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Conflict, food price shocks, and food insecurity: The experience of Afghan households

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ABSTRACT

Using nationally-representative household survey data and confidential geo-coded data on violent incidents, we examine the relationship between conflict and food insecurity in Afghanistan. Spatial mappings of the raw data reveal large variations in levels of food insecurity and conflict across the country; surprisingly, high conflict provinces are not the most food insecure. Using a simple bivariate regression model of conflict (violent incidents and persons killed or injured) on food security (calorie intake and the real value of food consumed), we find mixed associations. But once we move to a multivariate framework, accounting for household characteristics and key commodity prices, we find robust evidence that in Afghanistan levels of conflict and food security are negatively correlated. We also find that households in provinces with higher levels of conflict experience muted declines in food security due to staple food price increases relative tohouseholds in provinces with lower levels of conflict, perhaps because the former are more disconnected from markets. Gaining a better understanding of linkages between conflict and food insecurity and knowing their spatial distributions can serve to inform policymakers interested in targeting scarce resources to vulnerable populations, for example, through the placement of strategic grain reserves or targeted food assistance programs.

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Introduction

> Most wars of the late 20th century and early 21st century are 'food wars', meaning that food is used as a weapon, food systems are destroyed in the course of conflict, and food insecurity persists as a legacy of conflict. (Messer and Cohen, 2006)

Due to the 2008 and 2011 global food price crises, food insecurity has risen to the top of many national and international policy agendas. Given the potential implications for poverty, health and nutrition, and the outbreak of food riots, the impact of high food prices on food security is of concern to governments and aid organizations alike. These issues are particularly salient in conflict-afflicted countries where food production and distribution networks are strained and where distributing emergency food aid can be a challenge. The relationship between food insecurity and conflict is complicated. Much of the existing literature (and conventional wisdom) on their relationship suggests that food insecurity can be a consequence of conflict (e.g., due to the destruction of agricultural resources or the disruption of food distribution networks and markets) and also can be a cause of conflict (e.g., through economic and social grievances) (Bora et al., 2010; Messer et al., 2002; Teodosijevic, 2003). In these cases, this harmful cycle can result in chronic food insecurity and can exacerbate poverty.

We investigate variations in food security and the impact of food price shocks within the context of a conflict-afflicted country – Afghanistan. After decades of external and internal conflict,[1] along with prolonged droughts, Afghanistan has one of the poorest, least well-nourished populations in the world. Nearly 30% of the Afghan population do not meet minimum daily food requirements (2100 kilocalories per person) (Islamic Republic of Afghanistan and the World Bank, 2010). Approximately 60% of children under five suffered from chronic malnutrition (stunting) and 8% suffered from acute malnutrition (wasting) (Johnecheck and Holland, 2007). In 2008 in Afghanistan, due to a confluence of domestic (drought), regional (export bans), and international (food price crisis) factors, the price of wheat flour (the dietary staple) doubled. Such an economic shock could have serious implications for households in Afghanistan, many of whom are impoverished and live in conflict-afflictedareas.

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[1] Afghanistan has a long history of conflict involving both intra- and inter-state groups; for an overview of the conflict over the past thirty years, see Giustozzi and Ibrahimi (2012). In this paper we do not distinguish between different actors, rather we define conflict based on incidents of violence in which there are fatalities and/or casualties; more details are provided in the data section.

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We use nationally-representative household survey data and confidential geo-coded violence data to investigate the associations between conflict, food security and wheat flour price shocks. As a first step, we map the geo-spatial distribution of food insecurity and conflict across provinces. Knowing the geographic distribution of food insecurity can aid in targeting resources to vulnerable populations, for example, through the placement of strategic grain reserves or the improved targeting of safety net programs. Such interventions are of particular importance during periods of high food prices. Conflict is most prevalent in a few provinces, with some provinces experiencing little to no conflict. Levels of food insecurity also vary greatly across the country, which is not surprising given Afghanistan's diverse terrain, climate, and agricultural zones. What is surprising, and in some contrast to the portrayal of the relationship in the existing literature, is thatareas of high conflict are not the most food insecure; households located in the conflict-ridden provinces of the south have relatively lower levels of food insecurity, while households in the north and northeast suffer from very high levels of food insecurity. For example, in Balkh and Badakhshan, two northern provinces, over 50% of the population do not meet the minimum daily requirements of 2100 kilocalories per person. In contrast, in both Kandahar and Helmand, southern provinces suffering from significantly more conflict, less than 30% of the population falls below this threshold. Thus from this simple mapping, conflict does not appear to be the major driver of food insecurity in Afghanistan.

Using simple correlation coefficients between food security (as measured by calorie intake and the real value of food consumed) and conflict (using various measures associated with violent incidents and the number of persons killed or injured), we find a very weak relationship, with mixed signs depending on the measures used. Using a simple bivariate regression model of conflict on food security, we similarly find mixed results. But once we move to a multivariate framework that takes into account household characteristics and key commodity prices, we find robust evidence that in Afghanistan levels of conflict and food security are negatively correlated.

Finally, we examine how conflict levels contribute to the impact of food price increases on household food security by estimating the differential price effects based on the level of conflict in the province where the household is located. The results indicate that households in provinces with higher levels of conflict experience muted declines in food security relative to households in provinces with lower levels of conflict, holding all other factors constant. This finding is consistent with the fact that households in conflict areas may be more disconnected from markets than households in non-conflict areas; thus the price effects for the former group are smaller. This analysis builds on D'Souza and Jolliffe (2012), who find that increases in wheat flour prices led to declines in household food security, but who do not consider dimensions of conflict in their analysis.

This paper is the first to assess empirically the association between food security and conflict in Afghanistan. It also brings a new dimension to the study of food price effects, as there is little empirical research from conflict countries on such topics. In the next section, we describe the data, define our measures of food security and conflict, and present descriptive statistics. In section 'Mapping food insecurity and conflict across Afghanistan' we present the spatial mappings of food insecurity and conflict. In section 'Empirical model and results' we present our empirical model and results. The last section summarizes the key findings.

Data

We combine data from two primary sources: household and price data from the National Risk and Vulnerability Assessment (NRVA) 2007/08 and confidential geo-coded data on violent incidents from the United Nations Department of Safety and Security (UNDSS).

The NRVA 2007/08 was conducted by the Afghanistan Central Statistics Organization and the Ministry of Rural Rehabilitation and Development between August 2007 and September 2008. The frame used for drawing the sample was the 2003–05 national household listing – a listing of every house in the country; the sample was selected following a stratified, multi-stage design. The survey covered 20,576 households (about 150,000 individuals) in 2572 communities. The effective sample size for our analysis is 20,483 households in 394 districts in all 34 provinces.[2]

The NRVA 2007/08 survey was stratified implicitly over time, which ensures that the samples for each quarter reflect the overall composition of the country.[3] This aspect of the design means that each quarter can be viewed as a representative sample, allowing us to measure seasonal variation in food security.[4] This feature also allows us to exploit the price variation that is captured over the survey year, giving us additional power to measure how prices affect food security outcomes.[5]

Another key feature of the survey is the year-long fieldwork, which allowed coverage of conflict areas. Enumerators informally secured permission from local leaders in conflict areas and when a primary sampling unit (PSU) was considered too dangerous to interview at the scheduled time, it would be re-considered at a later date within the quarter, instead of replaced immediately. This flexible design helped to ensure a low replacement rate. While the majority of replacements were due to security issues, only 68 PSUs were replaced from the planned 2441 PSUs in the sample design (less than 3% replacement rate).[6] It is often difficult to obtain reliable data from conflict areas; thus the current analysis is able to provide a rare perspective on the relationship between food insecurity and conflict.

The survey includes detailed consumption information, which allows us to calculate several measures of food insecurity at the household level. The survey asks respondents about the amount and frequency of consumption of 91 food items from nine food groups over the previous week. The NRVA's broad coverage of foods, including seasonal varieties, allows more precise estimation of food consumption and calories than is possible in surveys with fewer items.

Finally the NRVA included a district market price survey; local market prices on food items in the consumption module, along with the prices of domestic and imported grains and fuel, were collected during visits to the primary sampling unit area.

The geo-coded conflict data cover the survey timeframe from August 2007 to September 2008. UNDSS collects information on fatalities and injuries, as well as violent incidents more generally.

[2] Thirty-two households were dropped due to missing female questionnaires, which include the consumption data. All of these households are located in four communities, suggesting a small systematic error in field operations. Fifty-two households were dropped due to missing consumption data and seven households were dropped due to missing asset data. One household is missing data on household size and is dropped because per capita measures of consumption and food security cannot be calculated.

[3] Implicit stratification means that the frame was sorted both spatially and temporally to ensure that (with a systemic interval selection) the selected sample would be seasonally representative. See Kish (1965, pp. 235–6) for a discussion of implicit stratification.

[4] Thus the sample can be thought of as a repeated cross-section.

[5] It is relatively unusual to have cross-section data that spans an entire year and has been temporally stratified. The stratification ensured that the household data provided representative estimates for quarterly subsamples, thus enabling us to identify the effects of the price increases on households. The 13-month time span was sufficiently long to ensure that there was significant variation in prices. If the time span had been shorter, the variation in prices likely would have been less (truncating or missing the price spike).

[6] Replacement PSUs were primarily selected from the nearest secure district.