

Food (In)Security*

White Paper Prepared for the
Social Science Directorate of the
National Science Foundation

William Bernhard
University of Illinois
Bernhard@uiuc.edu

David Leblang
University of Virginia
leblang@virginia.edu

Abstract. Since 2008 over thirty countries have experienced riots and protests due because of problems associated with increasingly limited and volatile food supplies. Changes in the global supply of food has also been a key factor have also been associated with a dramatic increase in malnutrition over the same period of time. We argue that future research in the social, behavior and economic sciences should be devoted to the study of the causes and consequences of food security. And we specify they ways in which the study of food policy has implications for our understanding of both domestic and international commodity markets, international trade and investment, and inter- and intra-state conflict.

In 1996 the World Food Summit in Rome defined food security as a situation “when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.” Yet fifteen years later many individual countries and the global community as a whole are nowhere near reaching this goal. Factors such as civil conflict and climate change, shifting patterns of production and volatile commodity prices, disruptive domestic policies and a reallocation of foreign aid have all contributed to increased global food insecurity. These real-world changes have, unfortunately, outpaced our theoretical and empirical knowledge of the causes and consequences of food (in)security. In what follows we outline a number of productive avenues for scholarship to address this gap between theory and practice; avenues that are ripe for collaboration between scholars in the social and natural sciences.

Our organizing assumption is that the provision of an adequate supply of food is fundamentally a political problem. The earliest non-nomadic societies, as we learn from anthropology and history, formed in areas where there was a (relatively) steady supply of food and potable water. Disruptions of these vital lifelines, more often than not, led to a change in ruler, a shift in location or both. Throughout history, food shortages have led to protest and, in some cases,

* This work is licensed under the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-sa/3.0/> or send a letter to Creative Commons, 171 Second Street, Suite 300, San Francisco, California, 94105, USA.

violence against the government of the day. Therefore, preserving the food supply is integral to both regime stability and, in turn, international order.

To protect themselves as leaders—yesterday as much as today—politicians rely a broad array of strategies to balance the supply of and the demand for food. We organize these strategies into four broad categories:

- Domestic Market Regulation. Nearly all countries have a long history of regulating domestic markets involving agricultural production. In developing countries, governments have used pricing boards and monopsony purchasing to insure affordable food in urban areas. Policymakers in developed countries regularly employ subsidies and tariffs on competing imports. These policies create a wedge between domestic and world prices of commodities, providing a deadweight loss to consumers. Yet once imposed they are politically difficult—if not impossible—to dismantle.
- Investment in Research and Development. Most, if not all, countries of the world attempt to protect their food stocks by investing in research and development, either directly or through incentivizing private agents. Research takes a variety of forms from the development of seed hybrids, genetically modified organisms, and fertilizers to improvements in irrigation, harvesting, and transport. In the United States, for example, lang-grant universities often serve as a focal point for these types of activities. In Brazil, government-led research has transformed the country into an agricultural giant.
- Development of Markets to Hedge against Exogenous Shocks. Many countries have created or participated in commodities markets that allow producers and consumers to hedge against price movements and protect themselves financially. These markets have come under increased scrutiny during the current financial crisis, as futures trading in commodities remains unregulated. The financial crisis was associated with significant volatility in the price of wheat and corn.
- Develop Access to International Markets. Policymakers can also seek to insure access to international markets. In some instances, wars have been fought to annex territories that would protect food supplies. Prior to World War II, the solution to problems of domestic food shortages was at least partially solved because major powers relied on their colonies for the production of primary products. After decolonization, countries have relied on trade to satisfy domestic demand and insure market access, pursuing policies in the international arena that include global reductions in tariffs, the creation of free trade zones, and government sponsored foreign investment.

Countries have implemented these strategies in varying combinations over time. Mapping those differences over time and place is a first step towards understanding their variation. We argue that the configuration of political and market institutions and constituency interests condition the choice and effectiveness of particular strategy combination. Indeed, democracies appear to be much more effective at delivering food to their populations than autocracies. As Amartya Sen as

famously noted “no famine has taken place in history of the world in a functioning democracy—be it economically rich or relatively poor.” The availability of information in democratic societies and the mechanism of electoral accountability insure that leaders must take seriously the basic needs of their populations.

Democracies, however, are not homogeneous. Electoral rules and representative institutions vary across countries, providing politicians with different incentives for the management of agricultural policy. In some legislatures, for instance, rural interests are over-represented. Other policy institutions may provide multiple points of access for lobbying groups and sectoral interests. Understanding how these institutions affect the policy choices can help explain patterns of agricultural policy across countries and over time.

While many countries have managed their food policies relatively well over recent decades, a number of systemic changes on the horizon threaten to upset this political balance. These include, but are not limited to:

- Environmental Change. Climate change promises to disrupt long-term patterns of global food supply (e.g., Russia in 2010). Even beyond climate change, there is a growing realization that agricultural production often involves environmental degradation, and that there are limits to the sustainability of certain agricultural practices. The current use of petroleum-based fertilizers combined with deforestation, for instance, adds to water pollution, the disruption of fish stocks, and desertification of the landscape.
- Technological Innovations. While technological breakthroughs promise improvement, there are unintended consequences. The development of genetically modified organisms has created controversy and been rejected by consumers in many countries. The increasing use of biofuels may divert production of agricultural products. The shift in policy emphasis to ethanol has decreased the supply and increased the price of corn, leading to food shortages in some parts of the world.
- (De) Regulation of Markets. While commodity and financial markets are designed to smooth price signals, they become less informative during times of economic distress. When markets are unregulated as are commodity futures markets, economic shocks often lead to increased price volatility that is uncorrelated with the underlying value of the commodity in question. This may lead—as in 2008—to countries becoming less willing to open their markets and engage in trade with one another.

Understanding the source(s), persistence and impact of these exogenous shocks warrants collaborative research across the social and natural sciences.

If these shocks alter the political balance between the supply and demand for food then it can trigger political conflict both domestically and globally. One need only glance at recent headlines to see that the volatility of food prices has led to riots and civil unrest in countries as

diverse as Hong Kong, Mozambique and Russia. At the international level, the Doha round of trade negotiations has collapsed, in part due to conflict over agricultural issues. China is actively expanding its foreign direct investment operations in Africa to insure access to valuable commodity markets, threatening American and European strategic interests. Understanding how these shocks to food affect the political and economic balance is a vital part of predicting and preventing political conflict and international instability.

How do we propose to do this? First, we need to understand food production as strategic decisions made by producers (farmers, agribusinesses). In making their production decisions, producers employ information from a variety of sources, including estimates of demand in domestic and international markets, the expected price of their products, the cost of inputs such as labor, seed and fertilizers, and the risk of exogenous shocks (like inclement weather, droughts, etc.). Government policies affect many of these factors. Therefore, producer expectations about the nature of the government and its policies will influence their decisions. During periods of potential political change (i.e., during an election or a shift in governing parties), therefore, farmers may alter their production decisions. We need to decompose patterns of agricultural (food) production into components associated with weather, the cost of inputs, price futures, and political risk.

Perhaps more importantly, producers may worry about the policy preferences of incoming governments not just at home but also in the governments of their trading partners or their economic competitors. Changes in these governments may provide open or forestall market opportunities outside of their home country. Therefore, we need to consider the impact of not just domestic political risk, but also political risk from major markets. Disentangling these different risks will help us better understand how agricultural markets have become more integrated over time.

A second task is to better understand the organization and behavior of commodity markets. The markets provide information about both present and future prices, allowing producers to make decisions about production and investment. Sometimes, however, as in the summer of 2010, there is a disconnect between production and prices. What causes this disconnect? We argue two potential sources exist: political uncertainty and contagion. Political uncertainty can distort price signals in both producer and consumer countries. Contagion, in turn, allows herding behavior to spread quickly across countries, markets and commodities. Volatility in one market, say, oil, may influence volatility in corn markets. By identifying the linkages between markets, we can better understand the mechanisms of contagion and, in turn, identify ways to insulate markets from unnecessary volatility or inappropriate price changes. With a better understanding of how political factors influence production choices, both directly and through commodity markets, we will be able to predict how food production will respond to the exogenous shocks of environmental and technological change.

But to fully grasp the impact of these exogenous shocks, we must also evaluate how politicians respond to the challenges of food insecurity. The political dynamics associated with food production and consumption can help explain changing patterns of political conflict. The

vulnerability to a disruption in the food supply, for instance, may explain why some states succeed while other collapse. By elucidating the mechanisms that connect agricultural markets, commodity markets, and political conflict, we can more accurately forecast the locus of political instability brought about exogenous shocks to the food supply.

Yet the type of political change brought about by changes in the food supply need not be violent. In the United States, for example, there is a growing divide between urban and rural voters. Biofuels—especially ethanol—rely on production in primarily democratic states while petroleum based fuels are predominant in republican states. Exploring patterns of production and the provision of subsidies provides insights not only into how politicians influence agricultural markets but also into patterns of electoral competition.

Finally, food politics is a lens to understand evolving patterns of international conflict and cooperation. Given the challenges inherent in managing the domestic food supply in an increasingly volatile global marketplace, how do governments protect the fragile balance between agricultural production, food supply and political stability? Governments may seek political alliances, preferential trade agreements, or form common markets as tools to help preserve access to important agricultural markets. The underlying necessity of feeding populations may hold the key to explaining different international outcomes. With a clear understanding of the nexus between food and politics, social science can help point the way toward a peaceful international resolution of potential conflicts brought about by disruptions to agricultural production.