

Provided for non-commercial research and education use.
Not for reproduction, distribution or commercial use.



This article appeared in a journal published by Elsevier. The attached copy is furnished to the author for internal non-commercial research and education use, including for instruction at the authors institution and sharing with colleagues.

Other uses, including reproduction and distribution, or selling or licensing copies, or posting to personal, institutional or third party websites are prohibited.

In most cases authors are permitted to post their version of the article (e.g. in Word or Tex form) to their personal website or institutional repository. Authors requiring further information regarding Elsevier's archiving and manuscript policies are encouraged to visit:

<http://www.elsevier.com/copyright>

Contents lists available at [ScienceDirect](http://www.sciencedirect.com)

Food Policy

journal homepage: www.elsevier.com/locate/foodpol

Reflections on food crises past

C. Peter Timmer

Thomas D. Cabot Professor of Development Studies, Emeritus, Harvard University, Cambridge, MA, USA

ARTICLE INFO

Article history:

Accepted 8 September 2009

Keywords:

Food crisis
Rice market
Price stabilization
Export ban

ABSTRACT

World food crises are relatively *rare* events, occurring roughly three times a century. But they also tend to be *regular* events, every three decades or so, suggesting there is an underlying cyclical cause. If so, far-sighted donor and government investments in raising agricultural productivity, and policies on behalf of stable food production and prices, might go a long way to preventing food crises in the future. Preventing food crises rather than trying to cope after the fact with their impact on the poor is the only way to avoid substantial, perhaps permanent, damage to the welfare of poor households. Lessons from the world food crises in 1972/73 and in 2007/08, especially lessons from how the world rice market functioned, point the way toward improved food policy management at national and international levels in the future.

© 2009 Elsevier Ltd. All rights reserved.

World food crises over the past two centuries have triggered a standard debate each time: how much can the market be relied onto provide food security and how much should the government intervene on behalf of this objective?¹ The debate has increased in sophistication over time. But so too have the numbers of food insecure people – the total exceeded one billion hungry in mid-2009 (FAO, 2009). Each food crisis seems to stimulate a surge of government and donor activity on behalf of increased food production and better safety nets for the poor.

At the same time, market forces also respond, choking off demand (witness the one billion hungry people) and leading to investments in new agricultural technologies that have relentlessly pushed down staple grain prices over the long run. Since 1900, the inflation-adjusted price of rice has declined 1.37% per year, corn by 1.25% per year, and wheat by 1.05% per year.

The debate between government intervention and the role of markets in providing food security is part of a broader and long-standing debate over the “role of the state” in sectoral and overall growth (Timmer, 1991b). The key elements have always been over provision of infrastructure, development of human capital through education and public health, investments in research and technology, and “picking winners” by supporting particular sectors (agriculture versus industry) or industries (manufacturing versus finance, automobiles versus banks). Within an industry, and espe-

cially within the food and agricultural sector, the question has tended to revolve around “price policy” broadly construed, that is, government interventions into input and output prices through subsidies, taxes, and trade policies that influence the prices of imports and exports (Timmer, 1986). If a particular product, food for example, is deemed to be meritorious, its inputs should be subsidized and its output supported. Of course, this argument runs immediately into the conflicting interests of producers and consumers of a commodity in the same economy, raising the “food price dilemma” as a fundamental problem for government policy (Timmer, Falcon and Pearson, 1983).

Food crises force governments and donors to confront this dilemma in a painful and visible way. High food prices signal the scarcity of food to producers, consumers and governments alike. The almost universal response is a shift in *policy sentiment* toward greater intervention by governments on behalf of increasing food production, lowering food prices, and providing more reliable access by poor households to food.

All of these interventions come at a cost, however, and there is a gradual return to basic market forces as the crisis recedes and governments withdraw both financially and in policy activism. Historically, these market forces have pushed food prices so low that investments in productivity-enhancing research and infrastructure become unprofitable. Without these investments, growth in supply falls behind growth in demand, and the stage is set for another food crisis (Timmer, 1995). Gardner (1979) pointed out that the three price spikes seen between 1910 and 1980 seemed to occur about every three decades. The food crisis of 2007/2008 follows 35 years after the crisis in 1972/1973. Are there lessons in this regularity?

To answer this question, this paper analyzes the 1972/1973 and 2007/2008 food crises in some depth, focusing especially on how

E-mail address: ptimmer63@gmail.com

¹ This review essay is based to a large extent on the author's experiences in analyzing and helping countries respond to the world food crises in 1972/1973 and 2007/2008. For accounts of these crises, see Falcon and Timmer (1974) and Timmer (2008, 2009). The best early review of the 2007/2008 crisis was done for the Farm Foundation in mid-2008 (Abbott, Hurt and Tyner, 2008). A review of recent assessments is in Piesse and Thirtle (2009).

the world rice market behaved during each crisis. This market is dominated by several large (country) players on both the supply and demand side, but much of the price volatility seen was induced by hoarding behavior of millions of small farmers, traders and consumers. Still, the behavior of several governments, especially India with its export ban and the Philippines with its frantic search for import supplies at any price, provoked the panic. The paper concludes with a discussion of government behavior and the political economy of food prices. The need for large countries to stabilize their domestic food economies is taken as a given, but the implied transfer of price volatility to the world market presents serious challenges to smaller, more open, economies that rely on this market for food imports and exports. One answer is for donors and governments to pursue more far-sighted food policies aimed at stabilizing production around long-run consumption trends, rather than in response to short-run price signals in world markets. Prevention of food crises will be much more effective at helping poor households than stop-gap measures to cope with a crisis.

Introduction: learning from food crises

In mid-1972, policy analysts were feeling pretty good about the global food situation. The deep pessimism generated by two failed monsoons over the Indian sub-continent in 1965 and 1966, with all their attendant political tensions between India and the US, had given way to optimistic hopes for a “green revolution” in rice and wheat, sparked by new “miracle” seeds released in the mid-1960s from IRRI and CIMMYT. With new seed technologies, investments in rural infrastructure and irrigation facilities, and construction of modern fertilizer factories wherever natural gas was available cheaply, it looked as though the world food economy was set for an era of rising productivity and cheaper food. The turmoil in global financial markets caused by the “Nixon shock” in late 1971, when the US went off the gold standard and the Bretton Woods arrangements ended, did not affect this optimism. Real rice prices on the Thai export market fell 57% between October, 1967, and April, 1972.

The emergence of a food crisis

It was not to be. A widespread drought during the summer months of 1972, caused by a large-scale *el Nino* event, sharply reduced the dry season rice crops throughout Southeast Asia, especially in Indonesia, Thailand and the Philippines. Domestic prices started to rise, and there was a scramble for supplies. Just months earlier most importing countries thought the Green Revolution had made them self-sufficient in rice. By April, 1973, Thailand, the world's leading rice exporter, banned rice exports altogether in order to ensure adequate domestic supplies. For a very scary nine months, there was no world rice market. When it re-opened in January, 1974, Thai export prices in real terms were four times their level in early 1972.²

The bad weather spread around the world, sharply affecting wheat and corn crops in the northern hemisphere in the fall of 1972. All told, after the 1972 harvests were in, world coarse grain production fell by 16 million metric tons (mmt), rice production by 14 mmt, and wheat production by 8 mmt. Because increases of production on trend, to meet demand from growing population and increased consumption from more affluent diets, were about 33 mmt, the total shortfall in 1972 was about 70 mmt. This short-

² The episode was “scary” because countries dependent on rice imports to support domestic food security were suddenly left on their own. Large countries, such as Indonesia and India, resolved to increase rice production to achieve self-sufficiency. Neither country has trusted the world market for supplies of rice since the mid-1970s, although both countries have been active market participants since then.

fall was almost 8% of consumption. A genuine shortage of food grains needed to be allocated across consumers, and the standard market mechanism for doing that is higher prices.

The world food crisis of 1972/1973 was rooted in a severe weather shock to global grain production, although global financial turmoil and subsequent policy actions in the United States and the Soviet Union exacerbated the problem and triggered the price explosion (Falcon and Timmer, 1974). The timing is now forgotten, but OPEC's decision on October 15, 1973, to embargo oil exports to the US and Europe, came *after* the sharp increase in grain prices.

High oil prices were not a contributing factor to the world food crisis in 1972/1973. Indeed, one justification OPEC offered for the higher crude oil prices was the desire of its member countries—all of them food importers – to catch up with the increases in food prices (and the depreciation in the US dollar, the currency of international trade in crude oil). If anything, the causation went the other direction, from food prices to oil prices.

After oil prices went up, fertilizer prices also rose sharply, so the food and energy economies became more tightly linked after 1974 (Timmer, 1976). At the World Food Conference in Rome in November, 1974, there was considerable concern over availability of fertilizer and the ability of poor countries (and farmers) to afford it (Talbot, 1977). The “seed-fertilizer revolution” depended on cheap fertilizer.

The 1972/1973 world food crisis did not go away without several more scary years. Oil prices surged again in 1979 as Middle East tensions exploded, and food supplies were tight in 1980. But by the early 1980s, the full market response to high food prices in the mid-1970s was being felt. Commodity prices started a rapid slide into their collapse in the mid-1980s. Oil prices fell from their 1981 peak of nearly \$70 per barrel to \$20 per barrel (in constant 2006 dollars). Rice prices fell from \$1225 per metric ton in June, 1981 (and from \$2668 in May, 1974) to \$322 per metric ton in December, 1986 (in constant 2007 dollars). Despite warnings in the late 1970s that the era of cheap food was over, real food prices in the mid-1980s reached historic lows.

What should we have learned at this stage?

At least two lessons should have been learned from the decade-long response to the world food crisis in 1972/1973. First, food price volatility is a very serious problem, and governments of poor countries which attempt to stabilize food prices could benefit from analytical and financial support.³ Second, current food prices are a poor guide to long-run opportunity costs, precisely because they are so unstable. Investments to raise agricultural productivity, by their very nature, have long-run payoffs. Although private investors might have short horizons and be highly averse to risk, governments and donors should be able to take the long view on the role of agriculture in economic growth and poverty reduction, and invest accordingly.

Agriculture has been seriously undervalued by both the public and private sectors in those societies in which poverty has remained untouched or even deepened. In addition to an urban bias in domestic policies, the root cause of this undervaluation is a set of market failures. Commodity prices often do not send signals with adequate incentives to decision makers (Timmer, 1995, p. 470).

³ This point is made explicitly because it contrasts with the actual hostility countries met from the donors when they tried to stabilize domestic food prices. For a carefully argued and empirically rich justification of that hostility, see World Bank (2005). A number of the papers in this World Bank volume also appeared as a special issue of *Food Policy* on “managing food price risks and instability in a liberalizing market environment.” See Byerlee, Jayne and Myers, 2006.

Rather remarkably, the lesson for the donor community from this experience turned out to be that the market would solve all problems. Corruption in state trading companies and widespread failures to manage grain procurement and storage efficiently, especially in Africa and the Indian Sub-Continent, led analysts to conclude that governments should not handle the physical logistics required to stabilize food prices (Rashid, Gulati and Cummings, 2008).

The donors argued that coping with price volatility was not primarily the responsibility of governments, but of producers, traders and processors, who could use modern financial derivatives to hedge their price risks. Consumers were on their own, and the poor might need “safety nets” to cope with high food prices.⁴

A powerful ideology developed in the donor community, especially USAID and the World Bank, that governments were part of the problem rather than part of the solution. This ideology was fueled by two separate, but reinforcing, forces: the collapse of centrally planned economies in the former Soviet Union; and the Reagan–Thatcher revolution that progressively deregulated the US and UK economies.

Even by the start of the 1990s it was possible to ask whether this revolution in development ideology was likely to have the desired impact (Timmer, 1991b). Despite efforts to keep agricultural development on the agendas of donors and poor countries, the continued dominance of a free-market ideology and low commodity prices in world markets led to a sharp decline in financial investments and policy attention to the sector. In 1985 donors allocated about 13% of their project budgets to agriculture; this share had fallen to 4% in 2006.

The neglect of agriculture came with a cost. Productivity growth slowed and the low prices for food commodities stimulated a search for alternative uses, especially as bio-fuels. As stock levels declined, and consumption of food grains outstripped production for most years in the early 2000s, the stage was set for another explosion in food prices.

Fast forward to mid-2007

It is June, 2007. Grain prices had been gradually rising in real terms for five years, partly in response to the declining US dollar. Crude oil prices had doubled since 2004. From December, 2006, oil prices rose very rapidly—from \$60 per barrel to \$80 per barrel in just 6 months. Food policy analysts were holding their breath, waiting for the trigger to send prices spiraling into another world food crisis.

The trigger never materialized. Still, the food crisis happened anyway, a fairly clear result of self-fulfilling expectations. To be sure, there was a small decline—0.7% – in food grain production from the 2007 harvest, but this decline was entirely due to a 3.9% decline in wheat production. Both rice and coarse grain production actually increased in 2007. There was no need for sharply lower food grain consumption, as in 1972/1973.

With supplies for near-term delivery tight, wheat prices started rising sharply in May, 2007. They were followed by corn prices later in the year, as demand for ethanol production in the US put pressure on available supplies. Stocks of both wheat and coarse grains fell sharply during 2007, to levels relative to use that had

⁴ This response may seem somewhat perverse in light of the circumstances, but the record of what came to be considered “best practice” in managing agricultural price risks is exceptionally clear. Claessens and Duncan (1993), provide a series of case studies on how to implement the World Bank’s “best practice” approaches to managing agricultural price risks in developing countries. A fascinating application to wheat in Pakistan includes a very clear introduction to the use of futures and options markets, and the potential of “over the counter” commodity swaps, in managing risks from agricultural price volatility (Faruqee and Coleman, 1996).

not been seen since the mid-1970s. There was a clear case for higher wheat prices because of the 2007 production shortfall, and for higher corn prices because of mandated demand for bio-fuel production (Naylor and Falcon, 2008).

The actual price panic that resulted, however, had little rationale in the fundamentals of supply and demand. Speculative fervor spread from the crude oil and metals markets to agricultural commodity markets (Timmer, 2008; Piesse and Thirtle, 2009). Prices spiked, first for wheat, then for corn. And then they collapsed when the speculative bubble burst. Prices peaked for wheat in February, 2008, in June for corn, and in July for crude oil. There is a clear case to be made that the sudden spike in wheat and corn prices was heavily influenced by financial speculation.⁵

Why rice?

The trick is to explain what happened to rice prices in 2007 and 2008. Futures markets for rice are thinly traded, and there is little opportunity for financial speculation in rice prices. The supply and demand fundamentals for rice were supportive of the gradual increase in world prices from their lows in 2001, but production had been increasing steadily, stocks relative to use had been increasing since 2003, and supplies available for export were adequate for normal demand.⁶

There was no reason to expect a sudden surge in rice prices (because there was no need to curtail consumption) and, indeed, there was no surge until late in 2007. The timing is hard to explain, as rice prices started their rapid increase only shortly before the peak in wheat prices. Once the spiral started, however, rice prices then shot up far more rapidly than had wheat or corn prices, to a relatively higher peak in May, 2008. The rice price explosion was the reason for much of the public anxiety about the welfare impact of the world food crisis because so many of the world’s poor are rice consumers. No lessons from the food crisis are of much relevance without understanding how this price spiral happened (and how it was stopped).

Understanding the world rice market

There is a basic commonality to all commodity markets, as they tend to track major macro economic developments, the volume of international trade, and currency values. In addition, the major food grain markets have important economic and technological links, because of substitution possibilities in production and consumption. Still, the world rice market has several distinguishing features that make its performance quite distinct from the markets for wheat and corn. An historical assessment of this performance is the first step to understanding it.⁷

⁵ The role of financial speculation in the formation of agricultural commodity prices (as opposed to its role in managing risk from price movements) is highly controversial in the economics profession (Wright, 2009). See Munier and Briand (2009), for analysis of the financialization of agricultural commodity prices.

⁶ Rice stocks in India and China had been reduced significantly between the late 1990s and the early 2000s as a conscious policy of both governments. As world prices were low and declining, and very high storage costs were being incurred, these stock reductions seemed entirely appropriate. As rice prices began to rise after the lows in 2002, rice stocks also began to increase again. This stockholding behavior is entirely consistent with modern “supply of storage” theories (Williams and Wright, 1991; Timmer, 2009).

⁷ The learning experience from the two major food crises in 1972/1973 and 2007/2008 mirrors much of my professional career as a scholar-practitioner. See Timmer, 1975a, b, 1980, 1989, 1991a, b, 1992, 1995, 2000, 2002, 2005a, 2008, 2009; Falcon and Timmer, 1974; Timmer and Falcon, 1975, and Timmer and Dawe, 2007.

What happened in 2007/2008?

Analysis is still ongoing to understand why world food markets in 2007 and 2008 exploded, what the impact on hunger and poverty has been, and how countries and donors should respond.⁸ To understand these issues for the world rice market, one thing is clear. It is impossible to make sense of the 2007/2008 episode without also understanding a substantial amount of economic history.

Setting the stage

The formation of rice prices in world markets has long interested scholars and policy makers.⁹ Nearly half the world's population consumes rice as a staple food. This rice is typically produced by small farmers in Asia who use highly labor-intensive techniques. Rice is mostly consumed where it is produced. International trade in rice is less than 30 million metric tons (mmt) out of a global production of nearly 440 mmt (milled rice equivalent). Only 7–8% of rice produced crosses an international border at an invoiced world price.¹⁰

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 and/or consumption. It is disconcerting to exporters and importers alike if these market signals are highly volatile (Dawe, 2001).

Part of the longstanding 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.¹¹ 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 via imports. Thus supply and demand in the world market are a direct result of political decisions in a significant number of countries.

Volatility in rice prices is also driven by the structure of rice production, marketing, and consumption in most 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 well over a year in a consumable form. 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.¹²

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.¹³

When the political dimensions and the different market structure for rice are integrated into actual price formation, the scope for extreme volatility is clear. Understanding the causes of unstable rice prices in the short run requires understanding both factors, and how they contribute to the formation of price expectations on the part of market participants. These expectations can drive “destabilizing speculative behavior” among millions, even billions, of market participants, such that price formation seems to have a large, destabilizing, speculative component.¹⁴

It is important to distinguish between speculative price behavior that is seen in organized commodity markets and similar, but unorganized, behavior on the part of millions of individual market participants. The sharp rise in rice prices late in 2007 and early 2008 suggests that “unorganized” speculative activity can cause volatility, and be a serious problem. If so, understanding the causes and mechanisms is important.

Explaining the spike in rice prices

Experience with world rice prices since the middle of the 2000s illustrates the importance of market structure to short-run price dynamics. The global rice market is concentrated. Thailand, Vietnam, India, the US, and Pakistan routinely provide about 80% of available supplies. Only in the US is rice not an important commodity from consumers' perspectives (although it certainly is for producers in the US). All Asian countries show understandable concern over access of their citizens 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.¹⁵ 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, leading to rapidly rising prices. Even consumers in the United States were not immune from 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 20th 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.¹⁶ 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

⁸ This section draws extensively on Timmer (2009). A useful review article covering the Asia-Pacific region, and policy approaches for dealing with the impact of high food prices, is Sugden (2009). A general assessment of the causes of high food prices is in Piesse and Thirtle (2009).

⁹ The early standard works are Wickizer and Bennett (1941) and Barker and Herdt (with Beth Rose) (1985).

¹⁰ This is a polite way of saying that there is a good deal of smuggling. Information on the world rice market is available at <http://usda.mannlib.cornell.edu/usda/ers/89001>.

¹¹ See the discussion of long-run price trends for rice, wheat and corn (maize) in Timmer (2009) and Dawe (2002, forthcoming, b).

¹² 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.

¹³ This difference was pointed out clearly in Jasny's classic study of *Competition Among Grains* (Jasny, 1940). The vast difference between rice-based economies and those based on wheat or corn is also stressed by Bray (1986) and Oshima (1987).

¹⁴ The emphasis here on *destabilizing* expectations and subsequent speculative price behavior is meant to contrast with the normally *stabilizing* role that routine speculative activities play. More empirical work needs to be done on the role of financial instruments as they influence commodity prices in spot markets (Robles, Torero and von Braun, 2009).

¹⁵ What follows is a very brief overview of the “fire” in the world rice market from late 2007 until mid-2008. See Slayton (2009a, b) for a detailed analysis and chronology.

¹⁶ The prospect of more stable markets for rice from these forces was raised in Timmer (1991a).

translated into action as India and Vietnam moved to impose export controls. 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 inter-commodity price linkages. In India, the 2007 wheat harvest was damaged by drought and disease, problems 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 7 mmt, 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 6 mmt in 2007 (including over 5 mmt of non-Basmati rice). An MEP higher than world prices should have stopped exports, but they were 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" for rice. Thailand was the world's largest rice exporter, shipping 9.5 mmt in 2007. Partly because of nervousness in the rice trade over Thai intentions, rice export prices in Thailand jumped by \$75 per metric ton (mt) on March 28, 2008. Prices continued to skyrocket until, in April, rice for export cost over \$1100 per mt (up from \$375 at the beginning of the year). This is the stuff of panics.

Price panics usually have their origins in the fundamentals of supply and demand. But the sudden surge in rice prices in 2007/2008 demonstrated that something was happening beyond these fundamentals. Exporting countries were clearly willing to sharply restrict exports of rice to protect their own consumers. In responding, nearly all importing countries realized they were too dependent on foreign supplies for food security.¹⁷ They quickly resorted to increasing domestic stockpiles, with a longer-run commitment to self-sufficiency in rice. Although larger stocks suggest 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 which is tied up in funding inventories does not contribute to stimulating growth in economic productivity.

The sudden surge in rice prices remains to be explained. Financial speculation seems to have played only a small role, partly because futures markets for rice are very thinly traded. Instead, decisions by millions of households, farmers, traders, and some governments, based on *expectations of rising prices*, sparked a sudden surge in demand for rice and changed the gradual increase in rice prices from 2002 to 2007 into an explosion. The psychology of hoarding behavior explains why rice prices suddenly shot up.

A rough calculation of the effect of household hoarding of rice shows the potential impact on prices. Assume that one billion households consume one kilogram of rice a day – for a total consumption of 365 mmt a year, about the right annual amount glob-

ally. Assume these households keep a one-week supply in the pantry, or 7 kg per household, which is 7 mmt of household stocks in total. This quantity probably varies by income class. The very poor buy hand to mouth. The better-off households, just for convenience, store more, although there are no data available to test the reality of such behavior.

When prices start to rise, or the newspapers/TV start talking about shortages of rice (or even a world food crisis in general), each household, *acting independently*, decides to double its own storage, and thus buys an additional 7 kg per household. The impact of these additional purchases means that the world rice market—the source of supply in the very short run—needs to supply an additional 7 mmt of rice over a short period, just a few weeks. This quantity is about one-quarter of total annual international trade in rice, which has ranged from 27 to 30 mmt per year.

Roughly 7 mmt is the added demand from households, but there are many other participants in the rice economy. Farmers, traders, rice millers, and even governments will also want to hold more stocks in these circumstances. As examples, the government of Malaysia announced that it was planning to more than triple the size of the national buffer stock held by BERNAS (the Malaysian food logistics agency), even though it had to pay extremely high prices to do so (and the food crisis ended before these stock levels were achieved). The Philippines increased its government-held stocks. The Indonesian government set a target to triple its level of buffer stocks, from 1.0 to 3.0 mmt, after which exports would be permitted.¹⁸

Such sudden increases in demand for larger stocks, private and public, have a direct impact on demand in the world market. To determine the impact on prices, short-run supply and demand parameters from the analytical model developed in Timmer (2009) can be inserted into a simple mechanism for short-run price determination that uses representative price elasticities: -0.1 for demand and 0.05 for supply. With a sudden and unexpected 25% increase in short-run demand on the world market, the world price would have to rise by 167% to get a new equilibrium. That is what happened. *Panicked hoarding caused the rice price spike.*

Fortunately, a speculative run based on herd psychology can be ended by "pricking the bubble" and deflating expectations. This happened to the world rice economy. When the government of Japan announced in early June, after considerable international urging, that it would sell at least 300,000 tons of its surplus "WTO" rice stocks to the Philippines, prices in world rice markets started to fall immediately (Slayton and Timmer, 2008; Mallaby, 2008). Once the price started to drop, the psychology reversed in terms of the hoarding behavior by households, farmers, traders, and even governments. 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 that 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.

What have we learned...

Because country responses to food crises depend on political as well as economic forces, they tend to have a strong local content. As the famous American politician Tip O'Neill reminded us, "all politics are local." The advantage of local responses is that a wide variety of initiatives are possible; the disadvantage is that such diversity is impossible to capture in a short review essay. The goal here is to consolidate those diverse experiences into their core

¹⁷ This was also a lesson from the 1972/1973 food crisis, but three subsequent decades of low and declining prices eroded the lesson.

¹⁸ Indonesia has not exported meaningful quantities of rice since 1986.

components by emphasizing the conceptual underpinnings to various approaches designed to cope with food crises.¹⁹

... About preventing food crises?

The recurring nature of food crises suggests that there is a long-run cycle of decision making that drives investments in agricultural technology and productivity. If investments in such technology are “induced,” as Hayami and Ruttan (1985) have argued, their cyclical nature could be explained by periodic high food prices.

The question is how to break into such recurrent investment cycles in order to smooth out the path of food production so that it follows growth in consumption more closely. The evidence presented in this paper argues against leaving these investments entirely to a market-driven process. Instead, countries and donors need to be prepared to invest “against the cycle” to keep agricultural productivity rising on a steady path commensurate with long-run growth in demand. This approach recognizes that food prices in world markets do not always send the right signals about investing in agriculture (Timmer, 1995).

Not all of the problems are on the supply side. There are new concerns on the demand side as well. The emergence of bio-fuels as a commercially viable use of food grains and vegetable oils not only raises the level of demand that agricultural resources and productivity must meet, but it also links the prices of energy to foodstuffs.²⁰ There has long been a partial link between energy prices and food prices through production costs, but this demand-side link has more troubling implications. In particular, energy prices have been highly volatile for decades. A price link between energy and food implies that this volatility will extend to food prices in the future (Dawe, forthcoming, b).²¹

One obvious step to mitigate this volatility is for government policy to actively discourage the use of food to make bio-fuels, rather than to mandate their use and provide subsidies to bio-fuel producers and consumers. The politics of such an action are clearly difficult, as they require the reversal of a widely popular policy stance in both the US and Europe.

A final approach to preventing food crises is to build up substantial reserves of food grains during periods of surplus and release them when prices start to rise. As Wright's recent review of international grain reserves emphasizes, however, there are serious problems with this approach (Wright, 2009). The main operational approach to managing food grain reserves is through some sort of price band: managers offer to buy grain when prices are at some specified low and to sell the stored grain at some specified high. Wright emphasizes that such price bands are “unsustainable in practice as in theory” (Wright, 2009, p. 2). When grain reserves are held by some international agency as a way to stabilize prices on world markets, rather than as part of an individual country's food security reserve, such price band schemes do seem unworkable (Newbery and Stiglitz, 1981; Williams and Wright, 1991).

Of course, the failure of international buffer stocks to stabilize grain prices on world markets does not mean that individual countries cannot do so for extended periods of time for prices within

their own borders, especially if they are following a lagged moving average of world prices. Asian countries have stabilized rice prices within their economies, relative to the border price of rice, for many decades – some more successfully than others (Timmer, 1996; Rashid, Gulati and Cummings, 2008). Management of such domestic price stabilization schemes, however, is better treated in the following discussion of how to cope with food crises. *Preventing* is largely a global responsibility; *coping* is mostly about country responses.

... About coping with food crises?

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, as noted in the section above, 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).²² Such isolation runs directly against the spirit and, for many countries, the letter of WTO agreements. But it is a very widespread practice. Demeke, Pangrazio, and Maetz (2009) count 36 countries that used some form of border intervention to stabilize their domestic food prices during the 2007/2008 crisis.

Such policies can have a huge impact. India, China, and Indonesia stabilized their domestic rice prices during the 2007/2008 food crisis by using export bans (or at least very tight controls), thus protecting well over 2 billion consumers from sharply higher prices. The policies pursued by these three countries demonstrate the importance of understanding local politics in policy formation. 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, forthcoming, a).²³

In terms of *aggregate global welfare*, stabilizing domestic rice prices in these large countries using border interventions might be an effective way to cope with food crises, even after considering the spillover effects on increased price volatility in the residual world market. Dawe (forthcoming, b) 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, and where collective global action has failed to prevent the crisis in the first place.

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 2007/2008 crisis, whether by subsidizing fertilizer to get a quick production response or encouraging planting of short-season crops, even urban gardens. 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

¹⁹ For a much more detailed treatment of these approaches, including specifics of country responses, see the FAO review by Demeke, Pangrazio, and Maetz (2009).

²⁰ Political mandates were responsible for the rapid growth of the bio-fuel industry in both the US and Europe, but crude oil prices over \$80 per barrel are thought by most analysts to support production of bio-fuels as a commercial activity (Elliott, 2008).

²¹ There is much hope that second-generation bio-fuels, made primarily from cellulosic materials that have little commercial value otherwise, will replace food grains and vegetable oils as the raw material for the bio-fuel industry. No commercial cellulosic bio-fuels plants are operating, however. The water, land and energy resources needed to produce and transport large quantities of these materials are also problematic.

²² 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.

²³ The “pass through” of price increases in world markets to the domestic economies of China, India and Indonesia from early 2007 to early 2008 were 4%, 8%, and –3%, respectively. In each case, however, domestic rice prices were already higher than world prices, before the crisis hit (Timmer, 2008).

Table 1
Policy recommendations for countries to tackle high commodity prices. Source: World Bank (2009)

	Transfers to poor households	Public price stabilization	Transition towards market stabilization measures
Immediate responses	<ul style="list-style-type: none"> • Feeding programs • Food for work programs • Expand existing cash transfer programs • Limited subsidies 	<ul style="list-style-type: none"> • Lift import restrictions on food, Quotas • Draw down food stocks 	<ul style="list-style-type: none"> • Reducing red tape in transporting goods across regions • Limited intervention using variable tariff
Long-term responses	<ul style="list-style-type: none"> • Develop cash transfer programs (where previously non-existent) 	<ul style="list-style-type: none"> • Improving farm productivity • Improving village infrastructure • Improving food logistics network 	<ul style="list-style-type: none"> • Encourage investments in private storage and warehouse receipt • Forward contracts • Domestic market efficiency • Future Market, Index-based weather insurance • Import quota or import bans • Price controls
Policies to avoid	<ul style="list-style-type: none"> • Universal subsidies • In-kind transfers 	<ul style="list-style-type: none"> • Export bans • Price controls 	

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 (Byerlee, Jayne, and Myers, 2006).

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 food crisis in 2007/2008. The safety net approach figures prominently in “best practice” recommendations from the World Bank, FAO and the World Food Program (World Bank, 2005).

Table 1 summarizes currently recommended practices (see World Bank, 2009). 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 et al. (2010) cogently explain the behavioral foundations and research base on which this approach is based.

The difficulty is that food crises are relatively short-lived events (as opposed to chronic poverty). 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).

The overwhelming popularity of the safety net and food aid approach stems at least partly from Tip O'Neill's adage about local politics—applied to food aid donors. There has long been a “doing well by doing good” dimension to international supplies and distribution of food aid (Timmer, 2005b). Although European and Cana-

dian donors are moving quickly to a much more efficient provision of cash for local procurement of food needed for relief programs, the United States still requires that virtually all of the food aid it provides be shipped from American farms, with ensuing long delays in delivery to recipients.²⁴ Food aid has a good record in emergency environments stemming from natural and man-made disasters. Its record in coping with high food prices is not so good.

This cursory review of mechanisms for coping with food crises argues that they are highly imperfect, often slow in implementation and complex to manage, with high costs attached. In an emergency, they may be crucial to sustaining the welfare of the poor. But the great majority of the poor during a food crisis are not reached by these approaches.²⁵

Considerably more attention needs to be given to preventing food crises in the first place, at least nationally if not globally. Experience with “pricking the rice price bubble” in 2008 demonstrates that sometimes a simple intervention—getting Japan to announce it would sell some of its WTO rice stocks – can bring down prices by changing expectations of market participants. The international donors, and especially the World Bank, need to stop thinking that such “interventions” are always harmful to the efficient functioning of markets.

What is “feasible best practice” for policy in managing food price volatility?

From a policy perspective, how should poor countries actually deal with food price volatility? There are four dimensions that need discussion:

- (1) How stable should domestic prices be compared with relevant border prices? [this is the major criterion for judging “success”].
- (2) How much will it cost to achieve this “good” performance? [this “cost-effectiveness” dimension would include fiscal costs as well as the implicit or opportunity costs of economic distortions].
- (3) What instruments can be used to cope with price volatility? [the policy and program tools, plus implementation mechanisms].
- (4) What will determine which of these instruments is chosen? [the role of economic analysis as well as political calculations].

²⁴ Cash for local procurement of food aid also tends to provide better incentives to local farmers.

²⁵ The evidence is reviewed in an important issue of the World Hunger Series from the World Food Program on “Hunger and Markets.” This document contains a wealth of information on the role of markets in the short run, as countries coped with the food crisis, and in the long run when they seek sustainable pathways out of poverty. See World Food Program (2009).

**“Best Practices” for short-run policy response to a world food crisis:
A conceptual decision tree to organize analysis of a diagnostic approach**

1. *Is there a food shortage in the country at “normal” prices?*

No: Use trade policy to limit the transmission of world prices to domestic prices

Yes:

 2. *Can food be imported quickly?*

No: Cope with shortages via rationing and subsidies to the poor. Scale up emergency feeding programs for children suffering acute malnutrition

Yes:

 3. *Are safety nets available and scaleable if imports mean higher food prices?*

No: Subsidize imports and keep food price increases as small as possible. Seek international food aid supplies. Set up or expand emergency feeding programs for children

Yes: Open the border to high-price imports (remove trade barriers where present). Scale up safety nets for poor consumers, including in rural areas.

Fig. 1. “Best practices” for short-run policy response to a world food crisis: a conceptual decision tree to organize analysis of a diagnostic approach.

“Feasible best practice” for managing food price volatility depends on the country, the commodity, and events in the world market. As a start, a rough overview of how these factors influence appropriate policy choices is offered here, beginning with a simple decision tree that answers key questions about a particular setting. It must be emphasized, however, that each country would need to develop its own strategic approach and the analytical capacity to design and implement it.

Instead of the *descriptive approach* to understanding the vulnerability of individual countries provided in Figs. 2.2 and 2.3 in the World Bank’s report on managing food price volatility (World Bank, 2005), Fig. 1 proposes a *diagnostic approach* which asks several important questions about a country’s circumstances when a world food crisis hits, and appropriate policy responses that depend on the answers. These answers clearly can change in even a short period of time, making the diagnostic approach useful in a time of crisis.

These proposed policy responses, and the conditions that trigger them, will no doubt strike most readers as highly pessimistic assessments of what options are available in the wake of a world food crisis. The lessons learned since the world food crisis in 1972/1973, however, support this pessimistic stance. More to the point, the limited options available to countries after a world food crisis has hit emphasize all the more the importance of *preventing food crises in the first place*. Such prevention requires very active engagement by governments and donors into the long-run functioning of national food economies and the resulting performance of world food markets. Such engagement is an analytically and politically challenging task if it is to be both effective and efficient, but the key elements are clear.

- (1) Maintain a stable global effort on agricultural research and advisory services, especially on short-run supply responses and production flexibility.
- (2) Expand and improve management of local buffer stocks, including some degree of international coordination.

- (3) Improve world trade stabilizers through macro economic coordination.
- (4) Reduce volatility of global price signals through more stable exchange rates, possibly to include use of a new reserve currency.
- (5) “Thicken” global trading markets by reducing trade barriers.
- (6) Build analytical and advisory capacity in food policy analysis.²⁶

A rough example for three key countries in Asia illustrates both the potential of the diagnostic approach and complexities of trying to use it to understand the political economy of actual responses to food crises (see Table 2). A brief summary of these responses by Thailand, Indonesia and India during the food crises in 1972/1973 and 2007/2008, and during the collapse in commodity prices in 1985/1986, 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% between 1972 and 1973, whereas domestic retail prices rose just 13%. By contrast, export prices nearly doubled between 2007 and 2008, and so did domestic retail prices (see Table 3).

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. Thailand has also initiated an expensive price support program for rice farmers, one reason the government was 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

²⁶ I thank Peter Rankin for suggesting that I include a specific list of items that would help prevent food crises, to provide a parallel to the list of actions for coping with crises.

Table 2

Comparing two world food crises for the rice economy.

Commodity and country	1972/1973	Price collapse in mid-1980s	2007/2008
<i>Rice</i>			
Thailand (exporter)	Banned exports and kept domestic prices relatively stable but destabilized world market	Passed low prices though to farmers, with increase in rural poverty	No control on exports and local prices followed world prices. Discussed forming a rice exporters cartel
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 very popular for Congress Party

Table 3

Net rice imports and exports and rice prices in Thailand, Indonesia and India for three time periods. Source: IRRI World Rice Statistics; USDA Rice Outlook

(Nominal \$/mt converted at average foreign exchange rate from domestic prices)						
	1972	1973	1985	1986	2007	2008
World price, \$/mt Thai 5's, fob	\$147	\$350	\$216	\$211	\$327	\$650
<i>Thailand</i>						
Net exports, 000 mt	2113	849	4062	4524	9557	10,011
Farm harvest price	63	94	85	114	189	320
Retail price	175	198	261	270	315*	592*
<i>Indonesia</i>						
Net imports, 000 mt	734	1863	-225	-106	2000	350
Farm harvest price	75	113	171	131		
Retail price	111	171	256	251	482*	484*
<i>India</i>						
Net imports, 000 mt	286	246	-254	-232	-6301	-3383
Farm harvest price	113	136	153	161		
Retail price	186	221	235	246	325	384

Note: Data at the country level for farm and retail prices in 2007 and 2008 are not yet available. The text is consistent with what is known in a preliminary fashion of rice prices in these three countries in 2007 and 2008. Prices marked with an asterisk (*) are wholesale level, not retail.

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 1972/1973, the country lost control of its domestic prices—domestic retail prices increased 54% between 1972 and 1973. In the most recent crisis, retail rice prices in Indonesia did not increase at all. 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 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%. Still, food grain consumption dropped sharply because of the *el Nino*-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% lower in Thailand in 1985 than in 1973 (and these are nominal prices!), in Indonesia and India the farm level prices were 51% and 13% 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 6 mmt during the crisis year of 1998, a significant share of it from India. In 2007 India exported 6.3 mmt of rice. Even after the export ban, it still exported 3.3 mmt in 2008. Many of these shipments were basmati rice, which was not subject to the export ban. It is perhaps no coincidence that in most of the 1990s, poverty declined much more rapidly in Indonesia than in India. This was the case until the Asian financial crisis in 1998, as food was more accessible to the poor (Timmer, 2004).

India faced a fundamentally different set of options during the 2007/2008 food crisis than it did in the 1972/1973 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,b). 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.

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—*Raskin* in Indonesia and the “below poverty line” (BPL) program (and others) in India. 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 Singh and President Yudhoyono were both re-elected in 2009 with strong mandates. Part of their popularity stems from the price stability made possible by this approach.

Most of what India and Indonesia did to cope with the world food crisis in 2007/2008 violates the guidelines provided by the World Bank and other donors for best practices in dealing with food price volatility (see Table 1 and 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” in Table 1. 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 in this paper has been 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.

Acknowledgements

I would like to thank Carol Timmer for coming out of editorial retirement to provide her sharp red pen, and clarity of thought, to the manuscript. Helpful comments were also received from David Dawe, Alain de Janvry, Wally Falcon, Colin Poulton, Peter Rankin, Tom Slayton, and Ludovic Subran. I would like to thank the Agricultural and Rural Development Department of the World Bank for providing the resources to make this essay possible, although I must stress that the views expressed here are very much my own.

References

Abbott, Philip C., Hurt, Christopher, Tyner, Wallace E., 2008. What's Driving Food Prices? Farm Foundation Issue Report (FFIR), Oak Brook, IL. <[\[www.farmfoundation.org/news/articlefiles/404-FINALWDFPREPOT7-28-08.pdf\]\(http://www.farmfoundation.org/news/articlefiles/404-FINALWDFPREPOT7-28-08.pdf\)>.

Barrett, Christopher B., Lentz, Erin C., 2010. Food Insecurity. Draft Chapter for the International Studies Association Compendium Project. Wiley-Blackwell Publishing, Ithaca, Cornell University.

Barker, Randolph, Herdt \(with Beth Rose\), Robert W., 1985. The Rice Economy of Asia. Resources for the Future, Washington, DC.

Bray, Francesca, 1986. The Rice Economies: Technology and Development in Asian Societies. Basil Blackwell, Oxford, UK.

Byerlee, Derek, Jayne, T.S., Myers, Robert J. \(Eds.\), 2006. Food Policy, vol. 31, No. 4 \(August\), Special Issue on Managing Food Price Risks and Instability in a Liberalizing Market Environment.

Claessens, Stijn, Duncan, Ron C. \(Eds.\), 1993. Managing Commodity Price Risk in Developing Countries. Johns Hopkins University Press, Baltimore.

Dawe, David, 2001. How far down the path to free trade? The importance of rice price stabilization in developing Asia. Food Policy 26, 163–175.

Dawe, David, 2002. The changing structure of the world rice market, 1950–2000. Food Policy 27, 355–370.

Dawe, David \(Ed.\), Forthcoming, a. What Went Wrong with the World Rice Market? Earthscan Press with Food and Agricultural Organization of the United Nations \(FAO\), London.

Dawe, David, Forthcoming, b. Conclusion: can the next rice crisis be prevented? In: Dawe, David \(Ed.\), Forthcoming, a. What Went Wrong with the World Rice Market? Earthscan Press with Food and Agricultural Organization of the United Nations \(FAO\), London.

Demekle, M., Pangrazio G., Maetz, M., 2009. Country responses to the food security crisis: nature and preliminary implications of the policies pursued. <\[http://www.fao.org/fileadmin/user_upload/ISFP/pdf_for_site_Country_Response_to_the_Food_Security.pdf\]\(http://www.fao.org/fileadmin/user_upload/ISFP/pdf_for_site_Country_Response_to_the_Food_Security.pdf\)>.

Elliott, Kimberly, 2008. Biofuels and the Food Price Crisis: A Survey of the Issues. Center for Global Development Working Paper 151, August. Washington, DC.

Falcon, Walter P., Timmer, C. Peter, 1974. War on hunger or new cold war? Stanford Magazine, Fall/Winter 64, 4–9.

Faruqee, Rashid, Coleman, Jonathan R., 1996. Managing Price Risk in the Pakistan Wheat Market. World Bank Discussion Paper No. 334. Washington, DC.

Food and Agricultural Organization of the United Nations \(FAO\), 2009. The State of Food Insecurity. June, Rome.

Gardner, Bruce L., 1979. Optimal Stockpiling of Grain. Lexington Books, Lexington.

Hayami, Yujiro, Ruttan, Vernon W., 1985. Agricultural Development: An International Perspective \(Revised and Expanded\). Johns Hopkins University Press.

Jasny, Naum, 1940. Competition among Grains. Food Research Institute, Stanford University, CA.

Mallaby, Sebastian, 2008. Rice and Baloney: Irrational Policies the World Over are Making the Food Crisis Worse. The Washington Post \(Monday, May 18\), p. A-17.

Munier, Bertrand, Briand, Anne, 2009. Agricultural Market Uncertainty and Financialization: A Micro-Disequilibrium Macro Equilibrium Integrated Model. MOMAGRI Working Paper No. 2009-1 \(May 29\), Presented at the Workshop on Agricultural Price Volatility, Sorbonne Business School, June 4–5, 2009, Paris.

Naylor, Rosamond, Falcon, Walter P., 2008. Our Daily Bread. The Boston Review, September/October, pp. 13–18.

Newbery, David M.G., Stiglitz, Joseph E., 1981. The Theory of Commodity Price Stabilization: a Study in the Economics of Risk. Clarendon Press, Oxford.

Olken, Ben, 2006. Corruption and the costs of redistribution: micro evidence from Indonesia. Journal of Public Economics 90, 853–870.

Oshima, Harry T., 1987. Economic Growth in Monsoon Asia: A Comparative Study. University of Tokyo Press, Tokyo, Japan.

Piesse, Jenifer, Thirtle, Colin, 2009. Three bubbles and a panic: an explanatory review of recent food commodity price events. Food Policy 34 \(2\), 119–129.

Rashid, Shahidur, Gulati, Ashok, Cummings, Ralph, Jr. \(Eds.\), 2008. From Parastatals to Private Trade: Lessons from Asian Agriculture. Johns Hopkins University Press for the International Food Policy Research Institute, Baltimore, MD.

Ravallion, Martin, Huppi, Monika, 1991. Measuring changes in poverty: a methodological case study of Indonesia during an adjustment period. World Bank Economic Review 5 \(1\), 57–82.

Robles, Miguel, Torero, Maximo, von Braun, Joachim, 2009. When Speculation Matters. IFPRI Issue Brief 57 \(February\). International Food Policy Research Institute, Washington, DC.

Slayton, Tom, 2009a. Arson Forensics: What Set the World Rice Market on Fire in 2008? Presented at the FAO Workshop on “Rice Policies in Asia” held in Chiang Mai, Thailand, from February 9–12.

Slayton, Tom, 2009b. Rice Crisis Forensics: How Asian Governments Carelessly Set the World Rice Market on Fire. Working Paper No. 163, Center for Global Development, Washington, DC.

Slayton, Tom, Timmer, C. Peter, 2008. Japan, China and Thailand Can Solve the Rice Crisis—But US Leadership is Needed. CGD Notes \(May\). Center for Global Development, Washington, DC.

Sugden, Craig, 2009. Responding to high commodity prices. Asian-Pacific Economic Literature 23 \(1\), 79–105.

Talbot, Ross, 1977. The World Food Problem and US Food Politics and Policies: 1972–1976: A Readings Book. Iowa State University Press, Ames, IO.

Timmer, C. Peter, 1975a. The political economy of rice in Asia: a methodological introduction. Food Research Institute Studies 14 \(3\), 191–196.

Timmer, C. Peter, 1975b. The political economy of rice in Asia: lessons and implications. Food Research Institute Studies 14 \(4\), 419–432.](http://</p>
</div>
<div data-bbox=)

- Timmer, C. Peter, 1976. Fertilizer and food policy in LDC's. *Food Policy* 1 (2), 143–154.
- Timmer, C. Peter, 1980. Food prices and food policy analysis in LDC's. *Food Policy* 5 (3), 188–199.
- Timmer, C. Peter, 1986. *Getting Prices Right: The Scope and Limits of Agricultural Price Policy*. Cornell University Press, Ithaca.
- Timmer, C. Peter, 1989. Food price policy: the rationale for government intervention. *Food Policy* 14 (1), 17–27.
- Timmer, C. Peter, 1991a. Food Price Stabilization: Rationale, Design, and Implementation. In: Perkins, Dwight H., Roemer, Michael (Eds.), *Reforming Economic Systems*. Harvard Institute for International Development, Harvard University. Distributed by Harvard University Press, Cambridge. pp. 219–348, 456–459.
- Timmer, C. Peter (Ed.), 1991b. *Agriculture and the State: Growth, Employment, and Poverty in Developing Countries*. Cornell University Press, Ithaca, NY.
- Timmer, C. Peter, 1992. Agriculture and Economic Development Revisited. In: Teng, Paul, Penning de Vries, Frits (Eds.), *Special Issue of Agricultural Systems*, vol. 40. Elsevier Science Publishers, England, pp. 21–58.
- Timmer, C. Peter, 1995. Getting agriculture moving: do markets provide the right signals? *Food Policy* 20 (5), 455–472.
- Timmer, C. Peter, 1996. Does BULOG stabilize rice prices in Indonesia? should it try? *Bulletin of Indonesian Economic Studies* (Canberra) 32 (2), 45–74.
- Timmer, C. Peter, 2000. The macro dimensions of food security: economic growth, equitable distribution, and food price stability. *Food Policy* 25 (4), 283–295.
- Timmer, Peter C., 2002. Agriculture and Economic Development. In: Bruce Gardner, Gordon Rausser (Eds.), *The Handbook of Agricultural Economics*, vol. 2A. Amsterdam, North-Holland, pp. 1487–1546.
- Timmer, C. Peter, 2004. The road to pro-poor growth: the Indonesian experience in regional perspective. *Bulletin of Indonesian Economic Studies* 40 (2), 177–207.
- Timmer, C. Peter, 2005a. Food security and economic growth: an Asian perspective. *Asian-Pacific Economic Literature* 19 (1), 1–17.
- Timmer, C. Peter, 2005b. *Food Aid: Doing Well by Doing Good*. CGD Notes (December). Center for Global Development, Washington, DC.
- Timmer, Peter C., 2008. The Causes of High Food Prices, Chapter 2.3 in *Asian Development Outlook Update* (September). Asian Development Bank, Manila, The Philippines, pp. 72–93.
- Timmer, Peter C., 2009. Rice Price Formation in the Short Run and the Long Run: The Role of Market Structure in Explaining Volatility. Center for Global Development Working Paper 172, May, pp. 1–46.
- Timmer, C. Peter, Falcon, Walter P., 1975. The Political Economy of Rice Production and Trade in Asia. In: Reynolds, Lloyd (Ed.), *Agriculture in Development Theory*. Yale University Press, New Haven, pp. 373–408.
- Timmer, C. Peter, Falcon, Walter P., Pearson, Scott R., 1983. *Food Policy Analysis*. Johns Hopkins University Press for the World Bank, Baltimore.
- Timmer, C. Peter, Dawe, David, 2007. Managing food price instability in Asia: a macro food security perspective. *Asian Economic Journal* 21 (1), 1–18.
- Wickizer, Vernon D., Bennett, Merrill K., 1941. *The Rice Economy of Monsoon Asia*. Food Research Institute, Stanford University, Stanford, CA (in cooperation with the Institute of Pacific Relations).
- Williams, Jeffrey C., Wright, Brian D., 1991. *Storage and Commodity Markets*. Cambridge University Press, Cambridge, United Kingdom.
- World Bank, 2005. *Managing Food Price Risks and Instability in an Environment of Market Liberalization*. Agriculture and Rural Development Department Report No. 32727-GLB. Washington, DC.
- World Bank, 2009. *Boom, Bust and Up Again? Evolution, Drivers and Impact of Commodity Prices: Implications for Indonesia*. Trade and Development Report, Poverty Reduction and Economic Management (PREM) Department, East Asia and Pacific Region (May 30 draft). Washington, DC.
- World Food Program (WFP), 2009. *World Hunger Series: Hunger and Markets*. Earthscan and WFP, London.
- Wright, Brian D., 2009. *International Grain Reserves and Other Instruments to Address Volatility in Grain Markets: Issues and Options*. Technical Background Paper for the World Grain Forum, May, Russia. University of California, Berkeley.