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Abreham Adera and Oumar Ben Salha

Foreign Aid and Norms of Intimate Partner Violence: Evidence from Ethiopia

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Foreign Aid and Norms of Intimate Partner Violence: Evidence from Ethiopia *

Abreham Adera† Oumar Ben Salha‡

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Abstract

This paper investigates the impact of foreign aid on beliefs towards intimate partner violence (IPV) in Ethiopia. We match geo-referenced data on World Bank foreign aid projects from 1995 to 2014 with geo-coded survey data from the Demographic and Health Surveys (DHS). Adopting a difference-in-differences approach, which leverages spatial and temporal variations between DHS rollout and the implementation of aid, we find that foreign aid contributes to a reduction in IPV. Women exposed to foreign aid projects show a decreased tendency to justify marital violence. We also find that foreign aid improves women's education and enhances their access to information. Moreover, the effects on IPV acceptance are more pronounced for gender-targeted projects, and for projects targeted at human development, agriculture, and social infrastructure purposes. These results underscore the role of foreign aid as a crucial mechanism for disseminating information, empowering women with the knowledge needed to change perceptions and attitudes towards gender norms, and thereby reducing the justification of marital violence.

Keywords: IPV, Foreign aid, World Bank, Women, Ethiopia

JEL Codes: N33; O30; Z12

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†University of Brescia, Italy. Email: abreham.adera@unibs.it

‡University of Brescia, Italy. Email: oumar.bensalha@unibs.it

1 Introduction

Intimate partner violence (IPV) represents a significant public health issue with profound social, economic, and health implications. If unresolved, IPV can lead to substantial economic costs for governments, communities, and individuals (Peterson et al., 2018). Women who experience or have experienced IPV often face negative health outcomes, including an increased risk of depression, injuries, post-traumatic stress disorder, suicidal behavior, HIV infections, and adverse pregnancy outcomes (Campbell, 2002; Devries et al., 2013; Kafka et al., 2021). The World Health Organization (WHO) estimates that 30% of women worldwide have experienced IPV at least once in their lifetime. The incidence is highest in East and Sub-Saharan Africa(WHO, 2021), with Sub-Saharan Africa reporting the highest numbers at 36%, exceeding the global rate of 30% (Tessema et al., 2023). In response, UN Women advocates for long-term, sustainable investments aimed at effectively preventing violence against women and girls.

The World Bank has advocated for gender equality, at least since its first gender strategy was introduced in 2001. This strategy mandated the mainstreaming of gender considerations into all country strategies and throughout the World Bank's lending portfolio (Razavi, 2012; Bank, 2016). Initially, the focus of this first strategy on gender issues was primarily limited to the human development field, particularly education and health. However, with the introduction of the Gender Action Plan (GAP) in 2007, the World Bank expanded its gender mainstreaming efforts to include traditionally neglected sectors such as agriculture, and infrastructure (Bank, 2016)[1].

It is therefore imperative to expect that World Bank aid projects may help reduce the burden of IPV observed in the global south in different ways. Firstly, foreign aid may improve women's education, which could potentially decrease IPV incidents by providing women with better employment prospects and financial independence, thereby empowering them to exit abusive relationships (Aizer, 2010), or/and to challenge traditional gender norms that sustain IPV (Buller et al., 2018; More et al., 2017). However, entrenched patriarchal norms and limited legal recourse for divorce in many developing nations, including those in Sub-Saharan Africa, often limit women's ability to seek practical alternatives to abusive relationships, despite their educational achievements (Davis and Taylor, 1997). In some cases, an increase in educational attainment may

[1]In 2014, the World Bank Group established the Gender Cross-Cutting Solution Area (CCSA) to integrate gender equality as a core institutional priority across all sectors and regions of the Bank's operations.

even provoke a backlash from male counterparts, leading to increased instances of IPV (Bhalotra et al., 2021). Nevertheless, education remains a crucial factor in reshaping attitudes toward IPV acceptance, especially when paired with initiatives aimed at challenging traditional gender norms (More et al., 2017). Given the significant emphasis of foreign aid on education, female empowerment, and gender equality promotion (Women, 2015), it is vital to explore how these aid efforts impact women's acceptance of IPV in Sub-Saharan Africa.

Secondly, foreign aid projects may improve women's access to new information, which is shown to challenge IPV norms. Exposure to sources like cable TV or urban lifestyles can acquaint rural households with more egalitarian values and empowered female role models, potentially reducing the acceptance of domestic violence (La Ferrara, 2016; Jensen and Oster, 2009). Aid projects may also create opportunities for social interaction, exposing individuals to new information, ideas, and social norms that lead to pro-women attitudes, including greater acceptance of female education and employment (Clingingsmith et al., 2009).

Nevertheless, there is little evidence of the potential of foreign aid in mitigating intimate partner violence (IPV). This paper aims to bridge this gap by investigating the impact of World Bank aid projects on IPV in Ethiopia. Ethiopia presents a unique case study to assess the impact of foreign aid on women's acceptance of IPV because it (i) incurs dramatic costs due to IPV, estimated to be 1.2% of its GDP (Women, 2022), and (ii) receives the highest volume of net official development assistance aimed at Sub-Saharan Africa (OECD, 2018). More importantly, the World Bank has actively highlighted its commitment to empowering women and addressing gender imbalances through its initiatives in Ethiopia (Legovini, 2005). In light of these factors, our paper explores whether foreign aid can serve as a potential tool to address IPV in Ethiopia.

We focus on women's perspectives on the acceptability of marital violence within their households rather than on actual instances of violence for several reasons. First, the normalization of violence within societies is a primary risk factor for IPV (Jewkes et al., 2003; Kabeer, 1999; Selin et al., 2019). Therefore, interventions aimed at promoting gender-equitable norms may help reduce IPV incidents. Second, data on women's experiences of IPV is often not publicly available or is prone to misreporting due to societal stereotypes such as victim-blaming, trivialization of violence, and justification of the perpetrator (Bryant and Spencer, 2003; Doran and Hutchinson, 2017; Yamawaki et al., 2012). Furthermore, women who perceive wife-beating as justifiable are more

likely to have experienced marital violence themselves (Uthman et al., 2009). Consequently, in the absence of direct data on actual instances of IPV—common in regions like Sub-Saharan Africa—assessing women's perceptions becomes indispensable for understanding the potential risk of experiencing marital violence (Arestoff and Djemai, 2016).

The paper uses georeferenced data on the sub-national allocation of foreign aid projects in Ethiopia for the years from 1995 to 2014, which we geo-matched with survey data for over 50,000 Ethiopian women who were part of the Demographic Health Survey (DHS) for the rounds 2000, 2005, 2011, and 2016. To identify the effect of aid on IPV acceptance, we rely on the spatial and temporal variation in aid project coverage and survey rollout. Specifically, we compare areas near a site where a World Bank project is ongoing or was already completed at the time of the interview to a site where we know that a World Bank project will arrive in the future. This identification strategy is similar to the differences-in-differences approach used in recent studies in contexts similar to ours (e.g., Isaksson and Durevall, 2023).

The empirical findings show that World Bank aid projects shape women's attitudes toward IPV acceptance. In the most conservative case, we find that exposure to completed foreign aid reduces women's acceptance of IPV by 18.6 percentage points. As we show later, this result is robust across a wide range of specifications, including an event study design. We also find evidence that aid projects improve women's education and enhance their access to information. Moreover, the effects on IPV acceptance are more pronounced for gender-targeted projects. Furthermore, projects aimed at human development, agriculture, and social infrastructure purposes reduce IPV acceptance. However, we find little evidence to suggest that transport projects influence gender norms. As described in the data section later, one possible explanation for this is that only a small proportion of transport projects are explicitly designed to address gender-related issues, whereas the former types of projects often incorporate significant gender dimensions in their objectives. These results underscore the role of foreign aid as a crucial mechanism for disseminating information, empowering women with the knowledge needed to change perceptions and attitudes towards gender norms, and thereby reducing the justification of marital violence.

The paper offers intriguing insights into the literature on the impact of external intervention on gender norms. Although existing research has thoroughly investigated the impact of cash transfers on IPV, demonstrating a reduction in IPV incidence by 5 to

11 percentage points (for example, Buller et al. (2018), Heath et al. (2020)), a noticeable gap persists in the literature regarding the influence of foreign aid on IPV in African contexts, which has only recently begun to be addressed. For example, Berlin et al. (2023) examines the impact of aggregate foreign aid on female empowerment in Malawi, showing that gender-targeted foreign aid has a small positive impact on female empowerment. Additionally, it enriches the growing body of literature that investigates the effects of foreign aid on economic development through a highly disaggregated analysis (Adera, 2023; Isaksson and Durevall, 2023; Martorano et al., 2020; Isaksson and Kotsadam, 2018; Zhang et al., 2022).

The rest of this paper is organized as follows: Section 2 describes the data. Section 3 presents the identification strategy. Section 4 discusses the empirical results. Section 5 concludes.

2 Data

Our analysis is based on geographically matching aid projects in Ethiopia from 1995 to 2014, provided by AidData, with survey data from more than 50,000 women sourced from the Demographic and Health Survey (DHS).

2.1 Geocoded aid projects

The geocoded aid data on foreign aid projects is sourced from AidData (AidData, 2017; Tierney et al., 2011). For Ethiopia, AidData provides geolocated foreign aid projects, implemented between 1995 and 2014. The dataset was created using the Tracking Underreported Financial Flows (TUFF) methodology, leveraging open-source media to mitigate misreporting and underreporting of projects. Organized at the project location level, the dataset includes variables such as project location, commitment year, implementation start and end year, sector, and other relevant information such as activity descriptions of the aid projects.

As we discussed later, project implementation start and end dates are key in the identification strategy we employ in this paper. This is one reason our focus centers on World Bank aid projects[2]. Specifically, we utilize the World Bank foreign projects

[2]AidData provides data on Chinese aid projects to Ethiopia, but only 24 include start and end years, so we excluded them from our analysis.

aid data, "World Bank Geocoded Research Release, Version 1.4.2", provided by AidData [3]. This dataset includes information on the start and end dates for 1,181 geocoded World Bank projects in Ethiopia. These projects are depicted in Figure 1. The total disbursement for the projects, according to the data we compiled from AidData, is USD 6.618 billion.

A point to consider when using AidData is the precision at which the aid project locations are coded. The precision of aid project locations varies, with categories ranging from 1 for coordinates at an exact location to 8 when the location is estimated to be a seat of an administrative division or the national capital (Strandow et al., 2011). Existing research (e.g., Isaksson and Kotsadam, 2018) commonly utilizes projects where the geographical coordinates precisely match the location (precision code 1) or are within a known radius of 25 km from the reported coordinates (precision code 2). There are 728 World Bank aid projects with such precision in Ethiopia. We show in the analyses that using either the full set of 1,181 projects or the subset of 728 World Bank projects barely alters the main results.

AidData's sector coding scheme classifies projects into various sectors (e.g., education, health, transport)[4]. Table A3 presents the distribution of the 1181 aid projects based on sector name classification in AidData's sector coding scheme. As shown in the table, a limitation of this sector-based classification is that only a few projects are categorized under certain sectors. For example, only 10 projects fall under the health sector and 31 under education. Furthermore, the sector classification does not contain information that can be leveraged to identify projects targeting gender or women's empowerment.

As noted by AidData, a project often spans multiple activities or purposes, so relying on sectoral or project-specific classifications does not provide a clear picture of a project's impact. AidData recommends using activity codes as indicators or flags for isolating projects with specific activities. Therefore, instead of focusing on aid directed to specific sectors, we group projects based on their purpose or objective. To do so, we conducted a keyword search within the project activities of projects provided by AidData to flag projects by their purpose or by what objective they target. While this approach is not a "magic bullet," it is better than sectoral classification, as it provides information we can leverage to offer evidence on the impact of projects with different purposes, such as

[3]Aid projects can be accessed from AidData at `https://www.aiddata.org/datasets`.

[4]For AidData's sector coding scheme, visit `https://docs.aiddata.org/ad4/files/aiddata_coding_scheme_0.pdf`

those targeting gender.

First, we make attempts to identify women-targeting aid projects. Upon conducting a keyword search within the AidData projects to identify those targeting women, we identified two words particularly indicative of such targeting: "gender" and "empowerment." Based on this, we flagged projects that reference either "gender" or "empowerment" and created a binary indicator variable, "gendered," to signify whether a project explicitly targets women[5]. In the overall sample of 1,181 projects, 342 projects (29 percent) are classified as gendered.

The World Bank Group (WBG) prioritizes human development dimensions (such as health and education), agriculture, and gender-responsive transportation as key areas to advance gender equality (Bank, 2011, 2007; Dominguez Gonzalez et al., 2022)[6]. We thus extended our keyword search within the activity descriptions in AidData. The results of this search are reported in Table A4. We can identify projects with four key purposes: human development (392 projects), agriculture (339 projects), social infrastructure (197 projects), and transport (479 projects). Importantly, these projects also contain gender dimensions. In particular, we can flag 107 human development projects (27.3%), 124 agriculture projects (36.6%), and 192 social infrastructure projects (97.5%) as gendered. In contrast, only 52 transport projects (10.9%) can tagged as gendered.

Next, we attempted to describe the money spent per project. AidData advises against using activity codes for financial aggregation. This is because AidData's activity codes are not directly linked to a financial amount in a one-to-one manner; instead, they are assigned n-to-one on financial records. As a result, attempting to describe the money spent per activity based on activity codes is inaccurate. Thus, instead of directly using activity codes for financial aggregation, we cleaned the data to ensure that each project was assigned a unique identifier.

We found that the total disbursement for the World Bank aid projects to Ethiopia, based on the data we compiled from AidData, is USD 6.618 billion. We then used the information from our keyword search to provide total disbursement by purpose. We observe a similar pattern to that of the number of projects described above. Specifically, of the total disbursement of USD 6.618 billion, gendered projects accounted for USD 2.751

[5]Note that the classification of projects as gendered or non-gendered is not definitive. Although we cannot flag them as gendered in the data because they don't explicitly mention words that imply gender targeting, they may still have gender-related elements that influence gender norms.

[6]For overview of the WBG's strategic interventions in Ethiopia, see `https://www.worldbank.org/en/country/ethiopia/overview`.

billion, comprising 41.6 percent of the total. Moreover, the amounts disbursement to human development, agriculture, social infrastructure, and transport projects are USD 2.946 billion, USD 3.055 billion, USD 2.088 billion, and USD 2.196 billion, respectively. Within these amounts, we were able to flag USD 1.410 billion (47.9% of USD 2.946 billion) in human development, USD 1.290 billion (42.2% of USD 3.055 billion) in agriculture, USD 1.981 billion (94.9% of USD 2.088 billion) in social infrastructure, and USD 0.326 billion (15% of USD 2.196 billion) in transport as gendered.

2.2 Demographic and Health Survey (DHS)

The Demographic and Health Survey (DHS) is a nationally representative household survey conducted in developing countries, including Ethiopia. This survey includes a standardized module, initiated in the late 1990s, that explores respondents' attitudes toward domestic violence. Known as the domestic violence module (Measure DHS, 2014), it queries married women aged 15 to 49 about their views on the justifiability of experiencing violence under various circumstances. For Ethiopia, data from this module are available for the 2000, 2005, 2011, and 2016 DHS rounds.

To create a comprehensive dataset, we compiled a pooled dataset from all available DHS rounds, incorporating data on attitudes toward wife-beating and the GPS coordinates of each surveyed cluster. This dataset includes information on about 50,000 women aged 15-49 residing across 2,256 DHS survey clusters. A DHS cluster may encompass one or several geographically proximate villages or an urban neighborhood. Geolocation of each DHS cluster facilitates precise identification of the locations where the interviews with women were conducted. Figure 1 also visually presents the geographical distribution of clusters for each survey year.

Intimate Partner Violence (IPV) We measure IPV as justification of wife beating, as in Alesina et al. (2021), La Ferrara (2016), Jensen and Oster (2009), and Arestoff and Djemai (2016).

Focusing on women's perspectives on the acceptability of marital violence within their households, rather than on actual instances of violence, is a preferred approach in the context of developing countries (see Arestoff and Djemai, 2016). Firstly, opinions about wife-beating, rather than actual incidents of violence, are more commonly available in surveys such as the DHS. Even in cases where such data may be available, women's

experiences of IPV is prone to misreporting due to societal stereotypes that often lead to victim-blaming, trivialization of violence, and justification of the perpetrator, which can result in survivors feeling shame and fear, thereby deterring them from reporting actual incidents (Bryant and Spencer, 2003; Doran and Hutchinson, 2017; Yamawaki et al., 2012). Secondly, women who perceive wife-beating as justifiable are more likely to have experienced marital violence themselves (Uthman et al., 2009). Therefore, in the absence of direct data on actual instances of IPV such as in Sub-Saharan Africa, assessing women's perceptions can serve as a valuable proxy for understanding the potential risk of experiencing marital violence (Arestoff and Djemai, 2016; Jensen and Oster, 2009). Lastly, actual IPV is prevalent in societies where violence is regarded as an acceptable social norm associated (Jewkes, 2002; Kabeer, 1999; Jewkes et al., 2003). Therefore, focusing on women's perceptions of the acceptability of intimate partner violence (IPV) rather than merely on reported incidents is particularly pertinent, especially in regions where traditional norms prevail. This approach aligns with the objectives of foreign aid programs that aim to promote gender-egalitarian norms.

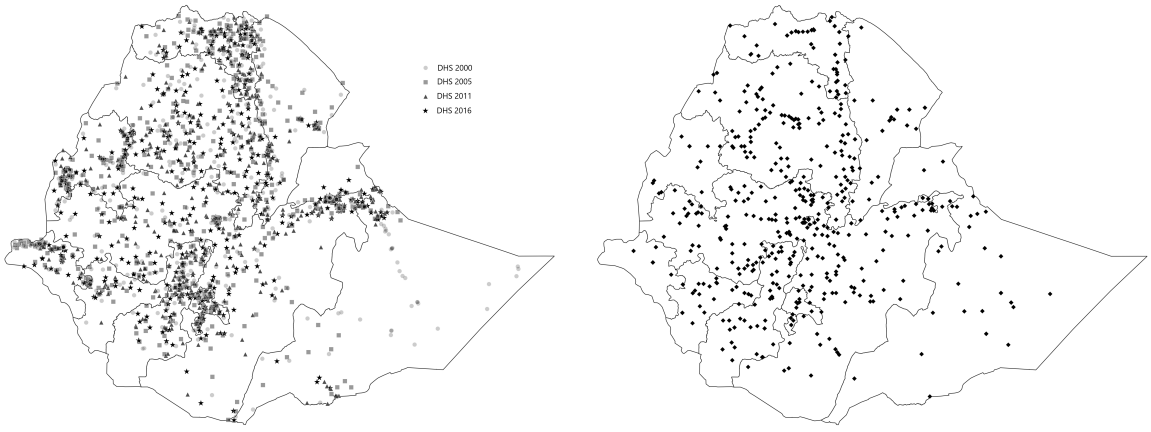
We collect women's acceptance of wife-beating from the women's module of the DHS. Married women aged 15 to 49 selected for the domestic violence module are asked a set of questions about domestic violence and its acceptance (Croft et al., 2018). These questions are aimed at measuring women's attitudes toward wife-beating and include the following: *a) "Beating justified if the wife goes out without telling the husband"; b)"Beating justified if the wife neglects the children"; c)"Beating is justified if the wife argues with the husband"; d) Beating is justified if the wife refuses to have sex with the husband"; e) "Beating justified if the wife burns the food".* To each of the above questions, the DHS woman answered Yes or No, and thus each of the IPV measures are dummies that equal one if the responding woman agrees that a husband is justified in beating his wife.

For brevity, we refer to the above IPV-related battery of questions respectively as IPV_a, IPV_b, IPV_c, IPV_d, and IPV_e. The summary statistics on each of the IPV dummies are presented in Table A2. In 2000, wife-beating was considered to be most acceptable in cases where a woman may neglect the children (61.6%), and it is considered least acceptable in cases where she would refuse to have sex with her husband (47.2%). A similar pattern was observed in 2016 but with lower probabilities compared to those in 2000. To gain a comprehensive overview, we use as the main dependent variable in our analyses a dummy variable, IPV, that identifies whether the interviewed woman agrees

that a husband is justified in beating his wife in at least one of the five cases mentioned above. Table A2, under the IPV_{any} row, presents descriptive statistics for our outcome variable. In the DHS years 2000, 2005, 2011, and 2016 respectively, about 80.7%, 77.3%, 66.1%, and 56.6% of the women in the sample agreed that husbands are justified in beating their wives in at least one of the above five cases. In general, there is substantial acceptance of wife beating in Ethiopia with a declining trend over time.

We collected several control variables. In a recent study, Bruederle and Hodler (2018) shows that nighttime lights and indicators of household wealth, education, and health in the DHS are highly correlated. Thus we use nighttime lights[7], which are valuable proxies for comparative development in the absence of reliable disaggregated data (Gibson et al., 2020; Henderson et al., 2011), and population density as controls for region-specific economic conditions that may impact IPV independent of foreign aid. Other controls we use from the DHS include women's age (in years), literacy, residence type (rural or urban), household size, whether their houses are electrified, as well as their ethnic groups and religious affiliations.

Figure 1: Location of DHS survey clusters and WB aid projects



Note: the left image displays the location of clusters in the four DHS survey rounds. The right image illustrates the location of aid projects funded by the World Bank.

[7]Nighttime lights can be from the Defense Meteorological Satellite Program (DMSP) or from the Visible Infrared Imaging Radiometer Suite (VIIRS) (Gibson et al., 2020). The Ethiopian DHS provides nightlights measured by the VIIRS (Mills et al., 2013).

2.3 Matching projects to DHS

As illustrated in Figure 1, both the DHS and AidData datasets include geographic coordinates. We link foreign aid project data to local survey respondents in the DHS survey by using the point coordinates provided in AidData. To geolocate the DHS survey respondents, we follow the methodologies outlined in Isaksson and Kotsadam (2018) and Isaksson (2020). The coordinates of the surveyed DHS clusters, comprising one or several geographically proximate villages or a neighborhood in an urban area, are employed to associate women's households with aid project sites.

In the matched sample, we calculate the distance (in kilometers) from each woman's household cluster to the nearest aid project location. Figure 6 illustrates that approximately 967 out of 2,081 women (about 46 %) are located within a distance of 10 km from the closest aid project location [8]. As this provides a good balance in the sample between the treated and control groups, we use samples falling within 10 km to define treatment for the main analysis.

3 Identification Strategy

The empirical strategy relies on exploiting the geographical variation in the timing of when a woman's village (DHS cluster) completes a project and when it begins a new project, relative to the year of the DHS survey. As discussed above, both the DHS and AidData datasets include geographic coordinates. Using these coordinates, we geo-matched aid data with DHS clusters. This geo-matching ensures that women (and their DHS villages) sharing the same coordinates are associated with the same nearby projects. Then, by using the time interval between the year of aid project implementation and the DHS survey year, we identify DHS clusters that had past projects, have ongoing projects, and will have future projects. Using this information, women in our sample may fall into one of four scenarios: they may live in a DHS cluster that is close to a location where i) a project was already completed before the DHS survey date, (ii) a project is being implemented (ongoing) at the survey date, (iii) a project is planned to start after the DHS survey date (in the future) or (iv) no project exists.

[8] Of the 2,256 DHS clusters, we are able to geo-locate 2,081. The remaining clusters cannot be geo-located, as an assessment using QGIS revealed that their coordinates are projected outside the country's boundaries. This issue is likely due to incorrectly reported geocoordinates in the DHS data. Since it is not possible to accurately locate these clusters, we were compelled to exclude them from our analysis.

Thus, as in Isaksson and Durevall (2023), we estimate the following specification:

$$IPV_{it} = \beta_1 * completed_{it} + \beta_2 * ongoing_{it} + \beta_3 * future_{it} + \alpha_w + \mu_t + \delta_w t + \mathbf{X'_{it}}\gamma + \epsilon_{it} \quad (1)$$

with i individual woman; t year; IPV is a dummy indicating a wife justifies marital violence; *completed*, *ongoing*, and $future$ are dummy variables indicating whether a woman had a completed, an ongoing, or a future aid project around her woman's residence by the DHS survey date, respectively; (α_w) is spatial fixed effects; (μ_t) is year fixed effects; $\delta_w t$ is spatial-by-year fixed effects; X'_{it} is a set of women and as well as village level controls including a woman's age (in years), literacy, residence type (rural or urban), household size, whether her house is electrified, as well as her ethnic group, religious affiliation, village-level nighttime light intensity, and population density. Such controls are included because the effect of foreign aid on women's attitudes towards IPV is likely to be influenced by women's idiosyncratic characteristics such as level of empowerment and alignment with patriarchal norms – measured through women's literacy, ethnicity and religion –, resource constraints and allocation within the household – measured with household size and electrification status – and age (Alesina et al., 2021; Selin et al., 2019; Jewkes et al., 2003) and account for region-specific economic factors that might affect IPV attitudes independent of foreign aid. Standard errors are clustered at the DHS cluster level to account for the correlation of the error terms among women belonging to the same DHS cluster/ village. In an alternative specification, Conley standard errors (Conley, 1999) are used to adjust for spatial correlation.

There are several empirical challenges when attempting to identify the local impact of aid projects. At the very least, it is likely that foreign aid projects are not randomly located, but rather, they tend to be biased toward communities with more vulnerable populations[9] (Briggs, 2018), which are also likely to experience a higher incidence of gender violence. Therefore, the assumption of exogeneity of foreign aid project locations does not hold.

We make several attempts to address empirical issues. To account for unobserved factors driving systematic subnational variation in aid and IPV levels and trends, we incorporate spatial fixed effects (α_w) and year fixed effects (μ_t). We follow recent studies (e.g., Durevall and Isaksson, 2024) and add spatial-by-year fixed effects $(\delta_w t)$ to minimize the possibility that our estimates are confounded by differential trends in IPV across

[9]See `https://www.worldbank.org/en/country/ethiopia/overview`

locations or other unobserved time-varying location attributes. The spatial fixed effects are based on Ethiopia's administrative units, known as Woredas (ADM 3). A woreda is the smallest geographic region in the Ethiopian context, consisting of villages (known as Kebeles in Ethiopia). This approach mirrors the use of regional fixed effects by Isaksson and Kotsadam (2018), where they employed 352 sub-national region dummies for the entire African continent. Our study benefits from a larger count of these geographic units (677 woredas) for Ethiopia. The average woreda size is 8,166 square km. This size is comparable, for instance, to a 50 km radius circle, which encompasses an area of about 7,850 square km, as used in Isaksson and Kotsadam (2018). The use of woreda is also close in size to the geographic fixed effects introduced by Berlin et al. (2023), each covering approximately 5,000 square km.

Moreover, we follow recent research and implement a difference-in-differences type strategy to account for factors that may influence selection into becoming a project site (e.g., see Isaksson and Durevall, 2023; Isaksson and Kotsadam, 2018). Specifically, we compare areas near a site where a World Bank project is ongoing or was already completed at the time of the interview to a site where we know that a World Bank project will arrive in the future. In this approach, the estimate of the difference $(\beta_1 - \beta_3)$ captures the impact of completed projects, whereas the difference $(\beta_2 - \beta_3)$ captures the effect of ongoing projects. The coefficient on *completed* (i.e., β_1) captures any causal effects of a completed project plus a potential selection effect, the coefficient on *ongoing* (i.e., β_2) captures any causal effects of an ongoing project plus a potential selection effect, whereas the coefficient on $future$ (i.e., β_3) captures a potential selection effect. Thus, the differences between these parameters give the causal effect of aid on the outcome variable of interest after subtracting the selection effect from the combined selection and causal effect (Isaksson and Durevall, 2023; Isaksson and Kotsadam, 2018).

A concern on the differences-in-differences approach outlined above is an endogeneity that may arise from the timing of the projects. This is concerning if being a past, present, and future project picks up project timing. This concern is minimal for two reasons. Firstly, we added spatial-by-year fixed effects and local economic controls, such as nightlight intensity and population density, which capture spatial and temporal factors influencing IPV and the selection of sites for completed, ongoing, or future projects. Secondly, as in Isaksson and Durevall (2023), we make sure that there is no direct correspondence between when a project was implemented and whether it is coded as completed, ongoing, or future; we classified projects into completed, ongoing, or future

status considering the status of a project at the time an area is covered by the DHS survey.

A challenge remains in the choice of an appropriate geographic cutoff for the analysis. The geographic cutoff, which delineates the radius around a project within which individuals are deemed treated, is an empirical question and involves striking a balance between minimizing noise and ensuring a sufficiently large treatment group (Isaksson and Durevall, 2023). If the cutoff distance is too small, our sample of treated individuals may be limited. Conversely, an excessively large cutoff distance would encompass too many untreated individuals within the treatment group, leading to attenuation bias. In our study, we utilize a 10 km cutoff in our main analysis. However, we will later assess the robustness of the main estimates by applying alternative distance cutoffs, such as 5 km, 15 km, 20 km, and 25 km. We also go further and exclude samples outside 15 and 20 km. The main results are robust to these alternative specifications.

Another concern is that we might simply be capturing the effect of having many projects in the area and that a bias may arise from comparing areas receiving several aid projects ("aid-darling") with those receiving fewer projects ('Orphans') if these areas are systematically different. Including areas with no project exposure in comparisons may skew results if future aid is planned for regions with specific pre-existing conditions. In the robustness section, we follow Isaksson and Durevall (2023) and restrict the sample to only areas with at most 10 or 5 or 1 ongoing, future, or completed project within the 10 km cut-off. The results are robust to this check.

Finally, we implement an event-study design to show how the outcome evolves after the aid is given over time. By using the difference between DHS interview year and project completion year, we can determine the time before or after a woman's location completes a project. Using this information, we can compare women who have already completed a project and those who are waiting to complete a project. This mimics the differences-in-differences setup of comparing completed with future, but now defines treatment based on time relative to the event. In this design, we consider IPV in the years preceding project implementation as a placebo test. Reassuringly, as we show later, there is no evidence of pre-trends in IPV for women in the years prior to project implementation.

4 Results

4.1 Benchmark results

Table 1 presents the benchmark differences-in-differences estimates for equation 1, using the 10 km cut-off. The coefficient of $completed10$ shows that women residing within 10 km of locations where aid projects were completed are less likely to accept IPV than otherwise equal women. In column 4, which includes controls, spatial, year, and spatial-by-year fixed effects, women residing within 10 km of a completed project site are 12.9 percentage points less likely to justify a husband beating his wife as acceptable compared to women living beyond this 10 km radius of a similar project site.

However, looking at the coefficient of $future10$, it comes out as clear that foreign aid projects are dependent on pre-existing levels of IPV acceptance. The higher IPV acceptance, the more likely it is that the location is targeted for future foreign aid projects. More precisely, women residing within 10 km of a planned project location are 5.6 percentage points more likely to justify a husband beating his wife as acceptable compared to otherwise equal women. Therefore, it is crucial to account for the likely endogenous placement of projects.

Thus, to account for the endogeneity, we rely on the Difference-in-Differences estimates for the parameters $\beta_1 - \beta_3$ and $\beta_2 - \beta_3$, which are given at the bottom of Table 1 by the differences $completed10 - future10$ and $ongoing10 - future10$, respectively. The estimate for $\beta_1 - \beta_3$ compares the acceptance of IPV in areas close to sites where an aid project was completed before the time of the DHS survey (completed) with those in areas close to sites where a project is planned but not yet implemented at the time of the DHS interview (future). On the other hand, $\beta_2 - \beta_3$ represents the impact of ongoing projects after accounting for the effects of being selected into an area for future aid.

As can be seen from column 4 of Table 1, completed10 - future10 implies that women residing within 10 km of completed foreign aid projects are 18.6 percentage points less likely to justify a husband beating his wife as acceptable, compared to women residing within 10 km of planned future projects. The parameter differences are significant both statistically and in magnitude (mean IPV acceptance 69.8 percentage points, as shown in Table A1).

The results indicate that completed, rather than ongoing, projects are effective in shaping attitudes toward IPV. Specifically, the differences between ongoing10 and fu-

ture10 reveal no significant effect of having an ongoing project within a 10 km cutoff on IPV. This may imply that ongoing aid projects likely reflect projects in their early stages, where efforts are focused on addressing logistical challenges rather than achieving immediate behavioral outcomes. Societal norms take time to change, and thus, it is essential for projects to be completed to allow beneficiaries sufficient time to adjust to and adopt new behaviors. The result underscores the critical importance of completing aid projects if one aims to drive changes in societal attitudes and behaviors on IPV acceptance.

Table 1: Difference-in-differences estimates: Benchmark Results

	(1)	(2)	(3)	(4)
completed10	-0.146***	-0.128***	-0.134***	-0.129***
	(0.021)	(0.020)	(0.020)	(0.021)
ongoing10	0.011	0.041***	0.042***	0.049***
	(0.016)	(0.015)	(0.015)	(0.017)
future10	0.051**	0.041**	0.037*	0.056**
	(0.020)	(0.020)	(0.020)	(0.023)
Observations	54,675	51,768	51,768	51,768
R-squared	0.169	0.201	0.202	0.214
Spatial F.E.	✓	✓	✓	✓
Controls	x	✓	✓	✓
Year F.E	x	x	✓	✓
Spatial-by-Year F.E.	x	x	x	✓
Difference in difference [ongoing10-future10]	-0.0402	0.000	0.005	-0.008
p-value of F test: ongoing10-future10=0	0.0758	1	0.823	0.751
Difference in difference [completed10-future10]	-0.197	-0.169	-0.171	-0.186
p-value of F test: completed10-future10=0	0.000	0.000	0.000	0.000

Notes: This table presents women level difference-in-differences estimates of aid on IPV. The dependent variable is a dummy (IPV_{any}) indicating a wife justifies marital violence. $completed10$, $ongoing10$, and $future10$ are dummy variables indicating whether a woman had a completed, ongoing, or future aid project within 10 km of the woman's residence, respectively. Controls include a woman's age (in years), literacy, household size, residence type (rural or urban), whether her house is electrified, as well as her ethnic group, religious affiliation, village-level nighttime light intensity, and population density. Standard errors (in parentheses) are clustered at the DHS cluster level. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

For the main analysis, the unit of analysis is women. However, it is vital to explore whether the effects of foreign aid, which we observed at the women's level, also extend to their broader community. We collapse the analysis to the DHS village level, where the dependent and control variables are averaged across villages. The results, reported in Table 2, show a similar pattern emerges from the village-level estimates that treatment villages are less likely to justify wife-beating. This suggests that the impact of foreign aid extends beyond individual women to the entire village.

Table 2: Aid Exposure and IPV: Village level Estimates

	(1)	(2)	(3)	(4)
completed10	-0.164***	-0.115***	-0.119***	-0.110***
	(0.024)	(0.022)	(0.022)	(0.024)
ongoing10	0.015	0.046***	0.047***	0.053***
	(0.018)	(0.016)	(0.017)	(0.018)
future10	0.047*	0.031	0.029	0.056*
	(0.025)	(0.025)	(0.024)	(0.028)
Observations	1,834	1,834	1,833	1,598
R-squared	0.563	0.657	0.661	0.679
Spatial F.E.	✓	✓	✓	✓
Controls	x	✓	✓	✓
Year F.E	x	x	✓	✓
Spatial-by-Year F.E.	x	x	x	✓
Difference in difference [ongoing10-future10]	-0.032	0.015	0.018	-0.003
p-value of F test: ongoing10-future10=0	0.247	0.583	0.501	0.927
Difference in difference [completed10-future10]	-0.211	-0.147	-0.148	-0.166
p-value of F test: completed10-future10=0	0.000	0.000	0.000	0.000

Notes: This table presents difference-in-differences estimates of aid on IPV at the village level. The dependent variable is the mean of a dummy indicating a wife justifies marital violence. $completed10$, $ongoing10$, and $future10$ are dummy variables indicating whether a woman's village had a completed, an ongoing, or a future aid project within 10 km, respectively. The regression controls include the mean of women's household size, the mean of women's age, the percentage of rural women, literacy rate, the percentage of electrified households, the percentage of women who are Christians, the percentage of women's ethnic affiliation, nighttime light intensity, population density, year fixed effects, spatial fixed effects, and spatial-by-year fixed effects. Standard errors (in parentheses) are clustered at the DHS cluster level. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

4.2 Robustness

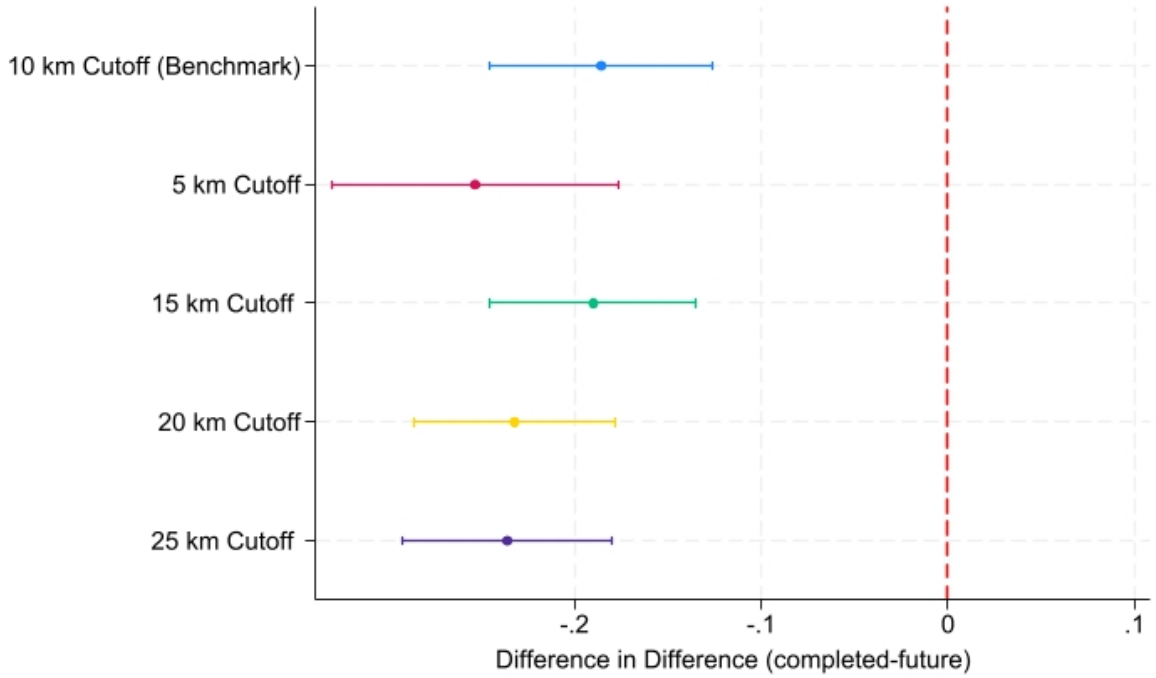
The benchmark results are robust to several robustness checks [10]. We present and discuss each robustness below.

Figure 2 or alternatively Table A1 presents the results of estimations using different geographical cut-offs (5, 10, 15, 20, and 25 kilometers). Results remain strong and significant at the 1% in all cases.

Including areas with no project exposure in comparisons may skew results if future aid is planned for regions with specific pre-existing conditions. To address this concern, we employ an approach, referred to in recent literature as geographical matching (e.g., see Isaksson and Durevall, 2023), where we exclude all women located outside the 15 or 20 km cutoff from aid project sites. The aim is to address unobserved factors that may vary within geographic areas, enhancing comparability among pre-, ongoing-, and post-treatment groups with the no-treatment group. As shown in Figure 3, the estimate

[10] We present the robustness checks for women level estimates.

Figure 2: Robustness to different cutoffs



Notes: Estimated effect with 95 % confidence intervals. The dependent variable is a dummy indicating a wife justifies marital violence. All controls are included and standard errors are clustered at the DHS cluster level. Table A1 provides the equivalent results in table format.

remains robust when excluding areas outside 15 or 20 km cutoff from aid project sites.

Another concern is that we might simply be capturing the effect of having many projects in the area since *completed*, *ongoing* and $future$ are dummies that do not account for the number of projects within the specified cutoff (Isaksson and Durevall, 2023). Specifically, a bias may arise from comparing areas receiving several aid projects ("aid-darling") with those receiving fewer projects ('Orphans') if these areas are systematically different. Thus, to further enhance the comparability of the treatment and control groups, we follow Isaksson and Durevall (2023) and restrict the sample to only areas with at most 10 ongoing, future or completed projects within the 10 km cut-off. We also further limit to areas that have at most five projects or at most one project within the 10 km cut-off. The results are consistent even under this conservative approach, where we further limit to at most 10 projects or at most five projects, or at most one project within the 10 km cut-off.

Furthermore, we reconsider the comparison groups in terms of the time before or after

exposure to the project. The dummies $completed10$ and $future10$ only indicate whether a woman has completed a project or will receive one in the future within 10 km. However, neither reflects how long it has been since a project was completed, nor how long it will be before the woman receives the aid project. This limitation may introduce potential bias if women in areas where aid projects were completed several years ago differ from those in areas slated to receive aid projects many years in the future. To address this potential bias, we replicate the benchmark analysis by restricting the sample to projects completed or planned within a 5 or 2-year window. The results of this analysis are presented in 3, under the labels 'within 5 years' and 'within 2 years.' Reassuringly, the results are robust to restricting the analysis to comparing areas with completed projects and those that will receive projects within 5 or 2 years from the survey date.

The potential for migration bias warrants careful consideration, as migration associated with foreign aid projects may alter household composition and, consequently, influence the outcomes of the analysis. Migration is particularly problematic if the types of households choosing to remain in or migrate from a given area may systematically respond to the introduction of an aid program or its subsequent effects on local economic conditions. Households with specific characteristics might be more likely to migrate toward or away from regions where foreign aid programs are implemented. Such selective migration could distort the sample composition, thereby introducing bias into the estimation of program impacts. To assess the robustness of the findings with respect to migration, we use a DHS question that asks how many years the woman has lived in her current place of residence. Based on this question, we re-estimate our specification by restricting the sample to include only women who have lived in their current location for over 10 years at the time the DHS visits their household. The results are reported in Figure 3 under the label "Migration Accounted," and the estimate is consistent with our benchmark estimates. Though not reported, similar results are obtained if we restrict to women who lived in their current location at least five years or 20 years before the DHS survey.

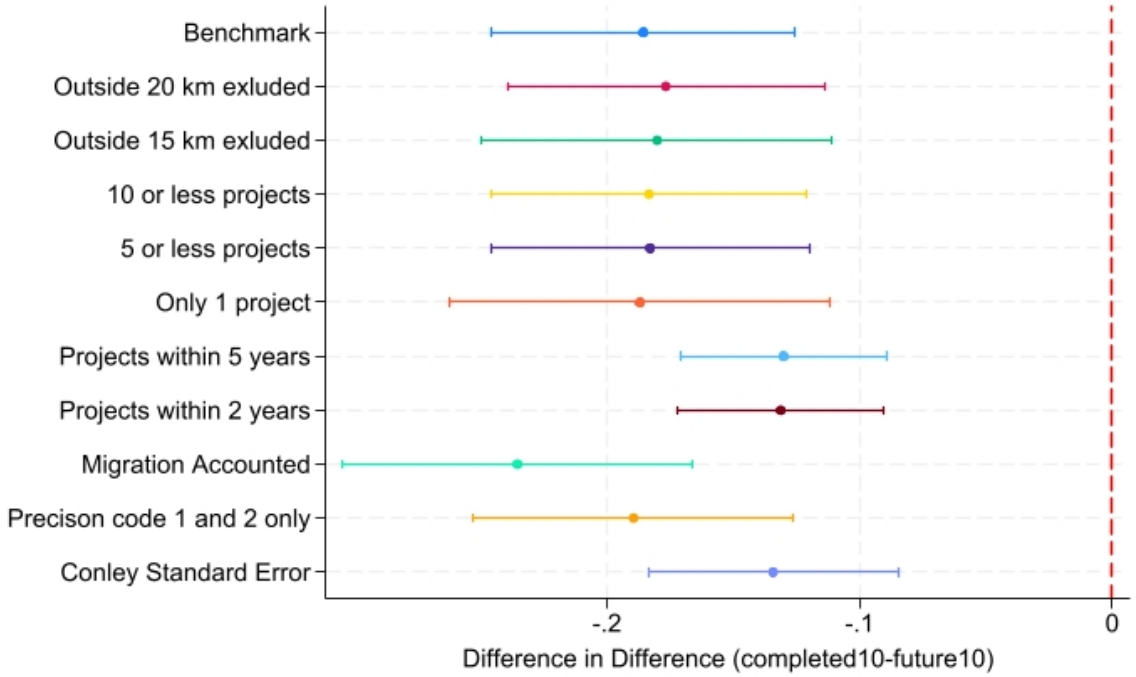
The main results use aid projects coded with 8 location precision levels. We now follow existing research (e.g., Isaksson and Kotsadam, 2018) and restrict the sample to projects with precise locations, specifically to those projects where the coordinates precisely match the location (precision code 1) or/and are known to fall within 25 km of the reported coordinates (precision code 2). The results, shown in Figure 3 under the label 'Precision code 1 and 2 only,' show that the main results are robust to using only

aid projects with exact precision codes.

Figure 3, under the 'Conley S.E.' label, reports results with Conley standard errors. This specification allows for spatially correlated standard errors within a radius of 100 km around each observation. Results remain unaffected [11].

The main analysis uses IPV_{any}, which is a composite measure indicating whether a woman agrees that a husband is justified in beating his wife in at least one of the five cases of abuse. However, there may be heterogeneity in women's attitudes, as some women may disapprove of certain forms of intimate partner violence (IPV) but not others. To explore this possibility, Table A2 reports estimates for each of the five specific forms of IPV. The results show that foreign aid affects all types of IPV, and the estimates are consistent with those obtained using IPV_{any}, suggesting that the overall effect of aid is robust across different forms of IPV.

Figure 3: Further Robustness estimates



Notes: Estimated effect with 95 % confidence intervals. The dependent variable is a dummy (IPV_{any}) indicating a wife justifies marital violence. All controls are included and standard errors are clustered at the DHS cluster level. Table A3 provides the equivalent results in table format.

[11] We computed the Conley standard errors using Stata's *acreg* command by Colella et al. (2023). Changing the distance cutoff to allow for correlated errors within 150 or 200 km does not affect the main results.

4.3 Event Study Estimates

We now employ an event-study approach, with the results presented in Figure 4 and Figure 5 for the women-level and village-level analyses, respectively. By using the difference between DHS interview year and project completion year, we can determine the time before or after a woman's location completes its first project. Using this information, we can compare women who have already completed a project and those who are waiting to start or have a future project. This mimics the differences-in-differences setup of comparing completed with future, but now defines treatment based on time relative to the event, and is similar in spirit to that recently used by Durevall and Isaksson (2024). We include six lags and six leads since our setup allows only for a maximum of 6 leads. To the left are the control groups who are waiting to complete a project, while to the right are the treatment groups who have completed a project.

As shown in Figure 4, the event study estimates show consistent negative effects on IPV for women exposed to completed nearby projects, the effects begin to take effect as soon as the projects are completed. Conversely, there are no significant effects among women who have not yet been exposed to aid projects. Reassuringly, the absence of any effect of aid on IPV for the non-exposed group provides evidence of no significant pre-trends, thus strengthening the interpretation of the difference-in-differences estimates as causal impacts of aid exposure on IPV.

Figure 5 presents the event study estimates at the village level. A similar pattern is observed across these estimates, as seen in the women-level estimates: villages that received the treatment are less likely to justify wife-beating. In contrast, there is no clear trend in the pre-exposure period, as indicated by the insignificant estimates, suggesting that there was no noticeable change in attitudes before the intervention. This suggests that the treatment had an effect on changing attitudes, and the lack of a trend pre-exposure strengthens the argument that the change is attributable to the intervention.

Figure 4: Aid and IPV: Women Level Event Study Estimates

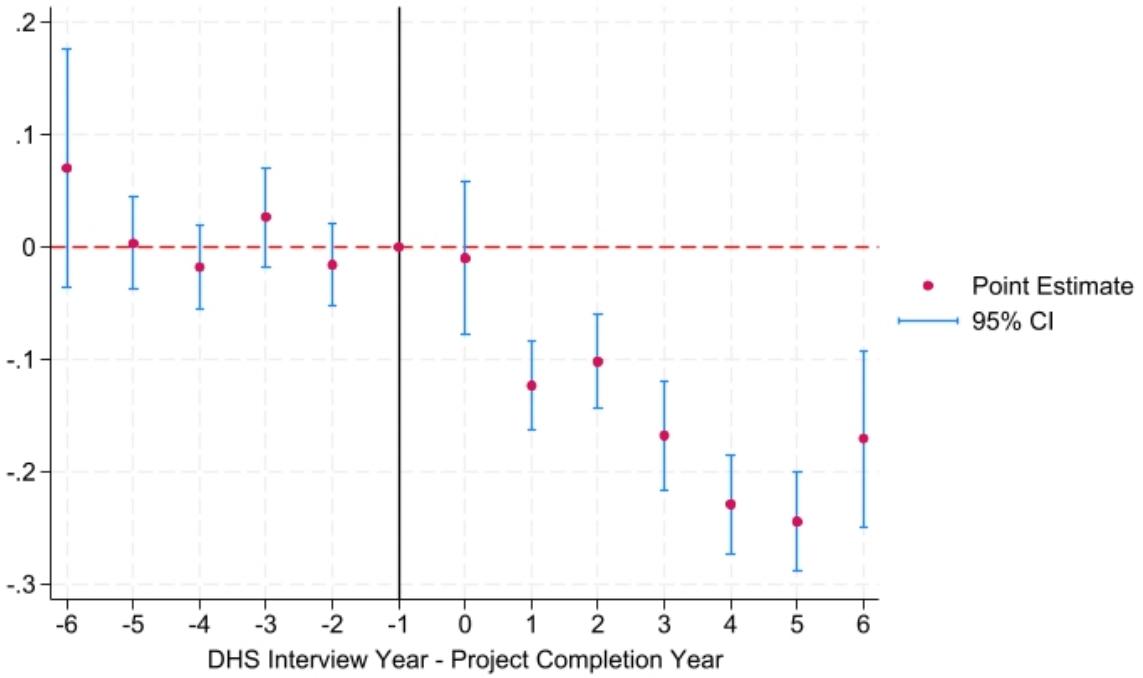


Figure 4 presents women-level event study point estimates with 95% confidence intervals using of Survey year in relation to project implementation year. Estimates are obtained using the 'eventdd' Stata command developed by Clarke and Tapia-Schythe (2021). In addition to the leads and lags, the regression controls for a woman's age (in years), literacy, household size, residence type (rural or urban), whether her house is electrified, as well as her ethnic group, religious affiliation, village-level nighttime light intensity, and population density, year fixed effects, spatial fixed effects, spatial-by- year fixed effects. The sample is 51,768 women as in column 4 of Table 1. Standard errors are clustered at the village level.

Figure 5: Aid and IPV: Village Level Event Study Estimates

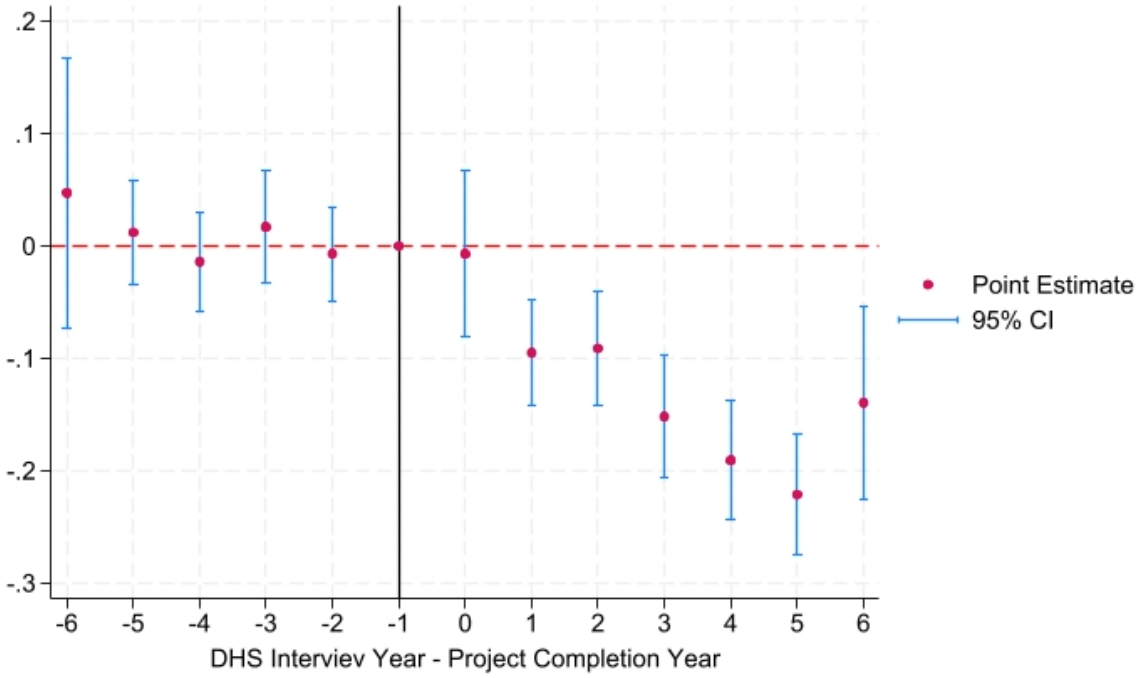


Figure 5 presents village-level event study point estimates with 95% confidence intervals using of Survey year in relation to the project implementation year. Estimates are obtained using the 'eventdd' Stata command developed by Clarke and Tapia-Schythe (2021). In addition to the leads and lags, the regression controls include the mean of women's household size, the mean of women's age, the percentage of rural women, literacy rate, the percentage of electrified households, the percentage of women who are Christians, the percentage of women's ethnic affiliation, nighttime light intensity, population density, year fixed effects, spatial fixed effects, and spatial-by-year fixed effects. The sample is 1,598 as in column 4 of Table 2. Standard errors are clustered at the village level.

4.4 Potential mechanisms

World Bank foreign aid projects encompass a wide range of initiatives, including infrastructure development, education and healthcare programs, agricultural projects, governance and institutional reforms, environmental conservation efforts, and support for private sector development, among others. Given the multifaceted nature of these projects, we expect foreign aid to affect IPV acceptance among women in at least two channels: fostering female education and increasing information access for women.

In a sample of countries included in the DHS, including Ethiopia, Alesina et al. (2021) finds that tolerance for intimate partner violence (IPV) decreases as women's education levels rise. According to Alesina et al. (2021), this suggests that more educated families are subject to less stressful conditions and this makes them less likely to resort to violence. Similar evidence has recently been observed, for example, in India (Chatterjee and Poddar, 2024) and Bangladesh (Sara and Priyanka, 2023), where women's education is linked to reduced acceptance of IPV, possibly through enhanced cognitive function, enabling them to think critically, question their circumstances, and acquire new information.

Exposure to new information, particularly through access to cable television, has been linked to significant reductions in the reported acceptability of domestic violence toward women in regions such as India Jensen and Oster (2009). A similar pattern is observed in Sub-Saharan Africa, where access to information—specifically through television— is negative associated with IPV acceptance (La Ferrara, 2016).

Foreign aid projects are social and infrastructural investments, and thus may increase women's educational attainment and/or expand their access to information, thereby reducing IPV acceptance and shaping their gender norms. To provide evidence on these underlying mechanisms, we undertake two exercises. Firstly, we present the effects of overall aid on women's education and their access to information, as shown in Table 3. Secondly, we utilize the results from our keyword searches, as outlined in the aid section, to demonstrate how projects with different target purposes influence IPV acceptance.

Table 3 presents the results of difference-in-differences estimates for education and information channels. Column 1 of Table 3 reports estimates of the effect of foreign aid programs on female education attained – measured in years of education completed. The results in column 1 imply that foreign aid can reduce women's acceptance of IPV by increasing their level of education. The estimates on the information channel are reported

in column 2 of Table 3. To capture the information channel, we follow La Ferrara (2016) and use a DHS question to indicate that a woman has access to information if she watches television at least once a week and 0 otherwise[12]. The result suggests that foreign aid exposure improves their access to information. This increased access to information exposes women to narratives and social discourse that challenge traditional norms supporting IPV, thereby reducing women's acceptance of IPV.

It is important to note that, as in the case of the effect of aid on IPV acceptance, it is completed projects that improve female education and access to information. These findings suggest that while ongoing projects may not directly impact IPV norms, completed education projects have the time and structure necessary to influence social norms and behaviors. Indeed, projects such as human Development initiatives need to be completed to have a visible impact on attitudes. Similarly, it takes time for projects that expand access such as through television, and other media platforms to create opportunities for a society, or for women in particular, to engage with diverse content.

Thus far, the results show that exposure to foreign aid reduces women's acceptance of IPV by increasing their level of education and their access to information. Next, we evaluate the impact of specific aid interventions. We thus turn to our information on a keyword search within the project activity descriptions in AidData's project descriptions. Specifically, we interact the identified project purpose with the treatment indicator.

Table 4 provides the results of difference-in-differences estimates, examining the effects of aid projects based on their specific purposes. The analysis is divided into three key areas: intimate partner violence (IPV), women's education, and access to information, as reported in Columns 1, 2, and 3, respectively. Column 1 highlights a significant effect of gender-targeted aid projects on reducing IPV acceptance. Specifically, women exposed to these projects are 26.8 percentage points less likely to justify IPV compared to otherwise similar women who were not exposed. This finding underscores the critical role of targeted interventions in shifting societal attitudes and reducing the tolerance of violence against women.

Estimates in Column 2 of Table 4 indicate that exposure to gender-targeted aid projects significantly improves women's education levels. In this context, the improvement in education emerges as a key channel through which aid projects influence atti-

[12]As in La Ferrara (2016), we use a DHS question on the frequency of women's television watching. The response options include "almost every day," "at least once a week," "less than once a week," or "not at all." Based on these responses, access to information is a dummy that takes a value of 1 if the woman watches TV at least once a week and 0 otherwise.

Table 3: Testing the education and information channels

	(1) Women's education	(2) Access to information
completed10	0.542***	0.061***
	(0.098)	(0.018)
ongoing10	0.033	-0.015
	(0.083)	(0.016)
future10	-0.383***	-0.088***
	(0.087)	(0.021)
Observations	51,768	51,768
R-squared	0.760	0.551
Spatial F.E.	✓	✓
Year F.E	✓	✓
Controls	✓	✓
Spatial-by-Year F.E.	✓	✓
Difference in difference [ongoing10-future10]	0.415	0.074
p-value of F test: ongoing10-future10=0	0.000	0.002
Difference in difference [completed10-future10]	0.925	0.150
p-value of F test: completed10-future10=0	0.000	0.000

Notes: This table presents the results of difference-in-differences estimates. The specification is equivalent to column (4) of Table 1. In column (1) the dependent variable is years of education completed. In column (2) the dependent variable is a binary variable that takes on value 1 if the woman watches TV at least once a week and 0 otherwise. *completed*10, *ongoing*10, and $future10$ are dummy variables indicating whether a woman had a completed, an ongoing, or a future aid project within 10 km of the woman's residence, respectively. Controls include a woman's age (in years), literacy, household size, residence type (rural or urban), whether her house is electrified, as well as her ethnic group, religious affiliation, village-level nighttime light intensity, and population density. Estimates also include year and Woredas spatial fixed effects. Standard errors (in parentheses) are clustered at the DHS cluster level. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

tudes toward intimate partner violence (IPV).

On the other hand, Column 3 provides limited evidence that gender-targeted aid projects significantly enhance women's access to information. However, the difference observed between 'Completed 10' and 'Future 10' at the bottom of Column 2 shows that, overall, aid projects do have a significant positive effect on access to information. While it appears that gender-targeted aid may not have as strong an influence on access to information, it still serves as a broader mechanism through which aid projects affect IPV acceptance.

We observe that gendered projects significantly influence IPV acceptance. The World Bank invests in human development—including health, education, and social protection—to promote gender equality (Bank, 2011). Similarly, the World Bank supports agricultural aid projects with the assumption that they enhance agricultural produc-

Table 4: Heterogeneity by Project Purpose

	Project purpose						
		Gendered		Human Develop.	Agriculture	Soc. Infrast.	Transport
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Dependent Variable						
	IPV	Education	Information	IPV	IPV	IPV	IPV
completed10	-0.126***	0.478***	0.085***	-0.116***	-0.093***	-0.114***	-0.149***
	(0.024)	(0.000)	(0.019)	(0.027)	(0.023)	(0.022)	(0.026)
Project purpose	-0.073	-0.186	-0.016	0.037	-0.073	-0.074	0.063
	(0.045)	(0.145)	(0.028)	(0.047)	(0.045)	(0.045)	(0.046)
completed10 x Gendered	-0.211***	0.527**	-0.018				
	(0.058)	(0.234)	(0.044)				
completed10 x Human Dev.				-0.109**			
				(0.056)			
completed10 x Agri					-0.266***		
					(0.057)		
completed10 x social infrastr.						-0.301***	
						(0.063)	
completed10 x transport							-0.029
							(0.054)
ongoing10	0.049***	0.033	-0.014	0.048***	0.052***	0.052***	0.050***
	(0.017)	(0.083)	(0.016)	(0.017)	(0.017)	(0.017)	(0.017)
future10	0.057**	-0.389***	-0.086***	0.058**	0.049**	0.058**	0.055**
	(0.023)	(0.087)	(0.021)	(0.023)	(0.024)	(0.023)	(0.023)
Observations	51,768	51,768	51,768	51,768	51,768	51,768	51,768
R-squared	0.215	0.760	0.551	0.215	0.215	0.215	0.215
Spatial F.E.	✓	✓	✓	✓	✓	✓	✓
Year F.E	✓	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓	✓
Spatial-by-Year F.E.	✓	✓	✓	✓	✓	✓	✓
Difference in difference [ongoing10-future10]	-0.00785	0.422	0.0719	-0.00968	0.00282	-0.00617	-0.00517
p value of F test: ongoing10-future10=0	0.748	0.000	0.00274	0.692	0.911	0.801	0.834
Difference in difference [completed10-future10]	-0.183	0.866	0.171	-0.173	-0.142	-0.171	-0.205
p value of F test: completed10-future10=0	0.000	0.000	0.000	0.006	0.000	0.000	0.000
Difference in difference [(completed10 x Project Purpose)-future10]	-0.268	0.915	0.0684	-0.167	-0.315	-0.359	-0.0843
p value of F test: completed10-future10=0	0.000	0.000	0.163	0.000	0.000	0.000	0.147

Notes: This table presents the results of difference-in-differences estimates by aid project purpose. The specification is equivalent to column (4) of Table 1. $completed10$, $ongoing10$, and $future10$ are dummy variables indicating whether a woman had a completed, an ongoing , or a future aid project within 10 km of the woman's residence, respectively. Controls include a woman's age (in years), literacy, household size, residence type (rural or urban), whether her house is electrified, as well as her ethnic group, religious affiliation, village-level nighttime light intensity, and population density. Standard errors (in parentheses) are clustered at the DHS cluster level. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

tivity, increase marketed output and household incomes, and improve women's social and economic participation in decisions related to farm production and food allocation (Bank, 2007). Furthermore, the World Bank advocates for gender-responsive transportation systems, emphasizing that efforts to improve the quality of life for women and girls by providing new medical facilities, schools, and employment opportunities will be ineffective if they lack access to reliable transportation to reach these facilities (Dominguez Gonzalez et al., 2022).

We thus turn to our information on keyword searches described earlier to provide estimates for World Bank aid projects focused on human development, agriculture, social infrastructure, and transport. Table 4 indicates that projects with purposes of human development (column 4), agriculture (column 5), and social infrastructure (column 6) reduce IPV acceptance. However, there is little evidence that transport projects significantly influence gender norms. As shown in Table A4, while the other categories contain a significant portion of gender-targeting elements, transport projects include such elements in only about 10 percent of cases. This limited focus on gender may explain

why transport projects have no significant impact on IPV acceptance, as only a small proportion are explicitly designed to address gender-related issues.

Overall, the results suggest direct and indirect channels through which aid projects influence gender norms. Firstly, aid in general reduces IPV acceptance. Female education and access to information emerge are the pathways through which foreign aid projects reduce IPV. Secondly, aid projects targeting women have a significant impact on shaping IPV norms. Thirdly, gender-targeted aid projects are effective in reducing IPV by improving women's education. Fourthly, overall aid, not specifically gender-targeted aid, enhances access to information. Thus, access to information seems to act more as a general mechanism through which aid projects influence IPV acceptance. Finally, the significant effects of projects with purposes such as agriculture imply changes in gender norms may also be indirectly influenced by the broader transformations driven by foreign aid. These improvements, in turn, may contribute to a reduction in the acceptance of IPV. Therefore, the results generally suggest that these broader shifts may work in tandem with direct channels to reduce IPV, highlighting the complementary nature of direct and indirect mechanisms in addressing IPV.

4.5 Heterogeneity in effects by women's ethnicity

Finally, we consider heterogeneity by ethnicity. Ethiopia is a multi-ethnic country, with each ethnic group boasting its own unique cultural heritage and historical background, which in turn may impact gender norms such as early marriage in Ethiopia (McGavock, 2021). Among these, the Amhara and Tigray communities stand out for their deep-rooted history in plow-based agriculture. In contrast, ethnic groups such as the Afar and Somali predominantly engage in pastoralism, a lifestyle that differs markedly from agriculture. These historical differences in livelihoods—farming for some and herding for others—lead to variations in societal norms and behaviors (Alesina et al., 2013; Michalopoulos et al., 2019). According to Alesina et al. (2013), for instance, traditional plough use may foster less equal gender norms within these societies, attributed to its labor distribution and societal roles. Michalopoulos et al. (2019) highlight that such differences extend to behavioral traits, attitudes towards violence, and perspectives on gender roles. For instance, the mobile nature of pastoralism often necessitates heightened vigilance and a readiness to resort to force as a means of protecting livestock. Conversely, agricultural communities, with their settled and long-term living arrangements, are in-

clined to cultivate cooperative cultures that emphasize collective well-being.

Important for this study, ethnic groups in Ethiopia tend to be spatially clustered, as are the aid projects we study. The Amhara and Tigray ethnic groups, for example, predominantly reside in Northern Ethiopia, the Somali and Afar communities are found in the eastern regions, while the Oromo predominantly occupy central Ethiopia. This geographical clustering not only reflects cultural and historical ties but also correlates with variations in the distribution of aid projects. Our analysis reveals that the number of women living around aid projects varies significantly among ethnic groups, with 2,916 from the Afar ethnic group, 7,199 from the Amhara ethnic group, 7,398 from the Oromo ethnic group, 2,640 from the Somali ethnic group, and 5,847 from the Tigray ethnic group.

We thus consider heterogeneity in the impact of aid by ancestral ethnicity. Table A4 presents estimates separately for women belonging to ethnic groups that historically used the plow (Column 1), and those that did not use the plow (Column 2). This analysis offers a clearer understanding of where aid projects are most effective and which ethnic groups benefit the most. Our results suggest that women from ethnic groups with a history of plow use experience larger benefits from aid projects compared to women from ethnic groups with no historic plow use.

Michalopoulos et al. (2019) documents that women from ethnic groups with a greater ancestral reliance on agriculture, as opposed to a lifeway centered on animal husbandry, are significantly less likely to accept the justification for beating one's wife. Following this, Table A4 presents estimates separately for women whose ancestors were predominantly agriculturalists (Column 3) and those whose ancestors were predominantly pastoralists (Column 4). The results show that women from ethnicities whose ancestors derived a larger share of subsistence from agriculture experience larger benefits from aid projects compared to women from ethnic groups whose ancestors were predominantly pastoralists.

5 Conclusion

This paper investigates the impact of foreign aid on IPV in Ethiopia. By combining DHS data from four rounds, encompassing over 50,000 women, with information on foreign aid to Ethiopia from 1995 to 2014, we aim to identify the causal relationship through the spatio-temporal heterogeneity in treatment adoption.

The empirical findings show that World Bank aid projects shape women's attitudes toward IPV acceptance. In the most conservative case, we find that exposure to completed foreign aid reduces women's acceptance of IPV by 18.6 percentage points. We also find evidence that aid projects improve women's education and enhances their access to information. Moreover, the effects on IPV acceptance are more pronounced for gender-targeted projects. Furthermore, projects aimed at human development, agriculture, and social infrastructure purposes reduce IPV acceptance. However, little evidence suggests that transport projects significantly influence gender norms. As described in the data section later, one possible explanation is that only a small proportion of transport projects are explicitly designed to address gender-related issues, whereas the former types of projects often incorporate significant gender dimensions in their objectives. Our results highlight the importance of foreign aid as a mechanism for information dissemination, empowering women with the knowledge necessary to alter perceptions and attitudes towards gender norms, thereby diminishing the justification of marital violence.

The study reveals foreign aid's multifaceted role, extending beyond just financial support. It serves as a catalyst for positive change by addressing the economic factors and societal attitudes that contribute to IPV. These findings are crucial for policymakers and aid organizations, underscoring the importance of comprehensive strategies for developing and implementing interventions aimed at reducing intimate partner violence.

The research advocates for specific interventions targeting the socio-economic factors of IPV, highlighting foreign aid's role not merely as a financial asset but as an agent of societal change. This work lays the groundwork for future global policy initiatives against intimate partner violence, advocating for integrated strategies that combine economic empowerment with the spread of information.

Data Availability

The authors do not have permission to share the data from DHS surveys. However, replication files are available upon reasonable request to the authors.

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Appendix

Table A1: Summary statistics

		(1)	(2)	(3)	(4)	(5)
	Variable	N	mean	sd	min	max
Panel A:						
Dependent Variables:	IPVa	56,312	0.479	0.499	0	1
	IPVb	56,366	0.536	0.499	0	1
	IPVc	56,208	0.476	0.499	0	1
	IPVd	55,065	0.394	0.488	0	1
	IPVe	56,065	0.465	0.498	0	1
	IPV_{Any}	56,180	0.698	0.459	0	1
Panel B:						
Ongoing aid projects:	ongoing5	56,904	0.258	0.438	0	1
	ongoing10	56,904	0.399	0.490	0	1
	ongoing15	56,904	0.521	0.499	0	1
	ongoing20	56,904	0.624	0.484	0	1
	ongoing25	56,904	0.721	0.448	0	1
	ongoing30	56,904	0.787	0.409	0	1
Panel C:						
Completed aid projects:	completed5	56,904	0.049	0.216	0	1
	completed10	56,904	0.076	0.265	0	1
	completed15	56,904	0.113	0.317	0	1
	completed20	56,904	0.101	0.300	0	1
	completed25	56,904	0.130	0.336	0	1
	completed30	56,904	0.136	0.343	0	1
Panel D:						
Future aid projects:	future5	56,904	0.017	0.129	0	1
	future10	56,904	0.040	0.197	0	1
	future15	56,904	0.067	0.250	0	1
	future20	56,904	0.066	0.249	0	1
	future25	56,904	0.056	0.230	0	1
	future30	56,904	0.058	0.234	0	1
Panel E:						
Controls:	Age	56,904	27.93	9.379	15	49
	Household Size	56,904	5.709	2.547	1	21
	Education (Years)	56,904	2.916	4.254	0	22

Religion					
Christian	35,958	63.60			
Muslim	19,826	35.07			
Traditional	755	1.34			
Literacy					
Able to read whole sentence	15,521	27.27			
Able to read parts of sentence	5,079	8.93			
Cannot read at all	35,232	61.91			
No card with required language	1072	1.89			
Ethnicity					
Amhara	56,904	0.265	0.441	0	1
Oromo	56,904	0.231	0.421	0	1
Afar	56,904	0.056	0.229	0	1
Guragie	56,904	0.049	0.215	0	1
Tigre	56,904	0.109	0.312	0	1
Somali	56,904	0.061	0.239	0	1
Sidama	56,904	0.025	0.157	0	1
Welayta	56,904	0.020	0.157	0	1
Other	56,904	0.185	0.388	0	1
Socio-Economics					
Nightlight exposure	56,904	2.237	5.425	0	28.95
Population density	55,452	1857,06	4900.74	1.01	35114.24
Electricity	55,216	0.302	0.459	0	1

Notes: See Table A2 for the description of the dependent variables by survey year.

Table A2: Description of Dependent variables by survey year

	2000		2005		2011		2016	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Woman justifies beating if wife								
goes out without telling husband (IPV_a)	0.529	0.500	0.591	0.492	0.430	0.495	0.382	0.486
neglects the children (IPV_b)	0.616	0.487	0.609	0.488	0.507	0.500	0.426	0.494
argues with husband (IPV_c)	0.561	0.496	0.532	0.499	0.447	0.497	0.377	0.484
refuses to have sex with husband (IPV_d)	0.472	0.499	0.406	0.491	0.380	0.485	0.323	0.468
burns the food (IPV_e)	0.582	0.493	0.520	0.500	0.433	0.496	0.337	0.473
does any of the above (IPV_{any})	0.807	0.394	0.773	0.419	0.661	0.473	0.566	0.496

Table A3: Distribution of aid projects by sectors

Sector	**Number of projects**	**Freq.**
Agriculture and Forestry	205	17.36
Banking	12	1.02
Communications	78	6.60
Education	31	2.62
Energy generation and supply	19	1.61
Government and Civil Society	442	37.43
Health	10	0.85
Industry	41	3.47
Social infrastructure	136	11.52
Trade policy and regulations	9	0.76
Transport	42	3.56
Total	*1181*	*100.00*

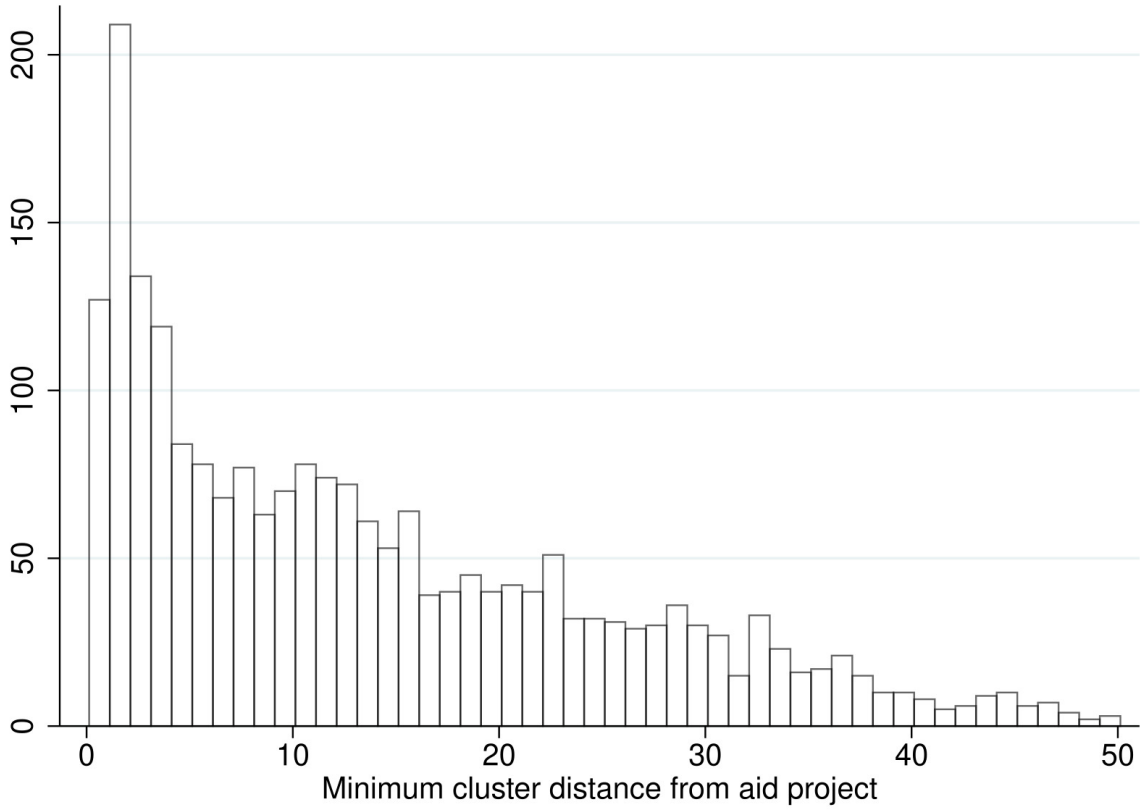
The table presents the distribution of aid projects as per AidData's sector coding schemes.

Table A4: Distribution of aid projects by Purpose

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Human Development		*Agriculture*		*Social Infrastructure*		*Transport*	
		Projects	Disbursement	Projects	Disbursement	Projects	Disbursement	Projects	Disbursement
In Purpose	Not Gendered	392	2,946	339	3,055	197	2,088	479	2,169
	Gendered	107 (27.3%)	1,410 (47.9%)	124 (36.6%)	1,290 (42.2%)	192 (97.5%)	1,981 (94.9%)	52 (10.9%)	0,326 (15%)
Not in Purpose		789	3, 672	842	3,563	984	4,530	702	4,449
Total		1,181	6,618	1,181	6,618	1,181	6,618	1,181	6,618

Notes: Gendered refers to projects that explicitly mention 'gender' and 'empowerment' and thus include elements that specifically target women. In the overall sample of 1,181 projects, 342 projects (29 percent) are gendered projects. Gender-focused projects amount to 2.751 billion, while non-gender-focused projects amount to 3.867 billion. The number of projects and the corresponding disbursements are categorized as either 'in purpose' or 'not in purpose.' Taking the example of human development projects, 'in purpose' refers to projects directly aligned with human development objectives, further divided into gender-focused and non-gender-focused projects. On the other hand, 'not in purpose' includes all projects not classified under human development.

Figure 6: Distribution of woman's household clusters from closest aid project



Notes: Counts of DHS clusters on the vertical axis. Distance in km on the horizontal axis.

Table A1: Aid Exposure & IPV acceptance: Robustness to different distance cutoffs

	(1) Benchmark (10 km cutoff)	(2) 5 km cutoff	(3) 15 km cutoff	(4) 20 km cutoff	(5) 25 km cutoff
completed10	-0.129***				
	(0.021)				
ongoing10	0.049***				
	(0.017)				
future10	0.056**				
	(0.023)				
completed5		-0.174***			
		(0.030)			
ongoing5		0.062***			
		(0.024)			
future5		0.089***			
		(0.028)			
completed15			-0.107***		
			(0.018)		
ongoing15			0.052***		
			(0.017)		
future15			0.089***		
			(0.020)		
completed20				-0.123***	
				(0.016)	
ongoing20				0.071***	
				(0.017)	
future20				0.111***	
				(0.020)	
completed25					-0.112***
					(0.015)
ongoing25					0.061***
					(0.018)
future25					0.126***
					(0.022)
Observations	51,768	43,590	41,203	40,669	40,306
R-squared	0.214	0.180	0.149	0.145	0.146
Spatial F.E.	✓	✓	✓	✓	✓
Year F.E	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓
Spatial-by-Year F.E.	✓	✓	✓	✓	✓
Difference in difference [ongoing-future]	-0.008	-0.027	-0.037	-0.039	-0.065
p value of F test: ongoing-future=0	0.751	0.428	0.060	0.025	0.000
Difference in difference [completed-future]	-0.186	-0.262	-0.195	-0.234	-0.237
p value of F test: completed-future=0	0.000	0.000	0.000	0.000	0.000

Notes: This table presents women level difference-in-differences estimates of aid on IPV for different geographic cutoffs (5, 10, 15, 20 and 25 kilometers). The dependent variable is the dummy of IPV. *completed*, *ongoing*, and $future$ are dummy variables indicating whether a woman had a completed, an ongoing , or a future aid project within the shown radii of the woman's residence, respectively. Controls include a woman's age (in years), literacy, household size, residence type (rural or urban), whether her house is electrified, as well as her ethnic group, religious affiliation, village-level nighttime light intensity, and population density. The sample include women in areas with at most 10 ongoing, future or completed project within the 10 km cut-off. Standard errors (in parentheses) are clustered at the DHS cluster level. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Table A2: Aid Exposure & IPV acceptance: Alternative IPVs

VARIABLES	(1) IPV_Any	(2) IPVa	(3) IPVb	(4) IPVc	(5) IPVd	(6) IPVe
completed10	-0.129***	-0.093***	-0.093***	-0.091***	-0.040**	-0.099***
	(0.021)	(0.020)	(0.019)	(0.018)	(0.020)	(0.019)
ongoing10	0.049***	0.039**	0.041**	0.030*	-0.002	0.029
	(0.017)	(0.017)	(0.019)	(0.018)	(0.017)	(0.020)
future10	0.056**	0.077***	0.071***	0.083***	0.060**	0.091***
	(0.023)	(0.026)	(0.027)	(0.028)	(0.026)	(0.026)
Observations	51,768	51,888	51,930	51,787	50,759	51,956
R-squared	0.214	0.179	0.153	0.195	0.207	0.225
Spatial F.E.	✓	✓	✓	✓	✓	✓
Year F.E	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓
Spatial-by-Year F.E.	✓	✓	✓	✓	✓	✓
Difference in difference [ongoing10-future10]	-0.008	-0.038	-0.030	-0.053	-0.062	-0.062
p value of F test: ongoing10-future10=0	0.751	0.170	0.269	0.057	0.016	0.025
Difference in difference [completed10-future10]	-0.186	-0.169	-0.164	-0.174	-0.100	-0.189
p value of F test: completed10-future10=0	0.000	0.000	0.000	0.000	0.002	0.000

Notes: This table presents women level difference-in-differences estimates of aid on IPV for alternative measures of IPV. The dependent variable is a dummy of whether the woman justifies being beaten by her husband for the following reason: 'going out without telling her husband' (IPVa); 'neglecting children' (IPVb); 'arguing with husband' (IPVc); 'refusing to have sex with husband' (IPVd);'burning food' (IPVe); any of the above (IPV_any). *completed*10, *ongoing*10, and $future10$ are dummy variables indicating whether a woman had a completed, an ongoing , or a future aid project within 10 km of the woman's residence, respectively. Controls include a woman's age (in years), literacy, household size, residence type (rural or urban), whether her house is electrified, as well as her ethnic group, religious affiliation, village-level nighttime light intensity, and population density. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Table A3: Aid Exposure & IPV acceptance: Robustness Checks

	(1) Benchmark	(2) Outside 20 km excluded	(3) Outside 15 km excluded	(4) 10 or less projects	(5) 5 or less projects	(6) Only 1 project	(7) Projects within 5 years	(8) Projects within 2 years	(9) Migration Accounted	(10) Precison code 1 and 2 only	(11) Conley Standard Error
completed10	-0.129***	-0.128***	-0.128***	-0.126***	-0.123***	-0.151***	-0.130***	-0.131***	-0.183***	-0.130***	-0.134***
	(0.021)	(0.021)	(0.021)	(0.022)	(0.023)	(0.039)	(0.021)	(0.021)	(0.026)	(0.024)	(0.025)
ongoing10	0.049***	0.041**	0.041**	0.046**	0.049***	-0.036	0.045***	0.043***	0.091***	0.046**	0.042**
	(0.017)	(0.018)	(0.020)	(0.018)	(0.019)	(0.033)	(0.017)	(0.016)	(0.021)	(0.019)	(0.019)
future10	0.056**	0.049*	0.052*	0.058**	0.060**		0.042	0.053	0.053**	0.060**	0.037
	(0.023)	(0.025)	(0.029)	(0.023)	(0.023)		(0.026)	(0.043)	(0.027)	(0.023)	(0.023)
Observations	51,768	36,872	31,492	41,992	39,629	5,496	51,768	51,768	30,419	35,608	51,768
R-squared	0.214	0.235	0.237	0.156	0.148	0.206	0.214	0.214	0.229	0.158	0.202
Spatial F.E.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year F.E	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Controls	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Spatial-by-Year F.E.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Difference in difference [ongoing10-future10]	-0.008	-0.008	-0.011	-0.012	-0.011	-0.036	0.003	-0.010	0.039	-0.014	0.005
p value of F test: ongoing10-future10=0	0.751	0.759	0.680	0.633	0.669	0.277	0.909	0.815	0.169	0.572	0.842
Difference in difference [completed10-future10]	-0.186	-0.177	-0.180	-0.183	-0.183	-0.151	-0.172	-0.184	-0.235	-0.190	-0.171
p value of F test: completed10-future10=0	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Notes: This table presents the results of several robustness on women level difference-in-differences estimates of aid on IPV. The results are equivalent to the results represented in Figure 3. The dependent variable is a dummy (IPV_{any}) indicating a wife justifies marital violence. *completed*10, *ongoing*10, and *future*10 are dummy variables indicating whether a woman had a completed, an ongoing , or a future aid project within 10 km of the woman's residence, respectively. Controls include a woman's age (in years), literacy, household size, residence type (rural or urban), whether her house is electrified, as well as her ethnic group, religious affiliation, village-level nighttime light intensity, and population density. The sample include women in areas with at most 10 ongoing, future or completed project within the 10 km cut-off. Standard errors (in parentheses) are clustered at the DHS cluster level. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Table A4: Aid Exposure & IPV acceptance: Heterogeneity by Woman's ethnic group

	(1)	(2)	(3)	(4)
	(Plower)	*(Non-plower)*	*(Agriculturalist)*	*(Pastoralist)*
completed10	-0.190***	-0.100***	-0.157***	-0.102***
	(0.030)	(0.024)	(0.028)	(0.029)
ongoing10	0.104***	0.022	0.053**	0.033
	(0.033)	(0.019)	(0.025)	(0.022)
future10	0.077**	0.052*	0.019	0.060
	(0.037)	(0.027)	(0.031)	(0.036)
Observations	14,835	36,823	25,606	24,361
R-squared	0.278	0.197	0.239	0.203
Spatial F.E.	✓	✓	✓	✓
Year F.E	✓	✓	✓	✓
Controls	✓	✓	✓	✓
Spatial-by-Year F.E.	✓	✓	✓	✓
Difference in difference [ongoing10-future10]	0.026	-0.030	0.034	-0.027
p value of F test: ongoing10-future10=0	0.464	0.313	0.309	0.452
Difference in difference [completed10-future10]	-0.268	-0.152	-0.176	-0.162
p value of F test: completed10-future10=0	0.000	0.000	0.000	0.000

Notes: This table presents women level difference-in-differences estimates of aid on IPV. The dependent variable is a dummy (IPV_{any}) indicating a wife justifies marital violence. The dependent variable in columns (1-4) is our measure of IPV. The analysis in column (1) is restricted to the subsample of women belonging to ethnic groups that historically used the plow, column (2) to those that did not use the plow, column (3) to those whose ancestors were predominantly agriculturalists, and finally column (4) to those whose ancestors were predominantly pastoralists. $completed10$, $ongoing10$, and $future10$ are dummy variables indicating whether a woman had a completed, an ongoing , or a future aid project within 10 km of the woman's residence, respectively. Controls include a woman's age (in years), literacy, household size, residence type (rural or urban), whether her house is electrified, as well as her ethnic group, religious affiliation, village-level nighttime light intensity, and population density. Standard errors (in parentheses) are clustered at the DHS cluster level. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.