



# PRICE FLUCTUATIONS AND POLITICAL CONFLICT

John O'Trakoun  
U.S. Government Accountability Office  
2013 IPES Conference / 25 October 2013

Any views or opinions presented in this work are solely those of the author and do not represent those of the U.S. Government Accountability Office.

DISCLAIMER

# MOTIVATION

- Civil conflict often occurs in waves, affecting multiple countries within a short period of time.
- Examples:
  - Latin America: Bolivia (1977), Nicaragua (1978), El Salvador (1979), Peru (1980), Chile (1983), Brazil (1984), Uruguay (1984)
  - Eastern Europe: Poland (1981), Yugoslavia (1981), Romania (1987), Albania (1989), Belarus (1989), Bulgaria (1989), East Germany (1989), Estonia (1989), Hungary (1989)
  - Middle East: Iraq (1961), Algeria (1962), Yemen (1963), Oman (1964), Tunisia (2010), Egypt (2011), Libya (2011), Yemen (2011), Syria (2011), Bahrain (2011)
- Suggests international forces can be a catalyst for political strife.

# MOTIVATION

- Recent focus on the effect of prices in generating conflict.
  - *"Discontent over rising bread prices has played a part in the popular uprisings throughout the Middle East."* **The Economist** 26 Feb. 2011
  - *"Rising prices can cause mayhem....In some African markets maize and wheat prices have risen by 30% this year. Political tension invariably rises, too."* **The Economist** 28 May 2011
- Economists are increasingly interested in the role of uncertainty in creating crises.
  - Bloom (2009); Baker, Bloom & Davis (2013); Christiano, Motto & Restagno (2012); Basu & Bundick (2011)

# RESEARCH QUESTION

- Are price fluctuations a significant determinant of intrastate civil conflict?
- If so, what kind of price shocks matter? First-moment (price level) shocks or second-moment (price uncertainty) shocks?



# LITERATURE

- Political conflict  $\longrightarrow$  Economics
  - Mobarak (REStat 2005), Persson & Tabellini (2007), Abadie & Gardeazabal (AER 2003), Bittlingmayer (JFin 1998), Voth (2002), Serven (1996), Grigorian & Kock (2010), Edwards & Tabellini (1991)
- Economics  $\longrightarrow$  Political Conflict
  - Epstein et al. (2006), Arezki & Bruckner (IMF 2011), Nielsen et al. (2010), Miguel et al. (JPE 2004), Elbadawi & Hegre (2008), Besley & Persson (2008), Bruckner and Ciccone (2010)
- Theories of political transitions
  - Barro (1973), Marcouiller & Young (AER 1995), Acemoglu & Robinson (AER 2001), Zak & Feng (2003), Becsi & Lahiri (2006), Aghion, Alesina & Trebbi (QJE 2004), Yared (RES 2010), Besley & Persson (2010), Chassang & Miquel (2009)

# MODEL INGREDIENTS

- 2-period, small open economy model
  - Commodity prices are determined in the rest of the world.
- Agents: citizen and government
- Citizens receive an endowment of a commodity which they sell abroad in return for a consumption good
- Government taxes income

# TIMING OF EVENTS

1. Citizens receive endowment  $m$ .
2. Citizens set reservation utility for complying with dictator. Dictator sets tax rate  $\tau$ .
3. Prices are realized and goods are traded internationally.
4. Citizens either comply with dictator policy or ignite revolution. Dictator receives rents and, if not kicked out, value of holding office.

# MODEL RESULTS

- Global price fluctuations have an effect on domestic political stability.
- Higher prices of commodity exports lead to lower likelihood of political conflict.
- Higher uncertainty regarding future commodity prices leads to greater likelihood of political conflict.

# EMPIRICAL METHODOLOGY

- Compiled a quarterly panel dataset of low- and middle-income countries
- Data on political conflict from Armed Conflict Dataset and NAVCO dataset
- Net-export weighted agricultural commodity price index
- Weighted commodity price uncertainty index
- Controls for income shocks, country fixed-effects, quarterly time fixed effects

# EMPIRICAL METHODOLOGY CONT.

- $conflict_{it} = \begin{cases} 0, & \text{if no conflict in country } i, \text{ period } t \\ 1, & \text{if conflict in country } i, \text{ period } t \end{cases}$
- Estimate a probability model (linear, logit, probit)
- $conflict_{it} = \beta_0 + \beta_1(\Delta Price\ level) + \beta_2(\Delta Price\ uncertainty) + \gamma X + \alpha_i + \varepsilon_{it}$
- **Low price levels make revolution more likely:** expect **negative coefficient on price level variable**
- **High price uncertainty makes revolution more likely:** expect **positive coefficient on uncertainty variable**



# EFFECT OF PRICE LEVEL AND UNCERTAINTY ON CONFLICT INCIDENCE

	LPM-RE	LPM-FE	LOGIT-RE	LOGIT-FE	PROBIT-RE
$\Delta$ Price Level	-0.028 + (0.017)	-0.028 + (0.017)	-0.350 + (0.198)	-0.350 + (0.198)	-0.203 + (0.114)
$\Delta$ Price Uncertainty	0.082 ** (0.029)	0.082 ** (0.029)	0.952 ** (0.321)	0.952 ** (0.321)	0.556 * (0.194)
$N$	13950	13950	13950	10230	13950
Clusters	75	75	75	55	75
Overall $p$	0.007	0.010	0.005	0.006	0.005
Hausman $p$	0.481				

+  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$   
Cluster-robust standard errors in parentheses.

# EFFECT OF PRICE UNCERTAINTY (RANGE) ON CONFLICT ONSET

	IV-LPM-FE	LOGIT-FE	PROBIT-RE	IV-LPM-FE	LOGIT-FE	PROBIT-RE
$\Delta$ Price Level	-0.032 ** (0.012)	-4.492 *** (1.177)	-1.433 *** (0.393)	-0.032 * (0.013)	-3.539 *** (0.979)	-1.175 ** (0.345)
$\Delta$ Price Uncertainty	0.024 + (0.013)	4.104 * (1.717)	1.516 * (0.728)	0.025 + (0.015)	3.438 + (1.782)	1.250 + (0.736)
$\Delta$ Reserves	0.027 (0.140)	-0.122 (0.070)	-0.029 (0.065)			
$\Delta$ Income				-0.960 (1.351)	-6.901 + (4.010)	-3.713 + (1.953)
<i>N</i>	7434	4958	8340	6986	4594	8062
Clusters	67	41	72	67	44	71
Overall <i>p</i>	0.066	0.000	0.005	0.105	0.002	0.001
Over-i.d. <i>p</i>	0.130			0.397		
Endog. <i>p</i>	0.474			0.598		

# CONCLUSION

- In addition to price level shocks, increased uncertainty about future food commodity export prices is a significant predictor of conflict in developing countries.
- Policies that reduce the uncertainty in export prices faced by producers may generate a more conducive environment for a new/transitioning government to consolidate its role.
- Financial market regulation in the developed world can have an effect on the political stability of developing countries.

Thank you!