Faraway, So Close: The Impact of the Russia-Ukraine War on Political Violence in Asian Countries

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Motivation and Background

- The **Russia-Ukraine War** began in early 2022 and it is unlikely to end soon.
- Ukraine and Russia are among the world's **breadbaskets**:
  30% of the world's wheat and 20% world's maize (UN, 2022).
- Serious concerns about global-level **impact** of the conflict on crop **prices**.
- During war escalation, global **wheat** and maize **prices increased**:
  79% and 37% higher vs previous year (FAO, 2022).

The (expected) impact of the Russia-Ukraine war on *other* countries

Large negative (expected) impacts of the war on other countries.

Several **studies** on **developed** countries: energy prices, trade. etc (more in the next slides. . .)

Lack of rigorous evidence for **developing** countries

- **Negative expectations** about the effects for **Africa** (food consumption):

  The conflict will likely double the amount of food insecure people in Africa, through availability and pricing in some food crops (wheat and maize) (WFP, 2022).

- ... and **Asia**:

  Food insecurity in Asia has become prominent recently because of the Russia-Ukraine war and the resulting food crisis (FAO, 2023)

This paper

Research question:

- Impact of Russia-Ukraine War-induced changes in the price of wheat on political violence in other countries producing wheat. why this question?

Focus:

- Low and middle-income Asian tropical countries. why this sample?

How:

- Cell-level measure of *Price Shock Exposure*:
  (war-induced) **price changes in wheat** over time *conditional on* wheat **suitability**.

Results:

- Higher wheat **price increases political violence** in cells that are more **suitable** to produce **wheat**.
  - Larger effect in countries that are low-income, not politically stable, or with active armed groups.
- Evidence of a ***rapacity effect***: a higher value of agricultural output increases the incentive to violently appropriate it.

LITERATURE

Literature

Effect of Ukraine War:

- Global: GDP and inflation (Caldara et al., 2022); food security (WFP, 2022); trade and supply chain (WTO, 2023);
- EU: energy prices (Ferriani & Gazzani, 2022; Bachmann et al. 2022; Fontagne et al. 2023); migration and labour force (OECD, 2022);
- Asia: energy prices in India, Japan, and Korea (IMF, 2022).

Effect of economic shocks on (internal) conflict:

- prices: crops (Crost & Felter, 2016; McGuirk & Burke, 2020); fertilizers (Berman et al., 2019);
- local economic activity: mines (Berman et al., 2019);
- trade openness (Martin et al. 2008; Amodio et al., 2023).

Our contribution: Assess the (short-term) effects of the Russia-Ukraine War-induced wheat price changes on political violence in Asian countries.

EMPIRICAL STRATEGY

Empirical Strategy (1/3)

We construct a measure of **local-level exposure** to the war-induced change in the price of wheat.

Price Shock Exposure$_{cmt}$ for each cell c in month m of year t is defined as:

$$\textit{Price Shock Exposure}_{cmt} = \textit{Average Wheat Price}_{(m-3,m-1),t} S_{cw}$$

- *Average Wheat Price*$_{(m-3,m-1),t}$: average **international price** of wheat in the previous three months in year t
- S_{cw}: **suitability** of cell c to produce wheat

Empirical Strategy (2/3)

We investigate **how many** political violence **events follows** a different **exposure to** the **shock**.

This is done by comparing:

- the **same cell**,
- in the same (country) **month**,
- during **different** (country) **years** (this accounts for seasonality) . . .

sorting out **different** (yearly) **contextual effects**: international wheat price, and year fixed effects.

Empirical Strategy (3/3)

Formally, we estimate the following regression:

$$Y_{cmt} = \beta\ Price\ Shock\ Exposure_{cmt} + \gamma Average\ Wheat\ Price_{(m-3,m-1),t} + \gamma_c + \theta_{mk} + \delta_{tk} + u_{cmt}$$

- Y_{cmt}: number of political violent events in cell c in month m in year t
- γ_c: cell level fixed effects
- θ_{mk}: month-country fixed effects
- δ_{tk}: year-country fixed effects

This identification of fixed effects allows to control for contextual economic conditions, that do not vary across cells.

Note: β is standardized using the formula $\frac{sd(Price\ Shock\ Exposure)}{sd(Y)}$.

DATA

Data

Sample (13 Asian tropical countries)

- Afghanistan, Bangladesh, Cambodia, East Timor, India, Indonesia, Laos, Malaysia, Pakistan, Sri Lanka, Thailand, Yemen, Vietnam.

Data sources

- Prices:global prices of wheat (FRED dataset) trend more
- Crops suitability, production (2010) and growing season: 9 km x 9 km cell-level data (FAO-GAEZ) distribution
- Political violence: (geo-localized) violent events (ACLED) distribution summary definition
- Other data: Wheat import and export (FAOSTAT); Per-capita income (World Bank); Fragility Index (Fund For Peace); Rural vs urban cells (MODIS).

Time frame

- 01/2021 to 11/2023. From 2024 onward, although the War is still ongoing, the war risk premium has eroded in the market, allowing prices to revert to pre-war trends. (FAO, 2024 & U.S. Wheat Associate, 2024).

RESULTS

Main Results

Price Shock Exposure and Number of Political Violent Events in Asian countries

	Number of political violent events	
	All Period	After War begins
	(1)	(2)
Price Shock Exposure	0.038***	0.074***
	(0.004)	(0.011)
FE Cell	YES	YES
FE Month-Country	YES	YES
FE Year-Country	YES	YES
Mean	0.021	0.020
Observations	4,089,990	2,693,622

Notes.(* p-value$<$ 0.1; ** p-value$<$0.05; *** p-value$<$0.01) The unit of observation is the cell. Standard errors in parenthesis, are robust. *Price Shock Exposure*$_{cmt}$ is the price-shock exposure of spatial unit in month m that we obtain by combining time variation in prices with cross-sectional variation in crop suitability, as described in equation 1. The dependent variable is the number of political violent events for the spatial unit in month m events according to ACLED. Among all the event registered in ACLED, we selected those classified as "Protests", "Riots" or "Violence against civilians". The full sample is composed by 13 countries: Afghanistan, Bangladesh, Cambodia, East Timor, India, Indonesia, Laos, Malaysia, Pakistan, Sri Lanka, Thailand, Vietnam, Yemen. The entire period of analysis corresponds to the period from Jan2021 to Nov2023. "After War begins" corresponds to the period from Jan2022 to Nov2023.

Validation

Falsification

Alternative version of the variable *Price Shock Exposure* built using:

- the price of rice and the cell-level suitability for rice table 1, col. 1

The effect of exposure is not stat. significant.

Validation

- Rural vs Urban cells

The effect of exposure is positive and stat. significant in rural cells. table 1, col. 2-3

More to come when discussing mechanisms...

Rapacity, Extortion and Predation (1/2)

Black Sea Grain Initiative (BSGI)

April 2022: agreement to **facilitate export** of food (mainly grains) from Ukrainian ports.

- BSGI increases the **availability** of wheat and **reduces** its **value**, if political violence is driven by ***rapacity*** (price shocks *do not affect consumption*), BSGI should reduce political violence.

- The size of the effect (exposure) on political violence decreases after the introduction of the BSGI. table 2, col. 1

Rapacity, Extortion and Predation (2/2)

Target of political violence

- Profits obtained with **extortion** are used **against** the **government** (Crost & Felter, 2019)
- Conflicts with a *non-civilian* target have a stronger impact than conflicts targeting civilians table 2, col. 2-3

Seasonality of wheat

- Political violent events should increase at the end of the wheat growing season (harvest). table 2, col. 4-5
- Suggestive evidence that armed groups use *extortion* and *predation* to self-finance their operation, incentivized by the increased value of wheat.

Robustness Checks

- Alternative measure of wheat price (wheat flour table 3)
- Alternative definition for the variable *Price Shock Exposure*
  - Computed using previous month price variations (no three months) table 4, col. 1
  - Computed using actual production data (no suitability) table 4, col. 2
  - Computed excluding the main consumer (Pakistan) from the sample table 4, col. 3
- Seasonal Time Trend table 4, col. 4
- Alternative specification of fixed effects
  - Cell-Month and Cell-Year fixed effects. table 4, col. 5

HETEROGENEITY

Heterogeneity

Price Shock Exposure and Number Political Violent Events: Heterogeneity by country characteristics (after War begins)

	Number political violent events		
	(1)	(2)	(3)
Price Shock Exposure (Net exporters)	0.123***		
	(0.021)		
Price Shock Exposure (Net importers)	0.025***		
	(0.005)		
Price Shock Exposure (Middle per-capita income)		0.007***	
		(0.005)	
Price Shock Exposure (Low per-capita income)		0.121***	
		(0.020)	
Price Shock Exposure (Fragility Index: Stable)			0.003**
			(0.001)
Price Shock Exposure (Fragility Index: Warning)			0.115***
			(0.019)
Price Shock Exposure (Fragility Index: Alert)			0.053***
			(0.011)
FE Cell	YES	YES	YES
FE Month-Country	YES	YES	YES
FE Year-Country	YES	YES	YES
Mean	0.020	0.020	0.020
Observations	2,515,418	2,693,622	2,569,606

Notes.(* p-value< 0.1; ** p-value<0.05; *** p-value<0.01) definitions

Results by country

The **effect** of exposure is **stronger** in areas **more suitable** to produce wheat: figure1

- Afghanistan
- Bangladesh
- India
- Pakistan
- Yemen

These are countries characterized by active **anti-government** or **terrorist** groups.

The effect of exposure is **milder** in: figure2

- Cambodia
- East Timor
- Indonesia
- Laos
- Sri Lanka
- Thailand
- Vietnam.

CONCLUDING REMARKS

Concluding remarks

Novel evidence on the effects of the Russia-Ukraine War on political violence.

4 million cell-level observations (13 Asian countries): a **higher** wheat **price** increases **political violence** in areas suitable for wheat production.

Evidence of a ***rapacity effect***: a **higher** value of agricultural output increases the **incentive** to **violently** appropriate it.

The effect is **stronger** in countries characterized by active anti-government or terrorist groups: a higher value of crop production fuels violence in areas that are already **poor** or **not** politically **stable**.

Policy implications: understanding **war-induced economic fluctuations** is key to informing **policies in faraway countries** affected by local political violence.

FIGURES

Prices

Wheat, wheat flour, and rice international prices (2020-2023)

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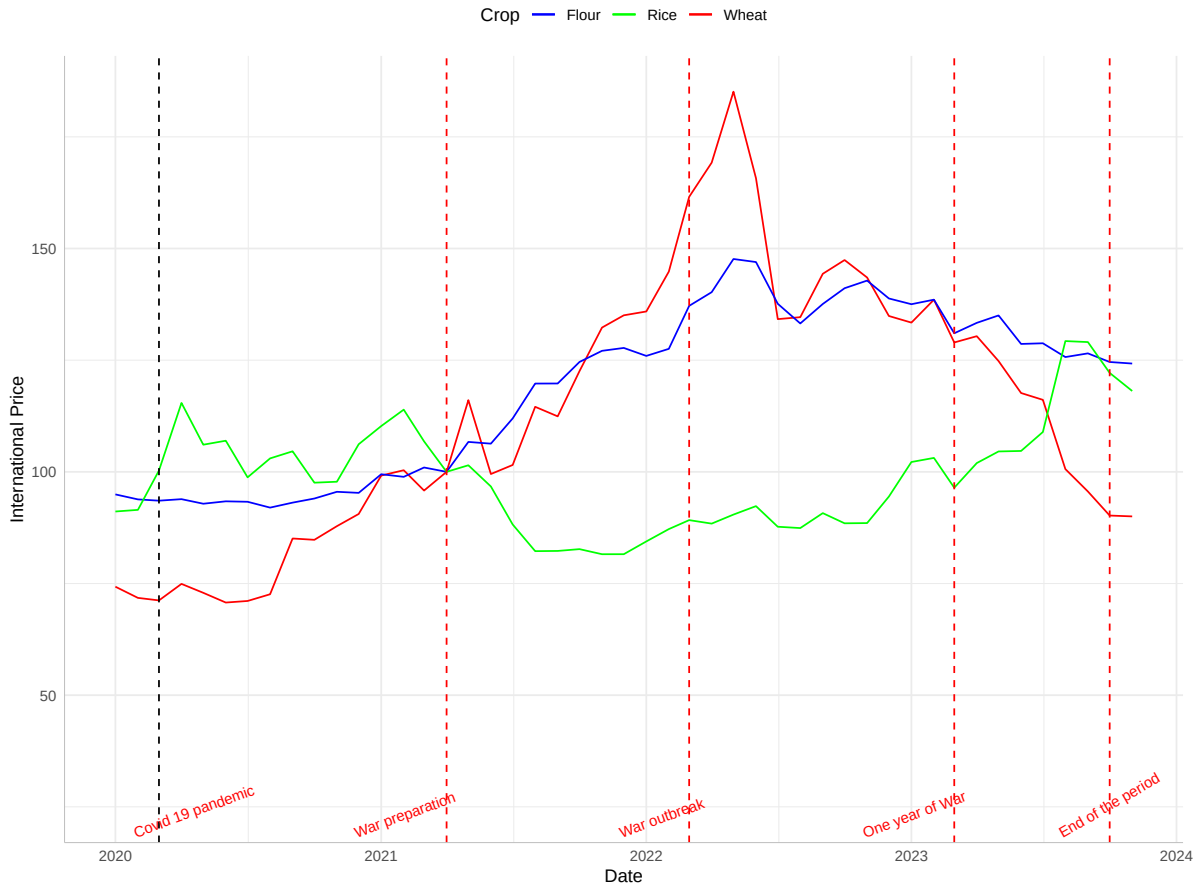

Source: Authors based on FRED (2023)
Note: Monthly international prices of wheat, wheat flour and rice are indexed at 100 at April 2021 when the Russian Armed Forces began massing troops and military equipment near the border with the Ukrainian region of Crimea. This large mobilization raised concerns internationally over a potential escalation of the tension.

Wheat suitability in Asian countries

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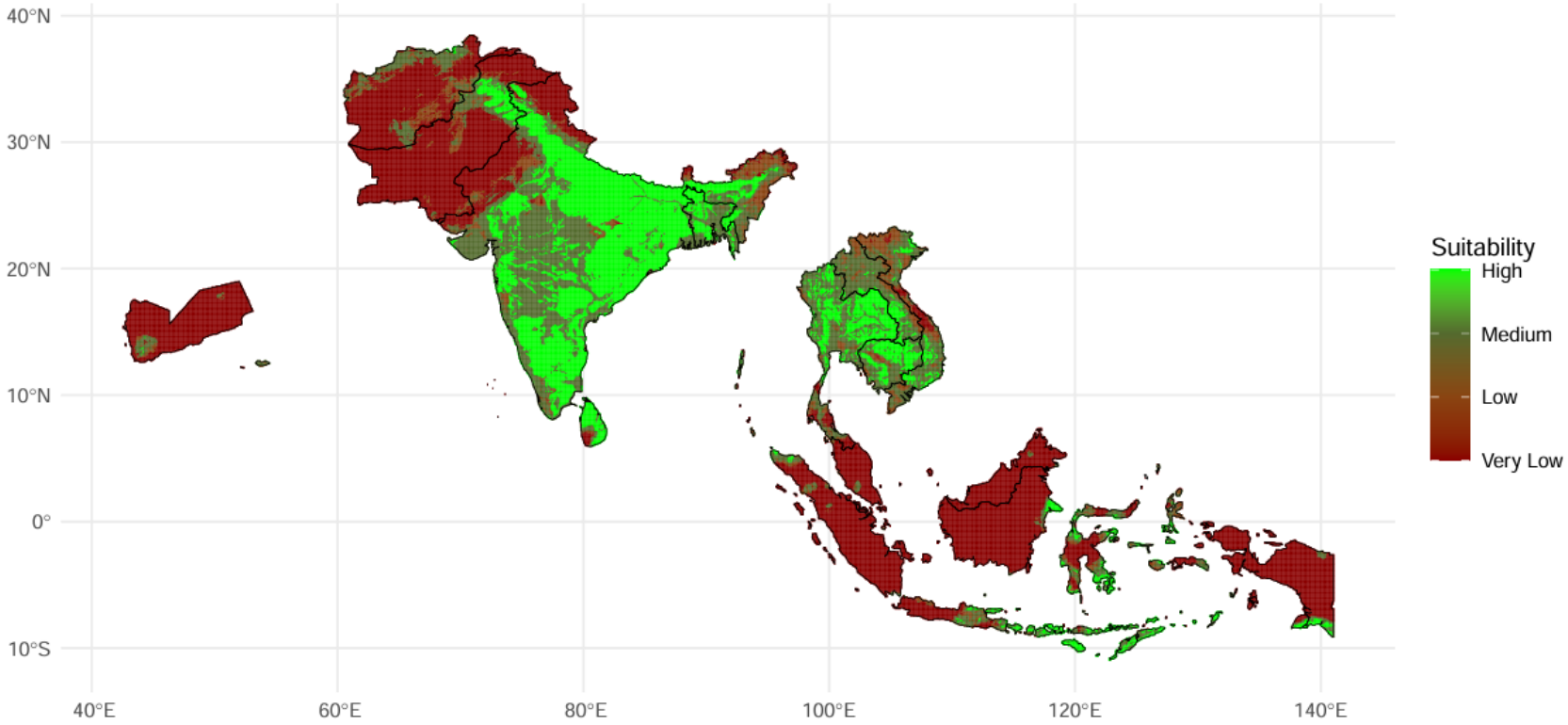
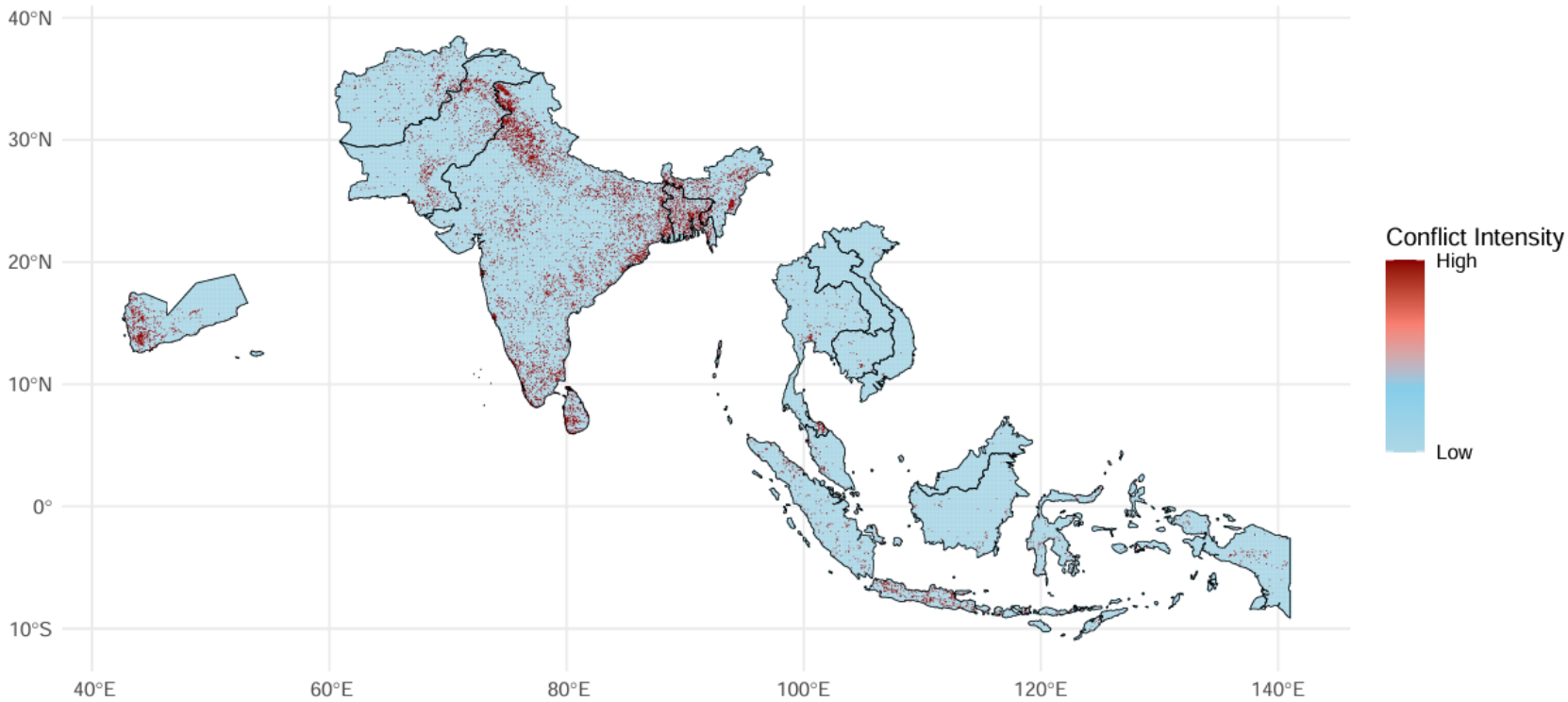


Source: Authors based on GAEZ (2023)

Number of political violent events in Asian countries

back



Source: Authors based on ACLED (2023). *Note*: Among all the events recognized by ACLED as violent event, we selected only events classified as "Protests", "Riots", "Violence against civilians". The period after War begins lasts from Jan2022 to Nov2023.

APPENDIX TABLES

Conflict events

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Number of political violent events registered at cell level in each month of each year, all period and after the War begins

	All period					*After the War begins*				
Country	**Mean**	**SD**	**Obs.**	**Min**	**Max**	**Mean**	**SD**	**Obs.**	**Min**	**Max**
Full sample	0.02	0.43	4,098,990	0.00	84	0.02	0.42	2,693,662	0.00	84
Afghanistan	0.01	0.21	328,720	0.00	33	0.01	0.20	216,016	0.00	33
Bangladesh	0.08	0.97	71,155	0.00	71	0.07	0.84	46,795	0.00	55
Cambodia	0.00	0.12	81,620	0.00	17	0.00	0.14	53,636	0.00	17
East Timor	0.00	0.06	7,770	0.00	3	0.00	0.06	5,106	0.00	3
India	0.03	0.52	1,446,620	0.00	84	0.03	0.51	950,636	0.00	84
Indonesia	0.01	0.19	866,565	0.00	39	0.01	0.20	569,457	0.00	39
Laos	0.00	0.01	108,675	0.00	1	0.00	0.01	71,415	0.00	1
Malaysia	0.00	0.08	149,345	0.00	12	0.02	0.08	91,141	0.00	12
Pakistan	0.04	0.71	431,165	0.00	71	0.04	0.68	283,337	0.00	69
Sri Lanka	0.08	0.79	30,003	0.00	45	0.08	0.84	19,734	0.00	45
Thailand	0.01	0.26	233,870	0.00	42	0.00	0.15	153,686	0.00	20
Vietnam	0.00	0.01	154,735	0.00	2	0.00	0.01	101,683	0.00	2
Yemen	0.02	0.27	188,720	0.00	22	0.02	0.25	124,016	0.00	21

Source: Authors based on ACLED (2023)

Note: Among all events registered by ACLED as violent, we select only those classified as "Protests", "Riots", "Violence against civilians". The entire period of analysis corresponds to the period from Jan2021 to Nov2023. The period "After the War begins" corresponds to the period from Jan2022 to Nov2023.

Falsification: Alternative definitions of Price Shock Exposure

	Number of political violent events		
	After War begins (1)	After War begins (2) Rural cells	After War begins (3) Urban cells
Price Shock Exposure (placebo)	0.007		
	(0.009)		
Price Shock Exposure		0.061***	0.292
		(0.010)	(0.231)
FE Cell	YES	YES	YES
FE Month-Country	YES	YES	YES
FE Year-Country	YES	YES	YES
Observations	2,622,207	2,685,550	6,072
Mean	0.022	0.016	1.988
SD	0.433	0.465	2.432

Notes.(* p-value$<$ 0.1; ** p-value$<$0.05; *** p-value$<$0.01) The unit of observation is the cell. Standard errors in parenthesis, are robust. *Price Shock Exposure*$_{im}$(*placebo*) is the price-shock exposure of spatial unit in month *m* that we obtain by combining time variation in rice prices with cross-sectional variation in rice suitability, as described in equation 1. The dependent variable is the number of political violent events for the spatial unit in month *m* events according to ACLED.

Effect of National Price Shock Exposure on Number of Political Violent Events: Black Sea Grain Initiative, Conflict Targets and Seasonality

	Number of political violent events				
	Black Sea Grain Initiative	Violence targets		Wheat Seasonality	
	Full Sample	Civilians	Non civilians	Before harvest	From harvest on
	(1)	(2)	(3)	(4)	(5)
Price Shock Exposure (Before BSGI)	0.113***				
	(0.015)				
Price Shock Exposure (After BSGI)	0.073***				
	(0.012)				
Price Shock Exposure		0.024***	0.120***		
		(0.007)	(0.020)		
Price Shock Exposure				0.020	0.039***
				(0.010)	(0.012)
FE Cell	YES	YES	YES	YES	YES
FE Month-Country	YES	YES	YES	YES	YES
FE Year-Country	YES	YES	YES	YES	YES
Observations	2,693,622	2,693,622	2,693,622	450,314	809,396
Mean	0.020	0.019	0.008	0.025	0.029

Notes.(* p-value< 0.1; ** p-value<0.05; *** p-value<0.01)The unit of observation is the cell. Standard errors in parenthesis, are robust. *Price Shock Exposure*$_{im}$ is the price-shock exposure of spatial unit in month m that we obtain by combining time variation in prices with cross-sectional variation in crop suitability, as described in equation 1. The dependent variable is the number of political violent for the spatial unit in month m events according to ACLED belonging to the categories: "Protests", "Riots", "Violence against civilians".

Effect of National Price Shock Exposure on Number of Political Violent Events: Black Sea Grain Initiative, Conflict Targets and Seasonality

	Number of political violent events				
	Black Sea Grain Initiative	Violence targets		Wheat Seasonality	
	Full Sample	Civilians	Non civilians	Before harvest	From harvest on
	(1)	(2)	(3)	(4)	(5)
Price Shock Exposure (Before BSGI)	0.113***				
	(0.015)				
Price Shock Exposure (After BSGI)	0.073***				
	(0.012)				
Price Shock Exposure		0.024***	0.120***		
		(0.007)	(0.020)		
Price Shock Exposure				0.020	0.049***
				(0.010)	(0.012)
FE Cell	YES	YES	YES	YES	YES
FE Month-Country	YES	YES	YES	YES	YES
FE Year-Country	YES	YES	YES	YES	YES
Observations	2,693,622	2,693,622	2,693,622	450,314	809,396
Mean	0.020	0.019	0.008	0.025	0.029

Notes.(* p-value< 0.1; ** p-value<0.05; *** p-value<0.01)The unit of observation is the cell. Standard errors in parenthesis, are robust. *Price Shock Exposure*$_{im}$ is the price-shock exposure of spatial unit in month m that we obtain by combining time variation in prices with cross-sectional variation in crop suitability, as described in equation 1. The dependent variable is the number of political violent for the spatial unit in month m events according to ACLED belonging to the categories: "Protests", "Riots", "Violence against civilians".

Effect of National Price Shock Exposure on Number of Political Violent Events: Black Sea Grain Initiative, Conflict Targets and Seasonality

	Number of political violent events				
	Black Sea Grain Initiative	Violence targets		Wheat Seasonality	
	Full Sample	Civilians	Non civilians	Before harvest	From harvest on
	(1)	(2)	(3)	(4)	(5)
Price Shock Exposure (Before BSGI)	0.113***				
	(0.015)				
Price Shock Exposure (After BSGI)	0.073***				
	(0.012)				
Price Shock Exposure		0.024***	0.120***		
		(0.007)	(0.020)		
Price Shock Exposure				0.002	0.049***
				(0.010)	(0.012)
FE Cell	YES	YES	YES	YES	YES
FE Month-Country	YES	YES	YES	YES	YES
FE Year-Country	YES	YES	YES	YES	YES
Observations	2,693,622	2,693,622	2,693,622	450,314	809,396
Mean	0.020	0.019	0.008	0.025	0.029

Notes.(* p-value< 0.1; ** p-value<0.05; *** p-value<0.01)The unit of observation is the cell. Standard errors in parenthesis, are robust. *Price Shock Exposure*$_{im}$ is the price-shock exposure of spatial unit in month m that we obtain by combining time variation in prices with cross-sectional variation in crop suitability, as described in equation 1. The dependent variable is the number of political violent for the spatial unit in month m events according to ACLED belonging to the categories: "Protests", "Riots", "Violence against civilians".

Impact of Price Shock Exposure on Number of Political Violence Events: Robustness using price of wheat flour

	Number of political violence events	
	All Period (1)	After War begins (2)
Price Shock	0.175***	0.123***
	(0.005)	(0.023)
FE Cell	YES	YES
FE Month-Country	YES	YES
FE Year-Country	YES	YES
Observations	4,089,990	2,693,622
Mean	0.021	0.020
SD	0.433	0.418

Notes.(* p-value< 0.1; ** p-value<0.05; *** p-value<0.01) The unit of observation is the cell. Standard errors in parenthesis, are robust. *Price Shock Exposure*$_{im}$ is the price-shock exposure of spatial unit in month m that we obtain by combining time variation in prices with cross-sectional variation in crop suitability, as described in equation 1. The dependent variable is the number of political violent events for the spatial unit in month m events according to ACLED.

Robustness checks

back

Effect of Price Shock Exposure on Number of Political Violent Events in Asian countries: Robustness checks

	Number of political violent events				
	(1)	(2)	(3)	(4)	(5)
Price Shock Exposure (1 month)	0.101***				
	(0.017)				
Price Shock Exposure (Production)		0.015*			
		(0.008)			
Price Shock Exposure (No main consumer) back			0.128***		
			(0.024)		
Price Shock Exposure				0.119***	
				(0.011)	
Price Shock Exposure					0.074***
					(0.009)
FE Cell	YES	YES	YES	YES	NO
FE Month-Country	YES	YES	YES	YES	NO
FE Year-Country	YES	YES	YES	YES	NO
Seasonal Time Trend	NO	NO	NO	YES	NO
FE Cell-Month	NO	NO	NO	NO	YES
FE Cell-Year	NO	NO	NO	NO	YES
Mean	0.020	0.017	0.018	0.020	0.020
Observations	2,693,622	1,692,984	2,410,285	2,693,622	2,632,622

Notes.(* p-value< 0.1; ** p-value<0.05; *** p-value<0.01) The unit of observation is the cell. Standard errors in parenthesis, are robust. *Price Shock Exposure*$_{cmt}$ is the price-shock exposure of cell in month *m* that we obtain by combining time variation in prices with cross-sectional variation in crop suitability, as described in equation 1. *Price Shock Exposure*$_{im}$ is the price-shock exposure of the cell in month *m* that we obtained by combining time variation in prices with cross-sectional variation in crop suitability. The dependent variable is the number of political violent events for the spatial unit in month *m* events according to ACLED.Correlation between *Suitability* and *Production*: 1.596*** (0.019).

Conceptual Framework: Price changes and Political violence

back

Two possible explanations:

- Higher wheat price could reduce political violence (*opportunity cost*) (Miguel et al. 2004).

  rise in wheat price $\rightarrow$ increase in local production of wheat $\rightarrow$ reduction in labor supplied to criminal activities & increase in wages $\rightarrow$ increase in the *opportunity cost* of fighting.

  $\downarrow$

  In locations where the output is larger, an **increase in price decreases political violence**.

- Higher wheat price could increase political violence (*rapacity effect*) (Dube & Vargas, 2013).

  rise in wheat price $\rightarrow$ increase in the value of current (and future) production of wheat $\rightarrow$ more attraction for appropriation of wheat output for combats and terrorists to self-finance criminal activities.

  $\downarrow$

  In locations where the output is larger, an **increase in price increases political violence**.

Which one of these two opposite effects prevails is a matter of empirical investigation.

Conceptual Framework: Price changes and Political violence

back

By focusing on low and middle-income Asian countries, we select countries where wheat production is present but:

- Wheat **consumption varies** consistently across and within countries
- On average heat plays a small role in the local diet more

Source: OECD-FAO Agricultural Outlook, USDA Cereal Annual Report

Clear test for opportunity cost vs rapacity effect

Implication: **price shocks** (most likely) affect agricultural production, **not consumption nor livestock farming**.

Moreover, in these countries, more than **94% of the cells are rural**: consumption is (tipically) smaller in rural areas (pop density is smaller).

Sources of heterogeneity: Definitions

back

- **Wheat (net) Exporters**: countries where wheat export in 2019 is above sample median. These are: India and Pakistan. All other countries (Afghanistan, Bangladesh, Cambodia, East Timor, Indonesia, Laos, Malaysia, Sri Lanka, Thailand, Vietnam, Yemen) are **Wheat (net) importers**. This is a proxy to indicate countries where, prior to the analysis wheat production while consumption was low.

- **Upper-Middle per-capita Income**: GNI per capita in 2021 $\geq$ 4,466 & $\leq$ 13,645. These are: Indonesia, Malaysia and Thailand. Others countries: Indonesia, Malaysia and Thailand. **Others**: Afghanistan, Bangladesh, Cambodia, East Timor, India, Laos, Pakistan, Sri Lanka, Vietnam, Yemen. Note: Income category has been identified according to the World Bank Analytical Classification (GNI per capita in USD, Atlas Methodology).

- **State Fragility**: a country is **Stable** if its Fragility State Index 2021 is $\leq$ 60 (Malaysia, Vietnam). A country has a **Warning** situation if its Fragility State Index 2021 is [61 $\leq$ x $\geq$ 80] (East Timor, India, Indonesia, Laos, Thailand). A country has an **Alert** situation if its Fragility State Index 2021 is $\geq$ 81 (Afghanistan, Bangladesh, Cambodia, Pakistan, Sri Lanka, Yemen).

Wheat Growing Season back map

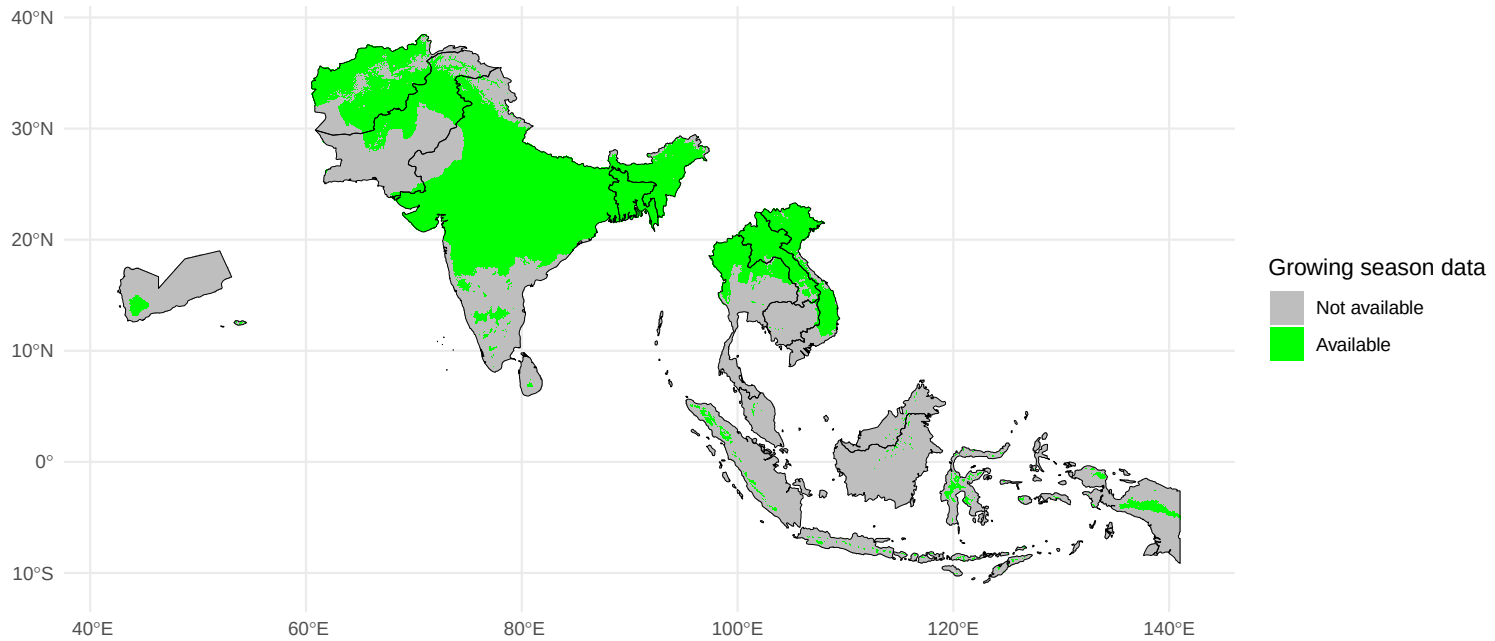
Effect of Price Shock Exposure on Number of Political Violent Events: Wheat growing season

	Number of political violent events	
	After War Begins (1)	After War begins (2)
Price Shock Exposure	0.135***	
	(0.019)	
Price Shock Exposure (Wheat)		0.121***
		(0.020)
Price Shock Exposure (Other crops)		0.005
		(0.004)
FE Cell	YES	YES
FE Month-Country	YES	YES
FE Year-Country	YES	YES
Observations	1,259,710	2,693,622
Sample	GAEZ avail.	Full Sample
Mean	0.032	0.032

Notes.(* p-value< 0.1; ** p-value<0.05; *** p-value<0.01)The unit of observation is the cell. Standard errors in parenthesis, are robust. *Price Shock Exposure*$_{im}$ is the price-shock exposure of spatial unit in month *m* that we obtain by combining time variation in prices with cross-sectional variation in crop suitability, as described in equation 1. The dependent variable is the number of political violent for the spatial unit in month *m* events according to ACLED belonging to the categories: "Protests", "Riots", "Violence against civilians".

Wheat growing season data availability in Asian countries

back



Source: Authors based on GAEZ (2023)

Heterogeneity by Country

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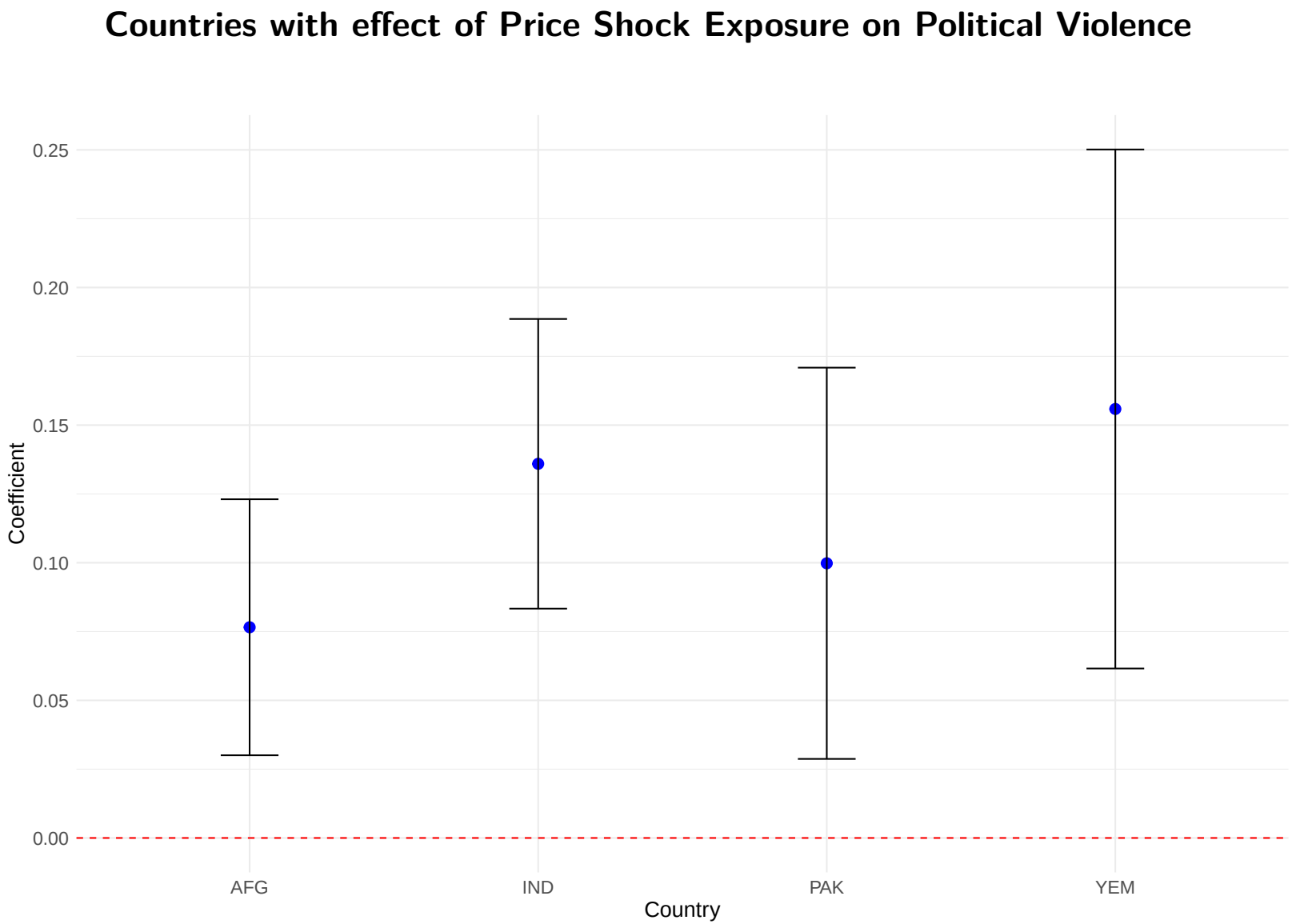
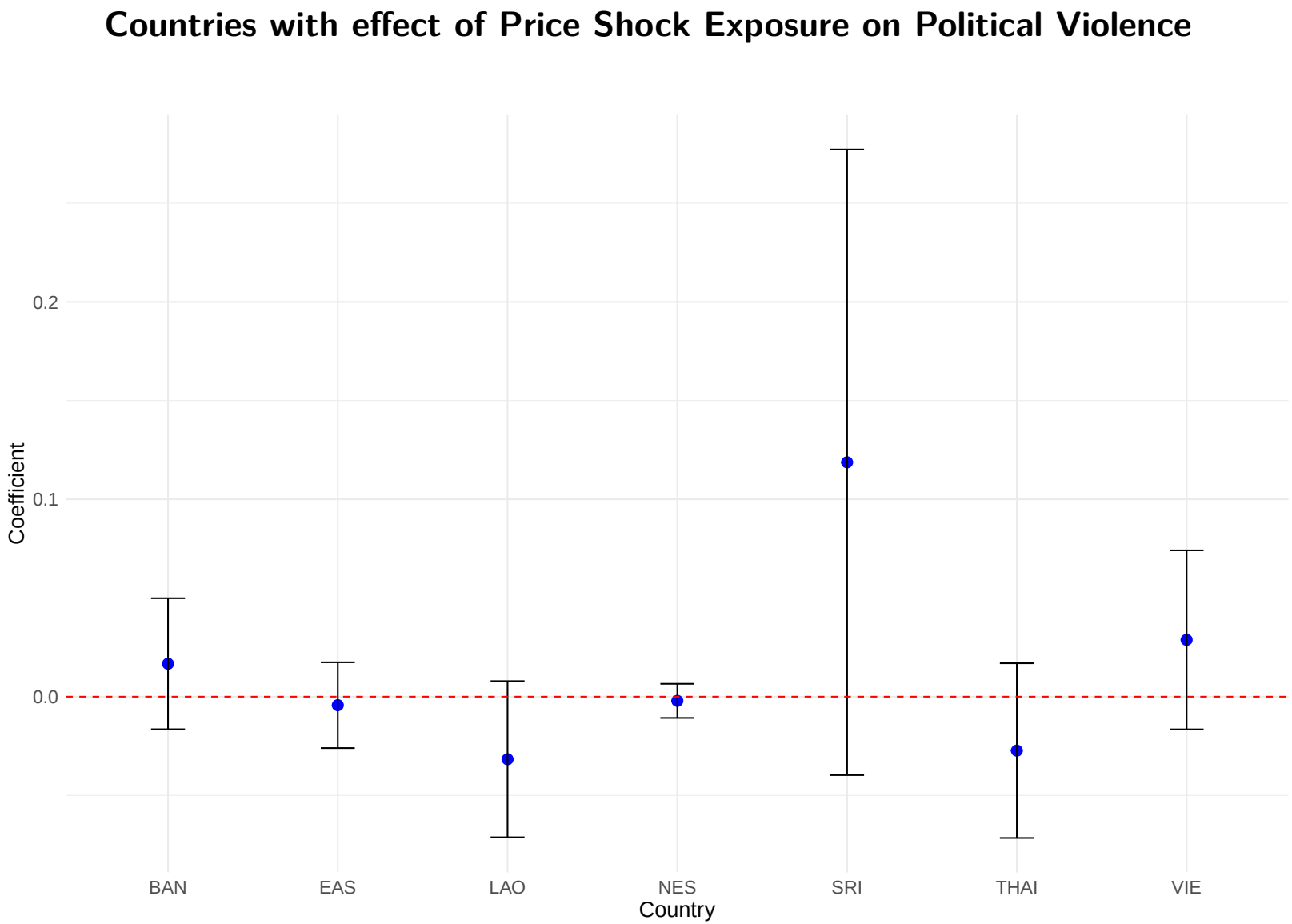


Source: Authors based on ACLED (2023) & GAEZ (2023) & FRED (2023)

Heterogeneity by Country

back



Source: Authors based on ACLED (2023) & GAEZ (2023) & FRED (2023)

International Prices back

Our measure of price shock is based on international prices:

- International prices are the most exogenous measure of price shock.
- International prices are not impacted by conflict dynamics, agro-ecological conditions, or weather patterns at *local* level.
- Following our specification, national prices are endogenous.

Definition of Political Violence back

- Political violence is the deliberate use of power and force to achieve political goals (World Health Organization (WHO), 2002).
- Political violence corresponds with the use of force by an organized, armed group in the pursuance of a political goal, including replacing an agent or system of government; the protection, harassment, or repression of identity groups, and/or political groups/organizations; the destruction of safe, secure, public spaces; and contests to establish political authority over an area or community (Raleigh et al. 2023).
- Political violence can be measured with ACLED data.