

ADDRESSING FOOD PRICE INSTABILITY IN EGYPT:
THE FUTURE OF EGYPTIAN FOOD SECURITY IN THE WAKE OF THE FOOD
PRICE CRISIS

By

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Abstract

In the first half of 2008, global increases in commodity prices left Egypt struggling with rising prices for its most important foods. As food prices rose, the food security of many Egyptians was placed in jeopardy, leading to social instability and domestic unrest. This investigation examines the factors behind Egypt's particular vulnerability to fluctuations in international food commodity prices as well as the failure of the government to protect at risk populations during the peak of the crisis. It concludes that without significant investment in and a restructuring of Egyptian agriculture, coupled with reforms to trade policy and the government's food subsidy system, the food security of Egyptians will continue to be threatened by fluctuations in international food commodity prices.

Addressing Food Price Instability in Egypt:

The Future of Egyptian Food Security in the Wake of the Food Price Crisis

With food commodity prices reaching record levels around the globe, Egyptians were faced with a serious crisis. By mid-2008, the prices of staple foods such as cereals, maize, and oilseeds had experienced unprecedented growth, leaving nations around the world grappling with how to feed their populations. Egypt, a net food importer, was among those countries hit particularly hard by the price increases. In a nation where people already rely overwhelmingly on government subsidies to put food on their families' tables, increases in prices for staple foods put a greater strain on government food programs. With wages failing to keep pace with food price inflation, Egyptian families were forced to pay more for basic food items, while government bread lines grew longer by the day.

Although food commodity prices have recently returned to pre-crisis levels, depressed by a dramatic increase in agricultural production coupled with the onset of the global financial crisis in the final months of 2008, the threat is far from over. Indeed, while the symptoms of the food crisis seem to be improving with a decline in prices, the underlying causes of the crisis and the Egyptian government's inability to protect its population have yet to be addressed. Furthermore, there is evidence indicating that the recent stabilization of food prices is only a temporary respite from a global food crisis that is still unfolding.

In early 2009, Egypt still finds itself faced with two tremendous obstacles to its long-term food security: a broken food subsidy system and inefficiencies in domestic

agricultural production. With the future stability of global food commodity prices still in question, Egypt must act now to ensure that its population is protected against a possible resurgence in international prices. The goal of this paper will be to discern precisely which steps the government of Egypt must take not only to secure adequate nutrition for its citizens in the short-term, but also to prevent potential future global food price instability from threatening Egyptian food security in the long-term.

Methodology

In seeking to recommend a strategy for Egypt to cope with global food price instability, this analysis will draw upon established research and literature dealing with the 2008 international food crisis and potential policy responses and reforms. This research will be supplemented by use of data and statistics pertaining to Egyptian food prices, agricultural output, and demographics. After synthesizing existing research and comparing and contrasting recommendations with an eye towards newly emerging data, this investigation will reach a conclusion as to what reforms should be undertaken to ensure both short and long-term food security in Egypt.

Scope and Limitations

The Egyptian food crisis is best understood within the context of the international food price crisis. In order to provide a fuller understanding of the Egyptian crisis, a portion of the paper will be dedicated to explaining the international crisis and how it relates to Egypt. However, this analysis will seek to focus on the Egyptian experience with food price increases as well as the recommendation of Egyptian policy responses. While every effort will be made to take into account recent developments, including the

effects of the global financial crisis, limitations in the availability of up-to-date data and literature as well as the continuing instability in international financial markets prevent this investigation from making conclusions based on events that have unfolded since the onset of the global financial crisis in November 2008.

Organization of the Study

The paper will begin with an overview of food price rises in Egypt and their effects from their onset in mid-2007 to their peak in the summer of 2008. Next, there will be a brief discussion of the broader international food crisis, its causes, and its relation to the crisis in Egypt. This will be followed by a review of the existing literature on the food crisis and Egyptian food policy. The final sections of the paper will examine weaknesses in Egyptian food security policy and will suggest reforms to protect against a repeat of the recent food crisis.

The Egyptian Food Price Crisis – An Overview

From the beginning of 2008, Egypt found itself gripped by a crisis. A combination of international factors had combined to push up international commodity prices, leading to severe price inflation in Egypt. The effects of this inflation were felt across Egyptian society, but the most severely affected were poor and middle class families with little or no disposable income. After popular riots and subsequent government intervention to lessen the impact of rising prices, the future of Egypt's food security remained in question. Prices finally relented at the end of 2008 as the cooling effects of the global financial crisis reached food commodity markets. However, it has

yet to be seen whether these new developments represent a definitive end to the crisis or simply a brief respite.

Egypt in Crisis

Egypt is a relatively poor, developing country in which approximately 40 percent of the population lives on less than two dollars a day (Parietti 2008). In addition, Egypt is a food deficit nation, importing nearly half of the fourteen million tons of wheat consumed by its population each year (El-Katatney 2008). However, as international wheat prices skyrocketed in 2008, Egypt struggled to foot the bill. Currently, Egypt is the world's second largest importer of U.S. wheat, spending about fifty-four million dollars a year. However, during the 2007-2008 fiscal year, the price of U.S. wheat soared from \$180 per ton in 2006 to \$430 per ton (El-Katatney 2008). Looking to diversify its wheat procurement, Egypt began looking to other nations such as Kazakhstan, France, Russia, Australia and Argentina, but increased demand had pushed up prices in these markets as well. Further complicating the situation, increases in the prices of other commodities such as rice, pasta, dairy and meat resulted in a spike in demand for bread. In the first eight months of the 2007-2008 fiscal year, Egyptian wheat imports saw a 43 percent increase triggered by rising demand (El-Katatney 2008).

A failure of social safety nets. Since the 1960's, the Egyptian government has ensured the food security of its people through its food subsidy programs. Currently, the government subsidizes flour for the production of the traditional, round, un-leaven *baladi* bread, as well as rice, sugar and cooking oil. Under the supervision of the Ministry of Social Solidarity (MOSS), subsidized flour is sold to authorized bakeries for 5 percent of

its market value, who turn the flour into inexpensive *baladi* bread to be sold for five piasters, a currency denomination known as the *shelen*, per loaf (less than one cent US) (Parietti 2008). The United Nations (UN) estimates that two-thirds of the population, or fifty million people, eat subsidized bread daily at an average of 3.2 pieces per person (El-Katatney 2008).

Although government subsidies had acted as an effective safety net for Egypt's poor in the past, in the beginning of 2008 increases in food prices began to put a strain on the subsidy system. In the first three months of 2008, the average household expenditure on foodstuffs and services in Egypt rose by an astonishing 50 percent (Parietti 2008). As prices continued to rise and overall inflation reached peaked at 23.6 percent in August, the poor were forced to depend more and more on government subsidies to provide their nutrition (Parietti 2008). Furthermore, middle-class Egyptian families, who had previously been purchasing more expensive, higher-quality bread at private bakeries, suddenly could not afford to pay the higher market prices. Privately produced *baladi* bread reached a price fifteen times higher than that of subsidized bread, while the middle-class alternative, known as *fino* bread, went from ten loaves for one Egyptian pound (LE) to just four small loaves (El-Katatney 2008). As a result of price increases, more and more Egyptian families began to rely more heavily on the cheap government subsidized bread (Parietti 2008).

There are a total of 23,664 bakeries in Egypt serving a population of nearly eighty million people. This equates to approximately one bakery for every 3,380 citizens, which is already a stretch. However, only 17,002 of these bakeries are licensed to sell

subsidized bread (El-Katatney 2008). As demand increased for subsidized bread, the bakeries simply could not keep pace. The result was increasingly lengthy bread lines as Egyptians queued for hours at government bakeries hoping to get their hands on affordable bread (Parietti 2008). Anxious Egyptians could be seen waiting outside bakeries starting at 3:00AM in anticipation of their opening at 5:00AM (El-Katatney 2008).

However, long lines were not all Egyptians faced at bakeries. The skyrocketing prices for wheat on the open market meant that subsidized flour could be resold for as much as sixteen times its government mandated price (Parietti 2008). Some bakers simply resold their flour, while others cut the flour with additives such as sawdust in order to stretch their supplies. A number of bakers even deliberately ruined their bread by overcooking it, allowing them to sell it more profitably as animal fodder (El-Katatney 2008). With an LE 60 bag of subsidized flour reselling for LE 260 on the black market, it made more sense for bakeries to resell their supply rather than turn it into inexpensive *shelen* bread (Parietti 2008). While there has always been an element of corruption in the bread subsidy system, the increase in international prices allowed the black market to thrive resulting in 28 percent of subsidized flour being sold on the black market (El-Katatney 2008).

The result of this “leakage” in the subsidized bread system meant less and less flour was reaching the population in the form of inexpensive bread. Also, although each Egyptian is only allotted twenty loaves (LE 1) of bread per day, many would simply get back in line for a second helping in fear that the bread would soon run out (El-Katatney

2008). Faced with a shortage of the one food that comprises most Egyptians' diets, bread lines became increasingly violent. During February and March 2008 between seven and twelve Egyptians were killed by shootings, stabbings, heat and exhaustion while waiting for government subsidized bread (Parietti 2008).

The government responds. Recognizing the potential danger of unrest over food shortages (there had been wide-spread riots over bread subsidies in Egypt in 1977), President Hosni Mubarak took action in March 2008. First, he ordered that all military and police bakeries, which normally serve uniformed personnel, increase production to help feed the population. Military bakeries soon began producing 1.75 million loaves of bread per day, while the Police upped production to 650,000 loaves and the Water and Environmental Police followed suit with 120,000 loaves. This bread was then distributed to six major bakeries in Cairo (El-Katatney 2008). MOSS also extended the operating hours of many bakeries, which began to stay open until six or seven in the evening, while 2,140 new bakeries and at least 500 small kiosks unaffiliated with bakeries were created to sell subsidized bread around Cairo (El-Katatney 2008). In order to reduce demand for the inexpensive *shelen* bread, MOSS lowered the price of more expensive *baladi* bread from its previous price of between LE 0.25-0.75 per piece to LE 0.10 (El-Katatney 2008).

Second, Mubarak dispatched military police to supervise bread distribution in areas where unrest had occurred. He also authorized the spending of foreign reserves in order to import more wheat, increased spending on wheat subsidies to LE 15 billion (5.5 percent of the annual budget), and added fifteen million people to the rolls of the rationed cooking oil, sugar, and rice system. This increased flour rations for Cairo bakeries by

89,000 tons annually and by 400,000 tons in seven other governorates (El-Katatney 2008). Hoping to shelter the domestic economy from international food prices, the government also announced a six-month export ban on rice and reduced or suspended import duties on certain goods (Parietti 2008).

In order to deal with corruption at bakeries, MOSS began a crackdown in March 2008. By early April, MOSS inspectors had closed 120 bakeries operating without a license and seized 479 tons of black market wheat (El-Katatney 2008). Inspectors also found thousands of violations ranging from overcharging to producing poor quality bread. In total, more than 320 bakeries were closed, hundreds of bakers were indicted, and over 700 tons of flour was seized (El-Katatney 2008). Now, if bakeries are found to be producing bread that is underweight, they must pay market prices for 10-20 percent of their flour rations for a period of fifteen days. In the case of more serious violations, the bakery can be shut down completely and forced to reimburse the government for all of its flour at the market price (El-Katatney 2008).

Hoping to create incentives for bakeries to produce higher quality bread, MOSS undertook a number of reforms. The ministry revised upwards the expected production costs associated with baking bread to LE 60 per 100 kilograms of flour, reducing a discrepancy that had forced bakers to pay taxes on profits they were not actually making (El-Katatney 2008). Additionally, bakeries can now receive five LE per one hundred kilograms of flour each month if there are no police reports filed against it. Finally, MOSS increased the price it pays mills for one hundred kilograms of flour from LE 45 to LE 75 as an incentive to produce higher quality flour (El-Katatney 2008).

With production of subsidized bread increasing and bread lines shortening, it seemed that real domestic unrest had been averted. However, increasing subsidies came with a price, and annual food subsidy costs increased from \$10.6 billion dollars in 2007 to \$13.7 billion in 2008 (Parietti 2008). Demand for subsidized bread also continued to increase, with those who would normally avoid subsidized bread continuing to purchase it (El-Katatney 2008).

In an effort to reduce costs, the Ministry of Agriculture announced it was upping domestic wheat production from 7.39 million tons in 2007 to 8 million tons. Also, the ministry announced that it would begin paying farmers above market prices for their wheat in hopes of reducing waste and increasing production. Farmers were slated to receive between LE 380 and LE 390 per 150 kilograms depending on the purity of the wheat, meaning that the government would pay \$472 per ton, whereas international prices were ranging between \$400 and \$500 a ton. The hope was that in the long-term these higher prices would give farmers the incentive to produce more, thereby increasing Egypt's wheat self-sufficiency (El-Katatney 2008).

Far from over. Despite the government's efforts, overall inflation, which was nearing 16 percent in April, was creating new unrest as workers' stagnant wages failed to keep up. After news got out that workers at the government owned factory Misr Spinning and Weaving were planning a strike, activists called for nationwide protests on April 6th as a show of solidarity. On the day of the protests, small groups of demonstrators were arrested in Cairo's main square, Midan Tahrir, and many Cairo residents stayed home from work in a show of support. In the town of Mahalla, however, demonstrations turned

violent as workers clashed with security forces and damaged shops and cars. The next day the protests once again became violent and police responded with rubber bullets. In the end, hundreds of people were arrested or detained, more than one hundred were injured and several were killed (Parietti 2008).

Fearing additional strikes and unrest on May 4, President Mubarak's birthday, the government announced a 30 percent pay raise for government workers on May 1, 2008. While this prevented a strike, it also meant that the government was now forced to pay for the wage increases, at an estimated cost of LE 13 billion, or over \$2 billion (Parietti 2008). In order to pay for the cost of the raises, the government announced that it was cutting petrol and energy subsidies, increasing the price of cigarettes by ten percent, and increasing registration fees for luxury vehicles. The government also decided to remove tax allowances for private schools and universities and free zone allowances for steel, fertilizer, petroleum and other industries were eliminated, leading to a twenty percent increase in the price of steel (Parietti 2008).

Overnight, fuel prices jumped by 30 percent, angering taxi and minibus drivers, some of whom were arrested for raising fares without government authorization. Higher diesel prices and other transportation costs also caused flour prices to increase by LE 200, although the government promptly assured bakeries that it would pay the difference in order to avoid further unrest. As a result of the government's increased spending in response to the food crisis, plans for a reduction in the deficit were put on hold (Parietti 2008).

Inflation is expected to return to the low teens by the end of the 2008-2009 fiscal

year in June and international commodity prices have seen significant drops. As a result, Egyptian consumers should soon see prices decreasing to near pre-crisis levels (Parietti 2008). For now, it would seem that a serious crisis has been averted. However, the question remains whether or not the underlying issues that drove the food crisis in Egypt have truly been addressed.

The Egyptian Food Crisis in Context - The Global Food Price Crisis

It is impossible to fully understand the events that unfolded in Egypt during the first half of 2008 without looking at the influence of the broader global food price crisis. Beginning in June 2007, the world witnessed what Josette Sheeran, head of the World Food Program (WFP), describes as “the most aggressive pattern of global price increases ever for food commodities (2008, p. 11).” As a number of factors combined to send global food commodity prices skyrocketing, nations around the world saw sharp increases in domestic prices. It was within this context of a larger global crisis that Egypt found itself among those nations suffering from severe food price inflation.

In 2007, the UN Food and Agriculture Organization’s (FAO) food price index rose almost 40 percent. That was compared to a 9 percent increase in 2006 (“Rising Food Prices 2008”, p. 1). Food prices then continued their dramatic rise in the first few months of 2008, sending shock waves through the international system and throwing food importing nations like Egypt into crisis. In all, food prices rose 83 percent globally between 2005 and mid-2008 (Rising Food Prices” 2008, p. 1 ; Evans 2008, p. 2).

Nearly every agricultural commodity was involved in these price increases. For

example, the prices of wheat, butter, and milk on international markets had more than tripled between the year 2000 and March 2008, while the prices of maize, rice, and poultry had more than doubled. In addition, the prices of meat, palm oil and cassava all saw increases (Fritschel 2008, p. 9). The most intense price increases could be seen in the first months of 2008. While the average overall increase in the prices of staple crops between 2004 and 2008 was 101.9 percent, 60 percent of this increase occurred between January and May 2008 (Heady and Fan 2008, p. 9).

Impacts of the Crisis

It is no secret that any increase in food prices disproportionately affects the poor. Joachim von Braun, director of the International Food Policy Research Institute (IFPRI), notes that:

At the household level, the poor spend about 50 to 60 percent of their overall budget on food. For a five-person household living on US\$1 per person per day, a 50 percent increase in food prices removes up to US\$1.50 from their US\$5 budget (“Rising Food Prices” 2008, p. 1).

Continuing, von Braun explains that in countries that are net food importers, such as Egypt, governments will be hard-pressed to meet the needs of their populations as food import prices climb higher and foreign exchange reserves become depleted (“Rising Food Prices” 2008, p.2).

Among poorer populations, the hardest hit by higher food prices were the landless rural poor. Most rural poor are net food buyers, which means they must purchase a majority of their nutrition. Whereas net food producers benefit from higher agricultural commodity prices, the landless rural poor are unlikely to be adequately compensated for their higher food expenditures by either additional employment or by higher wages.

Typically, the urban poor are less susceptible to such price fluctuations (Evans 2008). However, Jossette Sheeran of the World Food Program argues that the sheer scope of the recent crisis meant urban populations were also affected: “There is food on shelves but people are priced out of the market. There is vulnerability in urban areas that we have not seen before (Evans 2008 p. 5).”

Perhaps the most dangerous aspect of the crisis was its effect on the ability of aid agencies to procure food. Many developing countries depend on food aid even when prices are low. With rising food costs and declining purchasing power, the world’s poor were more in need of food aid than ever before. However, most countries, such as the United States, donate set amounts to aid agencies, leaving the agencies’ budgets fixed. When food prices are high, those budgets buy less food, meaning they can serve fewer people at a time when there is more need (Fritschel 2008, p. 11). For example, the WFP’s agreed budget for 2008 was set at \$2.9 billion dollars, but rising costs for food and transportation meant that the budget was not even sufficient to continue existing aid deliveries. The WFP estimated that it would need at least \$500 million in extra funding or it would be forced to cut food rations or the number of people reached (Evans 2008, p. 5).

Causes of the Crisis

There has been a great deal of speculation as to what precisely caused such a sharp increase in international food commodity prices. Some of the most commonly cited causes include rising and diversified demand in developing countries, higher oil and energy prices and an expanded use of food crops for the production of bio-fuels, poor weather in major food producing nations, lagging growth in global agriculture, depleted

food stocks, and speculation. While there is strong evidence linking some of these factors to the global food price crisis, others are speculative at best.

Among the suspected causes, two developments that preceded the onset of the food crisis stand out as having the most demonstrable effect on food prices. One of these developments is a recent expansion of bio-fuel production in the developed world. In 2007 and 2008, significant price increases could be seen in all major bio-fuel feed stocks (Tenenbaum 2008, p. A256). As bio-fuel production increased along with rising energy prices, a correlation began to emerge between the prices of energy and agricultural commodity prices (“When Food Makes Fuel” 2008, p. 6). The problem was not only a diversion of food crops such as maize to use in bio-fuels. Crop replacement, or the substitution of food crops like wheat and rice with crops used for bio-fuel production, also increased as energy prices rose and bio-fuels became relatively more profitable (Tenenbaum 2008, p. A256). Between 2000 and 2007, bio-fuels were responsible for a 30 percent increase in weighted average grain prices, including 39 percent for maize, 21 percent for rice, and a 22 percent increase in the price of wheat (Rosegrant 2008, p. 2).

The second plausible explanation for the price rises is lagging investment in global agriculture. Before the crisis began, the world had experienced a five to ten year period in which growth in demand for cereals exceeded growth in global cereal production (Minot 2008, p. 1). Indeed, just 4 percent of total development aid went to agriculture in 2008, and aid to agriculture fell by nearly 50 percent between 1980 and 2005 (Lawson 2008, p. 10). With agricultural production failing to keep pace with rising demand, it was only a matter of time before the prices of agricultural commodities began

to rise.

Implications for Egypt

Returning to the Egyptian food crisis, it is important to look at what role the larger international crisis played in influencing prices in Egypt. As was mentioned above, Egypt is a net-food importer, leaving it vulnerable to any changes in international prices. To some, this may suggest that the Egyptian crisis was a product of international factors unrelated to Egypt's domestic policies. However, that does not preclude policy makers in Egypt from acting to prevent future international price fluctuations from having such a damaging effect. The following sections will look more deeply into how Egyptian domestic policy could have softened the impact of the global food price crisis and what can be done to ensure the food security of Egyptians in the future.

Debate and Current Literature on the Food Crisis

The recent increase in global food commodity prices has ignited a discussion among academics and policy makers. Numerous studies have been conducted in an effort to identify the sources of the crisis, its impacts, and potential policy options to address it. At the same time, it has forced governments in nations hit hard by food price increases to re-evaluate their policies vis-à-vis food security. This review will seek to summarize the current literature pertaining to Egypt's struggle within the context of the recent global food price crisis.

The Egyptian Food Price Crisis

Egypt's English language monthly magazine, *Egypt Today*, has printed a number

of pieces detailing the food crisis, its impacts, and government policy responses. Writing in the May 2008 issue, Ethar El-Katatney describes the popular response to price increases as inflation reached 15.8 percent in March 2008 and the average Egyptian household's expenditure on foodstuffs rose by nearly 50 percent. In a review of the year's economic troubles published in the December 2008 issue of *Egypt Today*, reporter Lindsey Parietti presents an overview of Egypt's struggle with food prices from their sudden and meteoric rise in 2007 to their peak in August 2008. Looking ahead, she presents a mixed picture of optimism in the face of declining inflation and global commodity prices and wariness of the potential negative effects of the global financial crisis (Parietti 2008).

The International Food Price Crisis

In discussing the rise of Egyptian food prices in 2007-2008, Dieter Hannusch of the World Food Program's Regional Bureau in Cairo seeks to link the rise in Egyptian domestic food prices to a rise in international market prices. He observes that in April 2008, price increases in Egypt mirrored price increases on international markets. Hannusch attributes this similar increase to Egypt's status as a net importer of food, meaning that the country is vulnerable to fluctuations in global food commodity prices (Hannusch 2008, p. 19). El-Katatney agrees, stating that Egypt's reliance on food imports, and wheat in particular, has forced it to pay higher international prices to satisfy domestic demand (El-Katatney 2008).

If international price fluctuations are behind Egypt's growing food bills, then it follows that part of the solution lies in understanding the larger global food price crisis.

One of the leading organizations investigating the international crisis is the International Food Policy Research Institute, with scholars publishing a number of studies pertaining to the causes and potential responses to the crisis. Joachim von Braun, the director of IFPRI, has spearheaded the organization's efforts to increase the public's awareness of the problem. He writes that the price of wheat more than tripled and the price of maize more than doubled between 2000 and 2008, with serious consequences for developing nations and the world's poor ("Rising Food Prices" 2008, p. 1). Josette Sheeran agrees with the gravity of the problem, describing the recent price increases as the most aggressive ever for food commodities. Furthermore, she explains that increased food prices and unchanging aid commitments have diminished the WFP's ability to purchase food for aid purposes (Sheeran 2008, p. 6). The World Bank has also weighed in on the seriousness of the crisis and warns in a 2008 report to a meeting of the Development Committee that rising food prices pose a serious threat as they disproportionately harm the urban poor and poor net food buyers (World Bank 2008).

Causes Behind the International Crisis

Researchers from these organizations have joined with other scholars in investigating the major factors suspected to lie behind food commodity price inflation. However, while there is significant consensus on the magnitude of the crisis, there is disagreement over precisely what has caused food prices to explode so suddenly. Alex Evans of the Center on International Cooperation at New York University argues that high income growth and increasing demand for animal products in emerging economies like India and China, which diverts grains for use in animal feed, is the most important

cause of the price increases. In addition, he lists diversion of crops to bio-fuels, inelasticity of supply, historically low stock levels and speculative investment as primary causes (Evans 2008). Heidi Fritschel of the IFPRI agrees with Evans in her piece, “Global Food Prices Reach New Heights,” but places significant blame on speculation for exacerbating price increases (Fritschel 2008). Joachim von Braun of the IFPRI also confirms this analysis; however he emphasizes the effects of the increasing diversion of food crops to bio-fuels, adding that poor weather in some of the world’s largest food producing countries has further restrained supply (“Rising Food Prices” 2008).

While each of the pre-mentioned studies generally agreed on a laundry list of popularly mentioned causes, they do very little analysis of the reasoning behind them. In their essay entitled “Anatomy of a Crisis: The Causes and Consequences of Surging Food Prices (2008),” Derek Heady and Shenggen Fan of the IFPRI look at each of the factors accused of driving international price increases and evaluate their plausibility. The value of their paper lies in its in-depth evaluation of the causes, whereas most other works center primarily on policy responses. Heady and Fan assert that the depreciation of the U.S. dollar alone increased the prices of dollar denominated food commodities by 20 percent. Furthermore, they agree that bio-fuel production offers a strong explanation for increases in the prices of a number of commodities including maize, grains, some oilseeds and soybeans. The authors also argue that because the incentive to produce bio-fuels is linked to higher energy prices, the recent dramatic rise in the price of oil also contributed to rises in food commodity prices. At the same time, Heady and Fan dismiss rising demand from China and India as an important cause, as these two countries are

already self-sufficient in staple foods and have negligible imports. Additionally, they consider speculation more a symptom than a cause of price increases, and reject weather shocks on the grounds that overall production actually increased in 2007 and should have offset losses due to poor weather (Heady and Fan 2008).

Bio-fuels are the one driving factor upon which there is almost unanimous consensus. Joachim von Braun explains the effects of increasing bio-fuel production in the Developed World in his 2007 keynote address at the Crawford Fund Annual Conference in Australia. In this speech, he claims that plans to expand bio-fuel production are entirely unrealistic given their impact on the world's food supply. According to von Braun, current plans to increase bio-fuel production will increase future prices of oilseeds by 18 percent and maize by 26 percent, while doubling these plans will lead to an increase of 44 percent and 72 percent respectively (von Braun 2007, p. 7). David J. Tenenbaum agrees that bio-fuel expansion represents a significant threat to the world's poor in an essay in *Environmental Health Perspectives* (2008). While he does not blame bio-fuels for single-handedly driving up food prices, Tenenbaum writes that bio-fuels have linked petroleum and food commodity prices, meaning that the world's poor are now competing with empty gas tanks for the world's food crops (Tenenbaum 2008).

Perhaps the most controversial claim made by some experts is that speculative activity is behind the global food crisis. In this case, speculation refers to two activities: trading on futures markets and hoarding of resources in anticipation of higher future prices. John E. Young argues in an article on agricultural speculation for the IFPRI that on the one hand speculation is most likely increasing food price volatility, but on the

other hand increased speculation is more a symptom of the increase in agricultural commodity prices rather than a cause. What is placing upward pressure on prices is most likely hoarding, which has manifested itself in two forms: national export restrictions and small-scale hoarding of foodstuffs by millions of households and importers across the world (Young 2008).

Recommended Policy Responses

In response to the food crisis, many pieces have been written suggesting steps that should be taken at the international and national levels in order to stabilize food prices, mitigate suffering, and prevent similar crises in the future. Again, Joachim von Braun has been one of the most outspoken voices on this subject, laying out both short-term and long-term policy recommendations to address the causes and effects of food price increases. In his essay entitled “Responding to the World Food Crisis: Getting on the Right Track”, he makes the case for eight reforms: 1) expand emergency relief programs and humanitarian assistance, 2) eliminate food export bans, 3) jumpstart agricultural production in the short-term, 4) change bio-fuel policies, 5) reign in excessive speculation and calm the markets, 6) invest in social safety-net programs, 7) increase investment in long-term agricultural development, and 8) use trade agreements to open markets and end unfair domestic supports for agriculture (2008, pp. 4-6).

The World Bank’s 2008 report to the Development Committee places considerable stress on the dangers of misguided short-term policy decisions. For example, the report cautions against using mandated grain prices, export restrictions, or direct government involvement in market activities, as these responses are likely to create

market distortions and cripple the food supply response in the medium to long-term. Continuing, the World Bank makes the argument that investments in social safety-net programs such as targeted cash or near cash transfers to low-income households, as well as policies designed to lower domestic food prices (i.e. reducing import tariffs, using buffer stocks to manage prices, and investing in transportation infrastructure) are crucial to ensuring household food security (World Bank 2008, p. 10).

There is general agreement in the literature on the importance of increased investment in agricultural development as a solution to the problem of rising food prices. Elizabeth Bryant of the IFPRI contends in her article, “Building Local Skills and Knowledge for Food Security,” that more funding and effort must go into agricultural research, development, education and training in order to build up the agricultural capacity of developing countries. The result of increased investment, Bryant argues, will allow these countries to cope with food crises and prosper in years when crops are good (Bryant 2005). She is seconded by her colleague at the IFPRI, Nicholas Minot, who maintains that the popularly cited causes of the food crisis would not have had such a grave effect had there not been a five to ten years in which cereal demand outpaced growth in cereal production. The solution, he claims, lies in greater investment in agricultural research, inputs, infrastructure and market access, particularly in developing nations (Minot 2008, p. 1). In addition, a 2008 Oxfam briefing paper explains that between 1980 and 2005 international aid to agriculture fell by nearly 50 percent, leaving small farmers in developing countries ill-equipped to respond to higher demand and international market prices. They contend that agricultural investment is crucial to ensure

that the food supply can react effectively to future supply shocks and increases in demand (Lawson, 2008, p. 10).

Proposed Egyptian Reforms

Where does this leave Egypt? Most scholars and policy makers have focused on two important areas of reform, which they argue will strengthen Egyptian food security: reform of the food subsidy system and reform of the agricultural system. A 2001 report by the IFPRI on reforming the Egyptian food subsidy system found that the current system was inefficient and poorly targeted to the country's poorest households. The authors discuss problems such as leakage, in which government subsidized flour is sold by bakeries for a profit on the open market or used as feed for livestock, and inefficient targeting, which allows wealthier families to benefit from the system and leaves the poorest with fewer subsidized goods. They conclude by listing a number of options for better targeting needy populations and reducing leakage. Some examples are locating outlets for subsidized goods in poor neighborhoods, allocating resources to governorates based on need, and mixing maize flour into the wheat flour at the milling site to prevent it being resold for use in higher quality bread on the open market (Ahmed et. al 2001).

While reforming the food subsidy system seems simple in theory, the Egyptian government faces a number of obstacles. Gamal Siam of Cairo University points out that in its current state, the food subsidy program benefits Egyptians of all income levels. This not only makes the program unnecessarily expensive, but also wastes government resources by subsidizing food for those who could afford higher cost alternatives on the open market (Siam 2006, p. 5). A number of researchers have argued for targeting

subsidies to poor households through cash transfers, vouchers, or ration cards. However, in a World Food Program report, Dieter Hannusch points to a lack of income data and the difficulty in reliably gathering information on poverty levels, meaning that it would be nearly impossible to target subsidies through administrative programs such as cash handouts or food stamps (Hannusch 2008, p. 21).

According to Tammi Gutner, there are also political costs involved in any reform of the subsidy system. Gutner's essay for the IFPRI, entitled "The Political Economy of Food Subsidy Reform in Egypt," makes the case that certain aspects of the Egyptian subsidy system are simply too politically sensitive to be significantly reformed. For example, the subsidies on *baladi* bread and flour must be dealt with carefully in order to avoid inflaming public opinion, who see government subsidized bread as an important part of the social contract. After evaluating potential reforms and their political ramifications, Gutner argues for limited and gradual reforms that take into account both the politics of Egypt and the needs of Egyptians (Gutner 1999).

Because Egypt is a net importer of food, there has been a great deal of discussion in the literature about how to improve Egypt's food self-sufficiency. In a joint paper, Gamal M. Siam of Cairo University's Department of Agricultural Economics and Hoda A. Moussa of the Agriculture Research Center in Egypt, argue that in Egypt, agricultural reform and food security are inextricably linked (Siam and Moussa 2003). Sobhy A. Omran also makes the case for agricultural reform in his 1997 dissertation on food security and agricultural reform in Egypt. Omran writes that Egypt must realize that any solution to problems in the food supply must depend on local resources to improve

domestic production. He suggests that the government take a more active role in supporting agriculture by introducing an agricultural price floor and ceiling to soften the effects of price fluctuations, as well as through the introduction of agricultural import subsidies for poor producers to help them boost output (Omran 1997).

Not all researchers, however, support the idea of the government taking a more active role in Egyptian agriculture. An IFPRI article on wheat policy reform in Egypt argues that while there has been an increase in the liberalization of the Egyptian wheat sector, it has not gone far enough. Government involvement in wheat procurement and processing, the authors argue, has prevented Egyptian farmers from becoming effectively integrated into international markets. They contend that the government's role should be limited to investing in agricultural development, while marketing and processing activities should be left to the private sector. Furthermore, they disagree with Omran's idea of combating international price instability with domestic price controls. Instead, the authors propose using a flexible import tariff regime. The conclusion is that greater private sector involvement will increase market integration and in turn increase agricultural output (Kherallah et. al. 2000).

A World Food Program analysis of the marketing of food in Egypt prepared by Dieter Hannusch agrees that the private sector must be allowed to take a more active role in marketing and processing. Rather than procuring wheat and processing it, the WFP suggests that the government let the private sector take control. In the end, the government would pay subsidies directly to shops and bakeries that buy flour on the open market. This would remove market distortions created by public involvement and allow

farmers to sell their products on the open market (Hannusch 2008, p. 27).

The Future of Food Prices

Many authors argue that the recent food crisis is not a short-term market abnormality but rather an indication of deep seated problems in global food production and consumption. Indeed, the World Bank asserted in a 2008 report that price increases were likely to remain above their 2004 levels until 2015 for most food crops (World Bank 2008, p. 2). However, the emerging global financial crisis has brought much of the conventionally accepted logic concerning the food crisis into question. In November 2008 the United Nations Food and Agricultural Organization wrote in its bi-annual commodity publication, *Food Outlook*, that favorable weather conditions and high food prices helped to push world cereal production to a new record in 2008. This harvest is anticipated to be enough to meet short-term demand and help replenish global stocks (FAO 2008).

However, this seemingly good news is offset by new challenges presented by the emerging financial crisis, as food prices have dropped more than 50 percent from their recent peaks and credit has tightened. Amid uncertainty over next year's agricultural commodity market, it is very possible that producers could plant conservatively, thereby creating a similar price spike in 2009/2010. Adding to uncertainty is the fact that the recent increases in food crop production occurred almost exclusively in developed countries, where agriculture is more developed and better equipped to respond to higher international prices. This means that serious problems remain with regards to developing nations' agricultural capacity. Either developing countries did not have the ability to

increase production or domestic impediments to market integration prevented them from increasing production in response to higher international prices (FAO 2008).

Even though prices have declined and production has increased, there is no way to tell if this indicates an end to the food crisis or simply the beginning of a new chapter. Many of the underlying causes of the food crisis in Egypt remain unaddressed and there is lingering uncertainty as to what impact the global financial crisis will have on agricultural production and food commodity prices. This is the most obvious limitation faced by the existing literature on the food crisis, as researchers have had little time to reevaluate their work in light of startling new developments.

Solving the Problem - Towards a More Secure Future

Even with the situation in Egypt appearing to stabilize for the time being, it is clear that the Egyptian state remains vulnerable to future shocks in the international food supply. In order to prevent a repeat of the 2008 food crisis, the causes of the country's vulnerability must be discerned and addressed. The goal of this investigation is to determine why Egypt was among those nations hit hardest by the global food crisis and to recommend reforms that the Egyptian government can implement to protect its population in the future.

While much has been written in the existing literature on the causes of and recommended policy responses to the broader international food price crisis, it does not focus its attention on the individual countries affected by the crisis. This fails to recognize the unique characteristics of the individual nations struggling to feed their people. Most policy recommendations, while relevant, do not take into account the state

of existing programs or address specific policies within countries such as Egypt.

Furthermore, much of the literature that does deal specifically with Egypt has not been updated to reflect the new realities brought on by the food crisis. Many studies are limited to single issues, such as subsidy reform or market liberalization, and make up only small pieces of the larger policy puzzle. While this literature is important, a multi-faceted issue such as the Egyptian food crisis requires a holistic approach that synthesizes research in a number of areas. Take subsidy reform, for example, which, though important, will not prevent a future crisis unless it is coupled with measures to stabilize food prices in the long run.

If Egypt continues on its current path and puts off necessary reforms, there is a very real chance that a similar, if not worse, food crisis could take place in the future. As a low-income country, food security remains the top concern for a majority of those living in Egypt. For the sake of the stability of the Egyptian state and the wellbeing of the Egyptian people, it is imperative that a strategy be developed to remedy Egypt's specific vulnerabilities.

Turning to the question of vulnerability, it must be asked: what allowed Egyptian prices to rise and how did existing social safety nets fail to protect the population? Even if Egyptian food prices reflected a commensurate rise in international food commodity prices, that does not explain the failure of programs such as the food subsidy system. This section will look not only at why Egyptian prices were so inextricably linked to international market prices, but also at why these price increases had such a devastating effect on the Egyptian people.

The Current Egyptian Food Security Policy: Opportunities for Reform

As a low-income nation, Egypt has developed a strategy to ensure the food security of its people. With the exception of the recent food crisis, which demonstrated the shortcomings of this policy, the government has been relatively successful in feeding its population. In essence, the government's strategy focuses on the following areas:

- Ensuring a minimum self-sufficiency ratio for food commodities, and for wheat in particular.
- Using the state trading company the General Authority for Supply Commodities (GASC) to import basic food commodities.
- Ensuring the nutrition needs of the population through the food subsidy system, which provides *baladi* bread, sugar, rice, and cooking oil at subsidized prices (Siam 2005).

The following section will analyze the government's food security policy in hopes of determining where it fell short in shielding the population from the food price crisis and how it can be improved so as to better protect Egyptians in the future.

Egyptian Agriculture and Food Self-Sufficiency

As Dieter Hannusch of the World Food Program explains, Egyptian food price increases are similar to increases on the international market because, aside from rice, a large percentage of the consumption of food commodities is imported (Hannusch 2008, p. 19). The most glaring example of Egypt's dependency on imports can be observed in wheat, of which the country is forced to import nearly half its annual supply (El-Katatney

2008). Wheat is by far the most important staple in the Egyptian diet, providing more than one-third of the daily caloric intake of Egyptians and 45 percent of their total daily protein consumption (Kherallah et al 2000, p. 1).

The Egyptian government has long recognized the danger of relying on imports to meet demand for its most important food commodities. Over the years, the government has aimed to increase Egyptian self-sufficiency in wheat and other commodities such as sugar and maize. To achieve this goal, the current policy towards wheat producers is to provide price supports for farmers in order to motivate them to sell their wheat to the government. Approximately 30 to 40 percent of wheat produced annually in Egypt is procured by the government at set farm gate prices that have in the past generally exceeded world market prices (Siam 2006, p. 3).

In addition to providing price supports, the government has also implemented an agricultural research program that has generated high yield seed varieties (HYV seeds), helping to spur wheat production. As a result, wheat production increased by 4 percent between 1980 and 2004, with self-sufficiency increasing from 42.5 percent in 1990 to 55 percent in 2004 (Siam 2006, p. 3). Recently, in an effort to increase the amount of land dedicated to wheat production, Egypt concluded an agreement with Sudan to plant two million acres of wheat on the two nations' shared border (Mirak-Weissbach 2008). Finally, efforts have been made to begin mixing 20 percent maize flour into the flour used for subsidized *baladi* bread in order to decrease the subsidy system's demand for wheat (Siam 2006, p. 6).

However, Egypt is faced with a daunting challenge as it seeks to increase its self-

sufficiency in staple foods: capacity. Currently, Egyptian agriculture is confined to approximately 2.5 million hectares of fertile, irrigated land stretching along the Nile River Valley and Delta. Projects are underway seeking to reclaim some desert lands for cultivation, however, at the same time the country is losing some of its most fertile land in the Nile Valley and Delta to urbanization and erosion (State Department 2008). In addition, most farms are extremely small (less than one hectare), with fragmented production plots, and are labor intensive. The small size of many farms restricts the use of mechanized agriculture (Hannusch 2008, p. 16).

Although wheat production has steadily increased over past years as the amount of land dedicated to growing wheat has expanded, there is little room for wheat production to expand beyond the current amount of eight million tons a year. This is due to the high cost of agricultural inputs and the rudimentary use of technology by Egyptian smallholders (Hannusch 2008, p. 16). The Egyptian government phased out subsidies for agricultural inputs in 1991, making it more expensive for smallholders to purchase new inputs such as HYV seeds, fertilizers, and pesticides (Hannusch 2008, p. 5). Also, many Egyptian farmers have found it difficult to purchase inputs on credit, with 92 percent of farmers using cash to obtain inputs (Kherallah et al 2000, p. 21). Without access to credit, many poorer farmers are forced to rely on outdated inputs that do not allow for expanded production.

Another pressing issue is the effect of expanding wheat production on the production of *berseem*, or Egyptian clover, which is the main source of animal feed. During the winter months, Egyptians typically plant wheat and *berseem*, whereas in the

summer they plant rice, maize, and vegetables (Hannusch 2008, p. 10). As the main competitor for land use with wheat crops, *berseem* production decreases as wheat production increases. This results in an increase in the price of *berseem*, and in-turn a decrease in the supply of animal products, which must then be imported (Siam 2006, p. 12). The average Egyptian diet already includes a very low amount of protein, at only ninety-one grams per day (Siam 2005, p. 13). As animal products become more expensive, demand will decline, leading to a decrease in livestock raising and meat and dairy consumption. Furthermore, *berseem* production is more profitable for farmers, and an increase in wheat production would therefore mean a decrease in farm incomes (Siam 2006, p. 12).

Egypt's finite water supply also presents an obstacle to expanded food production. It is estimated that Egypt would need to save or acquire ten billion additional cubic meters of water per year in order to achieve full food self-sufficiency (Siam 2005, p. 7). Wheat, however, is relatively more water intensive, using approximately two million cubic meters more of water than *berseem* cultivation (Siam 2006, p. 12). Therefore, increasing wheat production would actually use more water, thereby limiting the production of other crops.

The wheat sector: marketing and processing. Egypt also faces challenges in the way it markets and processes wheat crops. Wheat for Egyptian consumption comes from two sources: domestic production and imports. Domestically grown wheat is mainly consumed by rural households, who purchase the wheat, process it into flour at local village mills, and then bake it into bread. The Egyptian government also procures two to

three million tons of domestic wheat annually either directly from farmers or from private traders at a fixed price announced at the beginning of each year (Kherallah et al 2000, p. 3). In order to induce Egyptian farmers to sell their wheat to the government, the GASC normally pays above market value for domestic wheat (Hannusch 2008, p. 25).

Government procured domestic wheat is collected through cooperatives, local branches of the Principal Bank for Development and Agricultural Credit (PBDAC), and through public mills. Next, the wheat is processed by public or privately contracted mills into 82 percent extraction rate (extraction rate refers to the the yield of flour obtained from wheat in the milling process) *baladi* flour, which is in turn sold at subsidized prices to public warehouses and public and privately contracted bakeries who bake the flour into subsidized *baladi* bread (Kherallah et al 2000, p. 7).

Due to a constrained domestic wheat supply, a majority of the wheat used in the subsidy system is imported by the GASC. The GASC determines the price for which it sells its wheat to mills by calculating the cost of milling. By subsidizing the price of the wheat it sells to mills, the GASC attempts to make up for the cost of milling, while allowing for a small profit margin (Kherallah et al 2000, p. 98).

Alongside the public trade in wheat and wheat flour, there is a much smaller private market for purchasing and processing domestic and imported wheat. However, privately purchased wheat, both domestic and imported, can only be used in the production of higher quality *fino* (72 percent extraction rate) flour. This flour is in turn sold at free market prices to private bakeries and companies that use it in the production of higher quality breads, including Egyptian *fino* bread, which is then sold on the open

market. Some public mills also compete with the private sector in the production of *fino* flour (Hannusch 2008, p. 17).

Another aspect of wheat processing in Egypt is the production of animal feed. Public mills produce wheat bran for animal fodder and sell it at a subsidized price of \$218 per ton. However, this bran is sold only to registered animal breeders at a quota. Free market bran sells for \$245 per ton, while processed animal feed sells for \$575 per ton (Hannusch 2008, p. 18).

The difference between public and private sector mills is considerable. There are currently about 131 public mills, with a daily capacity of 22,000 tons. Public mills are operated by two publicly owned holding companies, Holding Company for Rice and Wheat Mills (HCRWM) and Food Industry Holding Company (FIHC). Most government subsidized bread is provided by the public mills, although in governorates where public mills are absent, private mills are contracted to produce *baladi* flour. Most public mills are extremely outdated, half of which are older stone mills. Stone mills not only have a lower capacity, but also waste a great deal of flour in the milling process. These mills employ an estimated 4.5 times the required workforce, rendering them highly uneconomical. In contrast, private mills are generally modern, roller mills. Whereas the milling costs for private mills is only about \$9 per ton of wheat, public mills spend as much as \$14.50 per ton. The milling costs for the small, local private mills that process wheat for household baking is even lower, at only \$7.30 per ton (Hannusch 2008, p. 16).

Looking at the current structure of wheat marketing and processing in Egypt, the country is faced by two major problems. First and foremost, the competition between the

private sector and the GASC for procurement of domestic wheat is harming Egyptian wheat production. Each year, the GASC announces the price that it will pay Egyptian farmers for their wheat without knowing what changes the international market price will undergo during the year. Prior to 2007, this meant that the price GASC paid was often lower than market prices, leaving farmers with little incentive to sell to the government. For example, during the 2006/2007 season, GASC was only able to procure 1.7 million tons of wheat because they offered a purchase price of \$236 per ton, while private traders offered \$368 per ton. When world prices increased in 2008, the GASC tried to compete by raising its price beginning in May so it always remained slightly above the price offered by private traders. Eventually, this competition between the GASC and traders artificially drove domestic wheat prices to \$498 per ton in the Delta Region. However, farmers still preferred to purchase their wheat from private traders, as they pick the wheat up from the farms, whereas the GASC requires farmers to deliver it to the mill. Also, private traders often provide cheap loans to farmers for inputs (Hannusch 2008, p. 25).

When prices began their steep decline in the second half of 2008 and wheat import prices dipped below \$200 per ton, this competition proved harmful to private traders. The traders were stuck holding onto expensive local wheat stocks, at a loss of \$121 per ton in October 2008. This forced them to hold back on purchases of domestic wheat, which in turn lowered farm gate prices and has induced farmers to cut back on planting wheat (Hannusch 2008, p. 25).

The result of the GASC setting its prices higher than the market price for wheat is that it has forced private traders out of the domestic wheat market. This will lead to

increased prices on the free market as domestic wheat prices are driven higher by the GASC. Also, with free market prices on the rise, more and more middle income families will be forced into the food subsidy system, further straining government expenditures. To top it all off, the GASC's policy of reducing costs by increasing self-sufficiency through increased local procurement does not make sense because, as was previously mentioned, wheat production in Egypt has already reached its limits (Hannusch 2008, p. 25).

Secondly, the government's overwhelming dominance in the milling of wheat has led to gross inefficiencies. Public mills not only suffer from unnecessarily inflated labor costs, but also lag behind private mills in technological development. Furthermore, private mills that are contracted by the government to produce *baladi* flour have no incentive to upgrade their technology because they are paid a set amount. The effect of these inefficiencies in government milling policy has been to prevent Egypt from reaching its full capacity in wheat flour production (Hannusch 2008, p. 17).

The rice sector. Unlike wheat, Egypt is more than self-sufficient in its production of rice, and the country exports between 700,000 and one million tons of rice each year. Most rice is purchased by local traders who in turn sell the rice to private mills. Smaller mills generally produce for local consumption, while larger rice mills produce for export. The GASC also procures some of its rice from private mills and directs it into the subsidy system. Public mills provide the remainder of subsidized rice for the GASC (Hannusch 2008, p. 18).

Because of the importance of rice as an Egyptian export, rice prices in Egypt are

linked to world market prices. In April 2008, hoping to shelter domestic rice prices from international price increases, the Egyptian government introduced a one year export ban on rice, with terrible consequences for private traders and local production. Unable to make a cost effective transition to producing wheat for local consumption, larger mills that specialize in producing export quality rice were forced to halt production and stop purchasing domestic rice. The result was a surplus in domestically harvested rice, which should have led to lower domestic prices. However, traders were still holding onto expensive stocks of rice purchased before the export ban, preventing a decrease in prices. Additionally, with world prices declining and Egyptian prices remaining inflated, lifting the export ban would leave Egyptian rice exports unable to compete. In the end, the consequence of the ban may be to reduce Egyptian rice production in 2009 (Hannusch 2008, p. 25).

Reforming Agriculture

If Egypt wants to prevent a repeat of the 2008 food price crisis, it must act now to reform the structure of its agricultural system. The current Egyptian approach to food security, which depends on increased self-sufficiency, is in itself not sufficient and in many ways has been detrimental to Egypt's capacity to produce food. Any effort to improve Egyptian agriculture must focus on three areas: 1) Investment in agricultural research and extension coupled with assistance to farmers; 2) Rationalization of land and resource use; and 3) Privatization of agricultural markets.

A review of the literature suggests that investment in agriculture in hopes of increasing domestic production offers the possibility of reducing Egypt's dependency on

imports. In particular, researchers argue that investments in agricultural research and extension as well as assistance to farmers is key to improving the productive capacity of the country's agricultural sector. The IFPRI cautions that although it may be tempting for governments suffering from unrest over food prices to focus aid dollars in urban areas, they should also “expand development assistance to agriculture, rural services, and science and technology” (“Rising Food Prices What Should be Done?” 2008, p.2).

Currently, Egyptian farmers are having a difficult time finding credit with which to purchase expensive inputs such as HYV seeds, fertilizer, and pesticides. Given the small amount of fertile land that is available in Egypt, the government's focus should be on improving crop production through vertical expansion techniques (i.e. HYV seeds, better technology, etc.). This entails giving farmers access to modern inputs and better information. The IFPRI has noted that the success of agricultural modernization in developing countries around the world can be attributed to farmers' increased access to modern inputs (Diao et al 2008, p. 22). They also argue that farmers must be taught better planting techniques (Diao et al 2008, p.13). In order to help spur the development of more advanced input technologies and planting techniques, the Egyptian government should increase the investment it has already made in the Ministry of Agriculture and Land Reclamation's research and extension programs (Siam and Moussa 2006, p. 12). Also, the government must find a way to increase farmers' access to these inputs and techniques. For example, the government could increase funding to the PBADC so it can loan money to farmers for the purchase of inputs. Another option, which is discussed in more detail below, would be to allow the private sector to control the procurement of

crops. Private traders have been able to provide loans to Egyptian farmers for inputs, and could expand this service if they were not forced to compete with the GASC. Finally, the government should find ways to educate farmers about new planting techniques by organizing classes or sending experts to meet with farmers in rural areas.

Another problem faced by Egyptian agriculture is the country's capacity to increase production. As was mentioned before, Egypt's farms are small and their plots fragmented. Also, a limited supply of water limits the size and type of crops that Egyptian farmers can grow each year. In order to address the problem of capacity, Egypt must begin rationalizing its use of resources such as land and water in order to optimize output. Dieter Hannusch at the World Food Program asserts that the Egyptian government's insistence on increasing wheat production does not make sense given the nature of Egyptian agriculture. Growing wheat is water intensive and any further increases in production would require investments in expensive new technologies. He instead recommends that Egyptian farmers switch to other crops that fit Egypt's smaller plots and labour intensive farming (Hannusch 2008, p. 16). Gamal Siam, a professor of Agricultural Economics at Cairo University suggests that small farmers try integrating livestock production with farming by raising animals and growing feed stock crops such as maize or *berseem*. Livestock raising is labor intensive, making use of one of Egyptian farmers' most abundant resources, and crops such as *berseem* use less water than wheat. (Siam 2005, p. 28).

Shifting the government's focus away from increasing wheat production may seem counterproductive given Egypt's reliance on imported wheat. However, according

to the IFPRI, “self-sufficiency does not guarantee food security (Kherallah et al 2000, p. 155).” Indeed, there are other approaches to dealing with the vulnerability to international price fluctuations that comes with being a net food importer. One promising approach is a flexible import tariff regime. Using a flexible import tariff, the government could set a target price for a commodity such as wheat and use that tariff to keep domestic prices from deviating far from this target. For example, as international prices rise, the tariff could be lowered so as to counteract the price increase. If international prices decrease, the government could increase the tariff accordingly to maintain a floor price for domestic agriculture (Kherallah et al 2000, p. 153). Another huge benefit of such a tariff would be to reduce uncertainty for Egyptian farmers as they decide which crops to plant for the season. Knowing the floor price of commodities would decrease risk for farmers, leading them to plant more and in turn increase food production (Hannusch 2008, p. 27).

Any reform of agriculture must also be coupled with an increase in private sector involvement. The agricultural sector in Egypt, and the wheat sector in particular, is currently being weighed down by heavy interference from the public sector. As a result, farmers are not getting access to accurate market information, and processing facilities are burdened with inefficiencies. Also, while there is a common perception that privatization will expose Egyptian consumers to the effects of unstable international prices, the opposite is in fact true:

The fear that liberalization would lead to more unstable markets is not well founded.... [B]ecause the private sector is more quick to respond to changes in market conditions, it contributes more effectively in stabilizing prices and dampening market shocks (Kherallah et al 2000, p.154).

By allowing the private sector to take over procurement and processing, the government

could save money while at the same time improving production.

First, the government must privatize the procurement of wheat. Right now, the government has complete control over the procurement and processing of wheat for *baladi* bread production. Ostensibly, this is to ensure the supply of wheat for the *baladi* subsidy. However, it is “more efficient to target the subsidy directly at the consumption level rather than at all stages of the commodity production and marketing channels” (Kherallah et al 2000, p. 154). The Egyptian state must step back and allow the private sector to manage the supply chain stretching between the procurement of wheat from the farmer or port of importation all the way to the consumer (Hannusch 2008, p. 26). This means first allowing private traders to take over the procurement of wheat. Private traders help farmers by providing them with loans for inputs and coordinating the transportation of crops from the farm to production and storage facilities. Also, the private sector is much better at conveying market information to farmers. For example, by establishing futures markets, which lock-in prices for commodities in advance, farmers would be able to reduce risk when deciding which crops to plant (Minot 2008, p. 3).

Most importantly, however, removing government intervention from the procurement process will in itself lead to lower domestic prices. During the food price crisis, the GASC's efforts to compete with the private sector for the procurement of domestically grown wheat actually ended up driving free market prices higher. Consequently, further strain was placed on the government's budget as it was forced to pay higher prices for the wheat it procured and as more and more Egyptians were forced to rely on food subsidies due to rising prices on the free market. Such distortions created

by government intervention would be eliminated by switching to fully privatized procurement.

Second, the government should allow the private sector to take over the processing of agricultural commodities. In the case of wheat, government mills have proven highly inefficient, utilizing outdated technologies and labor intensive production. The problem is, with the government effectively guaranteeing public mills' profit margins, there has been no incentive to update aging mills or to reduce labor costs. This means that the government is paying more and getting less for its money. By allowing privately owned companies to take care of processing, competition would increase along with efficiency and production.

The liberalization of the market for *fino* wheat has proven the ability of the private sector to efficiently market and process wheat flour. However, the continued involvement of the government in the procurement and marketing of wheat has distorted the market and hurt private traders (Hannusch 2008, p. 25). With the government competing with the private sector for the procurement of wheat and even in the production of *fino* flour, the private sector has remained limited to small scale trading activities. In the end, partial liberalization is unsustainable, as the private sector is hesitant to invest in areas where government involvement remains high (Kherallah et al 2000, p. 154).

In the rice sector, the government's use of an export ban has proven unwise. On the one hand, the export ban appears to have harmed rather than helped Egyptians. Prices have failed to decline, even as international prices have fallen, leaving Egyptian consumers worse off. Also, the export ban has damaged the rice sector and may result in

a decline in the production of Egyptian rice, which constitutes one of the nation's major exports. Finally, researchers have blamed nations' adoption of export restrictions for increases in the price of rice in the first place. The IFPRI has identified a link between a series of rice export restrictions implemented around the world and the subsequent rise in international rice prices (Heady and Fan 2008, p. 6). Therefore, export bans are not only unwise, but are also counterproductive.

The Food Subsidy System

Egypt's longstanding system for subsidizing essential food items is in disarray. The recent food price crisis, which placed unprecedented stress on the system, demonstrated the shortcomings and limitations of the current system. However, although many researchers and the Egyptian government itself recognize the need for reform, the political ramifications of any changes to food subsidies stand in the way of meaningful action. Still, without significant changes, Egypt's food subsidy system will not be able to adequately protect Egyptians from future food supply shocks.

The food subsidy system is divided into two very different methods of distribution. On the one hand, the government subsidizes *baladi* bread and flour (82 percent extraction rate), which is available without restriction to all Egyptians, regardless of income-level. In this system, the government procures wheat, processes it into wheat flour, and sells it to designated bakeries at a subsidized cost. These bakeries then produce traditional *baladi* bread to be sold at a price of five piasters per loaf to consumers (Ahmed et al 2001, pp. 14-15). Interestingly, *baladi* bread is not supposed to be available on the free market. Private mills cannot produce *baladi* flour unless contracted by the

government, and government subsidized flour is intended for use only in the subsidy system. However, most Egyptians supplement their subsidized bread with free market *baladi* bread, which is sold at just two to five times the price. In fact, free market *baladi* bread is probably the most consumed bread in Egypt. The low price of this free market *baladi* bread is suspect, as flour obtained on the open market is costly and should make free market bread considerably more expensive than government subsidized bread. Therefore, it is likely that a significant amount of subsidized flour is leaking into the free market (Hannusch 2008, pp. 23-24).

In addition to subsidizing *baladi* bread, the government also provides a restricted ration card system for subsidizing rice, cooking oil, sugar and tea. The MOSS allows authorized private grocers to purchase these subsidized goods from government wholesalers run by the ministry. Families registered for the ration card system can then purchase this basket of goods from specified private grocers at a government subsidized price (Ahmed et al 2001, p. 16). Prior to 2008, registration for the ration card system had been halted since 1989. However, in response to the food crisis, the government increased the number of Egyptians registered for the system to 55.09 million. Also, the government switched in 2008 from using two different types of ration cards; a green card and a more restricted red card with lower benefits; to a single, uniform card (Hannusch 2008, p. 22).

Despite the overwhelming reliance of the Egyptian population on food subsidies, they actually make up a relatively small portion of the government's overall budget. In fact, during the 2007/2008 financial year, Egypt spent only 6.5 percent of its budget on

food subsidies. However, even though food subsidies make up only 17 percent of the government's total subsidy program (which includes subsidies for petroleum and electricity), they make up one-third of the subsidies that benefit average consumers. Among food subsidies, the subsidies for wheat alone constitute 75 percent of the overall costs. Food subsidies also add approximately 60 percent (about \$85) to the incomes of average Egyptians. This increases purchasing power and allows for wages to remain lower, which is an essential component to Egypt's overall strategy of attracting foreign investment in the manufacturing and service sectors (Hannusch 2008, p. 21).

Challenges to the food subsidy system. Particularly in the face of wildly fluctuating international food prices, the Egyptian food subsidy system is an indispensable safety net program. Yet, the recent food crisis demonstrated the shortcomings and limitations of the current system, in which the pairing of a government subsidized food market with a privatized free market has led to serious problems and market distortions. First and foremost, the full development of a free market in basic food items, such as bread and cooking oil, has been prevented by the government's continuing control of these sectors. As a result, the free market trade in basic food items is artificially expensive and has pushed higher income families who would normally purchase free market goods to rely instead on government subsidies (Hannusch 2008, p. 6).

In the case of subsidized bread, the system is supposed to be self-targeted. This means that due to the lower quality of subsidized *baladi* bread, as income levels rise, families switch to higher quality, free market bread (Adams 2000, p.14). In reality, however, as was the case during the food price crisis, much higher free market prices

have pushed even middle income families to rely on subsidized bread. The ration card system was designed to be administratively targeted, with ration cards distributed ostensibly according to income level. Yet, as a result of the changes to the system in 2008, an estimated 92 percent of all Egyptians currently benefit from these subsidies (Hannusch 2008, p. 22).

According to the World Food Program, government food subsidies should in theory be able to provide approximately 70 percent of the food intake of all Egyptians (Hannusch 2008, p. 19). However, judging by the wide-spread shortages of subsidized bread during the food crisis, this has not been the case. The reason for this discrepancy in theoretical and actual capacity has to do with rampant corruption in the system. First, despite a government ban on free market *baladi* flour and bread, *baladi* bread continues to find many “unofficial” outlets on the open market. In fact, *baladi* bread is hardly even available at official prices in some areas, meaning that most of the population benefits from the subsidies indirectly by purchasing bread from private bakeries that managed to procure subsidized wheat (Hannusch 2008, p. 27). The very fact that *baladi* bread is available on the open market raises questions about where private traders are getting their flour. Furthermore, the relatively low price of the bread compared with high market prices for wheat suggests that serious amounts of subsidized wheat flour are leaking out of the subsidy system (Hannusch 2008, pp. 23-24). Indeed, there is evidence that subsidized wheat flour is being resold on the black market and that some flour and bread is being used as animal feed.

Reforming the food subsidy system comes with considerable political risk. Food

subsidies are a politically sensitive issue, as the Egyptian government has guaranteed basic food supplies for its population since the Nasser era. Over the years, food subsidies have come to represent the broader social contract between the government and the people. In a nation where political participation is highly limited, the government relies on subsidies for basic goods to lend it legitimacy and to keep the population contented (Gutner 1999, pp. 2-3). Therefore, any real reform to the distribution of food subsidies carries with it the risk of a popular backlash, a fact of which the Egyptian government is keenly aware after the violent popular response to the removal of subsidies for bread in 1977 (Gutner 1999, p. 3).

Food subsidy reform. While there are many recommendations for reforming food subsidies in Egypt, there are questions as to whether such reforms would be effective or even feasible given their politically sensitive nature. Regardless, systemic failures in subsidized food distribution during the food crisis mean that inaction is no longer a viable option. In order to be effective, any reforms must at the same time increase the supply and reduce the cost of subsidized foods without excluding the low-income populations it was originally intended to protect.

One reform that has been widely touted by development agencies as the answer to inefficient subsidy distribution is the targeting of food subsidies to poor households only. The idea would be to administratively target the subsidies by handing out food stamps or ration cards to qualifying families. While such a reform would reduce leakage and some wheat market distortions by removing subsidies at the wholesale level, it is plagued by potential problems. First of all, administrative targeting is one of the most politically

sensitive options, as it involves excluding from the system some of the Egyptians who currently benefit from food subsidies (Gutner 1999, p. 43). There is also a question of whether administrative targeting is even possible given the lack of reliable data on incomes and consumption in Egypt. Furthermore, given the low incomes of most Egyptians, the “inclusion error” of the present system is probably not much higher than 20 percent, which is considered satisfactory for even the most sophisticated targeting systems (Hannusch 2008, p. 21).

Although administrative targeting may prove politically difficult, there are other, less politically sensitive strategies for improving the targeting of food subsidies to the most needy populations. One way would be to relocate the bulk of subsidized bread outlets to poorer neighborhoods and governorates. Currently, the ratio of subsidized bread outlets to people served is higher in wealthier areas, and relocating bakeries and outlets has been shown to be a low-cost and effective way to target subsidies (Ahmed et al 2001, p. 98). This also has the added benefit of increasing the access of at risk populations to subsidized food, thereby avoiding two of the major problems of the recent food crisis: shortages and long lines at distribution centers. Further improvements to the targeting of subsidies could also be achieved by allocating subsidies to governorates based on their share of the nation's poverty. Present food subsidy allocations are not highly correlated to governorate-level poverty rates, and this would be a low-cost and simple way to make subsidy distribution more efficient. However, there would likely be resistance from governorates that stood to lose resources as the result of such a reform (Ahmed et al 2001, p. 98).

Another widely discussed option is to replace subsidized foods with direct cash transfers to needy households. This would allow for the complete liberalization of the food supply and ultimately would save the government money. Yet, while this option may seem to make sense, Egypt's markets remain fragmented and underdeveloped, meaning food prices would likely begin to rise. If food prices were to rise above the amount of cash subsidies paid to families, these subsidies would soon become worthless. Therefore, it remains far too risky to attempt a switch to a cash transfer subsidy program for food (Hannusch 2008, p. 27).

The final and most promising option for reform is a total restructuring of the subsidy system, in which government authorized private bakeries procure foods on the open market and sell it at government mandated subsidized prices. Rather than the government selling subsidized foods to distributors, the distributors would report their sales of subsidized goods and receive compensation from the government. In this scenario, the entire market would be liberalized, thereby increasing efficiency, removing distortions, and reducing government expenditures. This would also prevent the leakage of subsidized goods, as distributors would be forced to show proof of their sales before being compensated for their costs. Goods could also be rationed through the use of ration cards or food stamps, thereby reducing the risk of shortages and the reselling of subsidized goods (Hannusch 2008, pp. 26-27).

Conclusion: Lessons from the Past and Prospects for the Future

According to the FAO Food Outlook released in November 2008, the world will likely continue to face shocks to the food supply in the near future (FAO 2008). Adding to this uncertain economic outlook is the still unfolding global financial crisis. As a net food importer with limited agricultural resources, there is little prospect of Egypt achieving full self-sufficiency in food production. Consequently, the nation will continue to suffer from vulnerability to fluctuations in international food prices. Faced with the prospect of future fluctuations in international food commodity prices and an economic downturn, the Egyptian government must ensure the food security of its population. In summary, the government should:

- Boost agricultural output by increasing farmers' access to credit for modern inputs, dedicating more funding to agricultural research and extension, and by rationalizing the use of resources such as water and land through the optimization of cropping patterns.
- Protect against fluctuations in the domestic prices of Egypt's most important imports such as wheat by implementing a flexible import tariff regime.
- Increase efficiency and remove distortions in the agricultural sector by privatizing the marketing and processing of agricultural commodities.
- Ensure the stability of domestic farm gate prices and reduce farmers' risk by establishing futures markets for agricultural commodities.
- Remove the export ban on rice and avoid future export restrictions.
- Improve the targeting of the food subsidy system by relocating more

distribution centers to low income neighborhoods and possibly by allocating subsidized food to governorates based on their share of national poverty.

- Eliminate corruption and leakage by restructuring the distribution of subsidized food so that authorized private distributors procure their food on the open market and resell to the public at government mandated subsidized prices. The government would then reimburse distributors for the difference. Consumers would be able to purchase subsidized food from these private distributors in rationed amounts through the use of ration cards or food stamps.

Egypt may not be able to control fluctuating international prices, but it can protect its citizens from their devastating impacts. Taken one at a time, these reforms will not be enough to ensure the food security of Egyptians in an increasingly uncertain global economy. However, if implemented as a package, these reforms represent an opportunity for Egypt to create a fundamentally stable domestic market for food commodities in which the food security of at risk populations is guaranteed.

Opportunities for Further Research

Very little is yet known about the impact of the global financial crisis on food commodity prices. Egypt, which has so far been largely shielded from the financial crisis, is just beginning to experience an economic slowdown and cooling growth. It will be particularly interesting to observe the reaction of Egyptian agriculture to falling commodity prices in 2009. As more and more data emerges on the impacts of the crisis and its implications for Egypt's economic future, it may be necessary to reevaluate this

investigation's finding.

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