Supplementary Materials
(For Online Publication Only)

Work Incentives, Earnings and Domestic Violence: Evidence from Sub-Saharan Africa

Tsenguunjav Byambasuren and Anh Phuoc Thien Nguyen

July 29, 2025

This supplementary material presents further details on the data by describing additional outcomes and demographic and environmental controls (Appendix A) and provides additional figures and tables with more results (Appendix B).

A Data Appendix

In Section 3, we defined our primary outcome variables for different forms of intimate partner violence with different frequencies. This appendix describes our secondary outcomes and demographic and environmental or cell-level characteristics included in our regressions.

A.1 Secondary Outcomes

In this section, we provide details about our secondary outcomes, including various measures of women's intrahousehold bargaining power, individual's gender- and industry-specific employment, household wealth, women's attitudes to intimate partner violence, women's access to health care, and migration.

Woman's Intrahousehold Bargaining Power. The DHS asks women to evaluate their involvement in the household decision-making process throughout several domains, specifically whether she has the final say on (a) spending her own money, (b) her health care, (c) making large purchases, (d) making daily purchases, (e) making family visits, (f) deciding what to cook daily, and (g) spending her husband's money (variable 739 and 743a-743f). We construct a dummy equal to one if she makes a decision by herself or jointly with her husband/partner/someone else. We then calculate an aggregate index for this dimension as a simple average of these dummies. As the questions are not consistently asked throughout the country-year rounds, following Benshaul-Tolonen (2024), we compute another aggregate index using the three most commonly asked domains in the DHS: deciding her own health care, making large purchases, and making family visits.

Labor Supply. The focus is employment outcomes among ever-married and 15 and 49-year-old women. We also look at labor supply by husbands or partners to examine the employment impact of artisanal mining heterogeneous by gender. Quantifying relative changes in employment and earning potential between wives and husbands in response to the ASgM shock is crucial in understanding the impact of ASgM on intimate partner violence because it depends on changes in the wife's employment opportunity relative to her husband or partner. The DHS data set is suitable for this purpose as the data provide information on the status of current employment or employment in the last twelve months for the woman and her husband or partner. The data report the woman's and her husband's activity status in different sectors, such as agriculture, extractive or mining, services, and sales or retail. Although we denote an individual's extractive activities as employment in mining, an individual might not be involved in an employment relation with an employer but just self-employed and directly earn from the sales of gold extracted.

First, we extract the woman's current employment status[28] from variable 714 and her employ-

[28] While we acknowledge that a boom in local mining activities could induce one to work harder and work for longer hours (i.e., intensive margin), due to the data availability in the DHS, our employment measure can only capture a snapshot of labor allocation across the sector (i.e., extensive margin).

ment status in the past twelve months from variable 731 and define a dummy variable that takes a value of one if the woman is currently employed or employed in the past year, 0 otherwise. For men, we use variable 705, which reports the industry of the husband's current or most recent employment over the past twelve months, to define a dummy variable similar to a variable constructed for women above. We then combine these two variables for men and women to define a dummy variable of overall employment, indicating whether the wife or husband is currently employed or has been employed over the past twelve months. Second, we use a grouped or aggregate classification of industries in which the woman and her husband or partner work (currently or worked in the last twelve months) captured in variables 717 and 705 to create three dummy variables indicating whether the individual works in the agriculture, services or trade sector. Information on the industry in which the respondent and her husband or partner work enable us to examine the structural change, i.e., whether there is any shift of employment across sectors in response to ASgM shock. In this classification, we consider that the non-agriculture industry captures mining and its associated industries. According to the Dutch disease hypothesis, the rapid development in the mining industry leads to the transition of resources such as labor from non-mining to mining, i.e., from agriculture to non-agriculture. Third, we use a detailed classification of industries in which the woman and her husband or partner work (currently and worked in the last year) captured in variables 716 and 704. Using detailed industry classifications, we manually define two dummy variables indicating whether the respondent and her husband or partner work in the extractive sector. It is worth noting that the detailed industries that we used to define the extractive industry are not entirely consistent across DHS rounds and countries.[29] However, indicators of male and female employment in the extractive sector enable us to look deeper than the non-agriculture sector. However, a change in aggregate demand due to the ASgM shock can positively affect the labor supply in non-mining industries, especially in the services and trade sectors.

Household Wealth. To examine how artisanal gold mining (ASgM) induced by changes in international gold prices affects the living standards of households, we estimate the impact of the ASgM on household wealth. The DHS provides information on the household wealth index (variable 191), which is generated based on asset information from the Household Questionnaire, where each household asset is given a factor score calculated from the principal component analysis. To make it comparable across countries, we standardize the wealth index by country and year. In addition, the DHS provides information on the household wealth index (variable 190) grouped into three categories rather than household income: low wealth or low income (the lowest 40% of households), middle wealth or middle income (the middle 40% of households), and high wealth or high income (the top 20% of households).

In addition to the domestic violence outcomes in the baseline analysis, we explore another as-

[29]For example, we consider the following different occupations in different DHS rounds and countries as extractive activity or industry: "miner" in Benin's 1996 round, several occupations like "mining engineer" and "other senior geology and mining staff not elsewhere classified" in Benin's 2011-2012 round, and "grouped in labors in mining, construction, manufacturing, and transport" in Ghana's 1998-1999 round.

pect of female empowerment through two dimensions closely related to actual domestic violence incidents: women's attitude toward domestic violence and their intrahousehold bargaining power. There is a well-established literature that posits an improvement in female bargaining power following an increase in women's outside labor market opportunities, which might contribute to a reduction in domestic violence toward women.[30] The descriptive statistics for these variables are in Table A.1.

Table A.1: Descriptive Statistics of Women's Attitude toward Domestic Violence, Barriers to Health Care Access, and Intrahousehold Bargaining Power Outcomes

	Mean	SD	Min	Max	N
	Panel A. Attitude toward domestic violence				
Beating is justified if a woman . . .					
Goes out without telling a husband	0.37	0.48	0	1	717,027
Neglects the children	0.39	0.49	0	1	717,886
Argues with a husband	0.35	0.48	1	0	716,247
Refuses to have sex	0.31	0.46	0	1	713,694
Burns the food	0.20	0.40	0	1	717,044
Aggregate index	0.32	0.38	0	1	721,260
	Panel B. Barriers to health care access				
If . . . is a big barrier to health care access					
Getting permission	0.15	0.36	0	1	636,045
Getting money	0.55	0.50	0	1	636,094
Distance to health facility	0.41	0.49	1	0	636,090
Aggregate index	0.37	0.34	0	1	636,282
	Panel C. Intrahousehold bargaining power				
If she has final say on . . .					
Spending her money	0.88	0.33	0	1	317,515
Her health care	0.51	0.50	1	0	638,705
Large purchase	0.48	0.50	0	1	643,027
Daily purchase	0.58	0.49	0	1	255,239
Family visits	0.59	0.49	0	1	643,004
What to cook	0.71	0.45	0	1	151,528
Spending husband's money	0.43	0.50	0	1	487,972
Aggregate index	0.56	0.38	0	1	662,737

Notes: The descriptive statistics are estimated from the DHS sample of ever-married women aged between 15-49 years (inclusive).

Attitude toward Domestic Violence. We use five questions regarding a woman's attitude toward domestic violence (variable 744a-744e). Specifically, she is asked to evaluate whether it is justified for a husband to beat his wife if she (a) goes out without telling her husband, (b) neglects

[30]For some studies on the link between female labor market opportunities and their intrahousehold bargaining power, see Benshaul-Tolonen (2024), Anderson and Eswaran (2009), Majlesi (2016), Heath (2014), and Guimbeau et al. (2023).

the children, (c) argues with her husband, (d) refuses to have sex, and (e) burns the food. The variables are dummy which equals one if she thinks it is justified, and zero otherwise. We then calculate the simple average of these dummies to get the aggregate index for women's attitudes to domestic violence.

Access to Health Care. We use three variables to measure a woman's barrier to healthcare access. These are dummies equal to one if a woman thinks (i) getting permission, (ii) getting money, or (iii) distance to the health facility is a barrier to her access to health care. We also calculate an aggregate index for this dimension as a simple average of the three dummies.

Migration. We determine the respondent's migration status based on a question asking how long the woman has been living in her current residence (variable 104). We classify a woman to be *non-mover* if she never moves out of her residence and *mover* otherwise. For movers, we also determine whether she just recently migrated.

A.2 Details on Demographic and Environmental Controls

This section first describes the individual- and household-level demographic characteristics from the DHS surveys included in our regressions. Then, we discuss some cell-level factors likely to affect our outcomes in Sub-Saharan Africa.

Individual Characteristics. We control for four individual-level demographics in our regressions, including women's age, education, marital status, and religion. First, we include the woman's age (variable 012), which is expected to determine her employment and intimate partner violence. For labor supply, an individual's age is likely to serve as a proxy for health conditions, physical strength, and availability to work in artisanal gold mines and in different industries. For domestic violence outcomes, age can indicate a woman's vulnerability and her dependence on her husband or partner. For example, older wives might have more bargaining power within the household, and younger couples can also be responsive to different shocks or tend to argue more. Second, we control for women's education, captured by variable 106, in our employment and domestic violence regressions. The literature suggests that a woman's employment, for example, in the extractive sector, and her likelihood of experiencing intimate partner violence (Erten and Keskin, 2018) depend on her education level. We classify women's education into three groups: no education, secondary education, and higher education. Third, we include marital status (variable 501) in our regressions because (i) the DHS data collects information on domestic violence by either the husband or partner and (ii) the sample consists of ever-married women whose current marital status could be different from marital status sometime over the past twelve months when the woman experienced intimate partner violence. Married women are expected to supply less labor than single women as they tend to be more responsible for household tasks like chores, cooking, and childcare in developing countries, such as Sub-Saharan Africa. We control for a variable indicating whether a woman is currently married, living with a partner, widowed, divorced, or separated. Fourth, religion (variable

130) could also affect for employment, especially for women, and domestic violence by husband or partner. Given that DHS surveys have different sets of religions across countries and even across survey rounds for the same country, we classify them into four general categories: (i) no religion, (ii) Muslim, (iii) Christian, and (iv) other religions.

Household Characteristics. We control for two household-level demographics in our regressions, including place of residence and household size. First, we include a dummy for the place of residence or an urban/rural status captured in variable v025. Since gold mining is more prevalent in rural areas, most actions or impacts are expected to concentrate in rural regions. We also include household size (variable 136)[31] as the second household-level demographic controls. For employment, household size can have two opposing impacts on labor supply by either wife or husband. If there are more family members, they are likely to supply more labor to provide food for them, for example. But, if multiple people in the household work, then, for example, the wife does not need to work and spends more time on domestic household tasks like childcare and cooking instead of labor supply to the market, e.g., at ASgM sites. For intimate partner violence, household size might have a counterfeiting impact: more household members provide additional security for wives but create another source of pressure on husbands or conflicts between partners.

There are two additional cell-level environmental factors that we controlled in our regressions, including (i) agricultural suitability and (ii) weather conditions in addition to industrial gold mining, which we described in the main text of the paper.

Agriculture or Crop Suitability. To rule out other major activities that might have a significant impact on employment, income, and thus intimate partner violence, we control for agricultural activities measured by the cell's agricultural suitability (Nunn, 2011; McGuirk, 2020; Girard et al., 2024). Following Nunn (2011), we use crop suitability instead of the actual yield of crops to be consistent with the gold suitability measure and because suitability is more exogenous to local activities. We first find a cell's most suitable crop and interact with that crop's international price, consistent with how we specify the gold suitability in our baseline. The crop suitability data comes from FAO's Global Agro-Ecological Zones (GAEZ), and crop price information is derived from the World Bank Pink Sheet.[32]

We obtain the GAEZ suitability index under rain-fed and high-intensity input conditions for 51 crops with a 1981-2000 reference period. Since the data is recorded at 5 arc-minute levels, we aggregate up by taking the weighted average of the index of those 5 arc-minute cells within a 0.5×0.5 degrees cell with the weights being the area of the 5 arc-minute cells to come up with the suitability index for each crop at 0.5×0.5 degrees grid cell. We define a cell as suitable for agriculture if it is classified as "Good" (or "Medium") for at least one crop (i.e., crop suitability dummy equals to 1).[33]

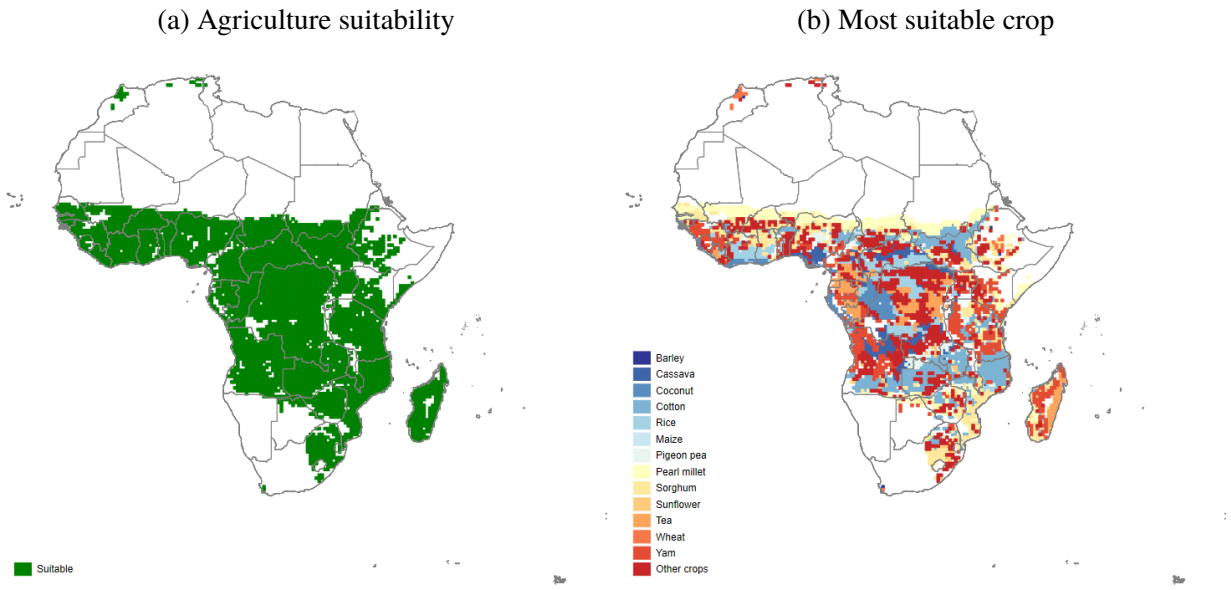
[31] Household size refers to the total number of household members living together, and it might be different from family members as they might include members from the extended family.

[32] See how FAO-GAEZ computes the suitability index from https://gaez.fao.org/pages/theme-details-theme-4.

[33] Following GAEZ's classification method, a cell is classified as "Good" ("Medium") for the cultivation of a crop if

For those cells, we find its main suitable crop by taking a crop with the highest suitability index, and we then interact its crop suitability dummy by that corresponding crop's international price. If there are more than two crops, we will take a simple average of their price index base 1 in 2010. Figure A.1 shows the regions suitable for agricultural cultivation in Africa and the main suitable crop for each 0.5×0.5 degrees grid cell. Of the 10,662 cells, 4,441 cells (41.65%) are classified as at least "Good", and 4,143 cells (93.29%) have a unique main suitable crop.

Figure A.1: Spatial Distribution of Crop Suitability in Africa



Notes: The figure shows the distribution of the region that is suitable for agricultural cultivation in Africa under rain-fed and high input intensity conditions (Panel (a)) and the main suitable crop for each 0.5×0.5 degrees cell (Panel (b)). A cell is suitable for agriculture if classified as "Good" or above, i.e., if its suitability index is at least 5500.

Weather Conditions. We include time-varying weather conditions at the cell level to account for major environmental factors likely to be associated with local activities and employment opportunities like mining and agriculture. The weather condition is proxied by the average temperature of the year as the temperature data is more reliable than precipitation data (Dell et al., 2014; Girard et al., 2024). Information on temperature is obtained from the Climatic Research Unit of the University of East Anglia (CRU).

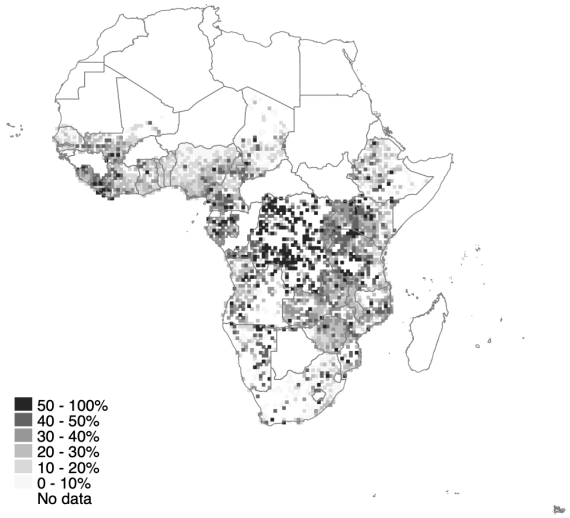
its suitability index is at least 5500 (4000).

B Additional Figures and Tables

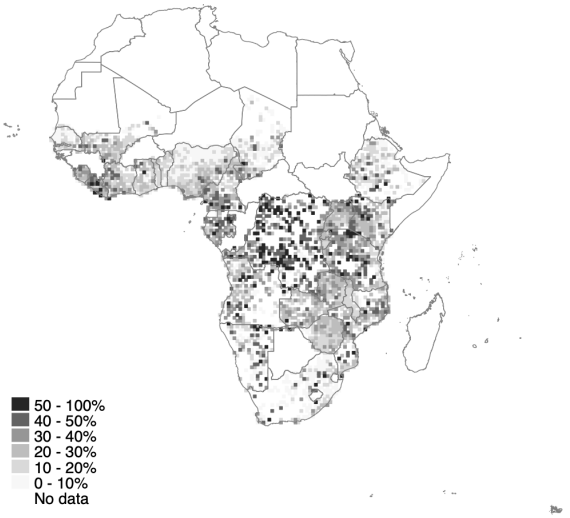
B.1 Additional Figures

Figure B.1: Intimate Partner Violence over the Past Twelve Months

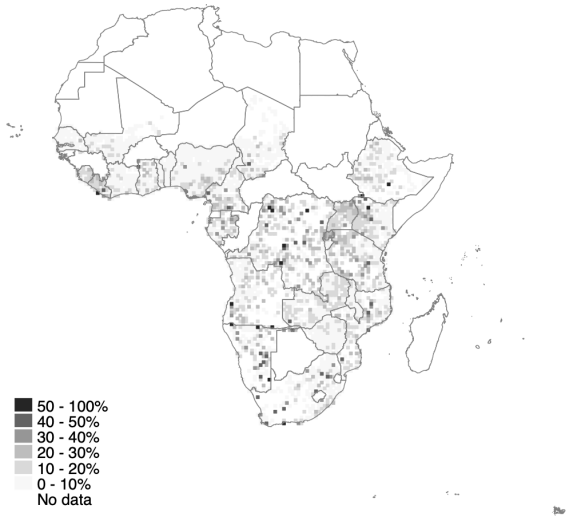
(a) Domestic violence



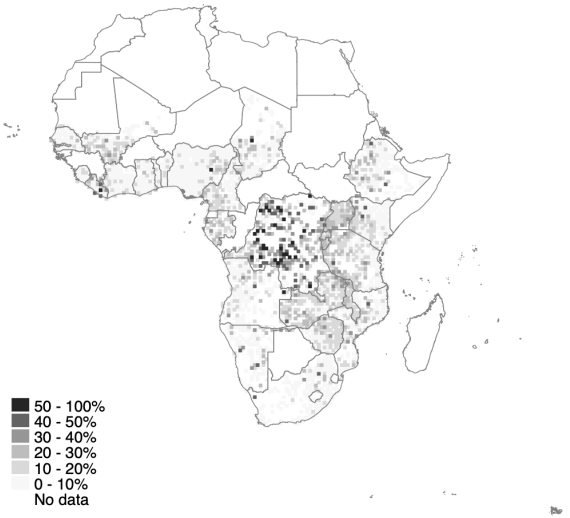
(b) Less severe physical violence



(c) Severe physical violence



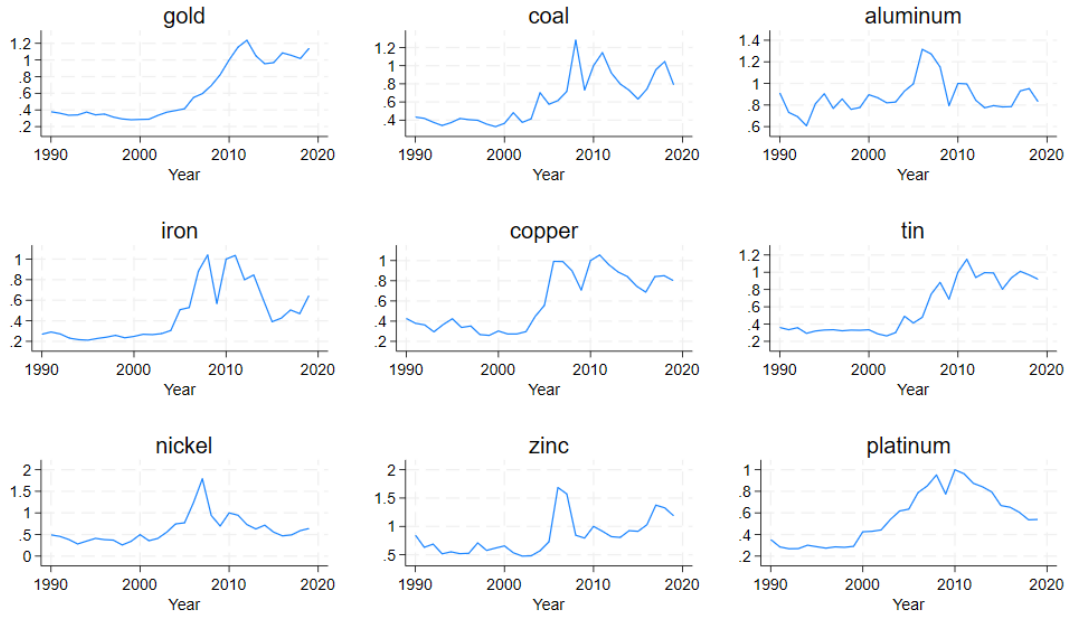
(d) Sexual violence



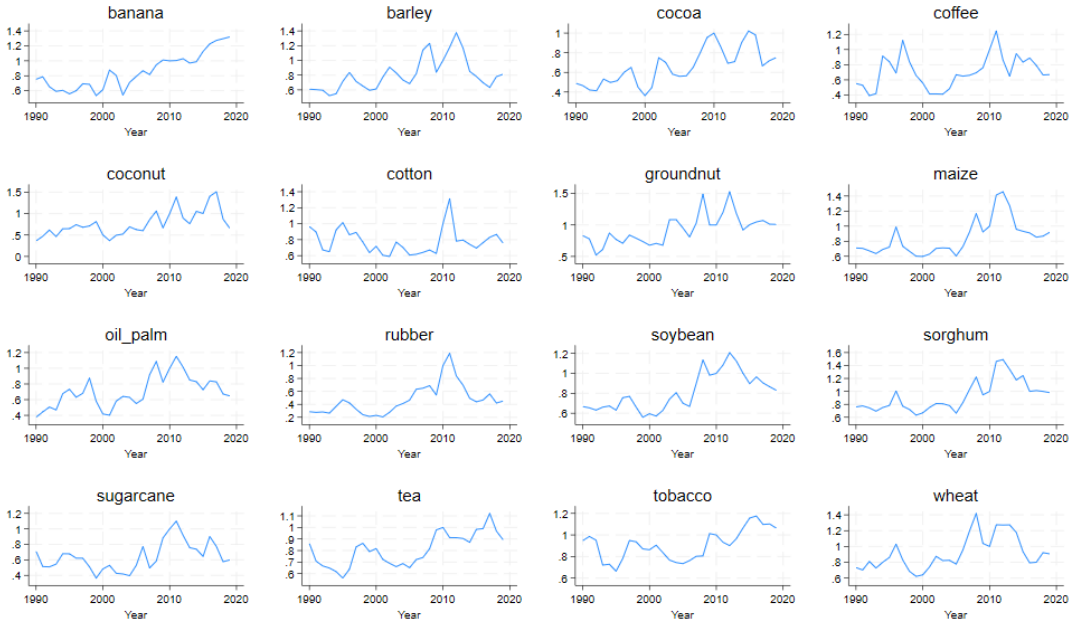
Notes: The figure plots the average share of women who have experienced intimate partner violence in the last twelve months by husband or partner in each cell between 1990 and 2019 using DHS data for Sub-Saharan African countries. Panel (a) shows the fraction of women who have experienced a domestic violence. Panels (b)-(d) show the share of women who experienced different forms of domestic violence, including less severe or mild physical violence (Panel (b)), severe physical violence (Panel (c)), and sexual violence (Panel (d)).

Figure B.2: Global Price Index of Minerals and Crops

(a) Minerals

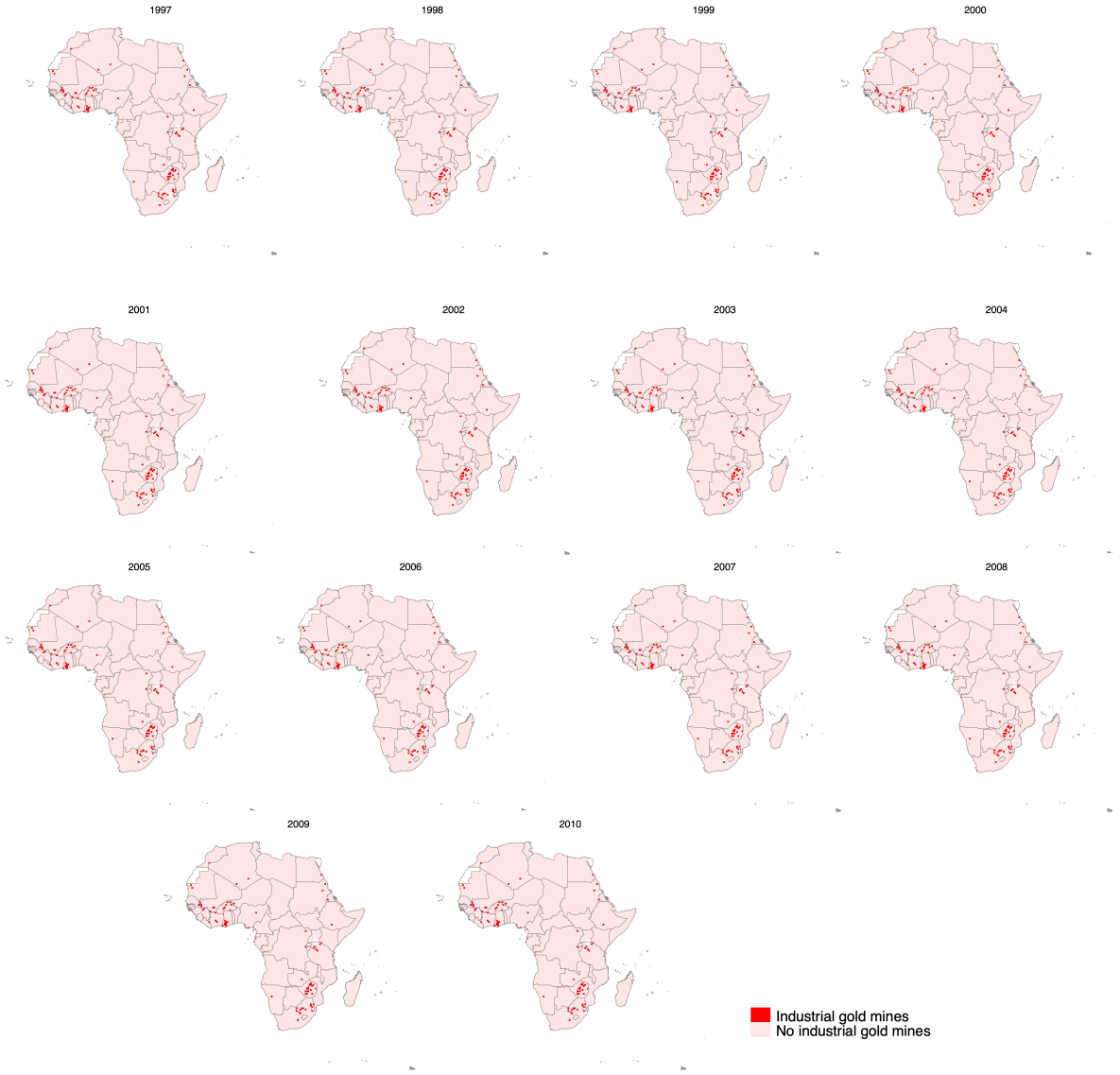


(b) Crops



Notes: Based on the data from the World Bank's Pink Sheet. The figure shows the evolution of international prices for some minerals (Panel (a)) and crops (Panel (b)) during the 1990-2019 period. The prices are normalized to the 2010 level.

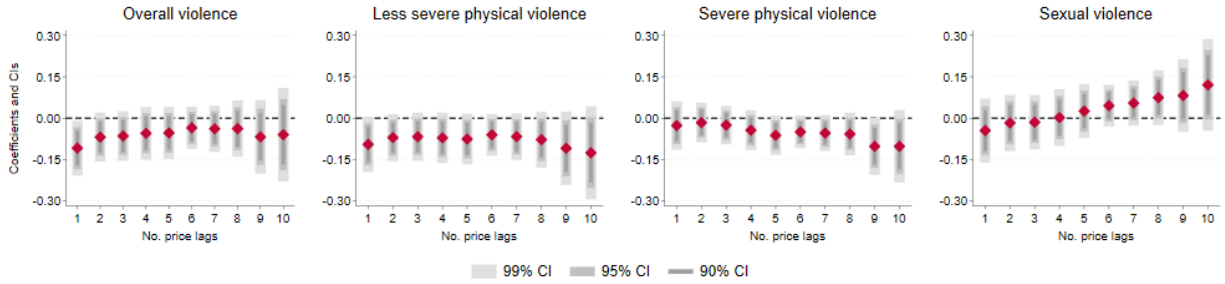
Figure B.3: Spatial Distribution of Industrial Gold Mines across PRIO-GRID Cells, 1997-2010



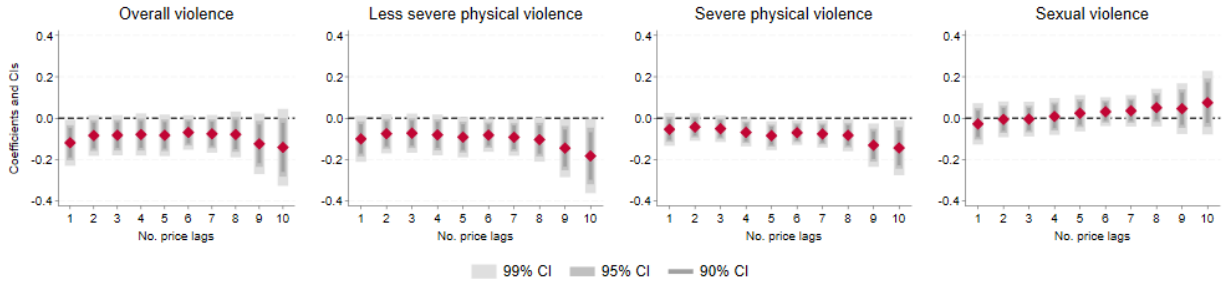
Notes: The figure plots the distribution of industrial gold mines in Africa across PRIO-GRID cells of 0.5×0.5 degrees latitude and longitude (around 55×55 kilometers at the equator) from 1997 to 2010.

Figure B.4: Persistence of ASgM Effects on Broad Forms of Domestic Violence Controlling for Industrial Mineral Mining

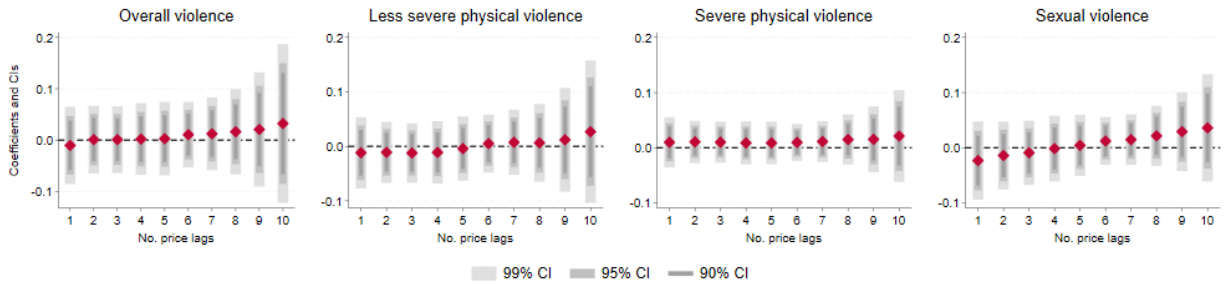
(a) Ever experienced



(b) Sometimes experienced



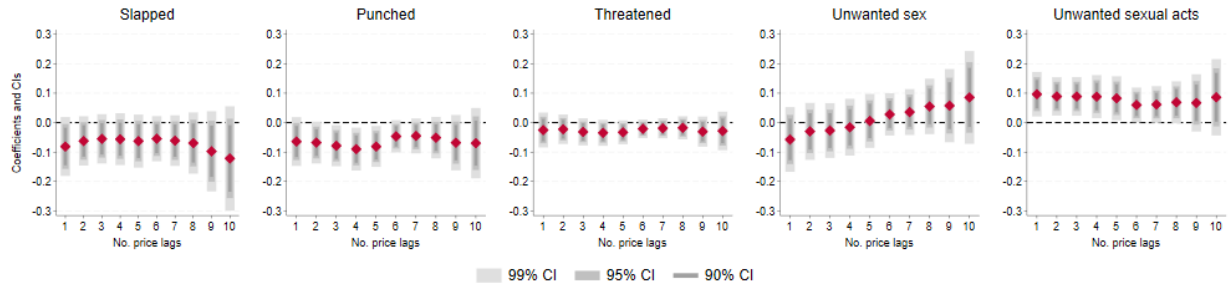
(c) Often experienced



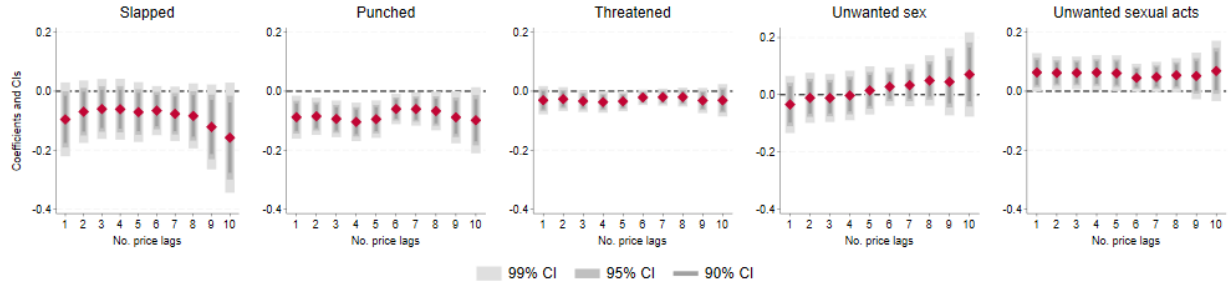
Notes: The figure presents the OLS estimates on the persistence of effects of artisanal gold mining on overall and different forms of intimate partner violence. The dependent variables are dummy variables for broad forms of domestic violence ever (Panel (a)), sometimes (Panel (b)), and often (Panel (c)) experienced in the last twelve months. The broad forms of domestic violence include dummy variables indicating whether a woman has been experiencing less severe physical, severe physical, and sexual violence. In each sub-panel, each of the point estimates comes from separate regressions where the key explanatory variable is a measure of artisanal gold mining shock at different periods (an interaction between the proportion of the surface of the cell that is gold-suitable and the value of the international gold price with different lags). For example, the first estimate in each sub-panel comes from a regression where we use a one-year time lag from the survey year, which covers the same period as domestic violence experiences in the last twelve months, i.e., the number of lags is one. The regressions also control for a cell's mineral mining and crop suitability, whereas the international price for the minerals and crops follows the same time lag with that of gold price. All regressions include the baseline covariates and fixed effects. The unit of observation is the woman. Standard errors are clustered by cells, and 90%, 95%, and 99% confidence intervals are presented.

Figure B.5: Persistence of ASgM Effects on Detailed Forms of Domestic Violence Controlling for Industrial Mineral Mining

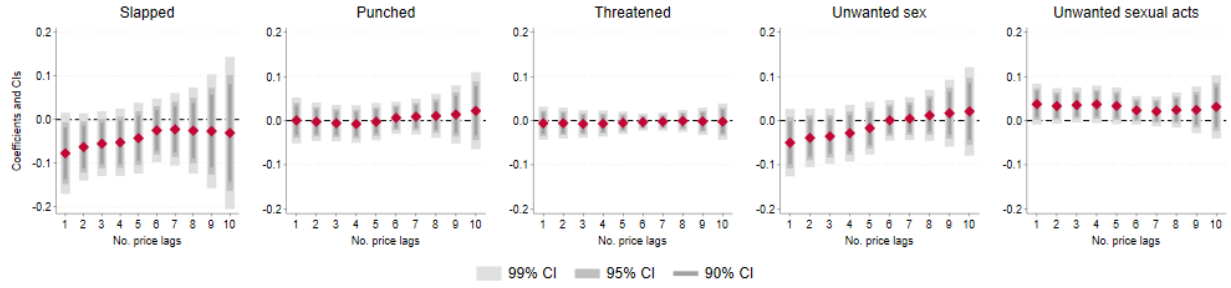
(a) Ever experienced



(b) Sometimes experienced



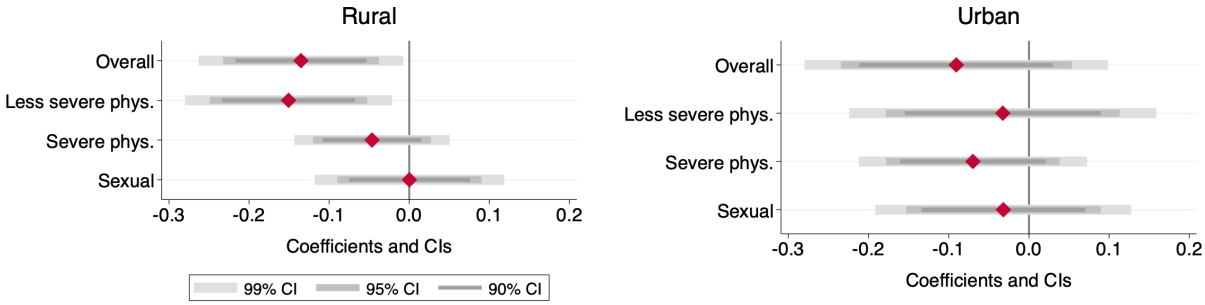
(c) Often experienced



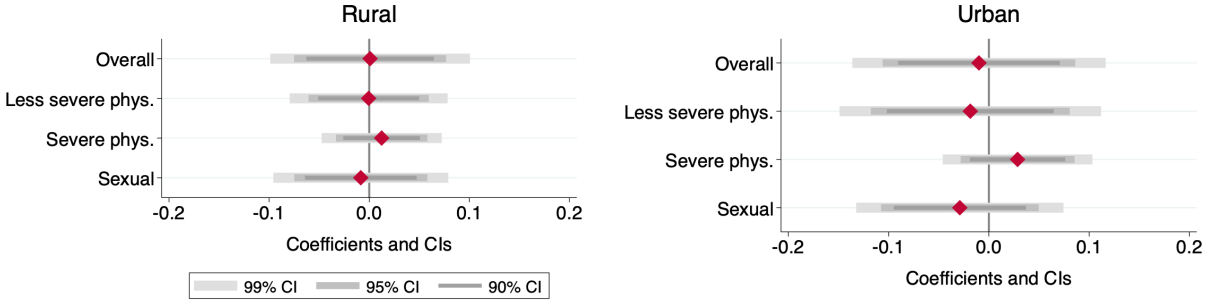
Notes: The figure presents the OLS estimates on the persistence of effects of artisanal gold mining on overall and different forms of intimate partner violence. The dependent variables are dummy variables for detailed forms of domestic violence ever (Panel (a)), sometimes (Panel (b)), and often (Panel (c)) experienced by the woman in the last twelve months. The detailed forms of domestic violence include dummy variables indicating whether a woman has been (i) pushed, shook, or had something thrown, (ii) slapped, (iii) punched with fist or hit by something harmful, (iv) had arm twisted or hair pulled, (v) kicked or dragged, (vi) strangled or burnt, (vii) threatened with knife/gun or other weapons, (viii) physically forced into unwanted sex, (ix) forced into other unwanted sexual acts, and (x) physically forced to perform sexual acts she did not want by her husband or partner, respectively. In each sub-panel, each of the point estimates comes from separate regressions where the key explanatory variable is a measure of artisanal gold mining shock at different periods (an interaction between the proportion of the surface of the cell that is gold-suitable and the value of the international gold price with different lags). For example, the first estimate in each sub-panel comes from a regression where we use a one-year time lag from the survey year, which covers the same period as domestic violence experiences in the last twelve months, i.e., the number of lags is one. The regressions also control for a cell's mineral mining and crop suitability, whereas the international price for the minerals and crops follows the same time lag with that of gold price. All regressions include the baseline covariates and fixed effects. The unit of observation is the woman. Standard errors are clustered by cells, and 90%, 95%, and 99% confidence intervals are presented.

Figure B.6: Heterogeneous Effects of ASgM on Broad Forms of Domestic Violence with Different Frequencies by Place of Residence

(a) Sometimes experienced



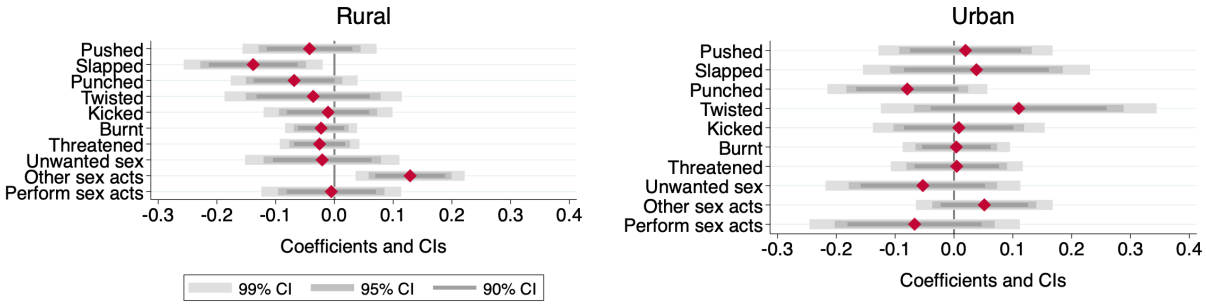
(b) Often experienced



Notes: The figure presents the OLS estimates on the effects of artisanal gold mining on overall and different forms of intimate partner violence, heterogeneous by place of residence (urban and rural). The dependent variables are dummy variables if a woman sometimes (Panel (a)) and often (Panel (b)) experienced broad forms of domestic violence in the last twelve months. The broad forms of domestic violence include dummy variables indicating whether a woman has been experiencing less severe physical, severe physical, and sexual violence. The key explanatory variable is our baseline measure of artisanal gold mining (an interaction of the proportion of the cell's surface suitable for gold with the lagged value of the international gold price). All regressions include individual and household characteristics, cell-level covariates, cell fixed effects (FEs), and country-by-year FEs. The individual or woman characteristics include age, education level, current marital status, and religion. The only household characteristic is household size. The cell-level covariates include industrial gold mining, agricultural potential, and weather conditions. The unit of observation is the woman. Standard errors are clustered by cells, and 90%, 95%, and 99% confidence intervals are presented.

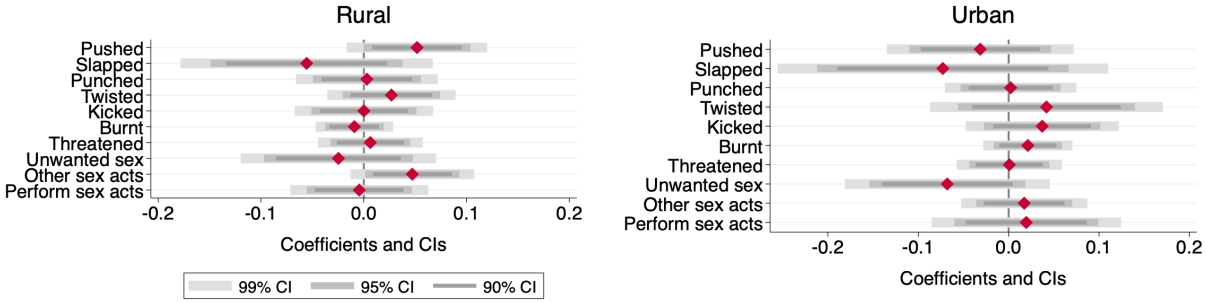
Figure B.7: Heterogeneous Effects of ASgM on Detailed Forms of Domestic Violence by Place of Residence

(a) Ever experienced



(b) Sometimes experienced

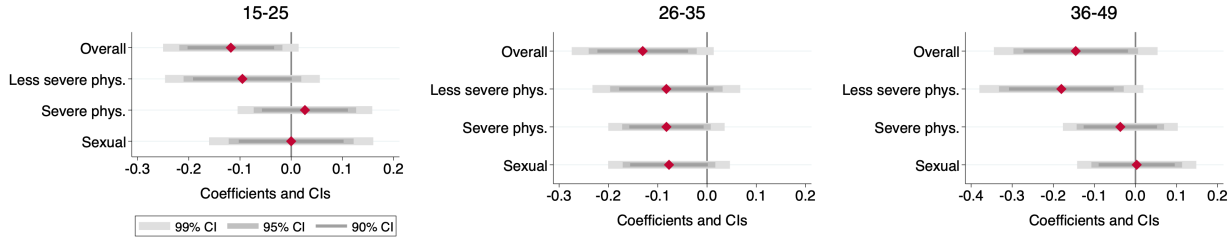
(c) Often experienced



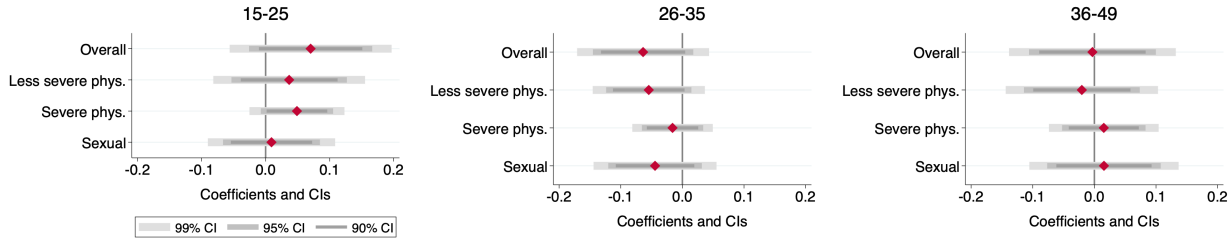
Notes: The figure presents the OLS estimates on the effects of artisanal gold mining on overall and different forms of intimate partner violence, heterogeneous by place of residence (urban and rural). The dependent variables are dummy variables if a woman ever (Panel (a)), sometimes (Panel (b)), and often (Panel (c)) experienced detailed forms of domestic violence in the last twelve months. The detailed forms of domestic violence include dummy variables indicating whether a woman has been (i) pushed, shook, or had something thrown, (ii) slapped, (iii) punched with fist or hit by something harmful, (iv) had arm twisted or hair pulled, (v) kicked or dragged, (vi) strangled or burnt, (vii) threatened with knife/gun or other weapons, (viii) physically forced into unwanted sex, (ix) forced into other unwanted sexual acts, and (x) physically forced to perform sexual acts she did not want by her husband or partner, respectively. The key explanatory variable is our baseline measure of artisanal gold mining (an interaction of the proportion of the cell's surface suitable for gold with the lagged value of the international gold price). All regressions include individual and household characteristics, cell-level covariates, cell fixed effects (FEs), and country-by-year FEs. The individual or woman characteristics include age, education level, current marital status, and religion. The only household characteristic is household size. The cell-level covariates include industrial gold mining, agricultural potential, and weather conditions. The unit of observation is the woman. Standard errors are clustered by cells, and 90%, 95%, and 99% confidence intervals are presented.

Figure B.8: Heterogeneous Effects of ASgM on Broad Forms of Domestic Violence with Different Frequencies by Woman's Age

(a) Sometimes experienced

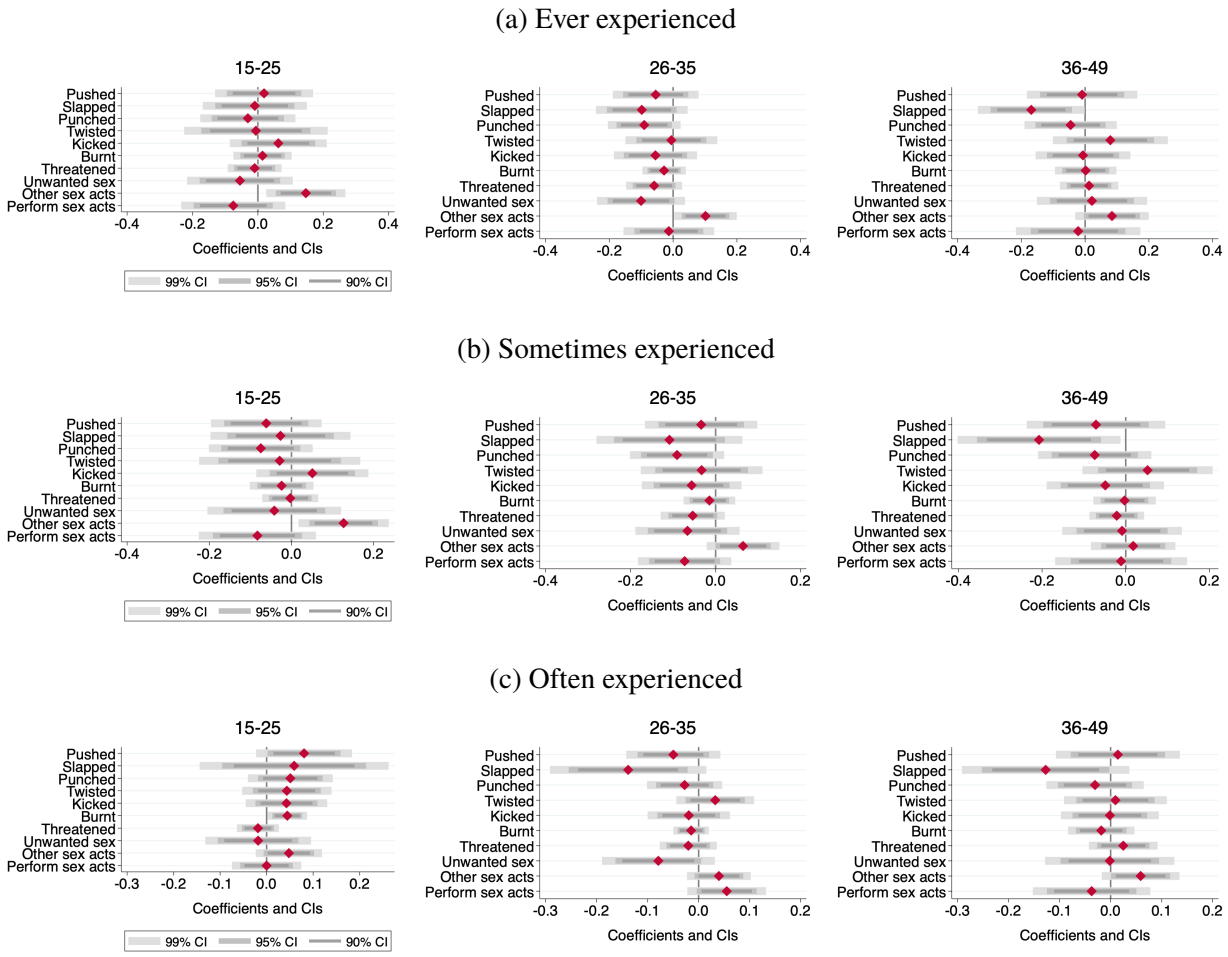


(b) Often experienced



Notes: The figure presents the OLS estimates on the effects of artisanal gold mining on overall and different forms of intimate partner violence heterogeneous by woman's age groups. We estimate the regressions using sub-samples consisting of (i) 15-25 years old women, (ii) 26-35 years old women, and (iii) 36-49 years old women. The dependent variables are dummy variables if a woman sometimes (Panel (a)) and often (Panel (b)) experienced broad forms of domestic violence in the last twelve months. The broad forms of domestic violence include dummy variables indicating whether a woman has been experiencing less severe physical, severe physical, and sexual violence. The key explanatory variable is our baseline measure of artisanal gold mining (an interaction of the proportion of the cell's surface suitable for gold with the lagged value of the international gold price). All regressions include individual and household characteristics, cell-level covariates, cell fixed effects (FEs), and country-by-year FEs. The individual or woman characteristics include age, education level, current marital status, and religion. The household characteristics include urban/rural status and household size. The cell-level covariates include industrial gold mining, agricultural potential, and weather conditions. The unit of observation is the woman. Standard errors are clustered by cells, and 90%, 95%, and 99% confidence intervals are presented.

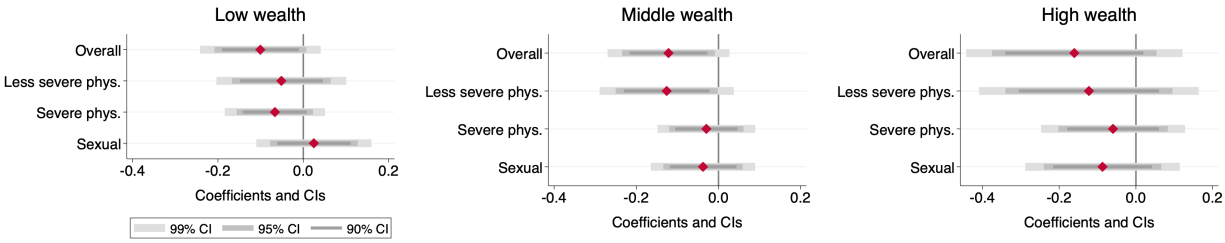
Figure B.9: Heterogeneous Effects of ASgM on Detailed Forms of Domestic Violence by Woman's Age



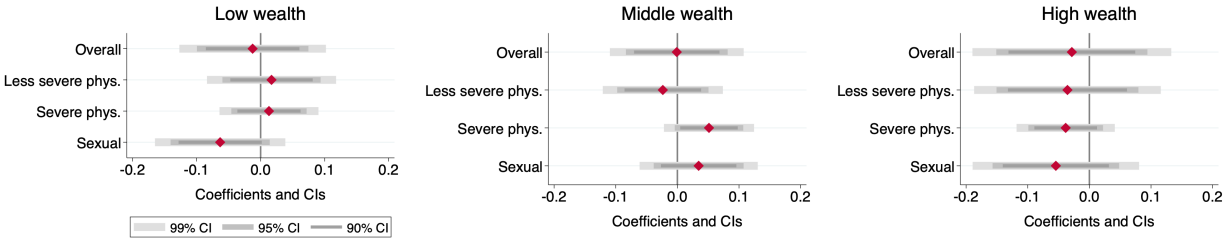
Notes: The figure presents the OLS estimates on the effects of artisanal gold mining on overall and different forms of intimate partner violence heterogeneous by woman's age groups. We estimate the regressions using sub-samples consisting of (i) 15-25 years old women, (ii) 26-35 years old women, and (iii) 36-49 years old women. The dependent variables are dummy variables if a woman ever (Panel (a)), sometimes (Panel (b)), and often (Panel (c)) experienced detailed forms of domestic violence in the last twelve months. The detailed forms of domestic violence include dummy variables indicating whether a woman has been (i) pushed, shook, or had something thrown, (ii) slapped, (iii) punched with fist or hit by something harmful, (iv) had arm twisted or hair pulled, (v) kicked or dragged, (vi) strangled or burnt, (vii) threatened with knife/gun or other weapons, (viii) physically forced into unwanted sex, (ix) forced into other unwanted sexual acts, and (x) physically forced to perform sexual acts she did not want by her husband or partner, respectively. The key explanatory variable is our baseline measure of artisanal gold mining (an interaction of the proportion of the cell's surface suitable for gold with the lagged value of the international gold price). All regressions include individual and household characteristics, cell-level covariates, cell fixed effects (FEs), and country-by-year FEs. The individual or woman characteristics include age, education level, current marital status, and religion. The household characteristics include urban/rural status and household size. The cell-level covariates include industrial gold mining, agricultural potential, and weather conditions. The unit of observation is the woman. Standard errors are clustered by cells, and 90%, 95%, and 99% confidence intervals are presented.

Figure B.10: Heterogeneous Effects of ASgM on Broad Forms of Domestic Violence with Different Frequencies by Household Wealth

(a) Sometimes experienced



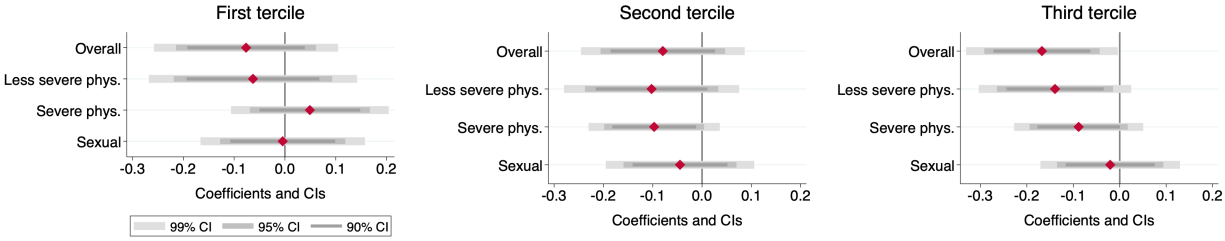
(b) Often experienced



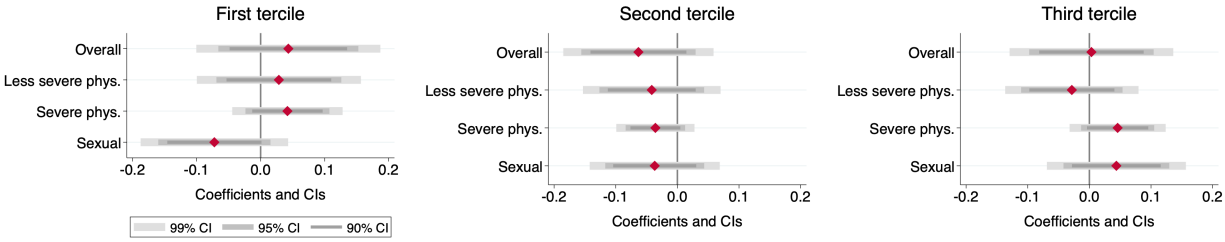
Notes: The figure presents the OLS estimates on the effects of artisanal gold mining on overall and different forms of intimate partner violence heterogeneous by household wealth. We estimate the regressions using sub-samples consisting of households with (i) low wealth—lowest 40% of households, (ii) middle wealth—middle 40% of households, and (iii) high wealth—top 20% of households. The dependent variables are dummy variables if a woman sometimes (Panel (a)) and often (Panel (b)) experienced broad forms of domestic violence in the last twelve months. The broad forms of domestic violence include dummy variables indicating whether a woman has been experiencing less severe physical, severe physical, and sexual violence. The key explanatory variable is our baseline measure of artisanal gold mining (an interaction of the proportion of the cell's surface suitable for gold with the lagged value of the international gold price). All regressions include the baseline covariates and fixed effects. The unit of observation is the woman. Standard errors are clustered by cells, and 90%, 95%, and 99% confidence intervals are presented.

Figure B.11: Heterogeneous Effects of ASgM on Broad Forms of Domestic Violence with Different Frequencies by Age Difference between Partners

(a) Sometimes experienced



(b) Often experienced



Notes: The figure presents the OLS estimates on the effects of artisanal gold mining on overall and different forms of intimate partner violence heterogeneous by woman's age difference from her partner. We estimate the regressions using sub-samples consisting women whose age difference from her partner is in the (i) first tercile, (ii) second tercile, and (iii) third tercile. The dependent variables are dummy variables if a woman sometimes (Panel (a)) and often (Panel (b)) experienced broad forms of domestic violence in the last twelve months. The broad forms of domestic violence include dummy variables indicating whether a woman has been experiencing less severe physical, severe physical, and sexual violence. The key explanatory variable is our baseline measure of artisanal gold mining (an interaction of the proportion of the cell's surface suitable for gold with the lagged value of the international gold price). All regressions include the baseline covariates and fixed effects. The unit of observation is the woman. Standard errors are clustered by cells, and 90%, 95%, and 99% confidence intervals are presented.

B.2 Additional Tables

Table B.1: Data Availability on Outcomes by Country and DHS Rounds

Country	DHS Rounds	Domestic violence	Intrahousehold bargaining power	Sector of activity	Extractive activities	Household wealth
Angola	2015-16	Y	Y	Y	Y	Y
Benin	1996	N	N	Y	Y	N
	2001	N	Y	Y	N	N
	2011-12	N	Y	Y	Y	Y
	2017-18	Y	Y	Y	Y	Y
Burkina Faso	1992-93	N	N	Y	N	N
	1998-99	N	N	Y	N	N
	2003	N	Y	Y	N	Y
	2010	Y	Y	N	N	Y
Burundi	2010-11	N	Y	Y	Y	Y
	2016-17	Y	Y	Y	Y	Y
Cameroon	1991	N	N	Y	N	N
	2004	Y	Y	Y	N	Y
	2011	Y	Y	Y	N	Y
	2018	Y	Y	Y	N	Y
Chad	2014-15	Y	Y	Y	Y	Y
Congo DR	2007	Y	Y	Y	N	Y
	2013-14	Y	Y	Y	N	Y
Cote d'Ivoire	1994	N	N	Y	N	N
	1998-99	N	N	Y	N	N
	2011-12	Y	Y	Y	Y	Y
Eswatini	2006-07	N	Y	Y	Y	Y
Ethiopia	1992	N	N	Y	Y	N
	1997	N	Y	Y	Y	N
	2003	N	Y	Y	Y	Y
	2008	Y	Y	Y	Y	Y
Gabon	2012	Y	Y	Y	N	Y
Ghana	1993-94	N	N	Y	N	N
	1998-99	N	N	Y	Y	N
	2003	N	Y	Y	Y	Y
	2008	Y	Y	Y	Y	Y
	2014	N	Y	Y	Y	Y
Guinea	1999	N	N	Y	N	N
	2005	N	Y	Y	Y	Y
	2012	N	Y	Y	Y	Y
	2018	N	Y	Y	Y	Y
Kenya	2003	Y	Y	Y	Y	Y
	2008-09	Y	Y	Y	Y	Y
	2014	Y	Y	Y	Y	Y
Lesotho	2004-05	N	Y	Y	Y	Y
	2009-10	N	Y	Y	Y	Y
	2014	N	Y	Y	Y	Y
Liberia	2006-07	Y	Y	Y	Y	Y
	2013	N	Y	Y	Y	Y
Madagascar	1997	N	N	Y	N	N
	2008-09	N	Y	Y	Y	Y
Malawi	2000	N	Y	Y	Y	N
	2004-05	Y	Y	Y	Y	Y
	2010	Y	Y	Y	Y	Y
	2015-16	Y	Y	Y	Y	Y

Table B.1: (Continued)

Country	DHS Rounds	Domestic violence	Intrahousehold bargaining power	Sector of activity	Extractive activities	Household wealth
Mali	1995-96	N	N	Y	N	N
	2001	N	Y	Y	N	N
	2006	Y	Y	Y	Y	Y
	2012-13	Y	Y	Y	N	Y
	2018	Y	Y	Y	N	Y
Mozambique	2011	Y	Y	Y	Y	Y
Namibia	2000	N	N	Y	Y	N
	2006-07	N	Y	Y	Y	Y
	2013	Y	Y	Y	Y	Y
Nigeria	1990	N	N	Y	N	N
	2003	N	Y	Y	Y	Y
	2008	Y	Y	Y	Y	Y
	2013	Y	Y	Y	Y	Y
	2018	Y	Y	Y	N	Y
Rwanda	2005	Y	Y	Y	Y	Y
	2010-11	Y	Y	Y	Y	Y
	2014-15	Y	Y	Y	Y	Y
Senegal	1992-93	N	N	Y	N	N
	1997	N	N	Y	N	N
	2005	N	Y	Y	N	Y
	2010-11	N	Y	Y	N	Y
	2012-13	N	Y	Y	N	Y
	2014	N	Y	Y	N	Y
	2015	N	Y	Y	N	Y
	2016	N	Y	Y	N	Y
	2017	Y	Y	Y	N	Y
	2018	Y	Y	Y	N	Y
Sierra Leone	2008	N	Y	Y	N	Y
	2013	Y	Y	Y	Y	Y
South Africa	2016	Y	Y	Y	N	Y
Tanzania	1999	N	N	N	N	N
	2003-04	N	N	Y	Y	Y
	2007-08	N	N	N	Y	Y
	2009-10	Y	Y	Y	Y	Y
	2011-12	N	N	N	Y	Y
	2015-16	Y	Y	Y	Y	Y
Togo	1998	N	N	Y	N	N
	2013-14	Y	Y	Y	N	Y
Uganda	2000-01	N	Y	Y	N	Y
	2006	Y	Y	Y	Y	Y
	2011	Y	Y	Y	N	Y
	2016	Y	Y	Y	N	Y
Zambia	2007	Y	Y	Y	Y	Y
	2013-14	Y	Y	Y	Y	Y
	2018	Y	Y	Y	Y	Y
Zimbabwe	1999	N	Y	Y	N	N
	2005-06	Y	Y	Y	N	Y
	2010-11	Y	Y	Y	N	Y
	2015	Y	Y	Y	N	Y

Notes: The table presents the DHS data availability on intimate partner violence, woman's intrahousehold bargaining power, sector of activity by individuals, extractive or mining activities by individuals, and household wealth across countries in Sub-Saharan Africa. Yes (Y) and No (N) indicate whether the variable is available in the DHS round of the country.

Table B.2: Descriptive Statistics of Demographic Characteristics

	Mean	SD	Min	Max	N
	Panel A. Individual characteristics				
Age	31.42	8.706	15	49	855,216
Urban	0.312	0.464	0	1	855,216
Never mover	0.418	0.493	0	1	538,819
Marital status					
Married	0.774	0.418	0	1	842,673
Living with partner	0.112	0.315	0	1	842,673
Widowed	0.038	0.191	0	1	842,673
Divorced	0.032	0.177	0	1	842,673
Separated	0.044	0.204	0	1	842,673
Education					
No school	0.443	0.497	0	1	855,196
Primary	0.342	0.474	0	1	855,196
Secondary	0.186	0.389	0	1	855,196
Higher	0.029	0.167	0	1	855,196
Religion					
None	0.031	0.173	0	1	734,557
Muslim	0.390	0.488	0	1	777,227
Christian	0.558	0.497	0	1	793,175
Others	0.031	0.172	0	1	791,199
	Panel B. Household wealth[a]				
Wealth index	0	1	-3.79	11.42	602,378
Low income	0.416	0.493	0	1	602,378
Middle income	0.388	0.487	0	1	602,378
High income	0.195	0.396	0	1	602,378
	Panel C. Women's employment status				
Employed in the last twelve months	0.725	0.446	0	1	829,962
Currently working	0.662	0.473	0	1	842,158
Agriculture[b]	0.493	0.500	0	1	595,650
Extractive	0.004	0.065	0	1	489,963
Service	0.053	0.225	0	1	596,581
Sales	0.275	0.447	0	1	596,581
	Panel D. Spouse's employment status				
Employed in the last twelve months	0.973	0.162	0	1	771,390
Agriculture[b]	0.483	0.500	0	1	750,400
Extractive	0.022	0.146	0	1	600,448
Service	0.066	0.248	0	1	735,110
Sales	0.113	0.317	0	1	735,110

Notes: The descriptive statistics are calculated from the DHS sample of ever-married women aged between 15-49 years old inclusive. [a]Household wealth summary statistics are calculated at the household level. [b]Conditional on being employed in the last twelve months.

Table B.3: Effects of Cell-Level Covariates on Broad Forms of Domestic Violence

	Dependent variable: A dummy variable for domestic violence			
	(1) Overall violence	(2) Less severe physical violence	(3) Severe physical violence	(4) Sexual violence
	Panel A. Ever experienced			
Gold suitable × Gold price	-0.109***	-0.094**	-0.023	-0.046
	(0.039)	(0.039)	(0.034)	(0.045)
Industrial gold mines × Gold price	0.135***	0.171***	0.034	0.097
	(0.045)	(0.054)	(0.049)	(0.064)
Crop suitable × Crop price	0.075**	0.024	-0.036	0.033
	(0.037)	(0.040)	(0.029)	(0.037)
Temperature	-0.028	-0.052	-0.061**	0.021
	(0.034)	(0.039)	(0.030)	(0.038)
N	69990	69987	69979	69972
	Panel B. Sometimes experienced			
Gold suitable × Gold price	-0.120***	-0.100**	-0.051	-0.030
	(0.043)	(0.043)	(0.031)	(0.039)
Industrial gold mines × Gold price	0.178***	0.191***	0.077	0.086*
	(0.056)	(0.060)	(0.056)	(0.050)
Crop suitable × Crop price	0.047	-0.004	-0.042*	0.054*
	(0.036)	(0.039)	(0.024)	(0.029)
Temperature	-0.039	-0.054	-0.051*	-0.000
	(0.038)	(0.041)	(0.027)	(0.034)
N	69813	68275	69478	68665
	Panel C. Often experienced			
Gold suitable × Gold price	-0.010	-0.011	0.009	-0.023
	(0.029)	(0.025)	(0.018)	(0.028)
Industrial gold mines × Gold price	-0.066	-0.079	-0.052	0.016
	(0.052)	(0.049)	(0.035)	(0.041)
Crop suitable × Crop price	0.037	0.024	0.011	-0.005
	(0.026)	(0.023)	(0.017)	(0.027)
Temperature	-0.008	-0.009	-0.023	0.020
	(0.027)	(0.023)	(0.015)	(0.022)
N	69840	67703	69250	67516

Notes: The table presents the OLS estimates on the effects of cell-level covariates on overall and different forms of intimate partner violence. The dependent variables are dummy variables if a woman ever (Panel A), sometimes (Panel B), and often (Panel C) experienced broad forms of domestic violence in the last twelve months. Experiences of overall, less severe physical, severe physical, and sexual violence are considered in Columns (1)-(4), respectively. All regressions include the baseline demographic controls and fixed effects. The unit of observation is the woman. Standard errors clustered by cells are in parentheses. Significance: *$p < 0.10$, **$p < 0.05$, and ***$p < 0.01$.

Table B.4: Effects of Cell-Level Covariates on Detailed Forms of Domestic Violence

	Dependent variable: A dummy variable for domestic violence									
	Less severe physical violence				Severe physical violence			Sexual violence		
	(1) Pushed, shook, or had something thrown	(2) Slapped	(3) Punch with fist or hit by something harmful	(4) Had arm twisted or hair pulled	(5) Kicked or dragged	(6) Strangled or burnt	(7) Threatened with knife/gun or other weapons	(8) Physically forced into unwanted sex	(9) Forced into other unwanted sexual acts	(10) Physically forced to perform sexual acts respondent did not want
	Panel A. Ever experienced									
Gold suitable × Gold price	-0.006	-0.081**	-0.063*	0.022	-0.012	-0.010	-0.026	-0.060	0.100***	-0.036
	(0.034)	(0.039)	(0.032)	(0.052)	(0.033)	(0.020)	(0.023)	(0.043)	(0.029)	(0.041)
Industrial gold mines × Gold price	0.018	0.148***	0.043	0.201**	0.088	-0.004	-0.010	0.134**	0.034	0.188***
	(0.051)	(0.050)	(0.039)	(0.097)	(0.058)	(0.045)	(0.038)	(0.063)	(0.048)	(0.062)
Crop suitable × Crop price	0.028	-0.004	0.029	-0.049*	-0.054*	0.022	0.012	0.007	-0.031	0.054**
	(0.029)	(0.040)	(0.031)	(0.026)	(0.030)	(0.016)	(0.015)	(0.037)	(0.026)	(0.027)
Temperature	-0.004	-0.038	-0.041	0.034	-0.053*	-0.019	-0.005	0.002	0.010	0.062**
	(0.031)	(0.038)	(0.029)	(0.028)	(0.028)	(0.015)	(0.014)	(0.036)	(0.027)	(0.030)
N	69952	69959	69921	63488	68212	69943	64505	69947	66091	53538
	Panel B. Sometimes experienced									
Gold suitable × Gold price	-0.046	-0.096**	-0.088***	-0.007	-0.031	-0.016	-0.032*	-0.038	0.065**	-0.053
	(0.033)	(0.049)	(0.028)	(0.047)	(0.030)	(0.016)	(0.019)	(0.039)	(0.026)	(0.035)
Industrial gold mines × Gold price	0.030	0.154***	0.005	0.191*	0.171***	-0.000	0.020	0.132**	0.014	0.093
	(0.044)	(0.059)	(0.034)	(0.098)	(0.066)	(0.042)	(0.031)	(0.055)	(0.034)	(0.067)
Crop suitable × Crop price	0.006	-0.027	0.017	-0.042*	-0.052**	0.008	0.001	0.030	-0.015	0.040*
	(0.027)	(0.042)	(0.024)	(0.023)	(0.024)	(0.014)	(0.013)	(0.030)	(0.021)	(0.023)
Temperature	-0.009	-0.032	-0.023	0.025	-0.045*	-0.020*	-0.004	-0.025	-0.010	0.050*
	(0.030)	(0.041)	(0.025)	(0.025)	(0.025)	(0.012)	(0.013)	(0.033)	(0.023)	(0.027)
N	64635	61680	65880	60819	64500	68626	63516	64561	64004	51865
	Panel C. Often experienced									
Gold suitable × Gold price	0.018	-0.078**	0.001	0.029	0.004	0.001	-0.005	-0.050*	0.038**	0.005
	(0.021)	(0.036)	(0.020)	(0.022)	(0.020)	(0.010)	(0.015)	(0.030)	(0.018)	(0.022)
Industrial gold mines × Gold price	-0.030	-0.076	0.004	0.073	-0.082	-0.020	-0.038	0.039	0.034	0.107***
	(0.034)	(0.076)	(0.029)	(0.053)	(0.055)	(0.023)	(0.026)	(0.041)	(0.037)	(0.038)
Crop suitable × Crop price	0.029	0.004	0.011	-0.014	-0.003	0.019**	0.015	-0.005	-0.012	0.022
	(0.018)	(0.034)	(0.020)	(0.016)	(0.017)	(0.010)	(0.009)	(0.029)	(0.016)	(0.014)
Temperature	0.004	-0.054*	-0.024	0.002	-0.025	-0.004	-0.001	0.016	0.005	0.010
	(0.019)	(0.031)	(0.017)	(0.014)	(0.017)	(0.008)	(0.007)	(0.024)	(0.014)	(0.014)
N	56547	43102	60325	56533	57675	66445	62618	57266	61709	49578

Notes: The table presents the OLS estimates on the effects of cell-level covariates on different forms of intimate partner violence. The dependent variables are dummy variables if a woman ever (Panel A), sometimes (Panel B), and often (Panel C) experienced detailed forms of domestic violence in the last twelve months. In Columns (1)-(10), the domestic violence outcome indicates whether a woman has been (i) pushed, shaken, or had something thrown, (ii) slapped, (iii) punched with a fist or hit by something harmful, (iv) had arm twisted or hair pulled, (v) kicked or dragged, (vi) strangled or burnt, (vii) threatened with knife/gun or other weapons, (viii) physically forced into unwanted sex, (ix) forced into other unwanted sexual acts, and (x) physically forced to perform sexual acts she did not want by husband or partner, respectively. All regressions include the baseline demographic controls and fixed effects. The unit of observation is the woman. Standard errors clustered by cells are in parentheses. Significance: $^{*}p < 0.10$, $^{**}p < 0.05$, and $^{***}p < 0.01$.

Table B.5: Robustness: Effects of ASgM on Detailed Forms of Domestic Violence using Gold Suitability Dummy

	Dependent variable: A dummy variable for domestic violence									
	Less severe physical violence				Severe physical violence			Sexual violence		
	(1) Pushed, shook, or had something thrown	(2) Slapped	(3) Punch with fist or hit by something harmful	(4) Had arm twisted or hair pulled	(5) Kicked or dragged	(6) Strangled or burnt	(7) Threatened with knife/gun or other weapons	(8) Physically forced into unwanted sex	(9) Forced into other unwanted sexual acts	(10) Physically forced to perform sexual acts respondent did not want
	Panel A. Ever experienced									
Gold suitable dummy × Gold price	0.004	-0.106***	-0.006	0.076*	0.003	0.021*	0.001	-0.036	0.039*	-0.011
	(0.025)	(0.031)	(0.023)	(0.044)	(0.025)	(0.013)	(0.014)	(0.029)	(0.020)	(0.029)
N	69952	69959	69921	63488	68212	69943	64505	69947	66091	53538
R^2	0.10	0.15	0.09	0.08	0.13	0.12	0.07	0.12	0.10	0.09
	Panel B. Sometimes experienced									
Gold suitable dummy × Gold price	-0.022	-0.124***	-0.025	0.033	-0.007	0.011	-0.007	-0.018	0.029*	-0.024
	(0.024)	(0.038)	(0.019)	(0.039)	(0.024)	(0.011)	(0.011)	(0.024)	(0.017)	(0.025)
N	64635	61680	65880	60819	64500	68626	63516	64561	64004	51865
R^2	0.10	0.16	0.09	0.07	0.15	0.13	0.05	0.12	0.09	0.08
	Panel C. Often experienced									
Gold suitable dummy × Gold price	0.010	-0.087***	0.006	0.041**	-0.002	0.009	0.004	-0.040*	0.004	-0.002
	(0.016)	(0.028)	(0.016)	(0.019)	(0.016)	(0.008)	(0.010)	(0.023)	(0.013)	(0.014)
N	56547	43102	60325	56533	57675	66445	62618	57266	61709	49578
R^2	0.15	0.23	0.13	0.09	0.10	0.06	0.08	0.12	0.08	0.10

Notes: The table presents the OLS estimates on the effects of artisanal gold mining on different forms of intimate partner violence. The dependent variables are dummy variables if a woman ever (Panel A), sometimes (Panel B), and often (Panel C) experienced detailed forms of domestic violence in the last twelve months. In Columns (1)-(10), the domestic violence outcome indicates whether a woman has been (i) pushed, shaken, or had something thrown, (ii) slapped, (iii) punched with a fist or hit by something harmful, (iv) had arm twisted or hair pulled, (v) kicked or dragged, (vi) strangled or burnt, (vii) threatened with knife/gun or other weapons, (viii) physically forced into unwanted sex, (ix) forced into other unwanted sexual acts, and (x) physically forced to perform sexual acts she did not want by husband or partner, respectively. The key explanatory variable is an interaction of the gold suitability dummy with the one-year lagged gold price index. All regressions include the baseline demographic and environmental controls and fixed effects. The unit of observation is the woman. Standard errors clustered by cells are in parentheses. Significance: $*p < 0.10$, $**p < 0.05$, and $***p < 0.01$.

Table B.6: Robustness: Effects of ASgM on Detailed Forms of Domestic Violence using Log Gold Price

	Dependent variable: A dummy variable for domestic violence									
	Less severe physical violence				Severe physical violence			Sexual violence		
	(1) Pushed, shook, or had something thrown	(2) Slapped	(3) Punch with fist or hit by something harmful	(4) Had arm twisted or hair pulled	(5) Kicked or dragged	(6) Strangled or burnt	(7) Threatened with knife/gun or other weapons	(8) Physically forced into unwanted sex	(9) Forced into other unwanted sexual acts	(10) Physically forced to perform sexual acts respondent did not want
	Panel A. Ever experienced									
Gold suitable × Log price	-0.005	-0.057**	-0.049*	0.016	-0.011	-0.006	-0.020	-0.040	0.079***	-0.029
	(0.026)	(0.028)	(0.026)	(0.043)	(0.026)	(0.014)	(0.017)	(0.033)	(0.022)	(0.034)
N	69952	69959	69921	63488	68212	69943	64505	69947	66091	53538
R^2	0.10	0.15	0.09	0.08	0.13	0.12	0.07	0.12	0.10	0.09
	Panel B. Sometimes experienced									
Gold suitable × Log price	-0.034	-0.065*	-0.069***	-0.006	-0.025	-0.011	-0.024*	-0.019	0.051***	-0.043
	(0.025)	(0.037)	(0.022)	(0.039)	(0.024)	(0.012)	(0.013)	(0.029)	(0.019)	(0.029)
N	64635	61680	65880	60819	64500	68626	63516	64561	64004	51865
R^2	0.10	0.16	0.09	0.07	0.15	0.13	0.05	0.12	0.09	0.08
	Panel C. Often experienced									
Gold suitable × Log price	0.010	-0.064**	-0.003	0.023	0.004	0.001	-0.004	-0.038	0.032**	0.004
	(0.017)	(0.026)	(0.017)	(0.018)	(0.017)	(0.008)	(0.012)	(0.026)	(0.014)	(0.018)
N	56547	43102	60325	56533	57675	66445	62618	57266	61709	49578
R^2	0.15	0.23	0.13	0.09	0.10	0.06	0.08	0.12	0.08	0.10

Notes: The table presents the OLS estimates on the effects of artisanal gold mining on different forms of intimate partner violence. The dependent variables are dummy variables if a woman ever (Panel A), sometimes (Panel B), and often (Panel C) experienced detailed forms of domestic violence in the last twelve months. In Columns (1)-(10), the domestic violence outcome indicates whether a woman has been (i) pushed, shaken, or had something thrown, (ii) slapped, (iii) punched with a fist or hit by something harmful, (iv) had arm twisted or hair pulled, (v) kicked or dragged, (vi) strangled or burnt, (vii) threatened with knife/gun or other weapons, (viii) physically forced into unwanted sex, (ix) forced into other unwanted sexual acts, and (x) physically forced to perform sexual acts she did not want by husband or partner, respectively. The key explanatory variable is an interaction of the proportion of the cell's surface suitable for gold with the log of one-year lagged gold price. All regressions include the baseline demographic and environmental controls and fixed effects. The unit of observation is the woman. Standard errors clustered by cells are in parentheses. Significance: $*p < 0.10$, $**p < 0.05$, and $***p < 0.01$.

Table B.7: Robustness: Effects of ASgM on Detailed Forms of Domestic Violence using Contemporaneous Gold Price

	Dependent variable: A dummy variable for domestic violence									
	Less severe physical violence				Severe physical violence			Sexual violence		
	(1) Pushed, shook, or had something thrown	(2) Slapped	(3) Punch with fist or hit by something harmful	(4) Had arm twisted or hair pulled	(5) Kicked or dragged	(6) Strangled or burnt	(7) Threatened with knife/gun or other weapons	(8) Physically forced into unwanted sex	(9) Forced into other unwanted sexual acts	(10) Physically forced to perform sexual acts respondent did not want
	Panel A. Ever experienced									
Gold suitable × Current price	-0.001	-0.088*	-0.065	0.060	-0.002	0.002	-0.030	-0.053	0.147***	-0.023
	(0.045)	(0.049)	(0.044)	(0.075)	(0.046)	(0.026)	(0.029)	(0.056)	(0.039)	(0.057)
N	69952	69959	69921	63488	68212	69943	64505	69947	66091	53538
R^2	0.10	0.15	0.09	0.08	0.13	0.12	0.07	0.12	0.10	0.09
	Panel B. Sometimes experienced									
Gold suitable × Current price	-0.044	-0.091	-0.095**	0.038	-0.026	-0.012	-0.038*	-0.016	0.098***	-0.044
	(0.044)	(0.063)	(0.038)	(0.069)	(0.043)	(0.021)	(0.022)	(0.049)	(0.034)	(0.051)
N	64635	61680	65880	60819	64500	68626	63516	64561	64004	51865
R^2	0.10	0.16	0.09	0.07	0.15	0.13	0.05	0.12	0.09	0.08
	Panel C. Often experienced									
Gold suitable × Current price	0.012	-0.118**	-0.007	0.031	0.005	0.007	-0.004	-0.058	0.057**	0.009
	(0.030)	(0.046)	(0.030)	(0.031)	(0.029)	(0.014)	(0.022)	(0.044)	(0.026)	(0.031)
N	56547	43102	60325	56533	57675	66445	62618	57266	61709	49578
R^2	0.15	0.23	0.13	0.09	0.10	0.06	0.08	0.12	0.08	0.10

Notes: The table presents the OLS estimates on the effects of artisanal gold mining on different forms of intimate partner violence. The dependent variables are dummy variables if a woman ever (Panel A), sometimes (Panel B), and often (Panel C) experienced detailed forms of domestic violence in the last twelve months. In Columns (1)-(10), the domestic violence outcome indicates whether a woman has been (i) pushed, shaken, or had something thrown, (ii) slapped, (iii) punched with a fist or hit by something harmful, (iv) had arm twisted or hair pulled, (v) kicked or dragged, (vi) strangled or burnt, (vii) threatened with knife/gun or other weapons, (viii) physically forced into unwanted sex, (ix) forced into other unwanted sexual acts, and (x) physically forced to perform sexual acts she did not want by husband or partner, respectively. The key explanatory variable is an interaction of the proportion of the cell's surface suitable for gold with the current price index at the survey year. All regressions include the baseline demographic and environmental controls and fixed effects. The unit of observation is the woman. Standard errors clustered by cells are in parentheses. Significance: $*p < 0.10$, $**p < 0.05$, and $***p < 0.01$.

Table B.8: Robustness: Effects of ASgM on Detailed Forms of Domestic Violence Controlling for Industrial Mineral Mining

	Dependent variable: A dummy variable for domestic violence									
	Less severe physical violence				Severe physical violence			Sexual violence		
	(1) Pushed, shook, or had something thrown	(2) Slapped	(3) Punch with fist or hit by something harmful	(4) Had arm twisted or hair pulled	(5) Kicked or dragged	(6) Strangled or burnt	(7) Threatened with knife/gun or other weapons	(8) Physically forced into unwanted sex	(9) Forced into other unwanted sexual acts	(10) Physically forced to perform sexual acts respondent did not want
	Panel A. Ever experienced									
Gold suitable × Gold price	-0.004	-0.081**	-0.064**	0.024	-0.014	-0.010	-0.025	-0.057	0.097***	-0.037
	(0.034)	(0.039)	(0.032)	(0.051)	(0.032)	(0.020)	(0.023)	(0.043)	(0.029)	(0.041)
Industrial mining × Mineral price	0.053	0.148***	0.068	0.145	0.131*	0.024	0.012	0.099	0.081*	0.169***
	(0.056)	(0.055)	(0.041)	(0.091)	(0.073)	(0.043)	(0.037)	(0.062)	(0.044)	(0.065)
N	70237	70245	70206	63768	68498	70228	64756	70233	66371	53775
R^2	0.10	0.15	0.09	0.08	0.13	0.12	0.07	0.12	0.10	0.09
	Panel B. Sometimes experienced									
Gold suitable × Gold price	-0.043	-0.096**	-0.088***	-0.004	-0.032	-0.016	-0.031	-0.034	0.064**	-0.052
	(0.033)	(0.049)	(0.028)	(0.046)	(0.030)	(0.016)	(0.019)	(0.039)	(0.025)	(0.035)
Industrial mining × Mineral price	0.033	0.151**	0.030	0.157**	0.181***	0.012	0.029	0.100*	0.046	0.095
	(0.049)	(0.063)	(0.036)	(0.080)	(0.064)	(0.038)	(0.029)	(0.054)	(0.034)	(0.059)
N	64899	61941	66148	61082	64765	68906	63766	64838	64281	52098
	Panel C. Often experienced									
Gold suitable × Gold price	0.018	-0.077**	0.001	0.031	0.005	0.001	-0.006	-0.050*	0.037**	0.005
	(0.021)	(0.036)	(0.020)	(0.022)	(0.020)	(0.010)	(0.015)	(0.030)	(0.018)	(0.022)
Industrial mining × Mineral price	0.016	-0.043	0.008	0.009	-0.046	-0.003	-0.022	0.024	0.059*	0.077**
	(0.038)	(0.074)	(0.029)	(0.044)	(0.054)	(0.023)	(0.025)	(0.039)	(0.032)	(0.039)
N	56766	43270	60573	56773	57908	66708	62858	57523	61972	49804

Notes: The table presents the OLS estimates on the effects of artisanal gold mining on different forms of intimate partner violence. The dependent variables are dummy variables if a woman ever (Panel A), sometimes (Panel B), and often (Panel C) experienced detailed forms of domestic violence in the last twelve months. In Columns (1)-(10), the domestic violence outcome indicates whether a woman has been (i) pushed, shaken, or had something thrown, (ii) slapped, (iii) punched with a fist or hit by something harmful, (iv) had arm twisted or hair pulled, (v) kicked or dragged, (vi) strangled or burnt, (vii) threatened with knife/gun or other weapons, (viii) physically forced into unwanted sex, (ix) forced into other unwanted sexual acts, and (x) physically forced to perform sexual acts she did not want by husband or partner, respectively. The key explanatory variable is our baseline measure of artisanal gold mining (an interaction of the proportion of the cell's surface suitable for gold with the lagged value of the international gold price). All regressions include the baseline demographic and environmental controls and fixed effects. The unit of observation is the woman. Standard errors clustered by cells are in parentheses. Significance: $^{*}p < 0.10$, $^{**}p < 0.05$, and $^{***}p < 0.01$.

Table B.9: Effects on Broad Forms of Domestic Violence Controlling for Temperature-Induced Push Factor

	Dependent variable: A dummy variable for domestic violence			
	(1) Overall violence	(2) Less severe physical violence	(3) Severe physical violence	(4) Sexual violence
	Panel A. Ever experienced			
Gold suitable × Gold price	-0.112***	-0.086**	-0.030	-0.050
	(0.040)	(0.041)	(0.035)	(0.045)
Gold suitable × Temperature	-0.023	0.050	-0.041	-0.028
	(0.043)	(0.048)	(0.040)	(0.045)
Temperature	-0.021	-0.069	-0.048	0.031
	(0.037)	(0.042)	(0.033)	(0.041)
N	69990	69987	69979	69972
R^2	0.18	0.17	0.12	0.13
	Panel B. Sometimes experienced			
Gold suitable × Gold price	-0.131***	-0.103**	-0.056*	-0.039
	(0.044)	(0.045)	(0.032)	(0.039)
Gold suitable × Temperature	-0.070	-0.019	-0.035	-0.060
	(0.048)	(0.050)	(0.036)	(0.039)
Temperature	-0.016	-0.048	-0.040	0.020
	(0.042)	(0.044)	(0.028)	(0.036)
N	69813	68275	69478	68665
R^2	0.21	0.17	0.14	0.12
	Panel C. Often experienced			
Gold suitable × Gold price	0.003	0.003	0.011	-0.017
	(0.029)	(0.026)	(0.017)	(0.027)
Gold suitable × Temperature	0.082**	0.089***	0.008	0.035
	(0.036)	(0.030)	(0.022)	(0.030)
Temperature	-0.036	-0.038	-0.025	0.008
	(0.028)	(0.024)	(0.016)	(0.023)
N	69840	67703	69250	67516
R^2	0.20	0.21	0.09	0.11

Notes: The table presents the OLS estimates on the heterogeneous temperature effects of artisanal gold mining on overall and different forms of intimate partner violence. The dependent variables are dummy variables if a woman ever (Panel A), sometimes (Panel B), and often (Panel C) experienced broad forms of domestic violence in the last twelve months. Experiences of overall, less severe physical, severe physical, and sexual violence are considered in Columns (1)-(4), respectively. The key explanatory variable is an interaction of the gold suitability share with the log of the one-year lagged gold price index and the interaction between gold suitability share and average annual temperature. All regressions include the baseline demographic and environmental controls and fixed effects. The unit of observation is the woman. Standard errors clustered by cells are in parentheses. Significance: $*p < 0.10$, $**p < 0.05$, and $***p < 0.01$.

Table B.10: Effects of ASgM on Detailed Forms of Domestic Violence Controlling for Temperature-Induced Push Factor

	Dependent variable: A dummy variable for domestic violence									
	Less severe physical violence				Severe physical violence			Sexual violence		
	(1) Pushed, shook, or had something thrown	(2) Slapped	(3) Punch with fist or hit by something harmful	(4) Had arm twisted or hair pulled	(5) Kicked or dragged	(6) Strangled or burnt	(7) Threatened with knife/gun or other weapons	(8) Physically forced into unwanted sex	(9) Forced into other unwanted sexual acts	(10) Physically forced to perform sexual acts respondent did not want
	Panel A. Ever experienced									
Gold suitable × Gold price	0.005	-0.081**	-0.043	0.022	-0.013	-0.010	-0.026	-0.060	0.099***	-0.045
	(0.035)	(0.041)	(0.032)	(0.051)	(0.033)	(0.019)	(0.023)	(0.042)	(0.030)	(0.047)
Gold suitable × Temperature	0.068	-0.002	0.128***	-0.009	-0.008	-0.000	0.007	-0.002	-0.008	-0.025
	(0.049)	(0.045)	(0.035)	(0.044)	(0.043)	(0.022)	(0.023)	(0.044)	(0.032)	(0.045)
Temperature	-0.026	-0.037	-0.084***	0.037	-0.051	-0.019	-0.007	0.003	0.012	0.070**
	(0.033)	(0.042)	(0.030)	(0.030)	(0.031)	(0.016)	(0.016)	(0.038)	(0.028)	(0.034)
N	69952	69959	69921	63488	68212	69943	64505	69947	66091	53538
	Panel B. Sometimes experienced									
Gold suitable × Gold price	-0.039	-0.101**	-0.075***	-0.007	-0.033	-0.017	-0.032*	-0.044	0.067***	-0.067*
	(0.034)	(0.050)	(0.029)	(0.047)	(0.031)	(0.016)	(0.019)	(0.039)	(0.026)	(0.040)
Gold suitable × Temperature	0.056	-0.045	0.098***	-0.029	-0.030	-0.003	0.000	-0.047	0.013	-0.041
	(0.043)	(0.050)	(0.031)	(0.041)	(0.038)	(0.019)	(0.019)	(0.039)	(0.027)	(0.039)
Temperature	-0.027	-0.017	-0.056**	0.034	-0.035	-0.020	-0.004	-0.010	-0.014	0.062**
	(0.033)	(0.044)	(0.027)	(0.027)	(0.027)	(0.013)	(0.014)	(0.035)	(0.025)	(0.031)
N	64635	61680	65880	60819	64500	68626	63516	64561	64004	51865
	Panel C. Often experienced									
Gold suitable × Gold price	0.024	-0.058	0.010	0.029	0.006	0.002	-0.005	-0.042	0.037**	0.012
	(0.021)	(0.038)	(0.019)	(0.022)	(0.020)	(0.010)	(0.014)	(0.028)	(0.018)	(0.025)
Gold suitable × Temperature	0.035	0.089**	0.059***	0.012	0.015	0.007	0.006	0.051	-0.010	0.019
	(0.029)	(0.042)	(0.023)	(0.022)	(0.027)	(0.012)	(0.016)	(0.033)	(0.020)	(0.027)
Temperature	-0.008	-0.085**	-0.043**	-0.002	-0.030*	-0.006	-0.003	-0.002	0.008	0.005
	(0.020)	(0.034)	(0.018)	(0.015)	(0.018)	(0.009)	(0.008)	(0.026)	(0.014)	(0.015)
N	56547	43102	60325	56533	57675	66445	62618	57266	61709	49578

Notes: The table presents the OLS estimates on the effects of artisanal gold mining on different forms of intimate partner violence. The dependent variables are dummy variables if a woman ever (Panel A), sometimes (Panel B), and often (Panel C) experienced detailed forms of domestic violence in the last twelve months. In Columns (1)-(10), the domestic violence outcome indicates whether a woman has been (i) pushed, shaken, or had something thrown, (ii) slapped, (iii) punched with a fist or hit by something harmful, (iv) had arm twisted or hair pulled, (v) kicked or dragged, (vi) strangled or burnt, (vii) threatened with knife/gun or other weapons, (viii) physically forced into unwanted sex, (ix) forced into other unwanted sexual acts, and (x) physically forced to perform sexual acts she did not want by husband or partner, respectively. The key explanatory variable is our baseline measure of artisanal gold mining (an interaction of the proportion of the cell's surface suitable for gold with the lagged value of the international gold price). All regressions include the baseline demographic and environmental controls and fixed effects. The unit of observation is the woman. Standard errors clustered by cells are in parentheses. Significance: *$p < 0.10$, **$p < 0.05$, and ***$p < 0.01$.

Table B.11: Effects of ASgM on Women's Attitude toward Domestic Violence and Barriers to Health Care Access

	Panel A. Attitude toward domestic violence					
	(1) Aggregate index	(2) Go out	(3) Neglect	(4) Argue	(5) Refuse sex	(6) Burn food
Gold suitable × Gold price	0.001	0.011	0.009	0.002	-0.008	-0.010
	(0.019)	(0.024)	(0.024)	(0.025)	(0.021)	(0.018)
Industrial gold × Gold price	-0.001	0.003	-0.015	0.016	0.002	-0.008
	(0.022)	(0.027)	(0.032)	(0.029)	(0.026)	(0.028)
N	597179	593799	594434	593123	591133	593662
R^2	0.28	0.22	0.20	0.22	0.24	0.16

	Panel B. Barriers to health care access			
	(1) Aggregate index	(2) Permission	(3) Money	(4) Distance
Gold suitable × Gold price	-0.010	-0.019	-0.016	0.005
	(0.019)	(0.018)	(0.024)	(0.027)
Industrial gold × Gold price	-0.064*	-0.098***	-0.038	-0.056
	(0.037)	(0.035)	(0.053)	(0.044)
N	598011	597803	597852	597834
R^2	0.22	0.16	0.17	0.19

Notes: The table presents the effects of artisanal gold mining on women's attitudes toward domestic violence (Panel A) and their barriers to healthcare access (Panel B). The outcomes for women's attitudes are dummy variables indicating whether the woman agrees that it is justified for the husband to beat his wife if she (i) goes out without telling her husband, (ii) neglects the children, (iii) argues with her husband, (iv) refuses to have sex, and (v) burns the food. The aggregate index is calculated by taking a simple average of the dummies. Outcomes for barriers to health care access are dummy variables equal to one if a woman thinks (i) getting permission, (ii) getting money, or (iii) distance to the health facility is a barrier to health care access. The key explanatory variable is the interaction between gold suitability share and one-year lagged gold price index. All regressions include the baseline demographic and environmental controls and fixed effects. The unit of observation is the individual. Standard errors clustered by cells are in parentheses. Significance: $*p < 0.10$, $**p < 0.05$, and $***p < 0.01$.

Table B.12: Effects on Broad Forms of Domestic Violence (Household Wealth Controlled)

	Dependent variable: A dummy variable for domestic violence			
	(1) Overall violence	(2) Less severe physical violence	(3) Severe physical violence	(4) Sexual violence
	Panel A. Ever experienced			
Gold suitable × Gold price	-0.106***	-0.091**	-0.022	-0.044
	(0.039)	(0.039)	(0.034)	(0.045)
Industrial gold mines × Gold price	0.134***	0.170***	0.034	0.096
	(0.045)	(0.053)	(0.049)	(0.064)
Household wealth	-0.027***	-0.031***	-0.016***	-0.018***
	(0.003)	(0.003)	(0.003)	(0.003)
N	69990	69987	69979	69972
R^2	0.18	0.17	0.13	0.13
	Panel B. Sometimes experienced			
Gold suitable × Gold price	-0.118***	-0.098**	-0.050	-0.029
	(0.044)	(0.043)	(0.031)	(0.039)
Industrial gold mines × Gold price	0.178***	0.190***	0.077	0.086*
	(0.056)	(0.060)	(0.056)	(0.050)
Household wealth	-0.020***	-0.025***	-0.010***	-0.008***
	(0.003)	(0.003)	(0.003)	(0.003)
N	69813	68275	69478	68665
R^2	0.21	0.17	0.14	0.12
	Panel C. Often experienced			
Gold suitable × Gold price	-0.008	-0.009	0.010	-0.021
	(0.029)	(0.025)	(0.018)	(0.027)
Industrial gold mines × Gold price	-0.067	-0.079	-0.052	0.015
	(0.052)	(0.049)	(0.035)	(0.040)
Household wealth	-0.022***	-0.016***	-0.010***	-0.015***
	(0.003)	(0.002)	(0.002)	(0.002)
N	69840	67703	69250	67516
R^2	0.20	0.21	0.09	0.11

Notes: The table presents the OLS estimates on the effects of artisanal gold mining on overall and different forms of intimate partner violence. The dependent variables are dummy variables if a woman ever (Panel A), sometimes (Panel B), and often (Panel C) experienced broad forms of domestic violence in the last twelve months. Experiences of overall, less severe physical, severe physical, and sexual violence are considered in Columns (1)-(4), respectively. The key explanatory variable is our baseline measure of artisanal gold mining (an interaction of the proportion of the cell's surface suitable for gold with the lagged value of the international gold price). The effects of industrial gold mining are also presented, and the measure of industrial gold mining is our baseline measure (an interaction of a dummy indicating whether a cell has industrial gold mines with the lagged value of the international gold price). All regressions include the baseline demographic and environmental controls and fixed effects in addition to the household wealth index. The unit of observation is the woman. Standard errors clustered by cells are in parentheses. Significance: $^{*}p < 0.10$, $^{**}p < 0.05$, and $^{***}p < 0.01$.

Table B.13: Effects of ASgM and ISgM on Detailed Forms of Domestic Violence (Household Wealth Controlled)

	Dependent variable: A dummy variable for domestic violence									
	Less severe physical violence				Severe physical violence			Sexual violence		
	(1) Pushed, shook, or had something thrown	(2) Slapped	(3) Punch with fist or hit by something harmful	(4) Had arm twisted or hair pulled	(5) Kicked or dragged	(6) Strangled or burnt	(7) Threatened with knife/gun or other weapons	(8) Physically forced into unwanted sex	(9) Forced into other unwanted sexual acts	(10) Physically forced to perform sexual acts respondent did not want
	Panel A. Ever experienced									
Gold suitable × Gold price	-0.004	-0.078**	-0.061*	0.022	-0.011	-0.010	-0.025	-0.058	0.101***	-0.037
	(0.034)	(0.039)	(0.032)	(0.051)	(0.033)	(0.020)	(0.023)	(0.043)	(0.029)	(0.041)
Industrial gold mines × Gold price	0.018	0.147***	0.042	0.205**	0.089	-0.004	-0.010	0.133**	0.034	0.193***
	(0.051)	(0.050)	(0.039)	(0.097)	(0.058)	(0.045)	(0.038)	(0.063)	(0.048)	(0.064)
Household wealth	-0.019***	-0.027***	-0.020***	-0.007***	-0.016***	-0.004**	-0.008***	-0.015***	-0.009***	-0.012***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)
N	69952	69959	69921	63488	68212	69943	64505	69947	66091	53538
R^2	0.10	0.15	0.09	0.08	0.13	0.12	0.07	0.12	0.10	0.09
	Panel B. Sometimes experienced									
Gold suitable × Gold price	-0.046	-0.094*	-0.087***	-0.006	-0.030	-0.016	-0.031*	-0.037	0.066**	-0.053
	(0.033)	(0.049)	(0.029)	(0.047)	(0.031)	(0.016)	(0.019)	(0.039)	(0.025)	(0.035)
Industrial gold mines × Gold price	0.030	0.154***	0.004	0.192**	0.171***	-0.000	0.020	0.132**	0.014	0.096
	(0.044)	(0.059)	(0.034)	(0.098)	(0.065)	(0.042)	(0.031)	(0.055)	(0.034)	(0.068)
Household wealth	-0.012***	-0.024***	-0.015***	-0.003	-0.010***	-0.001	-0.005***	-0.006**	-0.004**	-0.007***
	(0.003)	(0.004)	(0.003)	(0.002)	(0.003)	(0.001)	(0.001)	(0.003)	(0.002)	(0.002)
N	64635	61680	65880	60819	64500	68626	63516	64561	64004	51865
R^2	0.10	0.17	0.09	0.07	0.15	0.13	0.06	0.12	0.09	0.08
	Panel C. Often experienced									
Gold suitable × Gold price	0.019	-0.075**	0.002	0.030	0.006	0.001	-0.005	-0.048	0.039**	0.004
	(0.021)	(0.036)	(0.020)	(0.022)	(0.020)	(0.010)	(0.015)	(0.030)	(0.018)	(0.022)
Industrial gold mines × Gold price	-0.031	-0.078	0.004	0.076	-0.082	-0.020	-0.038	0.038	0.034	0.109***
	(0.034)	(0.075)	(0.030)	(0.053)	(0.055)	(0.023)	(0.026)	(0.041)	(0.036)	(0.038)
Household wealth	-0.014***	-0.020***	-0.010***	-0.006***	-0.011***	-0.004***	-0.003***	-0.015***	-0.007***	-0.006***
	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
N	56547	43102	60325	56533	57675	66445	62618	57266	61709	49578
R^2	0.15	0.23	0.13	0.09	0.10	0.06	0.08	0.12	0.09	0.10

Notes: The table presents the OLS estimates on the effects of artisanal gold mining on different forms of intimate partner violence. The dependent variables are dummy variables if a woman ever (Panel A), sometimes (Panel B), and often (Panel C) experienced detailed forms of domestic violence in the last twelve months. In Columns (1)-(10), the domestic violence outcome indicates whether a woman has been (i) pushed, shaken, or had something thrown, (ii) slapped, (iii) punched with a fist or hit by something harmful, (iv) had arm twisted or hair pulled, (v) kicked or dragged, (vi) strangled or burnt, (vii) threatened with knife/gun or other weapons, (viii) physically forced into unwanted sex, (ix) forced into other unwanted sexual acts, and (x) physically forced to perform sexual acts she did not want by husband or partner, respectively. The key explanatory variable is our baseline measure of artisanal gold mining (an interaction of the proportion of the cell's surface suitable for gold with the lagged value of the international gold price). The effects of industrial gold mining are also presented, and the measure of industrial gold mining is our baseline measure (an interaction of a dummy indicating whether a cell has industrial gold mines with the lagged value of the international gold price). All regressions include the baseline demographic and environmental controls and fixed effects in addition to the household wealth index. The unit of observation is the woman. Standard errors clustered by cells are in parentheses. Significance: $^{*}p < 0.10$, $^{**}p < 0.05$, and $^{***}p < 0.01$.

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