



## Food Security and Sociopolitical Stability

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# Food Security and Sociopolitical Stability in East and Southeast Asia

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### Abstract and Keywords

As the center of the world rice market, East and Southeast Asia is the focal point for a number of challenges to regional and global political stability. Rice is increasingly the food staple of the poor, so food security depends on keeping rice prices reasonably low and stable. This is a difficult task, as El Niño events challenge the stability of rice production in the region and individual countries—both regular exporters and importers—resort to trade restrictions to protect domestic consumers and producers. Increasing confidence in more open borders to rice trade will be critical to improving food security in the region and globally, but a political economy framework based on new behavioral insights will be critical to making progress.

**Keywords:** world rice market, political economy, behavioral insights, El Niño events, trade restrictions, rice prices

Since the end of the Vietnam War, known in Vietnam as the American War, the broad sweep of East and Southeast Asia (excluding China) has ceased to be the focus of concerns over security threats to the United States. To be sure, political instability remains a local threat in Myanmar, East Timor, even Thailand, the Philippines, and Indonesia. But the era of local conflicts pulling the United States into active military engagement in the region seems to be past.<sup>1</sup>

Still, local conflicts and political instability in East and Southeast Asia (excluding China) continue to carry dramatic implications for US economic and political interests. As the epicenter of the world's highly unstable world rice market,

events in this region (along with China and South Asia) directly affect global food security and the nutritional welfare of the two-thirds of the world's poor who rely on rice for a large share of their calories. If there are any causal links between food security and political unrest, the probabilities are high that they will be triggered by events in East and Southeast Asia (excluding China) and will then be transmitted as rice price shocks to the global food economy.

The formation of rice prices in world markets has interested scholars and policymakers for decades.<sup>2</sup> Nearly half the world's population consumes rice as a staple food, and roughly half of these consumers are poor. Small farmers in Asia who use highly labor-intensive techniques typically produce this rice, which is mostly consumed where it is produced. International trade in rice is less than 30 million metric tons out of a global production of nearly 460 million metric tons. Only 7 to 8 percent of rice produced crosses an international border at an invoiced world price.<sup>3</sup>

Still, the world market for rice provides essential supplies to importing countries around the world and a market for surpluses in exporting countries. The prices set in this market provide signals to both exporting and importing countries about the opportunity cost of increasing production or **(p.453)** consumption. It is disconcerting to exporters and importers alike if these market signals are highly volatile, because volatile prices for important commodities confuse investors and slow down the rate of economic growth.

Part of the long-standing interest in the world rice market has been precisely because of its volatility. The coefficient of variation of world rice prices has been much higher than that of wheat or corn for decades at a time.<sup>4</sup> Understanding this volatility has been difficult because much of it traces to the residual nature of the world rice market, as both importing and exporting countries stabilize rice prices internally by using the world rice market to dispose of surpluses or to meet deficits through imports. Thus, supply and demand in the world market for rice are a direct result of political decisions in a significant number of countries, especially in Asia.

As a rough generalization, there are three quite distinct food security environments in East and Southeast Asia (excluding China). First, there is "rich Asia," which contains Japan, South Korea, Taiwan, and Singapore. Despite heated political rhetoric, food security is not a serious issue in these countries as long as global food markets remain relatively open. But several countries in this category are hedging their bets on continued openness and are investing heavily in land acquisitions for food production in other countries.<sup>5</sup>

Second is "emerging Asia," which contains Malaysia, Thailand, Indonesia, the Philippines, and Vietnam. These countries are well advanced in their structural transformations, but the transition process is not completed in any of them, and

regional food security issues remain on the welfare and political agenda. Indeed, policy actions to improve food security in these countries have the potential to radically destabilize the world rice market and consequently have an impact on global food security. Several of these countries are still relatively land-abundant and are entertaining both domestic and foreign investments in large-scale development of plantation-based food production, often in areas that are still forested.

Finally, there is “least developed Asia,” which contains Myanmar, Cambodia, Laos, Papua New Guinea, and Timor Leste. In these countries, food security remains a daily concern for a significant fraction of the population, both urban and rural, although challenges to food security in any of these countries are unlikely to spill over to have regional or global consequences. On the other hand, successful economic modernization and rapidly growing productivity in rice production in these countries could easily destabilize the world rice market, with greater exportable surpluses than the market is able to handle at prices that will be remunerative to farmers in the rest of the region.<sup>6</sup>

This diverse array of countries is at the center of many global food security debates, mostly because the world rice economy is centered in the region. The two largest rice exporters, Thailand and Vietnam, are matched up with the two largest rice importers, Indonesia and the Philippines. The potential of **(p.454)** Cambodia and Myanmar to regain their historical status as major rice exporters will challenge political support to farmers throughout the region, as the level of protection provided in Indonesia, the Philippines, and even Thailand, will not be sustainable if an additional five to ten million metric tons of rice should come on the world market from these countries over the next decade. With rice consumption falling in nearly all of Asia, a major rural crisis cannot be ruled out.

At the same time, this region is buffeted by the extraordinarily rapid growth of their two bookend neighbors, China and India. The resource requirements of this rapid growth in both countries have spilled into all of these economies, but especially the resource-rich countries of Indonesia and Myanmar. Most of this resource demand has been for energy and minerals, and the development profession is well aware of the potential for such resource booms to set off intense political rivalries at both regional and national levels. In the current context, these conflicts will not necessarily be directly food related, but they will spill into the food sector because of competition for land, water, and labor. Demand from China might also directly affect food markets in East and Southeast Asia, as it is already the world’s largest importer of cassava—much of it sourced from Southeast Asia—and soybeans, which makes it a competitor for supplies from the world market. China and India are also the two largest importers of palm oil from the region. China’s sporadic imports of rice, mainly from Vietnam and Pakistan, have the potential to destabilize regional rice prices.

Clearly, it is almost impossible to discuss food security and political stability in East and Southeast Asia without reference to China and India.

For quite different reasons, the Democratic People's Republic of Korea (DPRK), or North Korea, is also central to the region's food security and political stability. The DPRK has suffered several famines since the mid-1990s, is often the largest recipient of food aid in the region, consumes rice as its staple food (although maize, barley, and potatoes are also widely consumed), and yet has virtually no impact on the regional or global rice market. The "Hermit Kingdom" is almost impossible to analyze with the standard data and models used by economists, and its political economy remains an enigma even to specialists.

That said, the DPRK offers perhaps the scariest potential for food insecurity to spill into political instability—first internally, and then regionally—because the DPRK has nuclear weapons and a seeming willingness to use them in defense of its regime. The DPRK has used nuclear weapons as a bargaining chip in food aid negotiations, although most food aid donors see the hundreds of thousands of famine victims as justification enough for providing assistance.

Despite the secrecy and lack of access, the massive famine in the mid-1990s is reasonably well documented (Natsios 1999, 2001; Haggard and Noland 2007). Between one and three million people starved to death, many of them **(p.455)** "triaged" because they were deemed "not essential" to the survival of the regime (Natsios, 1999). Signs of deep internal strife were reported, including rumors of a planned coup, but in the end the regime survived and tightened its control over food production and distribution.

The most recent challenges to food security in the DPRK in 2010 and 2011, caused in a narrow sense by bad weather, are better documented, as the Food and Agriculture Organization (FAO), World Food Programme (WFP), and United Nations Educational, Scientific, and Cultural Organization (UNESCO) have been invited by the government to observe the situation as a prelude to offering substantial food aid assistance (FAO-WFP 2011). But the major food donors are reluctant to assist the DPRK, as previous aid has clearly been siphoned off to feed government cadre and the military to a substantial degree, with little monitoring and evaluation possible by donor agencies. The most recent FAO-WFP report suggests that this attitude is changing, and the authors were surprised at how open their hosts were to visiting markets, interviewing households, and revealing official government statistics (FAO-WFP 2011). The new government of Kim Jong-un also seems more open to foreign input, and perhaps to a more market-oriented approach to the food economy. It is hard to see how to resolve the DPRK's food security problems without such an approach.

The combination of challenging events emanating from the world rice market, and intense resource demands on the economies of East and Southeast Asia

coming from China and India, raises a host of difficult questions. For all countries in the region, reasonably stable rice prices in domestic markets are the political measure of food security, and this desire for stability drives much of the political economy of food security. Thus this chapter asks, what is the appropriate analytical framework for addressing these broad political economy issues? The standard model from the theory of international trade used to evaluate welfare losses from price changes in international and domestic markets is rejected in favor of a behavioral model of political economy (Timmer 2012). This behavioral model explicitly incorporates the role of empirical regularities of behavioral economics, especially loss aversion, time inconsistency, other-regarding preferences, herd behavior, and framing of decisions, which present significant challenges to traditional approaches to modeling international trade. The formation of price expectations, hoarding behavior, and the welfare losses from highly unstable food prices all depend on these behavioral regularities.

It is important, then, to understand actual responses by citizens to price changes, both economically and politically. Many of these responses—including a deep desire for stable food prices—cannot be expressed by citizens in markets they face, and thus spill directly into the political arena. Economists have long lamented that rice was more a “political” commodity than a “market” commodity. Behavioral economics, a relatively new subfield in the profession, **(p.456)** has provided deep insights into why this is so, and what can and cannot be done about it.

### Seeking Causal Links

Although not home to the two oldest Asian civilizations, those in India and China, other countries in East and Southeast Asia trace their historical and cultural identities back several millennia, including Japan, Vietnam, Thailand, and Burma. Most countries in East and Southeast Asia (excluding China), in fact, have extremely long histories of centralized government activity, political control, and social organization. The institutions that have grown out of these long histories vary radically from country to country, but all provide the context in which these societies approach the risks of poverty and famine. The political, social, and cultural dimensions of these institutions have historical roots that extend well beyond recent episodes of rapid economic growth. It is easy to forget that as recently as 1880, Indonesia, Thailand, and Japan had very similar levels of economic welfare (Maddison 1995).

Thus it is no surprise that many countries in this region seem stuck between outmoded political and cultural attitudes about food security, especially the role of rice in the nation’s diet and culture, and modern economic risk management instruments, such as international trade and financial derivatives. Any understanding of the links between threats to food security and resulting political instability must be based on this historical reality, because political

systems rooted in historical institutions may be unable to cope with sudden challenges that stem from global threats to food price stability. Alternatively, such political systems may simply design barriers that keep global instability from penetrating into domestic markets, with no concern for subsequent spillover effects into those global markets themselves.

This chapter aims to develop the rationale for a causal link from food insecurity to political instability, at least in the Asian context where rice is such an important factor in both food security and politics—for reasons that are often unrelated, or even antithetical, to food security, as with the use of guaranteed high crop prices to win the votes of rice farmers. There are clearly other causal links in the reverse direction, when political instability that is unrelated to food security threatens food security itself. Much of the political turmoil in East and Southeast Asia (excluding China) is of this latter type, originating in colonial conflicts or ethnic clashes over resources, political identity, and cultural values. In these circumstances there is often a virtuous circle that builds the trust of rural investors as political stability is established, and greater output and income in rural areas then contributes to political stability, partly through enhanced food security.

**(p.457)** One reason for stressing the historical context of food security is the frequency and severity of external weather events on regional food production. These weather events, mostly El Niño and the Southern Oscillation (ENSO) dynamics, are particularly well studied in Indonesia, but they affect much of the region when the dynamics are severe. The external dynamics provide a strong case for a causal link from El Niño to rice production and local food security, and through trade changes, to global rice prices. Political instability has been associated with high food prices—a fact that has attracted considerable scholarly attention—although the direction of causation is not established (Lagi et al. 2011). ENSO dynamics offer a mechanism for attributing causation.

Scientists and their colleagues at Stanford University have extensively studied these ENSO effects on Indonesia's national and regional rice production and on world rice prices (Falcon et al. 2004). Using the August sea surface temperature anomaly (SSTA) to gauge climate variability, their work shows that each degree Celsius change in the August SSTA produces a 1.32 million metric ton effect on rice output and a \$21 per metric ton change in the world price for lower quality rice. These relationships offer policymakers a forward-looking tool to prepare for threats to local food security (Naylor et al. 2009). These empirical relationships are a starting point for identifying causal links from exogenous weather events to rice production and trade impacts, which have the potential to be mediated by policy interventions that aim to stabilize domestic rice economies.

### The World Rice Market

All commodity markets tend to track major macroeconomic developments, the volume of international trade, and currency values. The major food grain markets also have important economic and technological links, because of substitution possibilities in production and consumption. High corn prices will attract production resources away from soybeans, for example, and induce consumption of low-quality wheat as livestock feed. Still, the world rice market has several distinguishing features—especially the “thinness” of the international market for rice and the resulting price volatility—that make its performance quite distinct from the markets for wheat and corn.

Volatility in rice prices is driven by political decisions about rice imports and exports in most Asian countries, but also by the structure of rice production, marketing, and consumption in these same Asian countries—that is, by the industrial organization of the rice economy. Hundreds of millions of small farmers, millions of traders, processors, and retailers, and billions of individual consumers all handle a commodity that can be stored for over a year in a consumable form (although deterioration does set in after two years or more).

**(p.458)** The price expectations of these market participants are critical to their decisions about how much to grow, to sell, to store, and to consume. There are virtually no data available about either these price expectations or their marketing consequences.<sup>7</sup>

As a result, the world rice market operates with highly incomplete and very imperfect information about short-run supply and demand factors. Because of this disorganized industrial structure and lack of information about the behavior of its participants, rice is a very different commodity from the other basic food staples, wheat and corn.<sup>8</sup>

Experience with world rice prices since the mid-2000s illustrates the importance of market structure to short-run price dynamics. The actual production–consumption balance for rice has been relatively favorable since 2005, with rice stocks-to-use ratios improving slightly. This stock build-up was a rational response to the very low stocks seen at the middle of the decade, and to gradually rising rice prices—exactly what the supply of storage model predicts (Working 1949). Short-run substitutions in both production and consumption between rice and other food commodities are limited. Until late 2007, it seemed that the rice market might dodge the bullet of price spikes seen in the markets for wheat, corn, and vegetable oils. The lack of a deeply traded futures market for rice also made financial speculation less attractive. Any speculative increase in rice prices would have to come from another source. Financial speculation simply cannot drive the world rice market.

The world rice market is very thin, trading just 7 to 8 percent of global production. While this trade share is a significant improvement over the 4 to 5

percent traded in the 1960s and 1970s, the global market is still subject to large price moves from relatively small quantity moves. In this, too, rice is distinguished from wheat and corn.

The global rice market is also concentrated. Thailand, Vietnam, India, the United States, and Pakistan routinely provide about 80 percent of available supplies. Only in the United States is rice not an important commodity from local consumers' perspectives. All Asian countries show understandable concern over their citizens' access to daily rice supplies. Both importing and exporting countries watch the world market carefully for signals about changing scarcity, while simultaneously trying to keep their domestic rice economy stable. These extensive policy concerns on the part of governments make rice a highly political commodity (Timmer and Falcon 1975).

As concerns grew in 2007 that world food supplies were limited and that prices for wheat, corn, and vegetable oils were rising, several Asian countries reconsidered the wisdom of maintaining low domestic stocks for rice. The Philippines, in particular, tried to build up stocks to protect against shortages going forward. Of course, if every country—or individual consumer—acts the same way, the hoarding causes a panic and extreme shortages in markets, **(p. 459)** leading to rapidly rising prices. Even consumers in the United States were not immune to this panic, as the run on bags of rice at Costco and Sam's Club in April 2008 indicated. Such price panics were fairly common in the twentieth century, but the hope was that deeper markets, more open trading regimes, and wealthier consumers able to adjust more flexibly to price changes had made rice markets more stable. It turns out this was wishful thinking, as the price record for rice shows.

Rice prices had been increasing steadily but gradually since 2002, but they began to accelerate in October 2007. Quickly, there was concern over the impact of higher rice prices in exporting countries, especially India, Vietnam, and Thailand. This concern translated into action as India and Vietnam moved to impose export controls.<sup>9</sup> Importing countries, especially the Philippines, started to scramble for supplies. Fears of shortages spread, and a cumulative price spiral started that fed on the fear itself.

The trigger for the panic came from high prices for wheat in world markets, an unexpected example of intercommodity price linkages. In India, the 2007 wheat harvest was damaged by drought and disease, problems also seen in many other parts of the world. The Food Corporation of India (FCI) had less wheat available for public distribution. For India to import as much wheat as it had in 2006, nearly seven million metric tons, would have been too expensive—politically, if not necessarily economically—because of the high world price. The FCI announced it needed to retain a larger share of rice from domestic production.



To bring about this larger role for rice in domestic distribution, India limited rice exports in October 2007 by imposing minimum export prices (MEP) that were higher than those prevailing in the world market. India is usually the second largest exporter of rice in the world, having shipped six million metric tons in 2007 (including over five million metric tons of non-basmati rice). An MEP higher than world prices should have stopped exports, but it was ineffective because exporters were able to evade the MEP. In April 2008, India announced a complete ban on exports of non-basmati rice, a policy the government could enforce. Other rice-exporting countries followed with their own controls, and rice prices started to spike.

The newly elected government in Thailand followed these events closely. It had a large political constituency among the poor and did not want consumer prices for rice to go up. The Thai commerce minister openly discussed export restrictions, and invited regional rice exporters to discuss an “OPEC” (Organization of the Petroleum Exporting Countries) for rice. Thailand was the world’s largest rice exporter, shipping 9.5 million metric tons in 2007. Partly because of nervousness in the rice trade over Thai intentions, rice export prices in Thailand jumped by \$75 per metric ton (metric tons) on March 28, 2008. Prices continued to skyrocket until, in April, rice for export cost over \$1,100 per metric ton. This is the stuff of panics.

**(p.460)** Price panics usually have their origins in the fundamentals of supply and demand. A number of market observers thought that low rice stocks accounted for the rising prices. Between 2000 and 2005, rice consumption had outpaced rice production. This was a mathematical inevitability if rice stocks were falling. Since the mid-1990s, China had reduced its rice stocks—a sensible response to growing reliance on trade as the buffer and to lower prices in world markets. Rice stocks were little changed in the rest of the world—indeed, the stocks-to-use ratio rose after 2005. Holding rice stocks in tropical conditions is extraordinarily expensive. A smoother flow of rice traded internationally offered the opportunity to reduce this wasteful stockholding.

But the sudden surge in rice prices in 2007 and 2008 demonstrated that something was happening beyond the fundamentals of supply and demand. Exporting countries were clearly willing to restrict exports of rice sharply to protect their own consumers. In responding, nearly all importing countries realized they were too dependent on foreign supplies for their own domestic food security. They quickly resorted to increasing domestic stockpiles, with a longer-run commitment to self-sufficiency in rice. Although larger stocks provide a greater degree of food security, they come at a very high financial cost, even when well managed to avoid deterioration in quality. In fact, excessive stockpiles of rice are a tragedy for poor consumers and for economic growth. Capital that

is tied up in funding inventories does not contribute to stimulating growth in economic productivity (Timmer 2009a).

Sudden increases in demand for larger stocks, private and public, have a direct impact on demand in the world market. With a rapid and unexpected increase in short-run demand on the world market—the increase was roughly a quarter of normal annual rice trade—the world price would have to nearly double to get a new equilibrium. That is what happened. The fundamentals of rice supply and demand caused a gradual increase in rice prices between 2002 and 2007, but panicked hoarding caused the rice price spike in 2007 and 2008.

It would be nice if there were hard data to support this statement, but the data “vacuum” is precisely the point of the story here. Other than anecdotal evidence, mostly news stories, of grocery shelves being cleared of rice by frantic consumers, and farmers holding on to stocks expecting higher prices, data on changes in stocks by the multitude of small actors in the world rice economy are simply nonexistent. The main evidence is the price behavior itself, which was quite out of line with the “basics” of production, stocks, and consumption. Almost by their very nature, price expectations are unobservable, and hence hard to use when modeling decision making.

Fortunately, pricking the bubble and deflating expectations can end a speculative run based on herd psychology. This happened to the world rice economy. When the government of Japan announced in early June 2008, after considerable international urging, that it would sell at least 300,000 tons of its **(p.461)** surplus World Trade Organization (WTO) rice stocks to the Philippines, prices in world rice markets started to fall immediately (Slayton and Timmer 2008). Once the price started to drop, the hoarding behavior by households, farmers, traders, and even governments also abated. By late August, medium-quality rice for export from Vietnam was available for half the price it had sold for in late April. Those millions of small farmers, traders, and consumers who had decided to hoard rice when prices were rising decided they could sell their supplies, or reduce the household inventory to normal levels. Demand for rice dried up, and the fall in prices gained momentum.<sup>10</sup>

There are three basic approaches to coping with the impact of high food prices once they hit world markets: domestic price stabilization, increasing supplies available in local markets, and providing safety nets to poor consumers. All three are directed at and must be managed by individual countries themselves, but donors and international agencies can play a substantial role as well in coordinating activities and providing resources—both financial and technical assistance.

The first approach is for individual countries to use market interventions to stabilize their domestic food prices. Such stabilization requires some capacity to

isolate the domestic rice market from world markets and can only be implemented through government actions, although private traders can handle most of the actual logistics.<sup>11</sup> Such isolation runs directly against the spirit and, for many countries, the letter of WTO agreements. But it is a very widespread practice. Demeke et al. (2009) count 36 countries that used some form of border intervention to stabilize their domestic food prices during the 2007 and 2008 crisis.

Such policies can have a large impact globally. India, China, and Indonesia stabilized their domestic rice prices during the 2007 and 2008 food crisis by using export bans—or at least very tight controls—thus protecting well over two billion consumers from sharply higher prices. The policies pursued by these three countries demonstrate the importance of understanding local politics in policy formation, especially food policy. Although the end results were similar—food prices remained stable throughout the crisis—the actual policies pursued in each country were quite different (Slayton 2009b, Dawe 2010a).

India, Indonesia, and China are big players in the global rice market, even if their actual trade is limited. As David Dawe (2010b) emphasizes, stabilizing domestic rice prices in these large countries using border interventions might be both an effective and an efficient way to cope with food crises, even after considering the spillover effects on increased price volatility in the residual world market. Dawe emphasizes that unstable supply and demand must be accommodated somewhere, and passing the adjustment to the world market may be both equitable and efficient in a second-best world where fast-acting and well-targeted safety nets are not available.

**(p.462)** The second basic approach to coping with a food crisis is to stimulate additional supplies through fast-acting programs. Nearly all countries tried to do something along these lines during the 2007 and 2008 crisis, whether by subsidizing fertilizer to get a quick production response or encouraging planting of short-season crops, even in urban gardens. If the high prices for food seen in the crisis actually get to farmers, they have strong incentives to search out these options themselves, but government assistance in gaining access to inputs or proper seed varieties can also help. In Asia, the short-run response of rice farmers to high prices was surprisingly vigorous, partly because of the availability of short-duration rice varieties and irrigated farming systems with multiple-cropping potential (Slayton 2009b). In Vietnam, which has three distinct cropping seasons for rice, production increased 6.3 percent in 2007 and 5.3 percent in 2008, compared with average annual increases of just 3.3 percent per year between 2005 and 2011. All of this increase in production, a total of 1.2 million metric tons, was put on the export market.

A variant of this second approach—stimulating a short-run supply response—is for countries to hold emergency food stocks as part of a broader strategy for providing food security to their citizens. Expectations of higher and more volatile food prices in the future should lead authorities to invest in larger food stocks than in the past. The “design rules” for adding to and disposing of these stocks, and their day-to-day management to avoid large storage losses, will be essential to making emergency food stocks a sustainable and cost-effective approach (Timmer 2009b).

One critical element of these rules will be to use international trade in the commodity as part of the provisioning mechanism, thus avoiding the extraordinarily high costs that can come from a strategy of total self-sufficiency. Even in countries as large as Indonesia, India, and China, where a high degree of food self-sufficiency is required simply because of the limited size of world grain markets, some interaction with these markets through a managed trade regime can lower the costs of food security. Managed trade regimes can be open and transparent, with clear rules on the nature of interventions, thus allowing the private sector to handle actual trade logistics.

The third approach to coping with a food crisis is to provide safety nets to poor consumers, either in cash or through the direct provision of food aid. This was the immediate—and almost only—response of the donor community to the recent food crisis. The safety net approach figures prominently in best practice recommendations from the World Bank, FAO, and WFP (World Bank 2005). The logic is clear: let high prices be reflected in local markets to signal the necessary changes in resource allocations to both producers and consumers, but protect the very poor from an irreversible deterioration in their food intake status. Efficiency is maintained, and the poor are protected. Barrett and Lentz (2009) cogently explain the behavioral foundations and research base on which this approach is based.

**(p.463)** The difficulty is that food crises (as opposed to chronic poverty) are relatively short-lived events. Effective safety nets take a long time to design and implement, and they are very expensive if the targeted poor are a significant proportion of the population. Unless a well-targeted program with adequate fiscal support is already in place when the crisis hits, it is virtually impossible for a country to design and implement one in time to reach the poor before high food prices threaten their nutritional status. Even when a program is in place and can be scaled up quickly, as with the Raskin program of rice distribution to the poor in Indonesia, operational inefficiencies and simple corruption in deliveries may mean the poor are reached only at exceptionally high cost (Olken 2006).

After decades of rapid growth, the chronic poor in East and Southeast Asia (excluding China) have been reduced to less than 5 percent in the wealthier Asian countries, less than 20 percent in the emerging Asian countries, and perhaps 40 percent in the still poor countries of the region (Thapa and Gaiha 2011). But in the latter two categories, a substantial proportion of the population is “near poor,” and thus vulnerable to shocks, such as spikes in food prices, that would push them below the poverty line. As a welfare issue—and one with immediate political consequences—spikes in rice prices have direct and immediate consequences for substantial numbers of people in this region. It is understandable that governments seek to prevent such spikes.

Policy Responses to Food Crises

Examples from three key countries in Asia help us to understand the political economy of actual responses to food crises (see Table 18.1). A brief summary of these responses by Thailand, Indonesia, and India during the food crises that began in 1972 and 2007, and during the collapse in commodity prices in 1985, reveals an underlying historical continuity as well as quite remarkable changes in policy approach over the period.

Thailand, usually the world’s largest rice exporter since the 1960s, flipped its approach from stabilizing domestic rice prices in the early crisis to permitting full transmission of the price spike to producers and consumers in the most recent one. Export prices for rice from Thailand rose 138 percent between 1972 and 1973, whereas domestic retail prices rose just 13 percent. By contrast, export prices nearly doubled between 2007 and 2008, and so did domestic retail prices.

In the mid-1980s, Thailand passed the full brunt of price declines in world markets to its farmers, although consumers seemed to pay relatively higher prices during that period. In the mid-2000s, Thailand also initiated an expensive price support program for rice farmers, one reason the government was (p. 464)

**Table 18.1. Comparing two world food crises for the rice economy**

Country	1972/73	Price collapse in mid-1980s	2007/08
Thailand (exporter)	Banned exports and kept domestic prices relatively stable but destabilized world market	Passed low prices through to farmers, with increase in rural poverty	No control on exports and local prices followed world prices. Discussed forming a rice exporters cartel

Country	1972/73	Price collapse in mid-1980s	2007/08
Indonesia (importer)	Scrambled for imports but lost control of domestic prices. Led to new policies favoring agricultural development	Kept domestic prices above world prices but had surpluses and very high storage costs. Rural poverty declined	Already had high prices and did not import. Prices remained stable, but above world prices except at very peak
India (importer to exporter)	Sharply reduced imports with higher domestic prices and reduced food grain consumption. Stimulated more investment in raising rice productivity	Continued to expand rice investments, kept farm prices high and stable. Subsidized rice exports into a falling world market	Banned rice exports to stabilize domestic prices, with sharp impact on prices in world market. This policy was very popular for Congress Party

*Source:* Author

happy to pass through the higher prices in world markets in early 2008. This transition in price stabilization policy corresponds to the transition from authoritarian rule to popular democracy, with steps forward and backward along the way. Farmers remain a very large fraction of Thailand's electorate, and urban consumers have gotten used to relatively higher rice prices. Still, it is quite remarkable how radically Thailand's approach to rice price formation has changed.

Indonesia, as the world's largest rice importer over this period, shows a reverse transition in how to manage food security. During the food crisis in 1972 and 1973, the country lost control of its domestic prices—domestic retail prices increased 54 percent between 1972 and 1973—and the Suharto government almost lost political control as well, with widespread urban riots protesting high rice prices. In the most recent crisis, retail rice prices in Indonesia did not increase at all, and the democratic government took political credit for that fact. The contrast with Thailand goes even further. In the mid-1980s, Indonesia stabilized its domestic rice prices at levels well above the world price, to the point of generating substantial surpluses that needed to be exported at subsidized prices.

Although this policy was a very expensive undertaking, rural poverty in Indonesia continued to decline in the mid-1980s, in contrast to the rising rural poverty in Thailand (Ravallion and Huppi 1991). The commonality of policy (p. 465) experience for Thailand and Indonesia, however, is also striking, as both countries introduced price regimes that were much more favorable to rice farmers as democratic forces took increased political control.

India, of course, has been a democracy throughout this period. Historically, the country had been a regular rice importer, with supplies coming mostly from Burma and Thailand. India was slow to adopt Green Revolution rice technology despite being a leader in the wheat revolution. Even so, its rice imports in 1972 and 1973 were relatively small, and it got through the food crisis in those years with relatively modest increases in domestic rice prices—just 19 percent. Still, food grain consumption dropped sharply because of the El Niño-induced drought's impact on production of wheat and rice in 1973 and because of reduced imports of both food grains.

Indonesia's response to the rice shortages and high prices was paralleled in a similar response by India. Significantly greater attention to irrigation, research and extension, fertilizer availability and price, and maintenance of stable incentive prices led to a sharp increase in rice production over the following decades. As in Indonesia, these measures continued right through the price decline in world markets during the 1980s. Although the US dollar price of rice at the farm level was 10 percent lower in Thailand in 1985 than in 1973 (and these are nominal prices!), in Indonesia and India the farm level prices were 51 percent and 13 percent higher, respectively, in 1985 than in 1973. Clearly, the traditional importers felt threatened by the unreliability of the world rice market. Whether authoritarian or democratic state, food security required that far more resources be devoted to rice production.

This production initiative was much more successful in India than in Indonesia, at least in terms of import dependence. By the 1990s, India was a large and regular rice exporter, whereas Indonesia had reverted to substantial imports—over six million metric tons during the crisis year of 1998, a significant share of it from India. In 2007 India exported 6.3 million metric tons of rice. Even after the export ban, it still exported 3.3 million metric tons in 2008. Many of these shipments were basmati rice, which was not subject to the export ban. It is perhaps no coincidence that through most of the 1990s, poverty declined much more rapidly in Indonesia than in India. This remained the case until the Asian financial crisis in 1998 (Timmer 2004).

India faced a fundamentally different set of options during the 2007 and 2008 food crisis than it did in the 1972 and 1973 food crisis. As a large exporter, it had the opportunity to prevent domestic food prices from rising quickly by simply restricting trade. Of course, as a large exporter, such restrictions were likely to have an immediate impact on the world market—and they did (Slayton 2009a, 2009b). India took a lot of international political heat for its ban on rice exports, but the government argued that its first responsibility was food security for its own citizens. The subsequent national elections in May 2009 suggest that the electorate agreed with that position.

**(p.466)** The underlying political economy of four decades of coping with rice price volatility, at least as seen through the lens of these three countries, is not hard to discern. In the short run, price stabilization is critical in the poorer countries (India and Indonesia, and Thailand in the early period). Both India and Indonesia learned that they could not stabilize rice prices at low prices because they needed their rice intensification programs to succeed. Millions of small rice farmers respond to incentives, whether in democratic or authoritarian regimes. With higher incentive prices domestically, despite low rice prices in world markets, rice production increased, and growth in consumption slowed.

In response to the impact on consumption of higher prices, both countries used physical distribution programs to alleviate the effect on poor households: the “below poverty line” (BPL) program in India and the Raskin program in Indonesia. Both safety net programs are very costly, with low efficacy. But the combination of price incentives to farmers and subsidies to consumers has proven politically popular in both countries. Prime Minister Manmohan Singh and President Susilo Bambang Yudhoyono were both reelected in 2009 with strong mandates. Part of their popularity stems from the price stability made possible by their common approach.

Most of what India and Indonesia did to cope with the world food crisis in 2007 and 2008 violates the guidelines provided by the World Bank and other donors for best practices in dealing with food price volatility (see World Bank 2005, 2009). Aggressive use of trade and stocks policy to stabilize domestic prices, combined with in-kind rice distribution programs to the poor, are all included in “policies to avoid.” And yet both governments were rewarded with huge electoral victories in 2009, to the surprise of many outside observers. Do “bad” economic policies, at least with respect to food price volatility, make for “good” politics?

Surely the answer depends on how we define bad economic policies. The argument here is that government interventions to stabilize rice prices in domestic markets can be considered good economic policy if they are done right. Academics and donors have mostly denied this possibility in the past several decades, thus cutting government officials off from helpful dialogue, technical assistance, and funding to make these interventions more transparent, cost-effective, and supportive of market development. A different attitude is needed if the policy dialogue is going to be more fruitful, and if academics and policy analysts are going to have better training. We also need a new framework for thinking about how policy is adopted, the subject of the next section.

### Behavioral Dimensions of Food Security

Preventing food crises through better understanding of their fundamental causes, thus allowing implementation of better food policies, should be a high **(p.467)** priority for food policy analysts. Once a food crisis hits, coping with its



consequences becomes the main task at hand, with emergency food aid and other forms of safety nets hastily brought into play. But preventing food crises in the first place, *especially by preventing sharp spikes in food prices*, is obviously a superior alternative if a way can be found to do it. Understanding the behavioral dimensions of food security is an important first step. This section seeks to integrate new insights from behavioral economics into an understanding of why governments should stabilize basic food grain prices.<sup>12</sup> With a better understanding of “why,” it is possible to suggest better approaches to “how.”

The argument here is that highly volatile food prices—sharp spikes and price collapses—are undesirable for two separate reasons. First, it is increasingly recognized that volatile staple grain prices have serious consequences for economic welfare, especially for the poor (Timmer 1989; World Bank 2005).<sup>13</sup> Second, and the new argument here, spikes in food prices universally evoke a visceral, hostile response among producers and consumers alike. This response has deep behavioral foundations: the experimental and psychological literature shows clearly that individuals strongly prefer stable to unstable environments.<sup>14</sup>

Kahneman and Tversky (1979), for example, in their treatment of decision-making under risk, establish reference points for individual decisions as the basis for the widespread loss aversion that is the foundation of what they call “prospect theory.” The pervasiveness of loss aversion among individual decision makers has immediate implications for how we should think about welfare losses from unstable food prices. Equal movements in prices up and down over time leave society worse off because the welfare losses from such price movements always outweigh the welfare gains. The asymmetry of welfare losses caused by loss aversion means that the “gains to trade” possible when prices are unstable will be less than the losses. This result alone explains much of the empirical political economy of food prices.<sup>15</sup>

Although this behavioral response is part of the reason that individuals tend to be risk averse, the implications are actually more profound. It is conceptually possible to hedge the risks from unstable food prices or to mitigate their welfare consequences for the poor using safety nets, but there are no markets in which to purchase stability in food prices directly. The message is clear. Citizens would willingly go to the market to buy food price stability, but such a market does not exist. Food price stability is a public good, not a market good. Understandably then, citizens turn to the political market instead. Only political action and public response from governments can provide stable food prices. Thus food becomes a political commodity, not just an economic commodity, and we will need a “behavioral political economy” to understand food policy.

Understanding the behavioral foundations of formation of price expectations will be critical to building this new political economy. In particular, the **(p.468)** dynamics of herd behavior and the tendency of bad news—about terrorism, wild fires, or a sudden rise in rice prices in local markets—to serve as a focusing event in stimulating simultaneous, spontaneous behavior that results in panics provide robust insights into how individuals form price expectations and respond to them (Tversky and Kahneman 1986).

Governments that fail to stabilize food prices have failed in the provision of a quite basic human need that is rooted in behavioral psychology—the need for a stable environment. Governments that are successful in stabilizing food prices are usually rewarded politically: witness the landslide victories for Singh in India and Yudhoyono in Indonesia. Clearly, other factors contributed to the electoral success in both countries, but it is equally clear that the governments' abilities to provide stable domestic food prices when the rest of the world was experiencing a food crisis were politically popular.

The trick, of course, is to provide stability in domestic food prices at low cost to economic growth and participation by the poor. By and large, Asia has figured out how to do this as a domestic endeavor, but with large negative spillovers to world markets (Timmer 2009b). African countries do not have a viable strategy for stabilizing their domestic food prices, and the continent suffers even more from the instability in world markets transmitted from the Asian approach to food price stabilization (Jayne 2009). Indeed, the resource riches of Africa are attracting sizable investments from Asia (and elsewhere), but there seems to be little linkage between these investments, especially in land to produce food crops for export, and local food security.

The challenge to the development profession is thus twofold: to help Asia find more efficient ways to stabilize domestic food prices, especially for rice, with fewer spillovers to world markets, and to help Africa find a way to stabilize domestic food prices without introducing serious food economy distortions or retarding the development of an efficient private food-marketing sector.

### Insights and Outcomes

Three points stand out in summary. First, despite its declining economic importance in East and Southeast Asia (even including China and South Asia), rice remains the region's touchstone of food security in political terms. By and large, Asian governments define food security as a political concept by their ability to maintain reasonably stable rice prices in the main markets in their countries. The policies used to stabilize rice prices often include import and export controls on rice trade. Such controls can be effective, even for large countries, but they come with high external costs to the stability of the world rice market, which is also centered in this region. At the moment, there is no **(p.**

**469)** way to force these external costs to be internalized by the countries imposing them, and thus no effective way to prevent their use in the future.

Second, governments have good reason to fear the response of their citizens to a highly volatile rice economy. Behavioral economics provides helpful insights into why most people have a strong preference for stable prices: loss aversion is a powerful predictor of how people respond to changes in their circumstances. Accordingly, policy analysts need to help governments in the region design more efficient and effective rice stabilization programs, rather than denying the desirability or feasibility of doing so. Such programs will be put in place with or without our help. Perhaps, with better analytical input, these programs could be less costly and have fewer spillovers to the world market.

Third, there has been much discussion over the direction of causation in the relationship between food security and political instability. The place to test for causation is East and Southeast Asia. A formal analysis has not yet been conducted, but proposed research on the impact of ENSO events on regional rice production and trade, and from there to government interventions in defense of stable rice prices, offers an opportunity to identify causal drivers in a clear statistical fashion. The working hypothesis is that exogenous threats to food security—from a powerful El Niño, for example—directly threaten political stability in these countries, and government leaders understand that. Food security policies in the region are designed around this reality.

It seems appropriate to also ask what role the donor and academic communities in general, and the US government in particular, might play in improving food security, on one hand, and helping to maintain political stability, on the other. Are the links between the two sufficiently robust to provide guidance on interventions, investments, and policy advice?

This is treacherous territory. Interventions to improve food security in the short run can have negative long-run consequences. Political instability in corrupt and venal regimes, even if stimulated or ignited by food riots, may be the only way forward to a better-governed society. That said, historical experience in the East and Southeast Asia region (excluding China) does suggest that donors and policy analysts could play a much more helpful role in their assistance programs and analysis by recognizing the political imperative of a stable food economy. From that recognition would flow different priorities in foreign assistance: more efforts to build public-sector management capacity and less concern for improving the mechanics of markets for financial derivatives; more concern for stabilization mechanisms that work in a cost-effective manner and, perhaps via greater transparency in policy design, that would have smaller spillovers into world markets. Fewer resources might be devoted to documenting the benefits of free trade and to selling its merits to dubious policymakers.

**(p.470)** For the United States, the single most important thing we can do to improve global food security is to place a high tax on the conversion of corn into ethanol. No other policy step has the potential for such far-reaching and positive effects on the global food economy. Of course, this action has very little directly to do with East and Southeast Asia (excluding China), except that it buys a lot of corn for its livestock sector. But if a signal went out that converting food into fuel is an environmentally destructive policy and the source of significant food insecurity, the lessons for cassava conversion to ethanol or palm oil conversion to biodiesel, might be understood and acted upon within the region.

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Notes:

- (1) . This is, of course, a huge accomplishment, in view of World War II, the Korean War, and the Vietnam War. The obvious caveat to this sanguine view is the escalating tension in the South China Sea, where multiple claimants in the region, especially Vietnam and the Philippines, are challenging China's claim to the entire area. The defense treaty between the Philippines and the United States could draw the United States into a broader conflict over this issue.
- (2) . The early standard works are Wickizer and Bennett (1941) and Barker et al. (1985).
- (3) . This is a polite way of saying that there is a good deal of smuggling. Information on the world rice market is available from the "World Rice Statistics" section of the IRRI website ([irri.org](http://irri.org)) (accessed April 11, 2013).
- (4) . See the discussion of long-run price trends for rice, wheat and corn (maize) in Timmer (2009b) and Dawe (2010b).

(5) . The infamous Korean Daewoo deal for 1.3 million hectares of land in Madagascar, which precipitated a coup and the fall of the democratically elected government, is the best known example, but all of “rich Asia” is seeking some insurance against food export embargoes and boycotts as a way to preserve their import-dependent food security.

(6) . A forthcoming report from USDA comes to a similar conclusion. See *Southeast Asia's Rice Surplus* by Katherine Baldwin, John Dyck, Jim Hansen, and Nathan Childs, to be published in the fall of 2012 as an ERS/USDA (Economic Research Service, US Department of Agriculture) Electronic Outlook Report.

(7) . Indeed, even reliable price quotations for internationally traded rice are hard to obtain. The world rice market is quite opaque because most transactions are not reported publicly, and significant quality differences from lot to lot mean that “the price of rice” is impossible to define with the same precision as for publicly traded commodities such as wheat and corn.

(8) . This difference was pointed out clearly in Jasny's classic study of *Competition Among Grains* (Jasny 1940). He justifies his exclusion of rice from the study with the following observation: “The Orient is a world by itself, with its own climate, diet, and economic and social setup, and this makes it easy for us to omit it. The inclusion of rice would mean the discussion of two worlds. The writer would be satisfied to have mastered one” (p. 7).

(9) . To market observers, it was almost amusing that Indonesia announced a ban on rice exports early in 2008, before its main rice harvest started in March. Historically, Indonesia has been the world's largest rice *importer*, surpassed only recently by the Philippines, and no one in the world rice trade was looking to Indonesia for export supplies. But there was a rationale to the announcement by the Minister of Trade—it signaled that Indonesia would not be needing imports and was thus not vulnerable to the skyrocketing prices in world markets. The calming effect on domestic rice market participants meant that little of the hoarding behavior seen in Vietnam and the Philippines was evidenced in Indonesia (World Bank 2009).

(10) . As further evidence that psychology was driving prices in the world rice market rather than fundamentals, it was the *announcement* by the Prime Minister of Japan that rice supplies would be available to the Philippines, not their actual shipment, that pricked the price bubble and started the rapid decline in rice prices. By late 2009, Japan had actually not shipped any rice to the Philippines, and overall rice exports from Japan declined in 2008 rather than increased as promised in Rome by then Prime Minister Fukuda (Slayton, 2009b; 2010).



(11) . Isolation from the world market does not, of course, guarantee more stable prices. Indeed, for most countries, open borders to world markets lead to greater price stability, as local shortages and surpluses can be accommodated through trade.

(12) . A separate paper (Timmer forthcoming) attempts a more complete development of these themes.

(13) . I distinguish between “variance” in food prices, a standard statistical measure of price movements around an average or a trend, and which often has a substantial degree of predictability because of seasonal patterns and links to storage levels, and “volatility” in food prices, which emphasizes unforeseen spikes and crashes. Somewhat confusingly, “instability” is often used both ways.

(14) . Bernheim and Rangel (2005) stress the seriousness of the challenge from behavioral economics to mainstream welfare analysis, which is based on the principal of revealed preferences, a challenge first presented by Duesenberry (1949) and revived by Kahneman and Tversky (1979). If revealed preferences from choices about consumption, income generation, and time allocation, for example, are not “really” what individuals prefer, or they incorporate what others are doing, as the experimental evidence from behavioral economics suggests, the normative foundations of consumer theory no longer hold. Without these foundations, such stalwarts of applied welfare analysis as consumer surplus no longer have a theoretical basis. The consequences are obvious for the arguments here: models that international economists use to prove the existence of “gains to trade” no longer hold, and theoretical arguments against stabilizing prices also disappear.

(15) . See Lindert (1991) for a summary of the empirical regularities in agricultural policy that cannot be explained by standard neoclassical economics. These include a bias against both imports and exports, an urban bias in poor countries when farmers are a majority of the population, and a rural bias when urban consumers are a majority of the population.