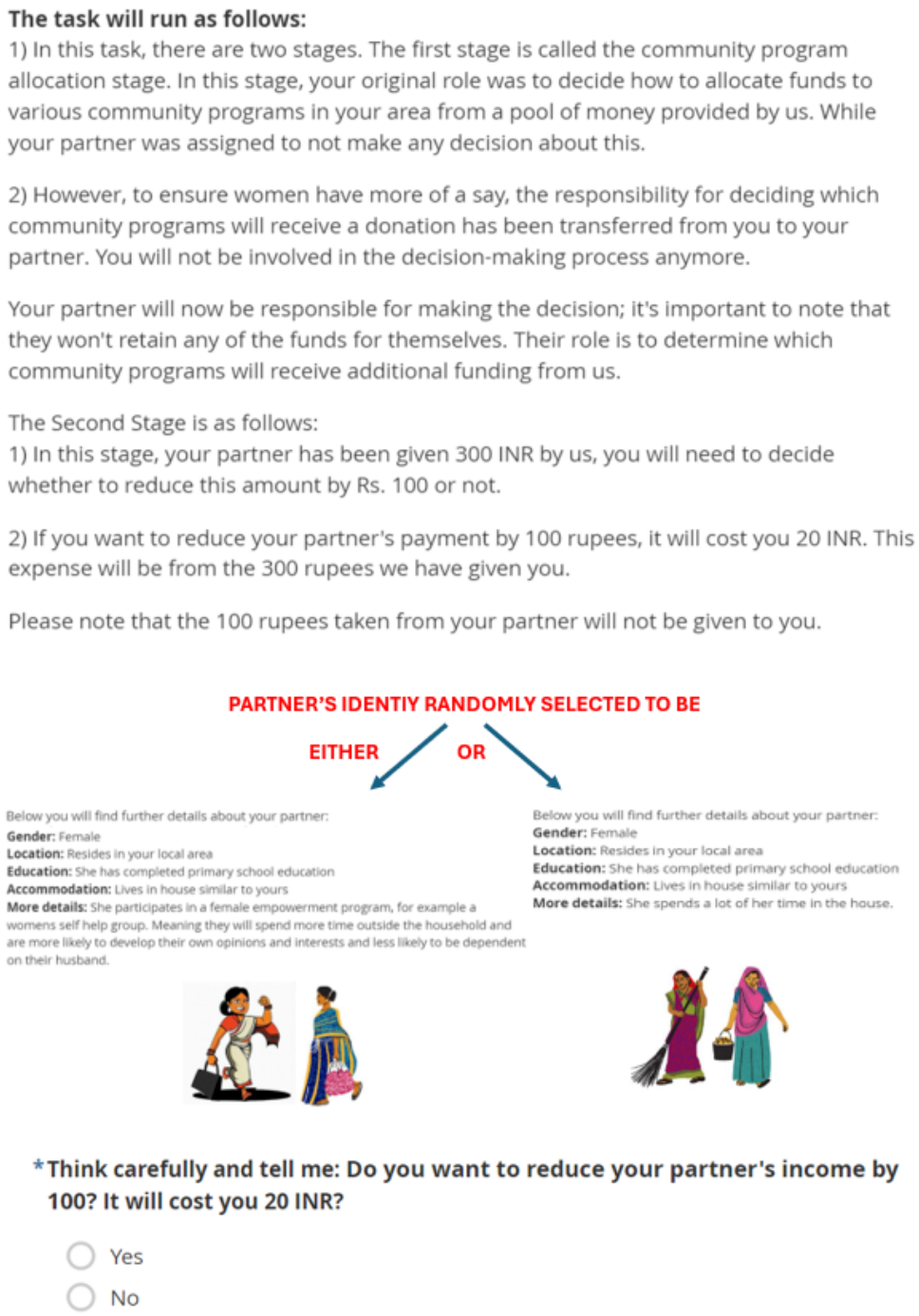


Resource Control treatment arm

Like in the previous arm, male DMs in the resource control treatment arm are informed that the task will proceed in two stages. In the first stage, a person is given the power to allocate a pot of resources among different community programs of their choosing. Male DMs are informed that were initially given the power to allocate resources in the first stage. However, in order to ensure that women have more input in the decision-making process, this role was taken away from them and was assigned to their female partner

instead. In the second stage, male DMs are informed about their partner's identity and then asked to decide whether they wish to burn their partner's income or not. Again, we randomize the identity of the female partner to be either an 'empowered woman' (defined in exactly the same way as in the general empowerment treatment arm) or a 'neutral woman' (defined in exactly the same way as in the pure control arm). Figure A7 shows how this information was presented to male DMs in practice.

Figure A7: Instructions for the resource control treatment arm

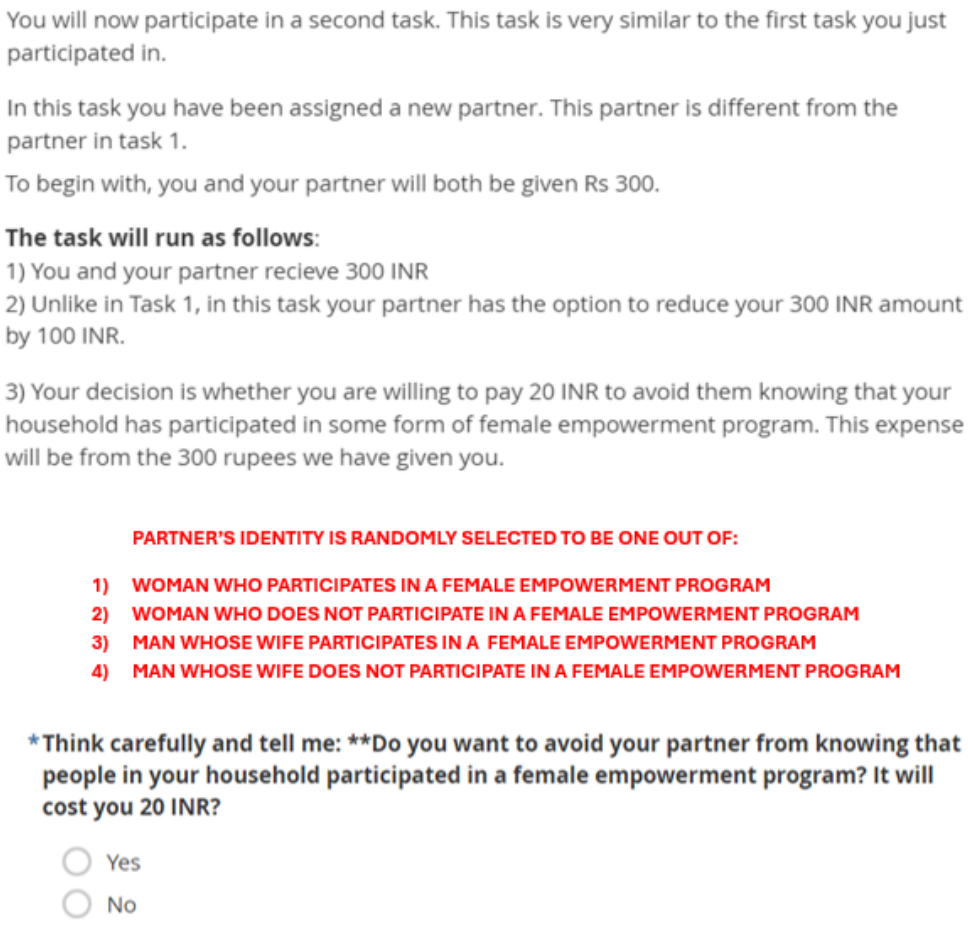


Social image experiment

Half of all male DMs - those randomly selected to be part of the pure control arms and general empowerment treatment arms - participated in an additional experiment designed to measure social image concerns

stemming from participation in female empowerment programs. This experiment proceeds in the following manner. Male DMs are informed that they have been paired with a new anonymous partner (different from the partner in the first task), and that their new partner will now have the power to decide whether to burn the male DM's earnings or not. Male DMs are informed about their partner's identity. We cross-randomise whether the partner is male or female and whether the partner's household also participated in a female empowerment program or not. At this point, male DMs are informed that their partner will be told that the male DM's household has participated in a female empowerment program immediately before their partner makes their money-burning decision. Male DMs are asked to decide if they wish to hide this information from their partner at a cost of either Rs 10 or Rs 20 (varied randomly). Figure A8 shows how this information was presented to male DMs in practice.

Figure A8: Instructions for the social image task



C Female Survey and Results

In this section, we describe the female survey and discuss key results in line with the analysis approach described in the pre-analyis plan. The women in our sample are the wives of husbands who were randomly selected to take part in the money-burning experiment. Women were interviewed alone in a private setting where they couldn't be heard by their husbands or anyone else, and following ethical interview guidelines about IPV interviews from the WHO.

The first part of the women's survey contains a set of non-incentivised questions regarding norms around the penalization of empowered women under the different empowerment scenarios we test in the experiment (status inconsistency, resource control etc.). This is followed by a module on women's gender attitudes and acceptability of IPV, measured using the same set of questions as in the men's survey.[34] Women are then asked a set of questions on marital relationship quality and decision-making in the household. We also ask women about their experience of IPV (emotional, physical and sexual) using the Audio Computer-Assisted Self Interview (ACASI) method, which has been shown to reduce under-reporting compared to face-to-face interviews (Cullen, 2023).[35] We use this data to create an indicator variable equal to 1 if a woman reports experiencing any form of IPV in the last 12 months. At the end of the interview, women are asked questions from the Crowne-Marlowe social desirability module and their demographic information recorded.

We estimate two models with the dependent variable being an indicator variable equal to 1 if the husband chooses to burn his female partner's endowment in the money-burning experiment. First, to study the characteristics of the wives of men who choose to burn, we estimate Equation 2 replacing the husband's characteristics with the characteristics of their wife. Second, we estimate Equation 3, whereby we interact wife's characteristics with a dummy variable which equals if their husband was randomly assigned to be in any one of the three treatment arms (where they are told that their partner is empowered in some way). This allows us to examine whether wives' characteristics predict husbands' backlash behaviour in the experiment, defined as their husband's tendency to burn their experimental partner's endowment due to their partner's empowerment.

Results for Equation 2 are shown in Table A5. Panel A, B and C report results for IPV reported in the last 12 months, acceptability of violence, and gender attitudes, respectively. We consistently observe that there is no statistically significant relationship between husbands' burning behaviour in the experiment and

[34] These questions come from the Demographic and Health Survey. Women's acceptability of IPV is measured using seven questions (eg., 'Is a husband justified in hitting his wife if she goes out without telling him?'). Gender attitudes are measured by eliciting women's degree of agreement on a four-point scale to ten statements (eg., 'It is shameful for a woman if her husband cooks or does housework'). Attitude indices are constructed by taking the average of its components.

[35] In ACASI, respondents use headphones to listen to pre-recorded questions and respond using a touchscreen device (an android tablet in our case). The enumerator has minimal interaction with the participant, except for offering an initial explanation of the module and being available for clarification in case the participant seeks assistance.

their wives' experience of IPV, IPV acceptability, and gender attitudes. In Table A6 we report results from the estimation of the interaction model (Equation 3). Again, we find no significant relationship between men's backlash behaviour and their wive's experience of IPV and gender attitudes. We do find some weak evidence in relation to IPV attitudes; the interaction term is positive but only statistically significant at the 15% level (Panel B). Overall, we find no evidence to suggest that the wives of men who demonstrate backlash behaviour in the experiment report face higher rates of IPV in real life. We argue there are three potential explanations for the differences between the husband and the wife result. First, exposure to IPV is high in this context, (12 months - 33%, lifetime - 46%) which makes it harder to detect differences; Second, endogenity- women who are more empowered may be more likely to have lower acceptance and greater knowledge about IPV increasing their chances of reporting IPV. This makes it hard to separate womens reporting of IPV from other factors, and thus the relationship between IPV and backlash; Third, gender attitudes—women's gender attitudes address a different question than those of men. Male attitudes allow us to explore whether more conservative men are prone to backlash, while female attitudes help determine if women with more liberal views are more likely to have husbands who backlash. We believe that it is more informative to evaluate the difference in gender attitudes between the husband and the wife to study the latter issue, rather than solely studying the wife's attitudes.

Table A5: Relationship between men's burning behaviour and their wives' survey responses

	Burn			
	(1)	(2)	(3)	(4)
Panel A: Wife Experienced any IPV in the past 12 months				
Experienced any IPV	0.010	−0.001	−0.002	−0.010
	(0.025)	(0.025)	(0.026)	(0.025)
Constant	0.155***	0.147*	0.111	−0.069
	(0.014)	(0.078)	(0.111)	(0.117)
R-squared	0.000	0.031	0.084	0.098
Observations	1,007	1,007	1,007	1,007
Panel B: Wife's Acceptability of Violence				
Higher Acceptability of Violence	0.050	0.035	0.038	0.037
	(0.046)	(0.047)	(0.049)	(0.049)
Constant	0.147***	0.138*	0.103	−0.078
	(0.015)	(0.078)	(0.111)	(0.118)
R-squared	0.001	0.032	0.084	0.099
Observations	1,007	1,007	1,007	1,007
Panel C: Wife's Gender Attitudes				
Conservative Gender Attitudes	−0.001	−0.007	−0.026	−0.023
	(0.025)	(0.025)	(0.028)	(0.027)
Constant	0.161***	0.162*	0.169	−0.020
	(0.057)	(0.097)	(0.130)	(0.137)
R-squared	0.000	0.031	0.084	0.099
Observations	1,007	1,007	1,007	1,007
Basic Controls	NO	YES	YES	YES
Village Fixed Effects	NO	NO	YES	YES
Enumerator Fixed Effects	NO	NO	YES	YES
Controls for Social Desirability Bias	NO	NO	NO	YES

Notes: Significance levels are denoted by: *** p < 0.01; ** p < 0.05; * p < 0.1. Robust standard errors are in parentheses. Burn is an indicator variable equal to 1 if the man chooses to burn his female partner's endowment in the experiment. Explanatory variables come from the women's survey which was administered to the wives of all men who participated in the experiment. Women's experience of IPV in the last 12 months (Panel A) is an indicator variable equal to 1 if they report experiencing any form of emotional, physical, or sexual violence in the past 12 months. The measure for women's acceptability of violence (Panel B) uses questions from the DHS (e.g., 'Is a husband justified in hitting his wife if she neglects the house or children?'). Women's gender attitudes (Panel C) are also measured using questions from the DHS (e.g., 'It is shameful for a woman if her husband cooks or does housework'). Each index is constructed by taking a simple average of its components.

Table A6: Do the wives of men who backlash experience more IPV or hold more conservative views?

	Burn			
	(1)	(2)	(3)	(4)
Panel A: Wife Experienced any IPV in the past 12 months				
Experienced any IPV	0.012	0.014	0.004	−0.005
	(0.037)	(0.038)	(0.040)	(0.040)
Empowerment Treatment	0.089***	0.101***	0.097***	0.101***
	(0.030)	(0.031)	(0.032)	(0.033)
Experienced any IPV × Empowerment Treatment	−0.001	−0.015	−0.008	−0.009
	(0.046)	(0.047)	(0.048)	(0.048)
Constant	0.086***	0.087	0.070	−0.115
	(0.024)	(0.079)	(0.112)	(0.119)
R-squared	0.011	0.043	0.096	0.111
Observations	1,007	1,007	1,007	1,007
Panel B: Wife's Acceptability of Violence				
Higher Acceptability of Violence	−0.034	−0.059	−0.038	−0.032
	(0.065)	(0.068)	(0.073)	(0.072)
Empowerment Treatment	0.064**	0.067**	0.070**	0.076**
	(0.030)	(0.030)	(0.031)	(0.031)
Higher Acceptability of Violence × Empowerment Treatment	0.117	0.130	0.105	0.095
	(0.086)	(0.088)	(0.089)	(0.089)
Constant	0.099***	0.110	0.085	−0.106
	(0.024)	(0.079)	(0.108)	(0.115)
R-squared	0.014	0.046	0.097	0.112
Observations	1,007	1,007	1,007	1,007
Panel C: Wife's Gender Attitudes				
Conservative Gender Attitudes	0.011	0.012	0.010	0.021
	(0.039)	(0.041)	(0.041)	(0.041)
Empowerment Treatment	0.121	0.142	0.195	0.223*
	(0.113)	(0.116)	(0.119)	(0.118)
Conservative Gender Attitudes × Empowerment Treatment	−0.014	−0.021	−0.045	−0.056
	(0.049)	(0.051)	(0.051)	(0.051)
Constant	0.066	0.067	0.047	−0.171
	(0.089)	(0.125)	(0.147)	(0.154)
R-squared	0.011	0.043	0.097	0.112
Observations	1,007	1,007	1,007	1,007
Basic Controls	NO	YES	YES	YES
Village Fixed Effects	NO	NO	YES	YES
Enumerator Fixed Effects	NO	NO	YES	YES
Controls for Social Desirability Bias	NO	NO	NO	YES

Notes: Significance levels are denoted by: *** p < 0.01; ** p < 0.05; * p < 0.1. Robust standard errors are in parentheses. Burn is an indicator variable equal to 1 if the man chooses to burn his female partner's endowment in the experiment. Empowerment treatment is an indicator variable equal to 1 if the man was randomly assigned to a treatment arm where the partner was empowered. Explanatory variables come from the women's survey which was administered to the wives of all men who participated in the experiment. Women's experience of IPV in the last 12 months (Panel A) is an indicator variable equal to 1 if they report experiencing any form of emotional, physical, or sexual violence in the past 12 months. The measure for women's acceptability of violence (Panel B) uses questions from the DHS (e.g., 'Is a husband justified in hitting his wife if she neglects the house or children?'). Women's gender attitudes (Panel C) are also measured using questions from the DHS (e.g., 'It is shameful for a woman if her husband cooks or does housework'). Each index is constructed by taking a simple average of its components.

C.0.1 Behavioural Mechanism: Social Norms

Another potential explanation for backlash is that female empowerment violates entrenched social norms that lower the utility of men. Backlash then manifests as a form of retaliation to restore traditional gender roles and norms (Luke and Munshi, 2011). Although backlash and its relationship to norms is not often measured, the emerging literature suggests that gender norms are often correlated with backlash indicators, such as IPV or sexual violence (Alesina et al., 2021; Banerjee et al., 2019; Field et al., 2021; Green et al., 2020; Guarnieri and Tur-Prats, 2023).

In section 5.2, we showed that male DMs with more conservative gender attitudes are more likely to burn their partner's income. As a second measure of social norms, in the experiment we vary how the female empowerment program is described. We randomised three descriptions. The rationale was that potentially only some consequences of female empowerment programs may generate backlash. In the first variant (A) the sentence contains "Meaning they will spend more time outside the household and are more likely to develop their own opinions and interests and less likely to be dependent on their husband. In the second variant (B) the description of their partner only includes the text "Meaning they will spend more time outside the household and develop their own opinions and interests." In the final variant (C) we only include "Meaning they will spend more time outside the household". By comparing behaviours across men exposed to these differing descriptions of women's empowerment characteristics, we can identify the marginal consequences of empowerment for specific norm-defying changes. In particular, the marginal change from B to C shows the effect of women developing their own opinions and interests, and A to B of being less dependent on their husband. We find that the burn rate for C is 14%, 14.5% for B and 23% for A (see table A7). The difference between A and C and A and B is significant only at the 10% and 15% level respectively. This suggests that empowerment that increases women's independence has greater potential to induce male backlash (something many empowerment programs explicitly seek to do). Results should be interpreted with caution here as we are underpowered to detect differences.

We also examine the relationship between social norms around perpetrating backlash against empowered women and men's observed behaviour in our experiment. This could help identify whether backlash is driven by a positive norm to punish empowered women, or the lack of taboo against sanctioning women who violate conservative norms because of their empowerment. We use several indicators to examine the influence of norms around backlash behaviour. First, we conducted a non-incentivised assessment of the social acceptability of reducing the earnings of women who participate in female empowerment programs (similar to Krupka and Weber (2013)).[36] This provides insights into prevailing social norms by asking about

[36] Participants are asked to rate how socially acceptable it is to reduce the earnings of a woman who participated in a female empowerment program. The answer options range between 1 and 4 where 4 is very socially appropriate and 1 is very socially

the social appropriateness of backlash behaviour. We find that 10% of men believe it is either very socially appropriate, or appropriate, to punish women who participate in female empowerment programs. In Table A8, we re-estimate Equation 2 to assess the relationship between men's decision to burn and their beliefs about the social appropriateness of doing so. We find that men who believe it is appropriate to punish females who participate in empowerment programs are more likely to burn women's endowment in our experiment.[37]

We also asked questions about the acceptability of the households involvement in female empowerment programs. This allows us to study the role of perceived social norms about female empowerment participation on burning behaviour. Our first question elicited beliefs about other men's support for female empowerment programs. In particular, we asked, "Out of 10 randomly picked men in your village how many of them would you think support their wives' participation in female empowerment programs?". We find that 30% of men perceive that at least half the men in their community do not support such empowerment initiatives.

Second, we ask men their preferences and, in particular, if they are supportive of their wife's participation in female empowerment programs. Only 7% of men report that they do not support female empowerment programs. This large wedge between actual preferences and what men think others believe has been found in other contexts (noting that social desirability bias is a risk for such questions) (Bursztyn et al., 2020, 2023). We re-estimate Equation 2 but replace $\gamma\mathbf{Attitudes}_i$ with these two measures respectively. Results are reported in Table A8 Panel B for beliefs about others and Panel C for own preferences. We find no correlation between beliefs about others or actual preferences and men's rate of burning. These findings may indicate that although many men perceive a lack of support for female empowerment among their peers, this perception does not necessarily translate into actual backlash behavior. Importantly, these results suggest that there is widespread belief that others in the community do not support female empowerment, suggesting that social image concerns may be relevant in this setting.

In summary, norms about the social appropriateness of punishing empowered females is correlated with willingness to punish women. We also find suggestive evidence that female empowerment that increases women's independence has a higher rate of backlash. Finally, we find evidence of low perceived support for female empowerment among their peers.

inappropriate.

[37] When we ask women their views, 25% believe it is socially appropriate to punish empowered women. This is consistent with many DHS surveys showing women hold more self-reported conservative gender views than men, although responses may be influenced by social desirability bias.

Table A7: Burning rates by information treatment

	Burn			
	(1)	(2)	(3)	(4)
Panel A: Burning rates by description of empowerment				
Information type A	0.096	0.086	0.074	0.074
	(0.059)	(0.059)	(0.073)	(0.074)
Information type B	0.010	0.003	0.008	0.008
	(0.054)	(0.057)	(0.067)	(0.067)
Constant	0.134***	0.112	0.116	−0.056
	(0.038)	(0.164)	(0.317)	(0.351)
R-squared	0.013	0.075	0.181	0.202
Observations	252	252	252	252
Panel B: Coefficient Differences				
Information type A - Information type B	0.085	0.082	0.066	0.066
	(0.060)	(0.076)	(0.076)	(0.077)
Basic Controls	NO	YES	YES	YES
Village Fixed Effects	NO	NO	YES	YES
Enumerator Fixed Effects	NO	NO	YES	YES
Controls for Social Desirability Bias	NO	NO	NO	YES

Notes: Significance levels are denoted by: *** p < 0.01; ** p < 0.05; * p < 0.1. Robust standard errors are in parentheses. Burn is an indicator variable equal to 1 if the man chooses to burn his female experimental partner's endowment. Information Types A, B, and C correspond to nested descriptions shown to decision makers about the extent of their partner's empowerment. In Panel A, the omitted category is information type C, which corresponds to the shortest description. The coefficients reported in the first two rows correspond to differences in burn rates with respect to this base category. Panel B tests for differences in burn rates between information type A and information type B.

Table A8: Social norms and burning behaviour

	Burn			
	(1)	(2)	(3)	(4)
Panel A: Social Norms Around Punishing Empowered Women				
Socially inappropriate to reduce the income of	−0.090***	−0.081***	−0.084***	−0.082***
women that participate in female empowerment	(0.025)	(0.025)	(0.025)	(0.025)
Constant	0.458***	0.528***	0.662***	0.547***
	(0.098)	(0.147)	(0.177)	(0.198)
R-squared	0.042	0.107	0.192	0.196
Observations	502	502	502	502
Panel B: Perceived Support Amongst Others for Female Empowerment				
Believe Others Support Empowerment	−0.001	−0.007	−0.002	−0.003
	(0.005)	(0.005)	(0.005)	(0.005)
Constant	0.214***	0.193**	0.129	−0.051
	(0.038)	(0.000)	(0.114)	(0.121)
R-squared	0.002	0.031	0.082	0.096
Observations	1,005	1,005	1,005	1,005
Panel C: Own Support for Female Empowerment				
Own Support for Female Empowerment	−0.018	−0.017	−0.012	−0.014
	(0.014)	(0.014)	(0.014)	(0.014)
Constant	0.224***	0.204**	0.167	−0.008
	(0.052)	(0.092)	(0.121)	(0.127)
R-squared	0.002	0.035	0.085	0.099
Observations	1,000	1,000	1,000	1,000
Basic Controls	NO	YES	YES	YES
Village Fixed Effects	NO	NO	YES	YES
Enumerator Fixed Effects	NO	NO	YES	YES
Controls for Social Desirability Bias	NO	NO	NO	YES

Note: Significance levels are denoted by: *** p < 0.01; ** p < 0.05; * p < 0.1. Robust standard errors are in parentheses. Burn is an indicator variable equal to 1 if the man chooses to burn his female partner's endowment.

Table A9: Social norms and backlash behaviour

	Burn			
	(1)	(2)	(3)	(4)
Panel A: Social Norms Around Punishing Empowered Women				
Socially inappropriate to reduce the income	−0.076**	−0.072**	−0.074**	−0.069**
	(0.032)	(0.033)	(0.035)	(0.035)
Empowerment Treatment	0.225	0.220	0.236	0.250
	(0.204)	(0.209)	(0.203)	(0.202)
Social norm × Empowerment Treatment	−0.038	−0.036	−0.040	−0.043
	(0.053)	(0.054)	(0.053)	(0.053)
Constant	0.364***	0.299*	0.334	0.215
	(0.123)	(0.161)	(0.186)	(0.209)
R-squared	0.061	0.085	0.164	0.174
Observations	502	502	502	502
Panel B: Perceived Support Amongst Others for Female Empowerment				
Perceived support	−0.003	−0.002	0.003	0.002
	(0.008)	(0.008)	(0.009)	(0.009)
Empowerment Treatment	0.126	0.129	0.131*	0.129*
	(0.078)	(0.080)	(0.078)	(0.078)
Perceived support × Empowerment Treatment	−0.005	−0.005	−0.005	−0.005
	(0.010)	(0.010)	(0.010)	(0.010)
Constant	0.114*	0.108	0.056	−0.127
	(0.064)	(0.103)	(0.125)	(0.132)
R-squared	0.013	0.043	0.094	0.109
Observations	1,005	1,005	1,005	1,005
Panel C: Own Support for Female Empowerment				
Own support	−0.029	−0.024	−0.017	−0.018
	(0.022)	(0.023)	(0.024)	(0.024)
Empowerment Treatment	0.105	0.050	0.063	0.065
	(0.108)	(0.108)	(0.114)	(0.112)
Own support × Empowerment Treatment	0.016	0.011	0.008	0.008
	(0.027)	(0.028)	(0.029)	(0.029)
Constant	0.199**	0.181	0.144	−0.040
	(0.086)	(0.117)	(0.136)	(0.141)
R-squared	0.013	0.046	0.097	0.112
Observations	1,000	1,000	1,000	1,000
Basic Controls	NO	YES	YES	YES
Village Fixed Effects	NO	NO	YES	YES
Enumerator Fixed Effects	NO	NO	YES	YES
Controls for Social Desirability Bias	NO	NO	NO	YES

Notes: Significance levels are denoted by: *** p < 0.01; ** p < 0.05; * p < 0.1. Robust standard errors are in parentheses. Burn is an indicator variable equal to 1 if the man chooses to burn his female partner's endowment. Empowerment treatment is an indicator variable equal to 1 if the man was randomly assigned to a treatment arm where the partner was empowered.

D Literature Review Protocols

We conducted a systematic review of recent literature on female empowerment to assess how frequently, and by what methods, backlash is examined in the context of female empowerment programs in developing countries. Our specific aim was to identify papers that study female empowerment programs in developing countries, identify those that measure backlash, and record details associated with this measurement. We restricted our literature search to the leading 14 journals in development economics.[38]. We restricted our search to papers published between 2005 and 2024 (i.e., the past 20 years). Only journal articles were included in the search, as journal articles are considered validated knowledge (Podsakoff et al. 2005).

Initially, Google Scholar was searched for journal articles published between 2005 to 2024 (inclusive) containing "women", "empowerment", "female", "empowerment program", "women's empowerment", "female empowerment", "women's empowerment program" and "female empowerment program" as search terms and restricted to the identified journals. This search yielded inconsistent results, and it was decided to run separate searches for each of the search terms through each journal's independent database.

All abstracts were read to ensure that the paper did examine female empowerment, and to identify articles that also met specified criteria applicable to our enquiry. We were searching for articles about women in developing countries, so articles that did not examine Low or Middle Income Countries or did not examine female participants 16 years and older were excluded from the analysis. When doubt arose, the full paper was read for confirmation that the paper met these criteria. This process left 204 papers that were used for the remainder of the analysis. The full list of papers is not included here due to space constraints, but is available from the authors upon request.

For the 204 articles which met our criteria, the full article was read and particular methodological characteristics of the research approach were recorded in an excel spreadsheet. These general characteristics included whether the study on female empowerment was a Randomised Control Trial or whether some alternative approach, such as survey methods, had been used to test the effects of female empowerment; whether female empowerment was an explicit objective of the programme or intervention; whether women were specifically targeted for empowerment (only women and not men in at least one treatment arm); and, whether targeting women's empowerment was the explicit objective of the research. Broad summaries of the empowerment programs and the program impact were also documented for reference.

We then sought to understand how frequently backlash was examined and the methods employed to test

[38] These are; World Development, Journal of Development Economics, Economic Development and Cultural Change, World Bank Economic Review, American Economic Journal: Applied Economics, Review of Economics and Statistics, Economic Journal, American Economic Review, Journal of the European Economic Association, Quarterly Journal of Economics, American Economic Journal: Economic Policy, Review of Economic Studies, Econometrica, American Economic Journal: Microeconomics

backlash within the female empowerment literature. We began by assessing if backlash was measured. We broke backlash into three specific categories. In particular, backlash was considered to have been measured if the authors measured; 1) Female exposure to IPV; 2) Male Gender Attitudes, such as a man's acceptance of a woman leaving the house; 3) Female Perceptions of Male Attitudes. We argue that these are the three most common means to measure backlash. Thus, identifying whether any of these are measured allows us to comprehensively capture the presence of backlash in the literature. Note, here we simply check if any of these three factors were reported in the paper, irrespective of the direction of the effect or statistical significance. We then documented whether the empowerment programs generated backlash. Specifically, we identified backlash when two conditions were met: 1) backlash was measured, and 2) there was a negative shift in gender attitudes or an increase in IPV. For example, this could be seen in cases where IPV rates rose or men became more gender-conservative as a result of female empowerment.

In our spreadsheet we also generated a number of other indicators. These were; whether backlash was measured as a specific research objective; the methods used (surveys, experiments, etc); what was measured (changes in attitudes, levels of conflict, levels of violence, changes in power dynamics or resource division, etc); whether the author identified a possible mechanism for such backlash; and whether the discussion of mechanisms were explicitly studied or tested.