

WORLD HUNGER AND THE GLOBAL ECONOMY: STRONG LINKAGES, WEAK ACTION

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This paper probes some of the global economic forces that have contributed to the ongoing precarious global food security situation, especially in the years since the 2007 to 2008 food crisis. Since the crisis hit at a time when global food production per capita was rising, it is important that policies addressing hunger incorporate dimensions beyond food production. There has been some acknowledgement of the role of global economic forces in the food crisis by global policymakers, but global food security initiatives still largely emphasize increased food production over other measures. The paper concludes that more needs to be done to ensure that the rules that govern the global economy—especially those regarding international trade, finance, and investment—do not work against the goal of food security.

Since the 2007 to 2008 food crisis, food security has become a prominent issue on the global policy agenda. Continued instability of global food prices since the initial price spikes has given rise to a concern that a new crisis could emerge at any time. A number of global governance initiatives for food security have been announced in recent years. These include efforts to channel funding into increasing agricultural productivity in the developing world. This approach to food security resonates with what has been labeled by many as a “productionist” approach to food security, which anticipates future food shortages and prescribes increased food production as the primary means to achieve enhanced global food security.¹

Although the production of sufficient quantities of food is a prerequisite for food security, other equally important factors must also be addressed to achieve adequate access to food for all. The world currently produces in caloric terms more food than is needed to meet this objective, and food output per capita on a global scale has been rising, even through the recent crisis period.² However, because

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food crises can erupt even when there is sufficient food available, it is important for food security policy to include measures beyond simply boosting production. In particular, policy measures that seek to improve distribution and access must also be integrated into food security policy.³ Global economic relationships, such as trade, finance, and investment, as well as the rules that govern those relationships, set the international policy context and affect food security in complex and significant ways.⁴

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In this paper I call attention to important features of the global economy that are widely associated with ongoing global food insecurity in the world's poorest countries, and which deserve more attention, and action, in policy circles. These include economic policies that largely originate in wealthier, more industrialized countries that contribute to higher and more volatile food prices and uneven distribution of food and agricultural investments. Global policy responses continue to prioritize productivity measures within the existing global economic governance framework, rather than transforming that very framework in ways that better support food security.

HUNGER AND THE IMPORTANCE OF POLICIES THAT AFFECT ACCESS TO FOOD

Hunger remains a serious global problem. Over 840 million people in the world are chronically undernourished, but due to the manner in which hunger is measured, this figure may underestimate the true scale of the problem. The main indicator of hunger used by the Food and Agriculture Organization (FAO), the Prevalence of Undernourishment (PoU), is very narrow in scope.⁵ It measures the number of people consistently receiving fewer gross calories than necessary to live a sedentary lifestyle for over a year.⁶ Given that many, if not most, of the poorest people in the world have activity levels that are far from sedentary, and often experience acute hunger on a seasonal basis, the PoU risks missing a large number of people who do not have adequate access to food.⁷ Even short-term episodes of acute hunger can be devastating for small children and pregnant women. A focus on calories alone does not tell us much at all about the nutritional quality of food or implications of low nutritional quality, such as micronutrient deficiencies or stunting. In India, for example, nearly half of all children under the age of five are stunted, and more than 25 percent of children worldwide have an inadequate diet during their key growth years.⁸

The scale of global hunger is especially troubling, given that the world produces enough food to meet human needs. Data from the FAO indicate that on an average, there are 2800 calories available per person, after livestock are fed and after post-harvest losses are accounted for, which is an amount that far exceeds the 2100 calories an average person requires per day to maintain health.⁹ FAO data also reveal that world food production per capita has actually been rising in recent years.¹⁰ However, it is unclear whether this situation of sufficient global food availability will continue. This uncertainty, combined with production deficits in some countries, drives most of the production-oriented initiatives for food security. A productionist approach, however, only addresses one aspect of the problem, and fails to sufficiently delve into some of the deeper causes of hunger that exist today.

Uneven distribution of both food production and food trade, and poor access to food, are the key reasons that people continue to go hungry in this world of plenty.¹¹ Nobel prize-winning economist Amartya Sen's path-breaking work in the early 1980s demonstrated that access to food is key to understanding hunger, and that focusing on food availability alone to guide policy can have disastrous results, as was the case with devastating famines in Bengal in 1943 and in Bangladesh in 1974, among others.¹² This work fundamentally transformed the understanding of the determinants of hunger, which previously had centered almost exclusively on food availability. A person's income, position in society, and the productive resources and other assets available for production and trade are now widely seen to be other important determinants of access to food.

Today, the FAO features access as one of four key pillars of food security, alongside availability, utilization (nutrition), and stability.¹³ Political systems and economic frameworks strongly influence the broader conditions that determine food security. As Drèze and Sen note, an access-centered approach to food security, "compels us to take a broad view of the ways in which access to food can be protected or promoted, including the legal framework within which economic relations take place."¹⁴ The factors that determine access to food are often examined in a national or regional context, with a focus on democratic institutions and economic frameworks in hunger-prone countries and regions. This focus is important. But in an increasingly globalized world where food systems are closely intertwined with global economic relations in complex ways, we must also take the international economic and regulatory context into account when both analyzing the factors that affect food security and framing policy.

ECONOMIC POLICIES ASSOCIATED WITH HIGHER AND MORE VOLATILE FOOD PRICES

World food prices have increased, and have become markedly more volatile

over the past decade. Volatility can have an enormous impact on people's access to food, especially in the world's poorest countries.¹⁵ In Pakistan and Ghana, the poorest 20 percent of the population spends over 70 percent of their income on food.¹⁶ Steep rises in food prices can easily overwhelm a poor family's entire budget, resulting in an immediate decline in food consumption, as well as an increase in poverty.¹⁷

A number of complex factors contribute to food price volatility.¹⁸ Over the medium- and long-term, food supply and demand factors can influence food prices and their variability. Lower food stocks, for example, can lead to panic in markets, which can drive prices higher, while changing diets can increase demand for grains over the longer run, possibly affecting long-term price trends.¹⁹ But while supply and demand factors were featured in many popular accounts of food price volatility, it is noteworthy that during the recent food price crisis, while prices climbed so rapidly and sharply, there was no decline in food production per capita.²⁰ Indeed, since the recent food crisis, it is widely recognized that other short-term factors played a significant role in triggering and exacerbating food price volatility.²¹ These include a number of economic policies pursued in wealthier countries such as financial deregulation, biofuel policies, and trade policies, as explained below.

Financial Sector Policies and Commodity Speculation

Speculative investments in commodity futures and other agricultural derivatives have increased significantly since 2006, following the deregulation of the key financial markets—including in the United States and European Union—over the previous decade.²² The relaxation of curbs on speculative investments, and the relative lack of regulation on new commodity derivatives, such as index funds, in these key financial markets helped to fuel these investments. Investors became interested in agriculture-linked financial investments as a “hedge against inflation” in a turbulent economic context. Indeed, speculative investment in agricultural commodities almost doubled from USD \$65 billion in 2006 to USD \$126 billion in 2011.²³ In the United States wheat-futures market, financial speculators' share of the trade increased from 12 percent in the mid-1990s to 61 percent in 2011.²⁴

Some argue that the increase in commodity speculation pushed up food prices and made them more volatile.²⁵ From 2006 to 2008, average world prices for rice rose by 217 percent, wheat by 136 percent, maize by 125 percent, and soybean by 107 percent.²⁶ As food prices rose sharply in mid-2008, the FAO reported that volatility in the prices of bulk commodities had risen and reached unprecedented levels.²⁷ These conditions led to calls for tighter financial regulation to reduce food price volatility.²⁸ Others argue that despite the correlation, there is little hard evidence that speculation was a primary driver of food price increases, and that

speculation in fact plays a role in smoothing market prices by providing liquidity to agricultural markets.²⁹

Amidst this debate, a growing number of organizations have taken the position that commodity speculation exacerbated food price trends even if it was not the main culprit. The Bank for International Settlements and several UN reports noted that financial investment in commodities can potentially influence prices for those commodities, especially in the short-term.³⁰ Although the debate over the impact of speculation on food prices will likely continue, there appears to be a growing consensus that speculation plays a role in explaining price volatility.

Biofuel Policies

Policies that encourage investment in biofuel production have been directly associated with food price volatility over the past decade.³¹ Many countries have implemented biofuel policies such as blending mandates and subsidies for renewable fuel production, which encourages a large-scale diversion of food crops into fuel uses.³² Although non-food crops can be used as feedstock in the production of biofuels, in some countries, such as the United States, the main crop used for this purpose is maize, a major coarse grain in global food markets. A dramatic rise in the production of biofuels from non-food crops can affect food production because production typically utilizes land that could have been used to produce food crops. There are varying estimates of the extent to which biofuels are responsible for rising food and agricultural commodity prices, ranging from a minimal effect to as high as 70 percent. A recent work by the National Academy of Sciences surveyed these studies and estimated that approximately 20 to 40 percent of agricultural commodity price increases in recent years is attributable to the boom in biofuel production.³³

Biofuel policy in the United States is especially significant. As the world's largest producer of maize, the United States has seen a rising percentage of its production of this crop being diverted into the production of ethanol. In 2000, roughly 7 percent of U.S. maize production was used for fuel production, and by 2012 that figure was close to 45 percent.³⁴ This large shift resulted in over 15 percent of global maize production, which is the equivalent of 6 percent of global grain production, being diverted from food uses into to biofuel production. The

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increased diversion of maize into biofuel production has from 2007 to 2012 added USD \$6.6 billion to the cost of food imports to developing countries.³⁵

Export Restrictions

Restrictions on exports can also affect food prices. The WTO imposes rules on its members to prevent restrictions on food imports, but does not have a clear set of rules on restrictions of food exports. In the recent period of higher and more volatile food prices, some countries that normally export some of their food have imposed a ban on those exports in a bid to lower prices at home, and to insulate the domestic market from international price fluctuations.³⁶ Such policies are typically imposed in response to a shock that affects prices or supply. Export restrictions may protect domestic food prices from sharp increases, but they can have the effect of exacerbating price increases in international markets, which adversely affects those countries that depend on food imports.³⁷

Between 2006 and 2008, a number of countries imposed bans on food exports, including India, Vietnam, Egypt, China, and Cambodia.³⁸ These moves were widely criticized for their impact on world food prices, as prices of some commodities, such as wheat and rice, rose sharply at exactly the same time when these policies were imposed.³⁹ Emergency operations of the World Food Programme (WFP), which procures food for its assistance programs in a variety of countries around the world, were also affected by these policies.⁴⁰ Food prices were influenced by export restrictions again in 2010, when Russia imposed an export ban in the face of regional production shortfalls, which had an immediate upward effect on world grain prices.⁴¹

The international consequences of these various policies can reinforce one another. Rising prices due to the diversion of food crops to fuel uses can push world food prices higher, in turn encouraging other countries to impose export restrictions, which in turn can encourage financial speculation on commodity markets as financiers seek to capture profits from rising and volatile food prices. The result is a dynamic situation in which different forces interact with one another and increase price volatility.

POLICIES THAT CONTRIBUTE TO AN UNEVEN WORLD FOOD ECONOMY

Higher and more volatile food prices on world markets have particularly harsh consequences on the world's poorest countries due to their increasing dependence on imported food. Most of the world's forty-eight Least Developed Countries (LDCs) are net food importers.⁴² These countries have the highest proportion of their populations suffering from hunger and undernutrition, and are therefore the most vulnerable to changes in world food prices.⁴³ In the 1960s and 1970s, the

LDCs exported roughly the same value of agricultural products as they imported. Starting in the mid-1980s, LDCs became net agricultural importers, with imports far outpacing exports in recent years.⁴⁴ Higher food prices on world markets have imposed an enormous burden on these countries, as their food import bills have risen sharply, with price effects far outweighing volume effects.⁴⁵ Since the early 1990s, the volume of cereal imports of the LDCs increased by a factor of three, while the value of those imports increased by over sixfold.⁴⁶

A complex set of forces has contributed to weak agricultural sector performance and rising dependence on food imports in some of the world's poorest countries.⁴⁷ Although domestic factors such as land availability and crop yields play a role, there is a growing recognition of the international economic forces that also contribute to these trends. This paper focuses on the ways in which international trade, aid, and investment policies and practices play a role in affecting food security and agricultural outcomes in the world's poorest countries.

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Skewed Agricultural Trade Policies

International agricultural trade policies are highly uneven, and contribute to weak agricultural performance and food insecurity in the world's least developed countries. On the one hand, many rich industrialized countries have long subsidized their agricultural sectors to encourage production and exports, while discriminating against imported foods through the use of tariffs. On the other hand, since the 1980s, many developing countries implemented policies to liberalize their own agricultural trade policies in return for World Bank-sponsored structural adjustment loans.⁴⁸ The combined effect of these policies was to facilitate easy and cheap food imports to the world's poorest countries, which acted as a powerful disincentive for investment in the agricultural sector in developing countries.

The aim of the 1994 Uruguay Round Agreement on Agriculture of the General Agreement on Tariffs and Trade (GATT) was to bring about liberalization of agricultural trade policies in all member countries. The final agreement, however, instead institutionalized the imbalance in trade practices between rich and poor countries.⁴⁹ Under the agreement, rich countries were able to keep their subsidies at high levels because they were able to move them into categories of support that were exempt from cuts. Further, the tariff cuts in the poor countries were relatively

more significant than those in the rich countries because they had already made substantial tariff cuts under structural adjustment programs a decade earlier.⁵⁰

The uneven nature of agricultural trade liberalization, as codified by WTO rules, has contributed to the growing dependence on imported food in the world's poorest countries.⁵¹ Before the 2007 to 2008 food crisis, many poor countries complained about surges of cheap, subsidized imports of food, typically staple cereals,

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from industrialized countries that hurt domestic farmers, as the prices of domestic production were unable to compete with the prices of those imports.⁵² Senegal, for example, saw its rice imports doubling and even tripling over short periods of time since the 1990s.⁵³ Such competition from industrialized countries discouraged developing country farmers from pursuing agriculture as a livelihood, which only further contributed to these countries' dependence on imported food.

Shifts in Agricultural Investment Policies

Levels of public investment in agriculture in developing countries have changed in recent decades. International development assistance for agriculture in particular fell sharply from the early 1980s to the early 2000s. Approximately 30 percent of the World Bank's lending was channeled into agriculture in the 1980s, but this dropped to just 12 percent by 2007.⁵⁴ Similarly, over 20 percent of official development assistance (ODA) was agricultural aid in the early 1980s but the number fell to under 5 percent

by 2007.⁵⁵ This drop in investment is in some ways not surprising, given that low world food prices for much of the 1980s to 1990s meant that it was cheaper to import subsidized food from industrialized countries than it was to grow it domestically. As a result, the capacity to ramp up production in the poorest food import dependent countries was severely weakened, the consequences of which became starkly evident once food prices spiked between 2007 and 2008.

When public investment in agriculture in developing countries declined, private agricultural investment in these countries increased. The acquisition by financial investors of large tracts of land and stakes in farming operations in developing countries, for example, has seen a dramatic increase since 2006.⁵⁶ A large number of African countries including Ethiopia, Uganda, Senegal, the Democratic

Republic of Congo, Liberia, and Zambia have transferred enormous tracts of land—sometimes in millions of hectares—to foreign and domestic private investors who then established large-scale industrial farms for the production of both food and industrial crops.⁵⁷

Although private-sector initiatives may be attractive to recipient countries as a way to provide much needed capital for the agricultural sector, the shift from public to private sources of investment in agriculture carries a number of risks. There are numerous studies linking large-scale land investments to displacement of smallholder farmers, affecting their livelihoods and access to food.⁵⁸ In a number of cases, these investments are explicitly for the production of food and biofuel crops for export to investor countries, rather than for domestic food production.⁵⁹ There are also linkages between greater private-sector agricultural investment and other economic policies outlined above. Agricultural investment by private actors, for example, is frequently carried out on a speculative basis through intermediaries such as banks and other financial investment institutions.⁶⁰

DECLINING DONOR COMMITMENT TO FOOD AID

Food aid has long been used as a mechanism to redistribute food from surplus countries to deficit countries. Levels of international food aid, however, have declined dramatically in recent decades. In the 1990s and early 2000s, donors regularly provided at least 10 million metric tons of food aid annually to countries that were in need of food assistance, and in some years this figure was above 16 million metric tons. Food aid levels had already started to decline markedly when the food crisis hit, and although they rose marginally in 2009, they fell again to a new low of just 5 million metric tons in 2012.⁶¹

International food aid has historically been a controversial form of foreign assistance, serving as both a political and economic tool for donors since its inception in the 1950s.⁶² In its early years, food aid was often blamed by critics for creating dependency and market distortions in recipient countries by depressing local production incentives, while serving as a mechanism for surplus disposal and market expansion for donor countries. For the world's poorest and most food insecure countries, food aid is also a highly uncertain resource, thus exacerbating their vulnerability. The level of food aid given by donors typically has an inverse relationship with international food prices, making it difficult to rely on in times of high and volatile food prices.⁶³ For a number of countries that previously received up to a third of their cereal imports in the form of aid in the early 1990s, food assistance dwindled to less than 10 percent of cereal imports today.⁶⁴

As donors decreased the amount of food aid they provide on a regular basis, they have also shifted that aid primarily to emergency response aid, reducing

the amount of aid they provide for long-term assistance to the world's poorest countries. This policy shift has a positive aspect in that it reduces dependency and market distortions over the long-term in recipient countries.⁶⁵ However, these changes have occurred in a context of high and rising food prices and impose hard adjustments in the short-term for many people in these countries.⁶⁶

GLOBAL GOVERNANCE FOR FOOD SECURITY: WEAK ON ECONOMIC POLICY DRIVERS OF HUNGER

The economic policies outlined above are important in setting the context within which people access food, regardless of the amount of food produced globally, and even regionally. Each of the policies profiled above has been recognized as affecting levels of hunger and food insecurity in recent years, especially in low-income countries that depend on imported food. Attempts to reshape those policies to better promote food security, however, have been contested by those interests that benefit from the current context.⁶⁷ It is not surprising then that international governance initiatives responding to global hunger have not managed to significantly restructure the global economic framework in the context of food security. Instead, the principal responses have focused on the adoption of more politically salable measures that can be undertaken within the existing global economic governance framework.

The key global food security measures since the 2008 food crisis have come from numerous agencies and initiatives that make up the food security "regime complex."⁶⁸ These include those emanating from the G8 and G20 groups and the Committee on World Food Security (CFS) of the United Nations.⁶⁹ The G8 and G20 have significant authority to push for economic regulations among its members that affect food security. As a UN body, the CFS has a broader membership, including civil society representation, but it has comparatively less authority to adopt measures requiring economic policy changes among its members.⁷⁰ The World Bank spearheaded several initiatives in response to the ongoing precarious food security situation, while the World Trade Organization (WTO) also debated possible changes to the trade regime to enhance food security.

The main thrust of the global governance response from these bodies has been to boost investment in agricultural productivity in the world's poorest countries, through both public and private sector channels. This production focus has often been supplemented with the promotion of greater market and investment information sharing. A long list of initiatives along these lines has been rolled out since 2008. These include the adoption of the L'Aquila Food Security Initiative (AFSI) at the 2009 G8 Summit, accompanied by a pledge of over USD \$22 billion in assistance over three years to developing country agricultural projects.⁷¹ In 2009,

the G20 set up the Global Agriculture and Food Security Program (GAFSP) under the administration of the World Bank to help channel member pledges of assistance to developing country agriculture projects. In 2010, the World Bank led a multi-agency initiative to develop voluntary Principles for Responsible Agricultural Investment (PRAI) as a means to ensure that private sector investment did not result in negative social and environmental outcomes.⁷²

Renewed food price volatility in 2010 to 2011 sparked yet more action. In 2011, the G20 endorsed the creation of a multi-agency Agricultural Market Information System (AMIS) to disseminate information on physical commodity production and market transactions in the hope that it would contribute to better functioning, less volatile international food markets.⁷³ In 2011, the G20 launched a Wheat Initiative for research into genetic improvements in wheat production.⁷⁴ In 2012, the G8 announced the launch of the New Alliance for Food Security and Nutrition, which seeks to mobilize public and private sector investment in agricultural and food security projects in a number of African countries.⁷⁵ The CFS adopted the Voluntary Guidelines on the Responsible Governance of Tenure for Land in 2012, and in 2013 it launched a parallel set of guidelines on responsible agricultural investment, in response to widespread dissatisfaction with the World Bank sponsored PRAI.⁷⁶

Meanwhile, reform in the biggest commodity futures markets has been slow and uneven. In the United States, there was some movement on the issue with the passage of the 2010 Dodd-Frank Financial Reform Act, but implementation of this Act has been slow and uneven, stalled by lawsuits from industry.⁷⁷ The EU, which had only minimal rules for commodity futures trading, only recently adopted measures to reduce speculation. In both cases, these reforms were deeply resisted by financial sector interests. Critics have complained that these regulatory measures have not only been slow to come about, but also are only piecemeal, in practice.

The impact of biofuel policies on higher and more volatile food prices is less controversial than the price effects of commodity speculation, but it is even harder to get the major biofuel producing countries to agree on measures to reduce the impact of biofuel policies on food insecurity.⁷⁸ The major biofuel producing countries, including the United States, Brazil, and the European Union, have largely continued to pursue policies that encourage biofuel production.⁷⁹ Powerful interests in these countries have an economic stake in promoting biofuels, and therefore their governments are reluctant to compromise domestic renewable fuel production

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in an era of high and volatile oil prices.


Following the 2007 to 2008 food price spikes, the WTO took up the issue of export restrictions, seeking to incorporate new rules into the Doha Round negotiations that would exempt the least developed countries and the WFP from export bans. In the fall of 2011, however, widespread lack of agreement led WTO members to drop the idea of exempting the poorest countries and humanitarian aid. More broadly, the G8, G20, CFS, and World Bank all pressed for a swift completion of the Doha Round of trade negotiations, which was seen to have the potential to both smooth prices by facilitating agricultural trade and rectify longstanding imbalances in the trade system. These talks largely stalled for much of the past decade due to reluctance of the rich countries to provide policy space to developing countries to promote domestic food security policies that involve measures with potential trade implications.⁸⁰ Some small steps were made in Bali toward reaching an agreement on allowing developing countries to use public grain stocks in domestic food security policies. However, critics note that the agreement is only temporary because it only allows such measures for a four year period, beyond which it is unclear whether such practices will be permitted. Moreover, the agreement only covers those countries that already have policies allowing developing countries to use public grain stocks in their domestic food security policies, and will not allow other countries to implement them.⁸¹

As noted above, agricultural sector investment has increased in developing countries since the food crisis, but there has been a shift toward the promotion of private investment. Governance initiatives that seek to guide private investment have been largely voluntary in nature and do not mandate regulatory requirements to ensure that human rights, land tenure, and the environment are safeguarded.⁸² Food aid funding has continued to stagnate, even as a new Food Assistance Convention was adopted in 2012. Because the new agreement no longer contains provisions regarding an overall minimum commitment level from donors, food aid levels may drop further in the future, especially if food prices continue to rise.

CONCLUSION

The global economic policy drivers of food insecurity have been widely acknowledged and debated in the literature, and in policymaking forums. Action on economic policy reform in support of food security, however, has been only weak and selective in practice. Since the 2007 to 2008 food crisis and in the context of an ongoing precarious global food security situation, global food security initiatives have been situated squarely within the existing global economic regulatory framework. These initiatives include most prominently measures to increase food production and to share information on markets and investments in

ways that encourage them to operate smoothly and responsibly. An outcome that focuses on production and information over economic reform is perhaps not surprising, as the former are much easier to sell politically within the powerful states that benefit from the current economic governance framework.

The recently adopted initiatives for global food security may result in greater quantities of food produced and better distribution of food production globally. Indeed, there are complex links between food production and access, especially over the long-term. But these recent initiatives, unless joined with more comprehensive economic policy reforms, are unlikely to make significant progress in promoting access to food for the world's poorest people. Without substantial reforms to the economic policies that encourage food price volatility and deep inequities in the world food economy, hunger is likely to persist. More robust economic policy reforms are required if we are to ensure that the rules that govern the global economy do not work against the goal of food security. 

NOTES

¹ Tim Lang, "Crisis? What Crisis? The Normality of the Current Food Crisis," *Journal of Agrarian Change* 10, no. 1 (2010), 87-97.

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³ Jean Drèze and Amartya Sen, *Hunger and Public Action* (New York: Oxford University Press, 1989), 20-34.

⁴ Peter Rosset, "Preventing Hunger: Change Economic Policy," *Nature* 479, no. 7374 (2011), 472-473.

⁵ Frances Moore Lappé et al., "How We Count Hunger Matters," *Ethics & International Affairs* 27, no. 3 (2013), 251-259.

⁶ "The State of Food Insecurity in the World 2012: Economic Growth is Necessary but not Sufficient to Accelerate Reduction of Hunger and Malnutrition" (report, FAO, WFP, and IFAD, Rome: 2012).

⁷ Lappé et al., 251-259.

⁸ FAO, "The State of Food Insecurity in the World 2012."

⁹ FAO, "Food Security Indicators," 20 December 2013, <http://www.fao.org/economic/ess/ess-fs/ess-fadata/en/#.Uu1rIf192Rg>; WFP, "What is Hunger?," 2014, <http://www.wfp.org/hunger/what-is>.

¹⁰ FAO, "Food Security Indicators."

¹¹ Susan George, *How the Other Half Dies* (New York: Penguin, 1986); Frances Moore Lappé, Joseph Collins, and Peter Rosset, *World Hunger: 12 Myths* (London: Earthscan, 1998).

¹² Amartya Sen, *Poverty and Famines: An Essay on Entitlement and Deprivation* (New York: Oxford University Press, 1981); Drèze and Sen, 20-34.

¹³ "An Introduction to the Basic Concepts of Food Security" (Food Security Information for Action Practical Guides, EC-FAO Food Security Programme, Rome: 2008), <http://www.fao.org/docrep/013/al936e/al936e00.pdf>.

¹⁴ Drèze and Sen, 24.

¹⁵ Klaus von Grebmer et al., "2011 Global Hunger Index The Challenge of Hunger: Taming Price Spikes and Excessive Food Price Volatility" (report, International Food Policy Research Institute,

Washington, DC: 2011), 21.

¹⁶ FAO, "The State of Food Insecurity in the World 2011."

¹⁷ Ibid.; Harold Alderman, Jere R. Behrman, and John Hoddinott, "Economic and Nutritional Analyses Offer Substantial Synergies for Understanding Human Nutrition," *Journal of Nutrition* 137, no. 3 (2007), 537-544.

¹⁸ Benoit Daviron et al., "Price Volatility and Food Security: A Report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security" (High Level Panel of Experts on Food Security and Nutrition, Rome: 2011), http://www.fao.org/fileadmin/user_upload/hlpe/hlpe_documents/HLPÉ-price-volatility-and-food-security-report-July-2011.pdf; Christopher L. Gilbert and C. Wyn Morgan, "Food Price Volatility," *Philosophical Transactions of the Royal Society B: Biological Sciences* 365, no. 1554 (2010), 3023-3034.

¹⁹ The short-, medium-, and long-term drivers of food price volatility, and the inter-linkages between them, are discussed in Daviron et al. 2010.

²⁰ As noted above, the FAO reports that the food supply in terms of the number of calories available per person per day was actually increasing in this period, even if the amount held in storage (the stocks levels) had declined.

²¹ Derek Headey and Shenggen Fan, "Anatomy of a Crisis: the Causes and Consequences of Surging Food Prices," *Agricultural Economics* 39, no. s1 (2008), 375-391; Daviron et al., "A Report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security;" Panos Konandreas, "Trade Policy Responses to Food Price Volatility in Poor Net Food-importing Countries" (Issue Paper No. 42, International Centre for Trade and Sustainable Development, Geneva: 2012), <http://ictsd.org/downloads/2012/06/trade-policy-responses-to-food-price-volatility-in-poor-net-food-importing-countries.pdf>.

²² Jayati Ghosh, "The Unnatural Coupling: Food and Global Finance," *Journal of Agrarian Change* 10, no. 1 (January 2010), 72-86; Jennifer Clapp and Eric Helleiner, "Troubled Futures? The Global Food Crisis and the Politics of Agricultural Derivatives Regulation," *Review of International Political Economy* 19, no. 2 (2012), 181-207.

²³ Murray Worthy, "Broken Markets: How Financial Market Regulation Can Help Prevent Another Global Food Crisis" (World Development Movement, London: September 2011).

²⁴ Ibid., 13.

²⁵ Ghosh, 72-86.

²⁶ Chris Callieri et al., "Rattling Supply Chains: The Effect of Environmental Trends on Input Costs for the Fast-Moving Consumer Goods Industry" (World Resources Institute, Washington DC: 2008), http://pdf.wri.org/rattling_supply_chains.pdf.

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