Behavioral dimensions of food security

C. Peter Timmer[1]
Harvard University, Cambridge, MA 02138

Edited by Prabhu Pingali, Bill and Melinda Gates Foundation, Seattle, WA, and approved August 27, 2010 (received for review November 17, 2009)

The empirical regularities of behavioral economics, especially loss aversion, time inconsistency, other-regarding preferences, herd behavior, and framing of decisions, present significant challenges to traditional approaches to food security. The formation of price expectations, hoarding behavior, and welfare losses from highly unstable food prices all depends on these behavioral regularities. At least when they are driven by speculative bubbles, market prices for food staples (and especially for rice, the staple food of over 2 billion people) often lose their efficiency properties and the normative implications assigned by trade theory. Theoretical objections to government efforts to stabilize food prices, thus, have reduced saliency, although operational, financing, and implementation problems remain important, even critical. The experience of many Asian governments in stabilizing their rice prices over the past half century is drawn on in this paper to illuminate both the political mandates stemming from behavioral responses of citizens and operational problems facing efforts to stabilize food prices. Despite the theoretical problems with free markets, the institutional role of markets in economic development remains. All policy instruments must operate compatibly with prices in markets. During policy design, especially for policies designed to alter market prices, incentive structures need to be compatible with respect to both government capacity (bureaucratic and budgetary) and empirical behavior on the part of market participants who will respond to planned policy changes. A new theoretical underpinning to political economy analysis is needed that incorporates this behavioral perspective, with psychology, sociology, and anthropology all likely to make significant contributions.

behavioral economics | structural transformation | food crises | world rice market

People are not food secure until they feel that they are food secure, and they do not feel secure when market prices for staple foods are highly unstable. This basic reality of behavioral psychology adds an important expectation dimension to the traditional definition of food security. For example, the US position paper for the 1996 World Food Conference provides a standard definition (ref. 1, p. 2):

> Food security exists when all people at all times have physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life. Food security has three dimensions: availability of sufficient quantities of food of appropriate quality, supplied through domestic production or imports; access by households and individuals to adequate resources to acquire appropriate foods for a nutritious diet; and utilization of food through adequate diet, water, sanitation, and health care.

Each of these three dimensions can be affected by instability in food prices, but more recent thinking has stressed the risk and vulnerability of poor households to catastrophic and irreversible changes in their food security (2, 3). The behavioral dimension to food security presented in this paper extends this line of thought by illuminating the origins of the welfare losses that accompany sharp spikes in food prices. A better understanding of these losses is important to food policy, because it can help policy analysts prevent future food crises.

Although not common—on average, there are three world food crises per century—food crises do enormous damage to the poor when they hit. Equally devastating, food crises almost always give rise to antimarket and antitrade policies in a beggar my neighbor approach to building national food reserves at the expense of trade—witness the panicked response of dozens of countries to the spike in rice prices in 2007 and 2008 from India to the Philippines to Egypt to Brazil (4). National food autarky has not been a reliable way to improve food security or broader economic welfare in the long run, and this is likely to be increasingly true in the future if climate change adds to production variability, requiring greater trade to even out supplies across countries. Competitive food markets are normally the most efficient way to connect farmers with consumers. Displacing them out of fear and panic is enormously costly.

Understanding the behavioral dimensions of food security is an important step in learning how to prevent food crises. After 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. However, 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. This paper seeks to integrate insights from behavioral economics into an understanding of why governments should stabilize basic food grain prices. With a better understanding of why, it is possible to suggest better approaches to how to do this.

The argument here is that highly unstable food prices—sharp spikes and price collapses—are undesirable for two separate reasons. First, it is increasingly recognized that unstable staple grain prices have serious consequences for economic welfare, especially for the poor (5–9). Second, spikes in food prices universally evoke a visceral, hostile response among producers and consumers alike to the very functioning of markets. This response has deep behavioral foundations—the experimental and psychological literature shows clearly that individuals strongly prefer stable to unstable environments, a message with resonance well beyond food security.*

Author contributions: C.P.T. designed research, performed research, analyzed data, and wrote the paper.

The author declares no conflict of interest.

This article is a PNAS Direct Submission.

[1]E-mail: ptimmer63@gmail.com.

*As Bernheim and Rangel (10) point out in an excellent review of behavioral public economics, one of the most important contributions of behavioral economics has been in the analysis of provision of public goods. Their review focuses on the joint provision of a public good by government and charitable bodies, with behavioral research illuminating the motivations for individuals to make charitable contributions for causes and institutions that provide jointly produced public goods (such as public radio). Of direct relevance to the discussion in this paper, there is clear evidence of herd behavior, keeping up with the Joneses, or other-regarding preferences in these decisions. Bernheim and Rangel (10) also 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 (11) and revived by Kahneman and Tversky (12). 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, which 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 in this paper: models that international economists use to prove the existence of gains to trade no longer hold, and theoretical arguments against stabilizing prices also disappear.

Kahneman and Tversky (12), 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—most countries try to stabilize the price of their staple food grain, despite objections from trade economists that the welfare losses will outweigh any welfare gains.

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 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.

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 Prime Minister Singh in India and President Yudhoyono in Indonesia in early 2009. Both candidates campaigned openly on their ability to bring their countries through the world food crisis with minimal impact on domestic food prices.

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 (13). 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.[†]

The two most recent world food crises —in 1972/1973 and 2007/2008—provide important lessons on the importance of understanding behavior of a wide range of economic agents in the food system if future crises are to be avoided.[‡] In particular, understanding how price expectations for basic food grains are formed by farmers, traders, and consumers and how these agents act on those expectations is critical to knowing what policy actions will stabilize food prices and keep consumers more food secure (13, 14).

The proximate goal of food policy analysis has always been to improve food security at both the macro (market stability) level and the micro (household access) levels (15). To accomplish this goal, of course, food policy needs to influence behavior of food system participants. A richer understanding of behavioral economics offers the hope of more effective policy instruments and improved food security. On a global basis, it is impossible to improve food security in the short run or the long run without providing adequate supplies of rice that are accessible to the poor. Perhaps two-thirds of the world's poor consume rice as their staple food, and they live mostly in Asia. It should be of no surprise that many of the lessons on how to provide both micro and macro food security come from economic development and food price policies designed and implemented in Asia (6).[§]

The challenge to the development profession is 2-fold: (*i*) to help Asia find more efficient ways to stabilize their domestic food prices, especially for rice, with fewer spillovers to world markets, and (*ii*) to help Africa find a way to stabilize their domestic food prices without introducing serious distortions to their food economies or retarding the development of an efficient private food marketing sector and to increase rural productivity and welfare.

Discussion

The formation of rice prices in world markets has long interested scholars and policy makers.[¶] Nearly one-half of the world's population consumes rice as a staple food, and it is typically produced by small farmers using highly labor-intensive techniques. Rice is mostly consumed where it is produced, with international trade less than 30 million metric tons (mmt) of a global production of nearly 440 mmt (milled rice equivalent)—only 7–8% of rice produced crosses an international border. Still, the world market for rice provides essential supplies to importing countries around the world, and 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 and thus, hard to interpret.

Understanding the Behavioral Dimensions of Food Crises. Part of the longstanding interest in the world rice market has been precisely because it has been so volatile. The coefficient of variation of world rice prices has been higher than that of wheat or maize for decades at a time. Understanding this volatility has been difficult; much of it traces to the residual nature of the world rice market, because both importing and exporting countries stabilize rice prices internally by using the world rice market to dispose of surpluses or meet deficits through imports. Thus, supply and demand in the world market are a direct result of political decisions in a large number of countries, not relative costs of production. Rice is a very political commodity (18).

However, 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 1 y in a consumable form. This is an industrial structure very unlike that for wheat or maize, where larger producers dominate and the farm-level and marketed commodity is quite different from what is eaten by consumers. The price expectations of rice market participants are

[†] Jayne T, Market failures and food price spikes in Southern Africa, Experts' Meeting on Institutions and Policies to Manage Global Market Risks and Price Spikes in Basic Food Commodities, October 26 and 27, 2009, Rome.

[‡] A sharp price spike for staple grains on world markets in 1996 did not receive nearly the same attention as the broader food crises in 1972/1973 and 2007/2008, but the high prices did attract considerable attention at the World Food Conference held that year.

[§] Timmer CP, Management of rice reserve stocks in Asia: Analytical issues and country experiences, Experts' Meeting on Institutions and Policies to Manage Global Market Risks and Price Spikes in Basic Food Commodities, October 26 and 27, 2009, Rome.

[¶] The early standard works are Wickizer and Bennett (16) and Barker and Herdt (17). This section of the paper draws on Timmer (14).

critical to their decisions about how much to grow, sell, store, and consume. Because there are virtually no data available about either these price expectations or their marketing consequences, the world rice market operates with highly incomplete and imperfect information about short-run supply and demand factors. In short, rice is a very different commodity from the other basic food staples, wheat and maize.[‖] The closest parallel to rice is the white maize economy of southern and eastern Africa, which has similar thinness of markets (although the storage potential for milled white maize is less than that of milled rice and the marketing structures have noticeable differences).

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 proximate causes of unstable rice prices 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.[**] Price behavior late in 2007 and early 2008 shows that this speculation is a serious problem. The issue is how to make the world rice market a more reliable venue for imports and exports, with price signals that reflect long-run production costs and consumer demand rather than short-run panicked behavior.[††]

Understanding the behavioral foundations of formation of price expectations will be critical to solving this problem. In particular, the 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 (25).[‡‡]

A model of the supply of storage, a staple of commodity market analysis for more than half a century, has been used to understand the factors affecting price expectations and price formation in the short run. This model builds primarily on the behavior of profit-maximizing firms engaged in storage activities, and it is quite successful when virtually all of the commodity storage is in commercial hands, as with cocoa or wheat, and stock levels for such commodities are reported regularly or can be estimated fairly accurately (27, 28). For a commodity such as rice that is mostly grown by smallholders, which is marketed by a dense network of small traders and processors (many with limited access to credit) and is purchased by consumers in a readily storable form milled rice, stock levels can change at any or all levels of the supply chain, and there are virtually no data available on these inventory levels.[§]

For rice, in fact, most inventories are held by individuals (farmers, small traders, and consumers) or governments. Neither individuals nor governments as inventory holders have behavior that is explained by the supply of storage model. The behavior of individuals, whose short time horizons (or time-inconsistent utility functions) impede rational savings decisions and storage investments, does not lead to optimal storage decisions—witness the tendency in many peasant economies for there to be a hungry season shortly before the harvest (29). Governments hold rice stocks to stabilize domestic prices, despite this being a loss-making activity in financial terms. At least for the rice economy, we need behavioral explanations—for individuals and governments—to explain storage decisions and their simultaneous impact on price expectations.

As concerns grew in 2007 that world food supplies were limited and prices for wheat, maize, and vegetable oils were rising, several Asian countries reconsidered the wisdom of maintaining low domestic stocks for rice [Slayton (4, 30) has a detailed analysis and chronology of the fire in the world rice market from late 2007 to mid-2008]. Fears of shortages spread, and a cumulative price spiral started that fed on the fear itself. On March 28, 2008, rice prices in Thailand jumped $75 per mmt. Prices continued to skyrocket until it cost over $1,100 per mmt in April. Rice cost just $375 per mmt at the start of the year—this is the stuff of panics.

The psychology of hoarding behavior is important in explaining why rice prices suddenly shot up starting in late 2007. Financial speculation seems to have played only a small role (partly because futures markets for rice are very thinly traded). Instead, as apprehension spread about the impending world food crisis, governments stepped up their actions to stabilize rice prices within their borders. Not all of these actions were credible, of course, especially in the Philippines and Vietnam, where governments are not widely trusted to pursue the broad welfare of the population. Decisions by millions of worried householders, farmers, and traders sparked a sudden surge in demand for rice—a panic in Saigon in April 2008 cleared rice off of supermarket shelves in 2 d. This surge, replicated in a number of rice-importing

[‖]This difference was pointed out clearly in the classic study by Jasny (19), *Competition Among Grains*. 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" (ref. 19, p. 7). The sharp difference between rice-based economies and those based on wheat or maize is also stressed by Bray (20) and Oshima (21).

[**]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. Unless speculators buy during the harvest, store grain, and sell during the short season, seasonal price movements would be much larger than they are without these normal speculative activities. Of course, seasonal prices must rise from their harvest lows to their peak just before the new harvest or these stabilizing speculative investments would not be made. It is difficult to define precisely the difference between stabilizing and destabilizing speculation. Even agents who engage entirely in the financial derivatives of commodities, such as futures, options, and swaps, can contribute to the liquidity of the underlying markets and thus, help support the stabilizing function of speculation. However, when herd behavior sets in, the potential to generate bubbles and less stable prices is clear. Much more analytical and empirical work needs to be done on the role of expectations as they influence commodity prices, in general, and rice markets, in particular (22–24).

[††]A workshop of the Food and Agriculture Organization (Rome; FAO) on October 26 and 27, 2009, discussed this topic in detail. There were a variety of contrasting views, and the rapporteur's report by Sarris et al. has a synthesis of the divergent views of the participants.
Jayne T, Market failures and food price spikes in Southern Africa, Experts' Meeting on Institutions and Policies to Manage Global Market Risks and Price Spikes in Basic Food Commodities, October 26 and 27, 2009, Rome.
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[‡‡]A major debate in the finance profession is over the importance of self-fulfilling expectations that are driven by the psychology of herd behavior. Such behavior leads to the formation of price bubbles, which are disconnected from the underlying fundamentals of commodity supply and demand, at least for short periods of time (24, 26). The policy question is whether regulation can prevent or dampen the formation of such bubbles.
Gilbert C, Understanding spikes and speculation in agricultural commodity markets, Experts' Meeting on Institutions and Policies to Manage Global Market Risks and Price Spikes in Basic Food Commodities, October 26 and 27, 2009, Rome.

[§]Timmer CP, Management of rice reserve stocks in Asia: Analytical issues and country experiences, Experts' Meeting on Institutions and Policies to Manage Global Market Risks and Price Spikes in Basic Food Commodities, October 26 and 27, 2009, Rome.

countries, changed the gradual increase in rice prices from 2002 to 2007—an increase fully justified by market fundamentals—into an explosion—which was not.

A rough calculation of the effect of household hoarding of rice shows the potential. With a 25% increase in short-run demand on the world market—about what would happen if rice-consuming households doubled the amount stored in their pantries—the world price will have to rise by over 150% to reach 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. After the price starts to drop, the psychology reverses on hoarding behavior by households, farmers, traders, and even governments. When the government of Japan announced in early June 2008, after considerable international urging, that it would sell 300,000 tons of its surplus World Trade Organization (WTO) rice stocks to the Philippines, prices in world rice markets started to fall immediately (31). By late August, medium-quality rice for export from Vietnam was available for one-half of what it sold for in late April as dishoarding gained momentum (32).[§§]

Structural Transformation and the Role of Markets in Preventing Food Crises. The Japanese announcement that they would release some of their rice stocks to world market participants came only after strong urgings from the US government [this section draws on Timmer (33)]. These urgings, in turn, came only after pressures from policy analysts, Congress, and the press (30). In the rice market, at least, a worse food crisis was prevented through understanding and action. Food crises need to be prevented—they have terrible short-run and long-run consequences for the welfare of the poor. Poverty traps and irreversible effects from childhood malnutrition (learning, stature, and mortality) stem from even temporary loss of access to food. Preventing food crises requires two separate, but integrated, approaches—a market-oriented approach to economic growth and structural transformation and a stabilization approach to policy initiatives that prevent sharp price spikes for staple foods. Both approaches require a behavioral perspective.

Structural transformation. The structural transformation is the defining process of economic development and the only sustainable pathway out of poverty. It involves a declining share of agriculture in overall employment and economic activity, with an endpoint where agricultural employment is indistinguishable in productivity terms from employment in other sectors—virtually a world without agriculture. Rural households are at no higher risk of poverty than urban households (34).

This outcome is desirable—it is characteristic of rich societies. However, the pathway is long and hard. It is easy to get sidetracked or miss the path altogether. The endpoint—an agricultural sector that is a small share of a large economy—is easily confused with a development strategy that squeezes agriculture from the start. Such a strategy has always been a catastrophe. Because of the unreliability of market prices in the short run as signals for long-run investments, both governments and private firms easily miss the importance of investing in higher agricultural productivity, better food safety standards, and social responsibility (35).

Changing income distribution is an important part of the problem. Even if the structural transformation goes smoothly, most rural households find growth in their incomes lagging behind growth in urban incomes. Changing relative incomes in rural and urban areas drives political dynamics, and the nearly universal tendency to increase agricultural protection during a successful structural transformation is easily understandable from the viewpoint of behavioral economics.

Role of markets. Structural transformation has always been primarily a market-driven process. Markets process billions of pieces of information on a daily basis to generate price signals to all participants—no other form of institutional organization has evolved that is capable of the necessary information processing required for individuals and firms to make efficient allocation and investment decisions and thus, raise long-run productivity. Without reasonably efficient markets, we are all doomed to poverty.

The dilemma, of course, is that markets sometimes (often depending on political perspective and analytical training) fail at tasks that society regards as important, such as poverty reduction, nutritional wellbeing, food price stability, or even employment generation. We now understand that these failures are not just for technical reasons—externalities, spillovers, monopoly power, or asymmetric information, for example—but also have deep behavioral roots, based in loss aversion, widespread norms of fairness, and regularity of other-regarding preferences. Fixing them is not easy unless these root causes are incorporated into the policy analysis, design, and interventions [an example is given by Thaler and Benartzi (29)]. These are lessons not just for food security but more broadly, for many firms involved in the development process. Firms that cannot rely solely on market signals to provide accurate guidance on pricing levels, quality standards, or investments to promote social responsibility, for example, will need input from a diverse array of microspecialists in medicine, psychology, sociology, and anthropology and from macrospecialists in history, climatology, geography, and ethics. It is far from clear how these inputs can be coordinated and evaluated, but the need for a broader science of evaluation is clear.

Beyond market failures, there are several problems with the process of structural transformation in the short and medium term. A health and nutrition transition seems to accompany structural transformation but with lags and significant sector differences. Not all of the transitional impact is positive: significant increases in obesity and accompanying chronic diseases are linked to both the higher incomes and larger urban populations that come with successful structural transformation, which evidence from China and India is making apparent (36).

Technical change, which is stimulated by high food prices, has paradoxically been the long-run mechanism for generating low food prices and better nutrition for the poor. There is considerable debate over the impact of cheap food, a processing-oriented commercial food sector, and urban lifestyles on the rising tide of obesity. Again, the temporal disconnect between the poor losing access to food in the short run because of high prices and a positive long-run technological response requires public understanding and intervention in the nutrition arena as well as prevention of food crises. By necessity, the poor live in the short run but must place their hope for an escape from poverty in long-run forces that are mediated by efficient markets. The time-inconsistent behavior of most individuals and policymakers means that this dilemma is very difficult to resolve.

Mechanism design in policy analysis. The key to effective public action is to get the mechanism design right. That is, policy initiatives must worry about the incentive structures set up so that they are compatible both with respect to government budgetary and bureaucratic capacity and with respect to self-interested behavior on the part of market participants who are exposed to the results of policy changes. This may seem an arcane and theoretical point (and worthy of the Nobel Prize in Economics in 2007), but failure to think through the nature of incentives being set up by policy initiatives is almost a sure way

[§§] 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. As of late 2010, Japan had actually not shipped any rice to the Philippines or any other country seeking rice imports (4).

to guarantee an unsuccessful outcome. One of the clear complexities in mechanism design arises from the difficulty in predicting behavioral responses to policy changes. Furthermore, most policy evaluation models assume that if someone is better off and no one is worse off (usually measured in monetary income terms), the policy is worth pursuing. However, if some groups are relatively worse off, even if absolutely better off, there can be sharp political ramifications. Pareto-improving actions in a neoclassical economic sense may not be politically improving.

Equally, policy design needs to be clear on whether the initiative is meant to be a temporary palliative for the problem at hand or a long-run cure. There is nothing wrong with palliatives, especially if they build support for longer-run approaches that solve the problem in a sustainable fashion. However, it is important not to confuse palliatives with cures. Thus, bridges between short-run approaches and long-run impact become the essence of successful food policy design and implementation. The time inconsistency of much of human behavior—a heavy focus on the here and now—makes building these bridges very complicated, not just for food policy, but for all development policy.

The reality of human behavior means that these bridges must be built from real policy instruments and not theoretical ones based on models of revealed preference. The distinction lies in understanding how realistic the assumptions are that underlie the expected behavioral responses to policy initiatives. A policy will fail if it assumes that poor people have unimpeded and costless access to financial markets to hedge risks as will one that assumes rational savings behavior. Equally, a policy that assumes that poor people will not change their consumption behavior in the face of price subsidies will also be challenged by unexpected results.

For a sustainable end to food crises and reduction in chronic hunger, policy initiatives must stress the importance of economic growth that is both cause and effect of the historical process of structural transformation. When this process includes the poor, with rising labor productivity for unskilled workers, the access dimension of food security is largely solved, and political tensions are eased. Without these long-run economic dynamics working reasonably smoothly, food policy becomes an exercise in permanent, and expensive, palliatives. Even when the long-run economic dynamics are working smoothly, however, a set of transitional issues for health and nutrition begin to loom large for analysts of food and nutrition policy. A new food policy that focuses on exclusion of vulnerable groups from market-provided food supplies, obesity and chronic diseases that are clearly food-related, and safety of food supplies when food origins are often quite distant from food consumers is emerging to supplement the traditional food policy analysis that has focused primarily on reducing poverty and hunger (37). Just as people may not be food secure until they feel that they are food secure, they may not be healthy unless they feel that their diet is nutritious, safe, and environmentally friendly.

Good intentions in policy design do not inevitably lead to good outcomes. The concern for appropriate mechanism design is one reflection of this potential disconnect, but that concern is primarily a technical one. A broader concern is also an issue—the potential (indeed, likely) disconnect between political rhetoric and effective public action. The problem is that political rhetoric can generate expectations that cannot be met, leading to subsequent loss of credibility (and hope). Because credibility is often crucial to successful implementation of government policies in short-run price stabilization activities, for example, or in regulating food safety, this loss is potentially serious. Understanding the roles of government credibility and effective leadership is at the core of behavioral political economy, with relevance far beyond food and nutrition policy.

A way must be found to make markets work to deliver long-run growth, but political survival requires that this growth be stable and equitably distributed.[¶¶] No alternative exists to organizing economies around market-based transactions if societies are to reach their goals of greater material welfare and broad political freedom. Markets produce both. However, markets also fail in important social tasks, at least during turbulent times when short-run price signals are hard to interpret. Responsible governments must find a way to prevent those failures through careful regulation and alleviate them when innocent workers and consumers cannot participate in the promises of market outcomes.

Conclusions

Economists are often upset when politicians reject their optimal policy designs to enhance social welfare. Traditionally, these designs have been based on the Pareto criterion that at least one individual is better off and no one is worse off. However, if most individuals care more about their relative status than absolute levels of income or consumption, the Pareto criterion spells political trouble. Only a behavioral focus on the design of policy interventions can help real policy makers bring about real improvements in welfare.

The neo-classical solution to food price instability, for example, has been to allow full expression of price volatility in markets because of the information content of prices. Any problems for firms in the supply chain can be managed with financial instruments to hedge price risks. Problems for poor consumers can be managed by implementing safety nets that kick in when food prices spike.

This approach fails at both ends (23). The financial instruments are themselves very volatile and subject to outside speculative pressures, are not widely accessible to most market participants, and fail to exist at all in many developing countries.

Safety nets face their own problems of transactions costs and behavioral responses that make effective implementation very difficult. Using community-based information and organizations to target resources to the poorest of the poor often runs afoul of the widespread sense of fairness in these communities, which requires that external resources to be shared equally. Targeting is thwarted and fiscal costs rise, or the poor do not get the resources that they need to cope with shocks to their welfare. Either way, safety nets have a poor record of coping with sudden price shocks.

What to do? First, far more analytical and financial resources need to be aimed at preventing food crises by understanding the causes of sharp spikes in food prices and designing the policy approaches that can dampen them. Many Asian countries have managed to stabilize their rice prices for decades at a time. We can learn from those experiences while making their interventions more efficient (and less corrupt) and more trade-friendly, with fewer international spillovers. Stabilizing food prices in Africa will be easier if there are fewer shocks to world prices, but they will also require much better infrastructure and more open borders to alleviate the impact of local shocks to production.

Beyond reducing food price instability, building the institutions and human capital to sustain inclusive economic growth will be essential. It may be that finding a way to allow governments to deliver effective and efficient safety nets will be the key to allowing markets to deliver their long-run promise. If so, designing and implementing them becomes the essence of effective policymaking. However, governments, like the poor, live in the short run. Their vision and strategic design for inclusive, stable, long-run growth must survive the day-to-day challenges of managing power. Only input from behavioral political economy, broadly for development policy and more

[¶¶] The source of the measurable unhappiness of many citizens in the transition economies of the former Soviet Union can be traced primarily to unprecedented instability in incomes, growing income inequality, and loss of public goods (38). Most Asian governments consciously tried to balance equity, growth, and stability during their early periods of rapid industrialization (39).

narrowly for food policy, can help governments to meet these challenges.

ACKNOWLEDGMENTS. I would like to thank Ashley Timmer for extensive discussions on these topics and Steve Block, the editors of this special issue, and an anonymous reviewer for helpful comments.

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