



U.S. Federal Reserve Policies can cause Political instability by raising bread prices*

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Abstract

This note argues that the monetary policies of the U.S. Federal Reserve impact food prices globally and can – by extension – affect the incidence of food riots and broader social conflict. We additionally claim that these impacts are especially likely in the case of commodities with more price-inelastic demand, staple cereals in particular, but less likely in the case of food commodities with more price-elastic demand, such as meats and oil. Using mediation analysis, we find empirical support for the impact of changes to US dollar supply on food riots from 2000–2011. We also find that this relationship extends to broader measures of social conflict (including protests, riots, strikes, etc.). We conclude with a cautionary note about how to interpret these results.

Keywords Food riots · Social conflict · Food prices · Federal Reserve · Inflation

Russia's invasion of Ukraine has sparked concerns that the price of food – and especially cereals, a fundamental staple in most diets worldwide – will rise “beyond anything we've seen since World War Two” (Nichols, 2022). Even more importantly, the war and resultant economic sanctions are occurring amidst high inflation from pandemic-induced disruptions and activist monetary policies, prompting concerns that a “perfect storm” of increased food prices could cause civil war across the developing world.

We focus on the possibility that what determines if food prices will skyrocket and whether this will lead to social conflict in net food-importing states is the Federal Reserve's (Fed) monetary policy. Increased supply of the world's most important currency, the US dollar, were intended to arrest the sharp general decline in asset prices during the COVID-19 pandemic. Prices rebounded across the board following the Fed's aggressive expansion of its balance sheet.

Food prices stay low in a deflationary environment but increases in USD supply can produce an appreciation of the exchange rates of other currencies – pushing the prices of

imports (including food) up – and may also cause a rise in domestic inflation, which can similarly raise prices (Clapp, 2017). USD supply sharply increased during the late 2000s, correlating with jumps in food prices (Koren & Winecoff, 2020). The positive relationship between USD money supply and food prices was even more clear once the subprime crisis began: when M2 money creation exploded in 2008 – and again in 2011 – so did the prices of food, especially cereal grains.

Both researchers and policymakers highlighted the relationship between food prices and the social mobilization wave known as the “Arab Spring”, which was called the “Hunger Revolution” by some of those involved in the actual events (Shah, 2011; Bellemare, 2015; Hendrix & Haggard, 2015; Weinberg & Bakker, 2015). Immediately preceding these events global food prices sky-rocketed, and the Middle East and North African countries were particularly affected by these price changes (Bellemare, 2015). Over half of the food consumed in the MENA region was imported at that time and still is (Belhaj & Soliman, 2021). That figure is 90% in the Gulf States, and the largest price sensitivities are in staple grains like wheat.

The causal pathway we propose is straightforward. Expansionary policies by the US Federal Reserve (increase in M2 supply) generate a surge in commodity prices globally. Due to price-inelastic demand, food prices – particularly those of inelastic staples – are sensitive to

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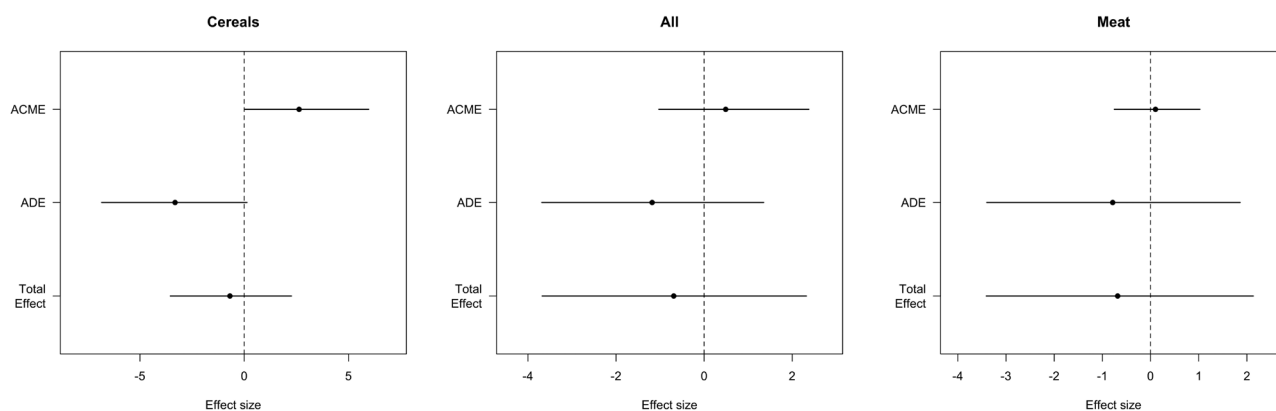


Fig. 1 Average causal mediation and average direct effects (Food Riots)

this effect, especially in net food importing states (Clapp, 2017). Rising food prices can then cause food riots and potentially social conflict (Bellemare, 2015; Hendrix & Haggard, 2015; Weinberg & Bakker, 2015).¹

1 Results

We analyze data on USD money supply, food price indices, and the global propensity for food riots (and social unrest) for each month between January 2000 and December 2011. Our *Food riots_t* dependent variable was created by Bellemare (2015). Our *Social conflict_t* variable is operationalized using the Nonviolent and Violent Campaigns and Outcomes (NAVCO) 3.0 dataset (Chenoweth et al., 2017). Our mediating variable channeling the impact of our key explanatory variables (change in M2 USD supply, as discussed below) on the dependent variable are food prices. We analyze an aggregated index of all food commodities; cereals (e.g., wheat, barley, corn), whose relative price-inelasticity of demand makes them more sensitive to the Fed's monetary policies (Hendrix & Haggard, 2015); and meat, whose demand is more price-elastic (Gallet, 2010) and should hence be less likely to mediate the Fed policies' conflict impacts.

Our independent variable, *% Change M2 supply_t*, is operationalized as the percent change of M2 money supply in a given month from the same month the previous year. We account for the existence of the 2007–08 global economic crisis (which helps to control for the pre-crisis 2007 food price spike), as well as the time trend and monthly fixed

effects. We rely on the mediation analysis by Imai et al. (2010), where the key explanatory variable – *% Change in M2 supply_t* – is assumed to impact our dependent variable (food riots/social conflict) only by affecting a mediating variable (food prices). A discussion of all variables, our methodology, and results is provided in the appendix. Figure 1 presents the average causal mediation effect (ACME) and average direct effects (ADE) of change in M2 supply on *Food riots_t* via each of our three food price mediators. Each model is estimated using 10,000 simulations – as recommended by (Imai et al., 2010) – with robust standard errors. As Fig. 1 illustrates, changes to % change in M2 supply has a mediated relationship with food riots in the case of cereal prices, (zero is not contained in the 95% credible interval). This supports previous studies (Bellemare, 2015; Hendrix & Haggard, 2015). We find a similar relationship neither with respect to the aggregate food index, nor meat prices.

Substantively, Fig. 1 suggests that, by affecting global cereal prices, a one-percent increase in USD supply translates to an average increase in the global number of food riots of about three incidents, on average, from a mean of 101.63 (or by about 3%). Considering the range of *% Change M2 supply_t* (1.7 ⇔ 10.5), these results a substantive effect across the range of ~26.4 incidents, or 26% mediated effect. As discussed in the appendix, our sensitivity parameter values for cereal prices are reasonably robust.

Figure 2 plots the results of the same models and mediators, this time using *Social conflict_t* as our dependent variable. We again find robust support for the mediated effect of money supply when cereal prices are the mediator, but no effect for the other price indicators. Substantively, a one-percent increase in M2 supply annually translates to a 0.1 increase in the number of global social conflicts from a baseline mean of 5.9 (or about 2%). Across the range of *% Change in money supply_t*, these results suggest a substantive change of ~1 incidents, or about 15%, due to this mediated

¹ David Leblang and William Bernhard presented an argument with a family resemblance to ours at a meeting of the International Political Economy Society in 2010. Their never-published paper deployed a different sample, unit of analysis, dependent and independent variables, and models, and proposed a different causal mechanism to ours.

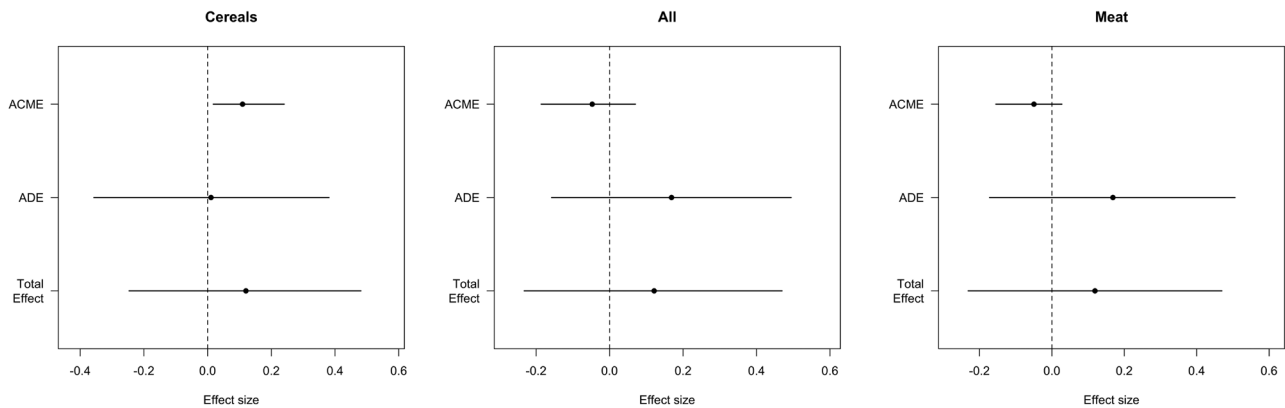


Fig. 2 Average causal mediation and average direct effects (Social Conflict)

relationship. As illustrated in the appendix, the underlying parameter estimates again show medium-to-high robustness for cereal prices.

While our results are consistent with a causal relationship tying social conflict frequency to increased M2 USD supply via raising food prices, we urge researchers and policymakers to pay careful attention to the underlying socioeconomic conditions that can exacerbate political instability during periods of rising food prices. As Houssain's (2018, 686) analysis of the Arab Spring shows, "protesters' voices were comparatively muted. Their motivations were flattened out to the universal 'natural' stimuli of 'hunger' and 'anger.'" During the Arab Spring, even though waves of protests engulfed eight countries, only two experienced civil war. In both cases, the initial wave of protests was food-related, but the resulting violence had much more to do with broader political, socioeconomic, and diplomatic failures, that had been building up for decades (Selby et al., 2017). Food riots, put simply, do not equal civil war, although they may contribute to its onset under very specific circumstances.

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Declarations

Conflicts of interests/competing interests The authors declare no competing interests and/or a conflict of interest.

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