

North Korea on the Precipice of Famine

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North Korea is once again headed toward widespread food shortages, hunger, and famine. As of this writing, the prospect of hunger-related deaths occurring in the next several months is approaching certainty. This expectation is based on four pieces of evidence, which we outline in this brief:

- Food balances are as precarious as at any time since the great famine.
- Access to aid or commercial imports is limited by diplomatic tensions and the world food crisis.
- Domestic food prices show the kind of extreme price inflation that is typical of pre-famine or famine settings.
- The domestic policy response to the crisis while arguably rational from the perspective of a regime seeking to maintain power and control is exacerbating the situation.

The North Korean food crisis, now well into its second decade, presents a difficult set of ethical choices. The very ruthlessness of the regime and the numbing repetitiveness of its food problems make it difficult to mobilize humanitarian assistance. The promise of

large-scale American assistance will help over the long run. But in the absence of vigorous action by South Korea and China, the two countries capable of delivering assistance in a timely fashion, famine is likely to once again claim innocent victims.

The North Korean regime will weather this challenge politically by ratcheting up repression, scrambling for foreign assistance, and guaranteeing supplies to core supporters in the army, security apparatus, and party. A resolution of the nuclear stand-off could also pave the way for resumption of economic reform and an increase in the availability of outside aid.

But even though the current crisis is unlikely to be of the magnitude of the great famine of the mid-1990s, the possibility of widespread social distress and even political instability cannot be ruled out. The problem is not simply in the short run: Shortages of crucial agricultural inputs such as fertilizer are setting the stage for continuing food problems well into 2009, and the response to the crisis is once again revealing a deep ambivalence on the part of the regime toward economic reform and opening. The five major parties with an interest in North Korea—South Korea, Japan, China, Russia, and the United States—need to think creatively not only about the nuclear issue and the ongoing humanitarian challenge but also about the possibility of a political crisis in North Korea.

We begin with an analysis of the big picture: trends in the supply and demand for food (section 1) and the constraints on aid and commercial imports (section 2). We then turn to the dizzying domestic food price increases, a strong sign of pre-famine conditions (section 3). Section 4 considers the fraying of the institutions of the domestic food economy and the domestic policy response to the crisis. The conclusion provides more detailed policy conclusions on how to alleviate the emerging distress.

1. Food Balances

The logic of a quantity balance is simple: The gap between domestic needs and production is the uncovered food balance, which must be met through imports, in the form of either commercial purchases or aid. The two largest components of the exercise—local production and human demand—are both subject to considerable uncertainty. Our analysis suggests that in recent years available supply has exceeded minimum grain requirements but that this gap has now virtually disappeared.

Data on production is sketchy at best and highly prone to politicization: When North Korea seeks aid, the government exaggerates shortfalls to generate external support. The Food and Agriculture Organization (FAO), which is under some diplomatic pressure to accept North Korean official data, has revised its estimate of the current harvest from 4 to 3 million metric tons (MMT) in March—a downward revision of 25 percent. Other estimates of current grain output range from 4.01MMT to a low of 2.5MMT. Yet all assessments point to a sharp decline in output, partly as a result of the floods of August 2007 and partly as a result of ongoing problems in the agricultural sector and the ineffective policy response of the government.¹

¹ At the higher end of the production estimates, Korean Rural Development Administration (KRDA) shows a decline in total food equivalents between the 2006 and 2007 harvests of 500,000 metric tons, from 4.48 MMT to 4.01 MMT or 11 percent. The US Department of Agriculture estimates show a more modest decline in output, but from a lower starting point: from 3.49 MMT to 3.32 MMT. The FAO revision marks

Other, quantitatively less important, components of the supply side of the balance sheet pose problems as well. Weak infrastructure for storage and transportation means that postharvest losses are probably large. In recent years, the FAO/World Food Program (WFP) assessments have simply assumed 15 percent of the harvest is wasted, though they admit this estimate is without any serious empirical basis.² Yet “losses” may also reflect farmers and traders diverting food away from official channels toward consumption and the market. Shortfalls in official harvest data may simply reflect the fact that the state is having a harder time getting access to grain.

Estimating imports is equally challenging. It is possible to track most aid and certainly the share passing through the WFP. But North Korea treats trade data as a state secret, and a number of the country’s trade partners—most notably China—are circumspect about revealing their aid commitments.

Demand estimates are also subject to technical pitfalls that render them difficult to calculate.³ Demand for feed, industrial uses, and the rebuilding of stocks are subject to compression during hardship and cannot simply be treated as a given. But there is disagreement on even the most important component of total demand: human consumption. The FAO and WFP have at times overestimated the population, and some analysts suspect that the size of the North Korean population is again being overestimated, possibly by a significant margin. Such overestimation would exaggerate aggregate demand for grain. Moreover, based on the work of Australian economist Heather Smith, we believe that the FAO/WFP analysts have overestimated the role of grain in the North Korean diet by around 20 percent.⁴

Given the uncertainties in the data, our strategy is to present information on four estimates of notional grain requirements. The first is an expansive estimate of about 5MMT derived from FAO/WFP reports. The second is an adjusted demand estimate of roughly 4MMT, which takes into account the historical pattern of grain consumption in

a large reduction not only from the 4 MMT of the previous year but from the five-year average of 3.7 MMT tons. As with the KRDA estimates, the major cereal losses were in maize (650,000 tons less, or 33 percent down from the previous year) and in rice (400,000 tons less, or 25 percent down from the previous year). Finally, at the low end, the South Korean nongovernmental organization (NGO) Good Friends has cited an estimate of total output of 2.5 MMT but without extensive justification of sources or methods; this estimate should be treated as an extreme lower bound. For an overview of the longer-run problems in the agricultural sector, see Nam Sung-wook, “Chronic Food Shortages and the Collective Farm System in North Korea,” *Journal of East Asian Studies* 7, no. 1 (January-April 2007).

² For a more detailed discussion of the difficulties in estimating food balances, see Stephan Haggard and Marcus Noland, *Famine in North Korea: Markets, Aid, and Reform* (Columbia University Press, 2007), pp. 41-49 and “Authors’ Response: Famine in North Korea—A Reprise,” in *Asia Policy* 5 (January 2008).

³ Differences among demand estimates are extraordinarily large, ranging from a relatively expansive 6 MMT (from the KRDA) to a highly compressed, minimum human need demand of roughly 3 MMT. This lower-bound estimate represents extreme compression for purely human consumption and is clearly not sustainable. Moreover, total consumption at this highly compressed level would certainly not avoid hunger and even starvation; food would have to be distributed with utmost precision across the entire population. In addition to the logistical problems of moving and distributing grain in this fashion, we know food is not distributed equally in North Korea because of the political claims of the regime and the military. Widening inequality coupled with an increasing reliance on the market for food also means that some are better positioned to gain access to food than others. See “Authors’ Response: Famine in North Korea—A Reprise.”

⁴ Heather Smith, “The Food Economy: Catalyst for Collapse?,” in *Economic Integration of the Korean Peninsula*, ed. Marcus Noland. Washington: Institute for International Economics, 1998.

North Korea and the fact that there are significant nongrain sources of food in the North Korean diet. Finally, we provide two estimates that encompass only total human demand, not including other uses such as feed; one of these is, again, unadjusted and the second adjusts for North Korea's historical consumption patterns and nongrain sources of food. These human needs estimates in effect extrapolate sustenance across the population.

These four estimates are plotted against total supplies (using the US Department of Agriculture estimate of production) in figure 1. We focus our discussion on the second of these four estimates, which seems the most plausible. The more expansive FAO/WFP definition of needs implies repeated annual shortfalls of extraordinary magnitude; if true, they would already imply famine. On the other hand, the lower bound estimate represents extreme compression for purely human consumption and is clearly not sustainable.⁵

According to our preferred estimate of grain needs, the peak of the mid-1990s famine is reflected in the very large uncovered deficit in the first two years of the series. The country achieved a surplus in the late 1990s as it pulled out of the famine. However, it is worth noting that under the more expansive FAO/WFP conception of demand *North Korea has avoided food shortages in only one of the last 12 years—2000—and then only barely.*

Trends since the beginning of the decade have relentlessly worsened. Production rebounded from the bad harvest of 2001 but has once again leveled off. The massive inflow of aid in the immediate postfamine period has dwindled. And as in the run-up to the first famine, the regime has still not resolved the nuclear issue, which hangs over all of its external commercial relations, nor undertaken the reforms of the external sector that would improve its ability to access grain on commercial terms.

The current shortfalls are not as bad as during the peak famine years. But the aggregate food picture appears worse than at any time since the great famine; the regime is now working with a paper-thin margin of error, less than 100,000 metric tons (MT) using our favored estimate of grain requirements. Moreover, the growing reliance of households on the market and rising prices make the implications of these findings more dire than in the past. But before turning to that story, it is important to turn to the external supply picture and trends in prices.

2. The Role of Aid

North Korea is critically dependent at the margin on external sources of supply. At one level, this actually makes sense. Given North Korea's high ratio of population to arable land and its inauspicious growing conditions, the pursuit of self-sufficiency has always been fundamentally misguided. This is why we are highly critical of explanations of North Korea's food problems that focus on the weather. Weather-related shocks have of course played a role in North Korea's problems, most recently the devastating floods of August 2007. But if the weather is consistently adverse and volatile, it suggests that

⁵ Total consumption at this highly compressed level would not avoid hunger and even starvation. Food would have to be distributed with utmost precision across the entire population. In addition to the logistical problems of moving and distributing grain, food is not distributed equally in North Korea because of the political claims of the regime and the military and widening inequality associated with increasing reliance on the market for food.

North Korea should seek to *reduce* its dependence on domestic sources of supply. The ultimate solution to the country's chronic food problems does not lie solely in agriculture, as welcome as such reforms would be. Rather it lies in a reform, revitalization, and reorientation of the industrial sector, which would enable it to export industrial products and services and import bulk grains on a commercially sustainable basis—just as its neighbors South Korea, Japan, and increasingly China do.

The current character of North Korea's external supply shows several distinctive features:

- North Korea is highly dependent on aid. The country has effectively become a ward of the international community, receiving large donations of food aid year after year.
- The willingness of donors to support the regime has declined. In addition to the country's provocative foreign policy behavior, North Korea has proven unwilling to guarantee the integrity of its aid programs and as a result aid relations have repeatedly been roiled by evidence of the diversion of aid to both the military and the market.⁶
- The regime has proven either unwilling, and in the current juncture perhaps also unable, to adequately tap commercial sources of supply. Until the last several years, aid has consistently outstripped commercial imports.⁷ Now the country is more dependent on commercial imports just as prices are spiraling upwards. Moreover, the country's lack of creditworthiness and foreign exchange earnings and reserves make it a highly unreliable partner.

We begin with a brief overview of the multilateral effort before turning briefly to the behavior of the major donors, including South Korea and China, and the potential role of the United States. We then trace the ongoing difficulties the country has faced in importing on commercial terms.

The World Food Program

In the fall of 2005, North Korea experienced its best harvest in a decade and South Korea ramped up its aid efforts. Pyongyang responded to these eased supply conditions by demanding that the WFP switch from food aid to “development assistance” and that all foreign personnel from private aid groups leave the country by year's end. The WFP suspended its operations in North Korea at the end of 2005, but its Executive Board approved a greatly scaled-down program in February 2006.⁸ The program would feed roughly 1.9 million beneficiaries, less than one-third of the previously targeted population, requiring 150,000 MT of commodities at a cost of approximately \$102

⁶ The most recent example of this malfeasance are photographs taken across the demilitarized zone (DMZ), which have appeared in the South Korean press. They show North Korean military personnel loading bags of South Korean aid grain into trucks. The absence of civilian personnel in the immediate proximity to the DMZ makes it implausible that this activity reflected transport of supplies or even diversion to the market.

⁷ In *Famine in North Korea*, we document how the inflow of aid at the time of the famine was actually accompanied by a compression of commercial imports, contributing to ongoing shortages; see figure 1.

⁸ Initially designed to run through March 2008, the program was subsequently extended through the end of August 2008.

million.⁹ The North Koreans demanded a reduction in staff to ten or fewer, closure of the regional offices outside Pyongyang, and confinement of this staff to Pyongyang with only quarterly opportunities to visit project sites in the field.

However, even if the WFP were to deliver the entire 75,000 MT for the second year of the program, it would cover only 4.5 percent of the gap between domestic production and total demand under the FAO estimates. In late March 2008, the WFP once again issued a dire warning about the food situation in North Korea, in part because the core WFP program¹⁰ was sharply undersubscribed.

South Korea

In May 2003—just seven months into the onset of the nuclear crisis—the North Koreans set a precedent that was to persist until the end of the Roh Moo Hyun administration of requesting very large-scale humanitarian assistance from South Korea: 200,000 MT of fertilizer and 500,000 MT of grain, of which 400,000 MT was ultimately shipped. Requests to maintain these levels of support were subsequently approved in June 2004 as well. South Korean commitments were severely tested by the February 10, 2005 announcement that North Korea had nuclear weapons and was suspending its participation in the Six-Party Talks; only a month before this announcement, the North Korean government had placed a request for 500,000 MT of fertilizer. Despite pressure from the United States and domestic criticism, the Roh administration once again offered large-scale support of 500,000 MT of fertilizer and 350,000 MT of rice.¹¹

Following the bumper harvest of fall 2005, North Korea initially limited its aid requests to South Korea to fertilizer (450,000 tons). By April, however, the public distribution system (PDS)—the state-run rationing system on which roughly two-thirds of the population theoretically depends—was once again under stress and North Korea came back to the South with a request for 500,000 MT of food and a resumption of fertilizer shipments.¹² Conflicts over South Korean abductees, prisoners of war (POWs), and the rail links had already thrown a wrench in the prospects for further humanitarian assistance before the missile tests of July 2006. But in an important volte face from previous policy, South Korean foreign minister Ban Ki Moon warned in July that the Roh government would suspend further humanitarian assistance if North Korea proceeded to conduct missile flight tests. With the exception of a one-off aid package following the

⁹ Distributions focused on 50 vulnerable counties jointly selected by WFP and the government. Vitamin- and mineral enriched foods produced at WFP-supported factories are being given to young children and pregnant and nursing women, and cereal rations to underemployed workers through food-for-community-development schemes aimed at rehabilitating agricultural and other infrastructure.

¹⁰ The WFP did initiate a four-month Emergency Operation that provided food and other assistance in the areas affected by the severe flooding in August 2006; interestingly, over a third of the approximately \$50 million raised for that emergency effort came not from governments but from NGOs.

¹¹ Nor was this all. In the negotiations leading up to the Joint Statement in September 2005, the Roh administration offered a much wider array of so-called cooperation projects; in late 2005, the government made public a controversial five-year plan for over \$5 billion in economic assistance to the North and a doubling of the annual aid budget.

¹² At the time of the April request, the Roh government had committed to shipping 150,000 tons of fertilizer but had not taken a decision on the remaining 300,000 tons included in Pyongyang's initial request.

floods in August, the administration carried through on that threat and even interrupted deliveries under the emergency flood program following the nuclear test in October.¹³

The administration did signal, however, that it was willing to resume aid shipments if North Korea came back to both the Six-Party and inter-Korean talks. Within a month of the February 15, 2007 agreement, North-South interministerial meetings started up, and the Roh administration once again offered commitments equal to those discussed in the past, namely 400,000 MT of rice and 300,000 MT of fertilizer. The resumption of rice aid initially proved contentious, but the final resolution of the Banco Delta Asia problem and apparent progress in the Six-Party Talks led to a resumption of large-scale aid (400,000 MT of rice) in July, for the first time sent overland. Serious flooding in August once again generated new emergency commitments, and in the run-up to the inter-Korean summit meeting in October, the Roh administration outlined a wide array of bilateral economic initiatives, including massive energy support, expansion of the Kaesong Industrial Complex, and new industrial parks on both the east and west coasts.

These commitments did not bind the incoming government, however. Lee Myung Bak had run on a platform of reciprocity: that both aid and other forms of economic cooperation would be extended only after North Korea had met its commitments under the February and October Six-Party agreements. After his inauguration, there was uncertainty about whether this concept of reciprocity extended to humanitarian assistance. Not until late March—over a month into his presidency—did President Lee clarify that he would extend humanitarian assistance regardless of progress in the nuclear talks, but only if North Korea requested it. By the time of this clarification, North Korea had decided to pursue a highly confrontational policy toward the South, and in early April, despite clear signs of a deterioration in the food picture, Pyongyang announced it would not seek aid from South Korea, turning almost immediately to China for assistance.

Given that South Korea maintains stocks of rice, it is possible for the administration to move quickly to reverse course and provide emergency aid if North Korea concurred, either through the WFP—which it is currently supporting—or bilaterally. The South Korean government could also possibly circumvent official channels by providing support through nongovernmental organizations (NGOs), although this option was recently complicated by an important fraud scandal involving Ministry of Unification funds. But even if tensions were to ease, a crucial opportunity may have been missed with respect to the fertilizer needed to support the spring 2008 planting, setting in train a desperate scramble for domestic and foreign sources of supply in North Korea carrying into 2009.

China

China's trade in food with North Korea involves a number of components that are difficult to separate: regular food aid and subsidies from the central government; a "gift

¹³ The \$230 million aid package included 100,000 MT of rice, which accounted for just over \$200 million of the total. The North Koreans responded to the regular aid cutoff by suspending ministerial talks and halting family reunions.

economy” of one-off commitments associated with high-level diplomatic meetings; large-scale commercial trade from provincial entities in the Northeast; and a border trade that involves small traders, families, and to a lesser extent North Korean refugees. A number of foreign NGOs also run their food operations through China, although the number doing so has probably fallen since NGO operations in the country were curtailed in the fall of 2005.

Given the fact that the Chinese treat their aid to North Korea as a state secret, it is wise not to try to parse the components of China’s trade too finely but to focus on trends in Chinese exports of cereals, diplomatic activity, and policy statements.

China–North Korea trade has a substantial commercial component and so it is almost certainly with food.¹⁴ Aggregate food exports rose with the deepening of the bilateral economic relationship since the onset of the nuclear crisis; as a result, the share of cereals in Chinese exports fell steadily (figure 2). Between the fall of 2005 and the fall of 2007, grain exports were relatively flat. They turn up after that point in dollar terms, but as we show in the following section this apparent increase in exports corresponds with a sharp increase in world market prices. It cannot, therefore, be inferred that Chinese grain exports to North Korea increased in quantity terms; it is not even clear through March 2008 whether past quantities of grain were even being sustained.¹⁵

The data correspond closely to what we know about the course of Chinese policy.¹⁶ Following the Treasury Department’s designation of Banco Delta Asia as a money-laundering concern, North Korea’s commercial relations were disrupted, and Kim Jong Il became even more dependent on his Chinese patrons. But on Kim Jong Il’s “southern tour” of China in early 2006 he badly miscalculated Chinese willingness to provide more assistance. The aid relationship was further strained by the missile and nuclear tests; China even voted in the UN Security Council to impose sanctions on North Korea (although the sanctions did not include all trade or food). (For a particularly vivid illustration of Chinese exasperation with North Korean behavior, see box 1 on rail wagons.)

Moreover, rising prices were creating a second and probably even more important problem: Concerns about inflation led Chinese authorities to impose a succession of controls over food exports.¹⁷ In mid-December 2007, China’s Ministry of Finance announced it was eliminating a 13 percent tax rebate on grain exports; the change in

¹⁴ Stephan Haggard and Marcus Noland, “North Korea’s External Economic Relations,” Peterson Institute for International Economics Working Paper 07-7, August 2007.

¹⁵ Interestingly, the Chinese customs service stopped reporting quantity data on China–North Korea trade after 2006.

¹⁶ The most intriguing source to emerge in this regard is the publication in Japanese of *China’s Secret File on Relations with North Korea* (*Takitachosen Chugoku Kimitsu Fairu*) edited and translated by Satoshi Tomisaka and purportedly written largely by an official of the International Department of the Chinese Communist Party’s Central Committee. Regardless of the veracity of this report, its findings comport closely both with other academic studies and contemporaneous press accounts and Chinese statements. See most notably International Crisis Group, *China and North Korea: Comrades Forever?* Asia Report No. 112, February 1, 2006 and Bonnie Glaser, Scott Snyder, and John S. Park, *Keeping an Eye on an Unruly Neighbor: Chinese Views of Economic Reform and Stability in North Korea* (Washington DC: Center for Strategic and International Studies and the US Institute of Peace, January 3, 2008).

¹⁷ A number of southern provinces also suffered from unusual cold, ice, and snow in January and February, but these appear to have affected primarily crops other than staples; nonetheless, the broader pressure on production, stocks, and prices no doubt influenced the government’s response.

policy affected 84 categories of grain and included wheat, corn, rice, and soybeans.¹⁸ At the end of December it went further, declaring that over the course of 2008 it would impose further export taxes ranging from 5 to 25 percent on grain exports.¹⁹ In early January, the Ministry of Commerce announced that it would exercise discretionary quotas over the export of milled grain. If the first famine is a reliable guide, we would expect rising food prices to spur further commercialization of the China–North Korea relationship as trading firms scramble for supplies and small traders jump into the breach. But these activities are taking place against the constraints posed by dramatically rising prices.

As a result, the Chinese role in alleviating the crisis will depend in part on its willingness to step into the breach with expanded aid commitments. China almost certainly has large stocks of grain. Informal reports to us suggest that the Chinese have stepped up assistance, providing 50,000 MT of aid through April. We have also seen very high-level diplomatic initiatives, including from Kim Jong Il himself, seeking to ingratiate the regime to Beijing.²⁰ But a combination of political and economic factors appear to be limiting China's willingness to step into the breach in an aggressive way.

A US Role?

In 2005, the United States shifted toward more active diplomatic engagement with North Korea, extending carrots that included removal from the State Department's terrorism list; lifting of the restrictions under the International Emergency Economic Powers Act, successor to the Trading with the Enemy Act; and orchestration of heavy-fuel oil shipments. However, in September 2007, under the political cover of the floods, the administration first signaled that it would consider resuming food aid. In December an intra-agency delegation visited Pyongyang to discuss the aid relationship, including the possibility of re-routing US contributions away from the WFP, with which the North Koreans had a problematic relationship, and through American NGOs. In April 2008, the Bush administration publicly stated that it would entertain a very large food aid package of 500,000 MT once the North Koreans had provided a satisfactory nuclear declaration.

Such a commitment would obviously have major impact, but it faced a number of economic as well as political constraints, including rapidly rising food prices, demands for assistance elsewhere, stipulations of the North Korean Human Rights Act of 2004, and revelations of a North Korea–Syria nuclear connection.²¹ But the issue is one of

¹⁸ The ministry did permit a grace period through the end of February for contracts that could not be renegotiated.

¹⁹ The rates for wheat and wheat products are 20 and 25 percent, respectively. The rate for corn, rice, and soybean is 5 percent, while that for processed corn, rice, and soybean products is 10 percent.

²⁰ These include a rare personal visit to the Chinese embassy in Pyongyang; see Scott Snyder, "China-Korea Relations: Lee Myung-bak Era: Mixed Picture for China Relations," *Comparative Connections*, April 2008 and "Kim Jong Il Restores North-China Relations [sic]," *Daily NK*, March 3, 2008.

²¹ The North Korean Human Rights Act required that US nonhumanitarian assistance be contingent on North Korea making "substantial progress" on a number of specific human rights issues and that the United States Agency for International Development (USAID) issue a report to Congress on humanitarian assistance to North Korea and North Koreans in China and to report any changes in the transparency, monitoring, and access of food aid and other humanitarian activities. It also required that any "significant increases" in humanitarian assistance be conditioned on "substantial improvements" in transparency, monitoring, and access. It is, of course, possible that the North Koreans would acquiesce to these

geography and timing as well as policy. Even if the United States were to act with alacrity, it would be weeks and perhaps even months before the government or its agents could acquire this amount of grain and aid would start to flow to the country. The reasons, again, have to do in part with the changed commercial environment.

3. Evidence from Prices

Just as the poorest members of society are most vulnerable when shortages appear, so too are the poorest countries most vulnerable when global markets are under stress. World cereal stocks have fallen to a 25-year low and prices have risen at a pace not seen since the world food crisis of the mid-1970s, driven by a hotly debated mix of biofuel production and subsidies, rising demand for meat and grain from high-growth markets such as China, increasing fuel prices (which affect both input and transport costs), and some troublesome aspects of Asian markets in particular.²²

North Korean authorities do not, of course, provide information on market prices; to the contrary they have acted to squelch the outflow of such information. Nonetheless, the growth of trade across the Chinese border, the operation of NGOs out of China, including particularly South Korean ones, and the spread of technologies such as illicit cell phones in the border areas have allowed outside researchers to assemble data on prices.²³ These data—fragmentary and imperfectly observed—indicate that food prices have nearly tripled over the last year, with grain prices rising even more rapidly (figure 3). These adverse price trends have three devastating effects:

- Rising prices make it more difficult for North Korea to import grain on commercial terms.

conditions or that they might be waived—and perhaps rightly—under the duress of the spreading emergency.

²² See, for example, the Food and Agriculture Organization, *Crop Prospects and Food Situation*, and from a more commercial perspective, International Grains Council, *Grain Market Report*, various issues. Movements in the market are also a function of national policies. In contrast to other grains and commodities, such as wheat and soybeans, rice is thinly traded; only about 30 million MT are exported annually, and a handful of Asian suppliers play a pivotal role. On the export side, a number of major governments in addition to China have imposed various export curbs; even when these have subsequently been lifted or modified, they have added to overall uncertainty. India is reported to have provided an unspecified amount of food aid to North Korea, but it imposed bans on exports of nonbasmati rice as early as October 2007 before subsequently easing them and then reimposing controls in March 2008. Vietnam, the second largest exporter of rice, also imposed an effective ban on exports in March 2008, announcing that it would be in place through June. Indonesia announced in April 2008 that it would curb medium-grade rice exports to combat inflation; the state procurement agency Bulog would be allowed to sell medium-grade rice overseas only when national stocks were above 3 MMT and domestic prices below a government-set target price. Thai behavior has been the source of particularly intense speculation; even small hints that the largest rice exporter might impose restrictions have been accompanied by large price movements. Importers have also compounded market instability; Japan, Bangladesh, and particularly the Philippines made major rice purchases in 2008 as a hedge against uncertainty, adding to speculative pressures.

²³ Our data are assembled primarily from observations reported in Good Friends' publication *North Korea Today*, *DailyNK*, and other Korean-language academic and media sources. As with all data on and from North Korea, these series too should be treated with caution. The data are spotty, markets are fragmented, and we have little information on quality differences.

- Adverse price trends make it more difficult for multilateral and bilateral aid agencies to access grain and to meet their commitments.
- Price inflation has a direct effect on North Korean households, which have become more dependent on markets for food over time.

The simplest explanation for these price movements is that North Korean markets are surprisingly integrated in price terms with the trends in global market prices; this is an important finding, showing that the North Korean economy is increasingly affected by external developments.²⁴ However, as figure 3 shows, global trends are greatly magnified in North Korea by the perfect storm of conditions that have hit the country over the last year: the production shortfalls associated with the floods and ongoing problems in the agricultural sector; the political strains emanating from a deterioration in aid relationships and the corresponding adjustment of market expectations; and some self-defeating policy responses of the government, which we consider in more detail below.

Table 1 reports price data from cities reflecting a variety of circumstances:

- Wonsan and Hamheung are on the east coast; price trends there are particularly noteworthy because the industrialized east coast was hit particularly hard by the famine of the mid-1990s.
- Hoeryong is an important land port near the Chinese border and a gateway to the special economic zone in Rajin Sonbong; it should reflect some of the advantages of sitting close to the Chinese border.
- Sariwon is located directly south of Pyongyang and is the main trading center for the breadbasket region of the country and was severely affected by the floods of 2007.
- Pyongyang is the capital city and not only the seat of political power but also the core of the regime's support; it has long been considered a privilege to live in the city, and we might expect its residents to be protected from adverse price developments.

Although there are regional variations, the price increases are uniformly large, clearly outstripping world price inflation. Moreover, the regional differences do not provide comfort. The advantages of Hoeryong's proximity to the Chinese border are not apparent: Corn prices are somewhat lower, but the city shows the largest price increases of all the cities in the sample. But the most striking observation is the fact that Pyongyang does not appear protected from these price changes. Of course, incomes in Pyongyang are higher too, making it easier for households to manage these price increases than in poorer parts of the country. Moreover, a substantial but unknown share of Pyongyang residents including government officials, military personnel, and workers in favored state-owned enterprises have continued access to supplies through the PDS, where their needs are

²⁴ Grain prices display a seasonal pattern, tending to fall in the autumn after the harvest and peak in the spring. Yet these seasonal movements virtually disappear when we consider the magnitude of recent price changes: The overall price index shows a trend increase from late 2004, a spike following the August 2007 flooding, and then a dramatic acceleration of price inflation. The magnitude of the recent acceleration of food price inflation dominates the earlier response of markets to the missile and nuclear tests, sanctions, and even the floods of 2006 and 2007.

prioritized. However, for those Pyongyang residents outside of these privileged networks, or to the extent that privileged channels of supply are also feeling stress, residents of Pyongyang are as exposed to the market as households elsewhere in the country. Begging children are now observed in the city's poorer neighborhoods.

These price increases pose problems across the developing world. But it is important to underscore that their effects are particularly acute in North Korea because of the fraying of the institutions of the socialist economy and the domestic policy response of the regime.

4. The Domestic Policy Response

Food is at the core of any social contract: Governments that cannot provide food to at least some core set of supporters are invariably running deep political risks. The centrality of food to the maintenance of political power helps explain both the relentless aid-seeking of North Korean foreign policy and the government's reluctance to allow private farming and markets to allocate food. Liberalization and more wide-ranging marketization appear to mean not only higher prices and growing inequality but also migration of supply away from state channels—including those serving the military—and into the hands of farmers, traders, and “middlemen.”

In the current setting, however, the swing toward controls is likely to have particularly profound consequences. For most citizens, the PDS has not been a reliable source of food since the great famine. As a result it has proven impossible for the regime to eradicate private production and trading; in the absence of a fully functioning PDS, to do so would condemn the population to even worse circumstances than we are now witnessing. But continued efforts to limit private production, trade, and movement have had perverse and unintended effects.

We focus on three sets of institutions and policy areas that provide further evidence on the current crisis.

- Cooperative farms are experiencing severe distress. As a result, the government is experiencing difficulty securing grain and supplying the PDS and the military with food.
- The government has shown an ongoing ambivalence with respect to the emergence of markets, undercutting important access to livelihoods and food.
- The regime has also cracked down on movement across the border, which not only is interrupting migration but also appears to be interrupting much-needed commercial activities.

Once Again, the Breakdown of Public Distribution

The PDS has been a key political-cum-economic institution in North Korea. Prior to the great famine of the mid-1990s, the government set production quotas to the cooperatives, distributed farmers' rations at the time of the harvest, and distributed food to urban residents through the PDS at nominal prices; markets played virtually no role in the allocation of food. During the famine, households relied on distribution through work units, the market, barter, private farming activities, and even foraging. The army and

some unknown share of the upper civil service and workers at privileged state-owned enterprises supposedly enjoyed the benefits of distribution through separate channels, although these channels did not deliver full rations during the famine either.

The influx of foreign aid in the late 1990s provided the basis for a partial revival of the PDS as donors had no independent channels for distributing food. But marketization also continued apace driven by partial reforms such as allowing some private plots and farmers markets, as well as de facto marketization through diversion of food aid and cooperative output and commercial trade across the Chinese border. Our calculations suggest that roughly 50 percent of total consumption in North Korea was sourced through the market in the early 2000s, and reports from the WFP have suggested that poor households were spending up to 80 percent of total income on food.²⁵

On the demand side, in August 2005, the government decided to reinstate the PDS as of October 1 and to ban private trading in grain. The ability of the government to implement this policy varied across the country, and eventually the government was forced to quietly shelve the policy as PDS sites were not able to meet targets and markets for grain began to re-emerge. Up through the floods of August 2007, the data indicate that prices were at least relatively stable, although characterized by substantial dispersion across North Korea's geographically fragmented markets.

Historically, the North Korean government's supply-side response to urban food shortages has been confiscatory seizures in the rural areas. In late 2005 reports emerged of the government forcibly extracting food in contravention of the rules determining the disposition of cooperative farm output, though it is unclear just how widely this occurred. In the wake of the 2007 floods, it appears that such moves were intensified in renewed efforts to impose direct levies for additional supplies. First, the government increased production quotas for the next crop cycle. Second, the government began to crack down on embezzlement and corruption on the part of cooperative managers and the growth of trade and barter of rice among the administrators charged with managing food distribution. Although spiraling prices no doubt created incentives for corruption, some of these activities may simply have reflected an effort on the part of cooperative managers to protect their members. Third, the government began to express concern that cooperative farmers would divert effort from the current cooperative planting into the tending of private plots; as a result, new restrictions were placed on some of these activities as well.²⁶

However, the more intense the levies on grain and the controls on private plots, the more clearly the government is signaling the likelihood of continuing distress in the future and the more likely farmers will respond rationally by seeking to protect themselves. As early as the fall harvest, stories were surfacing of farmers seeking to hide and hoard grain, a critical development prior to the great famine of the 1990s as well.²⁷

A similar set of dilemmas face the government in the urban areas and in major work units; in the absence of food, workers have little incentive to report to work. Reports of the suspension of rations in the PDS and larger enterprises began extremely

²⁵ See *Famine in North Korea*, 191–95.

²⁶ An important example in this regard is the effort to suppress the so-called nonpublic management distribution practice, or “six-month farming,” under which displaced workers would be able to rent unused or underproductive cooperative land. See *North Korea Today* 118, April 2008.

²⁷ *North Korea Today* 95, October 2007.

early in the distribution cycle, as early as October 2007. The source of the difficulties included not only the aggregate constraint on supply but also shortages of electricity for threshing and fuel for transport. By February, Good Friends was reporting cuts in food rations to lower-level white collar officials and shortages of supply in Pyongyang, though other sources could not confirm this claim.

Responding to Markets and Traders

The wider problems in the North Korean economy and the breakdown of the PDS pose important challenges for the government. The first is the migration of labor out of the state sector and into market activities. Women have played a crucial role in this regard, forming the backbone of the general markets that emerged following the partial reform effort of 2002. As a result they are escaping not only from the workplace but also from ideological indoctrination and the various levies—including of “voluntary” labor—on which the government relies.

The second problem posed by the markets is an informational one. General markets have been fed by the burgeoning cross-border trade with China in consumer goods. This trade has not only revealed the higher quality of Chinese and other foreign products but also included a wide array of cultural products that have the effect of undermining ideological control and the government monopoly on information: from small televisions capable of receiving Chinese broadcasts in border areas to South Korean music videos and DVDs and even mobile phones. The campaign against the market is not just economic in nature but has a strong ideological component, emphasizing the antisocialist nature of market activities and their effect of spreading an overly favorable view of South Korea.

Finally and most obviously, the continued trading in grain poses a direct challenge to the regime, as households are forced to rely on the market in the face of rapidly rising prices.

As a result of these challenges, the recent effort to exercise control over the market has not been limited to food but a wider assault on market activity. One step in this direction was the imposition of escalating age restrictions on market traders in the fall of 2007, ultimately banning women under 50 from trading in general markets. From mid-January 2008, the government also stepped up inspections on the general markets or *jangmadang* in an effort to control the range of goods on offer as well, with the apparent intention of reverting to the more limited farmers markets that were permitted to trade only in supplementary foodstuffs.

These efforts at control are unlikely to be fully successful; age restrictions are circumvented by bringing grandparents into the market; regulated markets have been supplemented by new “alley markets” that shift trading to new venues; and traders undoubtedly will seek to bribe inspectors.²⁸ However, the restrictions have nonetheless sewn uncertainty about alternative sources of livelihood for households just as food prices are requiring them to seek other sources of income and barter.

There is also some evidence that the efforts to exercise control may influence cross-border trade. Larger trading entities in the land ports along the border, particularly in Sinuiju, have also fallen under government scrutiny. In a noteworthy development in

²⁸ See, for example, “Jangmadang to Be Converted to Farmers Markets,” *Daily NK*, February 13, 2008.

April 2008, the central government dispatched a team of 200 investigators to Sinuiju in the name of an Anti-socialist Conscience Investigation to inspect the books of foreign trade organizations, necessarily affecting market activity as a result.²⁹

We are doubtful that the effort to impose controls is likely to generate an overt social or political backlash; the barriers to collective action in North Korea are well-known. But an interesting episode in March 2008 in Chongjin suggests complex political risks for the regime and that the markets themselves could become the locus of protest and everyday forms of resistance. In early March, city officials sought to enforce the age restriction on women traders. In what appeared like a coordinated action across several markets in the city, large groups of women staged protests against the ban on trading on March 4. Municipal authorities took the unusual step of re-opening the markets under the authority of the local ministry of labor on March 5 but were subsequently forced to reverse course and to enforce the ban at the insistence of the central government. The episode reveals the ongoing tensions that likely exist between the objectives of the center and local officials squeezed between the absence of resources, mounting political and social pressures and the risks of repression.

The Border Problem

A final set of policy dilemmas relate to the land border with China. The dramatic increase in trade with China has resulted in the creation of dense business networks that include both major Chinese and North Korean enterprises, smaller Chinese-Korean businesses, and North Koreans with relatives in China who are permitted to travel, albeit only with the greatest of difficulty. The major land ports on the North Korean side of the border, particularly Sinuiju, have become not only trading centers but also major distribution hubs for the rest of the country.

But the border poses a risk to both North Korea and China as well. As circumstances deteriorate, the incentives to move into China rise, either permanently or in search of business opportunities and food; illicit border trade in drugs, particularly methamphetamines, has also been widely reported as has smuggling of scrap metal and other products. Such movements not only pose the ideological and informational risks already noted but also in extremis could even undermine the regime altogether, as was the case in Eastern Europe.³⁰ An additional motive for control is provided by the Olympics, and the prospect that incidents involving North Koreans could embarrass China.

Prior to changes in the North Korean penal code in 2004, a person who illegally crossed a “frontier of the Republic” faced a sentence of up to three years in a *kwalliso* (a political penal labor colony), but those who did not appear politically dangerous were sent to a village unit labor camp, where they would spend between three months and three years in forced labor.³¹ Those classified as ‘political offenders’ faced more severe

²⁹ *North Korea Today* 118, April 2008.

³⁰ For example, Nicholas Eberstadt and Christopher Griffin, “Saving North Korea’s Refugees: The Case for Action,” *International Herald Tribune*, February 20, 2007.

³¹ For an overview of the refugee issue, see Stephan Haggard and Marcus Noland, eds., *The North Korean Refugee Crisis: Human Rights and International Response*. (Washington, DC: US Committee on Human Rights in North Korea, 2006).

penalties. In “serious” cases, defectors or asylum seekers are subjected to indefinite terms of imprisonment and forced labor, confiscation of property, or death.³² Regulations under the 2004 penal code appear to have codified the differential treatment between economic refugees and those cases deemed political, stipulating lighter sentences for those crossing for economic reasons. Yet not surprisingly, the legal revisions did not necessarily reflect reality: Interviews with 30 refugees conducted between 2005 and 2007—even before the more recent crackdown—suggest that judicial proceedings were often skipped, torture remained prevalent in detention facilities, and death rates in incarceration were high.³³

The rollback in 2005 was accompanied by a dramatic crackdown on border movements. The crackdown was intensified in the aftermath of the 2007 floods and the initial ban on women trading in markets but accelerated as the Tumen River began to freeze in early winter, providing the bridge through which most exit occurs. From November, reports from North Korea indicate the organization of Anti-Socialist Conscience Investigation Patrols (ASCIP) to control internal movements in North Hamkyung province and to confiscate “contraband.”³⁴ The most dramatic signal sent by the regime was the public execution of 15 people, 13 of them women, in Onsong on February 20, 2008 on charges of trafficking. But sentences have also been increased; single border crossings not related to South Korea or having political overtones that were previously overlooked now carry sentences of three years, with those found guilty of multiple crossings—even if not political—receiving sentences of up to ten years.³⁵ In an interesting signal of the seriousness attached to this issue and concerns about the pervasiveness of corruption along the border, the police have even been granted new authority to incarcerate without going through prosecutors and to exercise some control over border security agents and even military personnel.³⁶

The economic implications of these new restrictions are impossible to estimate; the illicit border trade is relatively small and remittances passed through informal channels are unlikely to be very large either. However, the border has represented a partial escape valve both through movement and trade. In conjunction, the observations about the PDS, the response to the growth of general markets, and the approach to the border cast some doubt on the more hopeful diagnoses that have appeared over the course of the last year that North Korea is poised to undertake a leap toward a more wide-ranging economic reform and opening. Facing mounting constraints, the regime has rather opted for controls, a number of which are likely to have perverse effects and directly limit the opportunities for households to cope with distress.

³² Facilitating exit is also a crime. Under Article 118 of the criminal code, an official with the “frontier administration” who helps “someone to violate a frontier” faces stiff penalties: a sentence in a *kwalliso* for a period of between two and seven years.

³³ Norma Kang Muico, *Forced Labor in North Korean Prison Camps* (London: Anti-Slavery International, 2007).

³⁴ The seven “antisocialist” crimes against which the ASCIPs were formed are human trafficking; the effort to secure transit of family members to South Korea; the receipt of transfers from China, South Korea, and Japan; the receipt of commissions for connecting families in the North and South through China through use of mobile phones; drug sales or trading with Chinese drug dealers, unemployment (an interesting indicator of the political function of control of the economy); and unregistered lodging.

³⁵ Chinese nationals have also been arrested for these activities, perhaps reflecting a growing concern for the growing economic influence wielded by Chinese networks within the North Korean economy.

³⁶ *North Korea Today* 115, March 2008.

5. Conclusion and Policy Recommendations

Our findings are easily restated. Triangulating across a variety of sources of evidence, it is clear that North Korea now stands on the precipice of famine.

- The aggregate balance between grain requirements and supply is more precarious than at any time since the great famine of the mid-1990s.
- Aid faces economic as well as political constraints and the prospects of commercial imports are limited by the world food crisis that is now in full force.
- Domestic food prices show the kind of sharp inflection and price inflation that are typical of pre-famine or famine settings.
- The institutions of the food economy are fraying as they have in the past, but with much less scope for the market to provide an alternative source of supply; lack of fertilizer means that even if food aid is forthcoming, the 2008 harvest may be down implying a crisis into 2009.
- The domestic policy response is exacerbating uncertainty and volatility in the market.

Although it is scant comfort, there are reasons to believe that the crisis of 2008 will not approach the magnitude of the great famine of the mid-1990s. In the early 1990s, the regime allowed the situation to deteriorate for years on end before launching an appeal for aid. Famine or pre-famine conditions had probably emerged as early as 1993, but it was not until 1995 that the government issued an appeal for help. It then took nearly six months before aid of any magnitude started to provide relief.

However, it is important to underline that while we are very much better informed now than we were then, information remains scarce and a similar set of political dynamics are in play in the current conjuncture. The regime is engaged in a protracted standoff over its nuclear weapons programs—now complicated by growing evidence of proliferation activities—that has once again blocked aid. Then as now, key patrons—China and South Korea—are finding it politically difficult to provide assistance. The support for aid has been further eroded by ongoing evidence of diversion, including to the military.

Yet it is once again urgent to underline the primacy of the humanitarian imperative. While it is tempting to gamble that depriving the regime of food aid will spell its downfall, we cannot be assured of that eventuality. Such a policy would expose the most vulnerable of the population to the risks of malnutrition and even death.

The policy conclusions are straightforward. The North Korean leadership needs to recognize that the path to a secure future lies not in the possession of nuclear weapons or a posture of belligerence, but in security cooperation, détente, and economic reform. The long-run solution to North Korea's chronic food insecurity problems is a revitalization of the industrial economy, which would allow North Korea to export industrial products, earn foreign exchange, and import bulk grains on a commercially sustainable basis, just as its neighbors South Korea, Japan, and China do. The success of this strategy will require a definitive resolution of the nuclear issue.

In the short run, North Korea should openly acknowledge the growing crisis and conclude negotiations with the WFP and other donors so that assistance can begin to

flow. South Korea has now clearly offered humanitarian assistance, and North Korea should take up the offer. Pyongyang also needs to reverse a number of the self-defeating interventions it has undertaken in the recent period so that farmers and households can cope with the current shortages, and border trade in particular can provide at least some assistance.

Yet our past experience does not suggest that we should hold our breath for these changes to commence, and thus the international community also needs to act. China and South Korea are pivotal because of their proximity and the availability of stocks, which can be released on short notice. China could reverse export controls, at least for North Korea, so that grain markets on the border can start to function even if in the context of higher prices. Lifting these controls should extend to the operation of NGOs, including South Korean ones, which have served as a conduit—however, small—for assistance to the country. China should also commit to providing food aid, preferably through the WFP.

In South Korea, the Lee government's concerns about reciprocity are fully warranted, and providing long-run development aid in the absence of either security cooperation or economic reform is unlikely to have beneficial effects. Yet President Lee's statements regarding the independence of the humanitarian track are also justified. In the short run, the South Korean government might be able to finesse North Korean intransigence by donating food via the WFP, as it already has. The government might also use the network of NGOs that have evolved over the last decade as a face-saving channel for official relief. Despite recent concerns about malfeasance, the majority of these NGOs have operated with great dedication and integrity. Other regional players, including Thailand, Vietnam, and India, also have a role and should contemplate commitments through the WFP, other NGOs and commercial channels; at a minimum, they should rethink any restraints on exports for this most needy of regional cases.

Finally, the Bush administration's broader food initiatives of early May are highly welcome. The United States has also now signaled clearly that large-scale food commitments to North Korea will be forthcoming following North Korea's nuclear declaration in the Six-Party Talks. In anticipation of a North Korean declaration, the United States should continue to undertake the planning with the WFP and/or NGOs that would permit a rapid response once the political setting has changed. These channels should not be seen as competitive but should be used jointly to maximize the speedy release of food.³⁷

The United States can also provide aid in ways that maximize its humanitarian impact while limiting the degree to which aid simply serves to bolster the regime. We know that aid is diverted. Yet given the fragmented nature of markets in North Korea, diverted aid often finds its way into markets in the catchment area where it is delivered. Geographically targeting aid to the most adversely affected regions and providing it in forms such as barley and millet that are not preferred by the elite can increase the ameliorative impact of assistance. The Bush administration has taken up the first part of this equation—requiring that most of its contribution to the WFP be targeted at the worst

³⁷ The concern over the possibility of a "race to the bottom" with respect to standards of monitoring and verification is not without foundation, and it is essential that the North Korean government not be allowed to play relief organizations off against each other.

affected regions—but it could do more on the second part: providing aid in forms less preferred for elite consumption. It can also encourage others such as South Korea to follow suit.

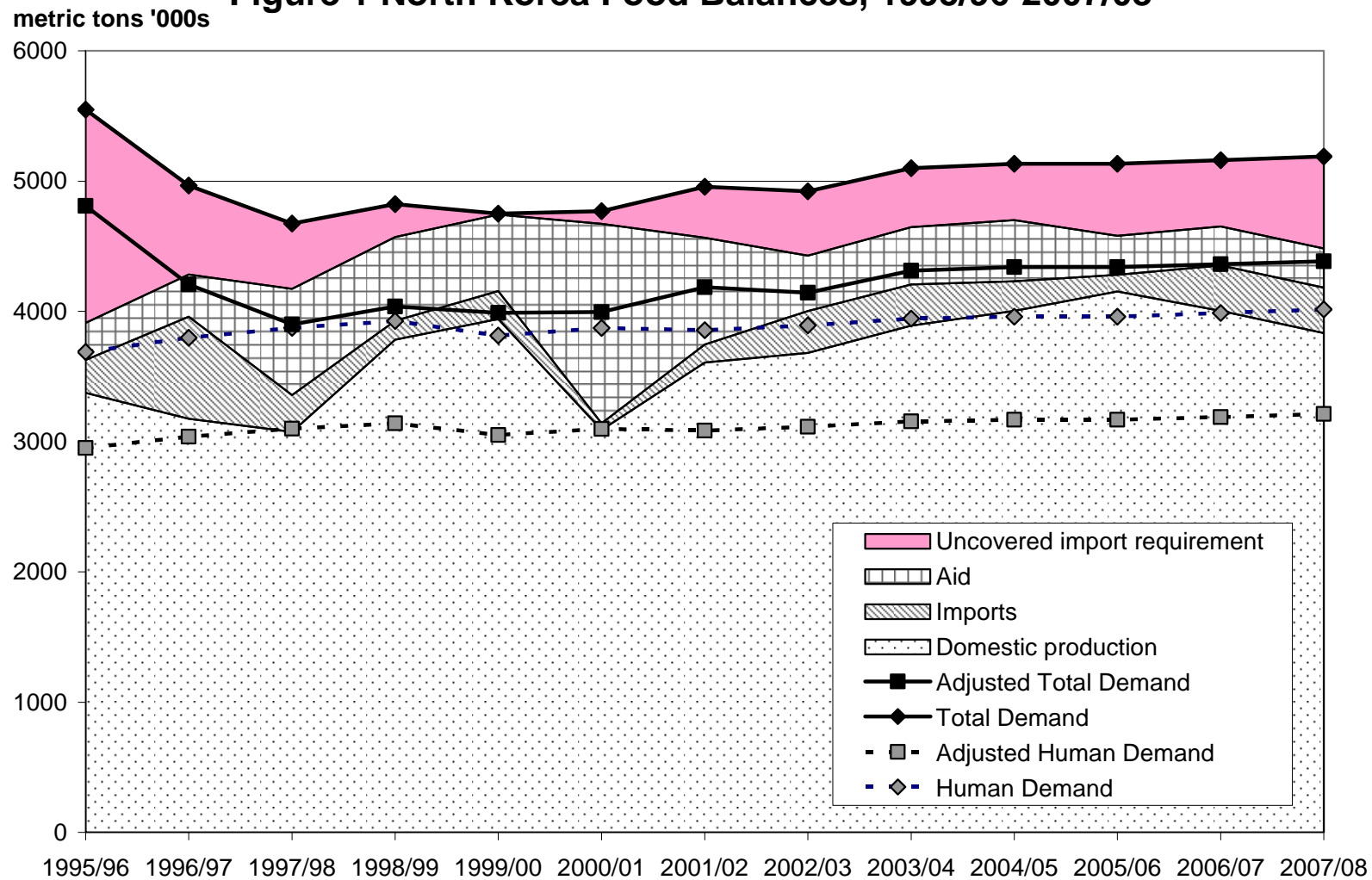
The United States should also exercise quiet leadership with respect to the refugee question as well. The Chinese government's practice of returning North Korean refugees may reflect a natural self-protective response against the threat of a flood of migrants and even the breakdown of the North Korean regime; it was, after all, the notorious "hole in the fence" that helped precipitate the collapse of the Eastern European regimes. But the policy of returning refugees does not conform with China's obligations under the refugee treaty and does not in the end serve the country's underlying political objectives either; it simply serves to cut off another escape valve, however small, that has contributed to taking pressure off of a rapidly deteriorating situation.

Opening North Korea, through whatever channels possible, is the ultimate route toward a more prosperous future; if this crisis contributes to that process, it would constitute the only silver lining we can see at the moment to what is otherwise yet another sad chapter in the history of the North Korean people.

Box 1 Rail Wagons

Perhaps nothing illustrates the way that North Korea can poison relations with major donors than an infamous 2007 episode, when China halted railroad shipments to North Korea in response to North Korean theft of Chinese rail wagons. Starting on September 30, UN relief agencies, which warehouse supplies in China, were not allocated the wagons required to make aid shipments in the wake of the August floods. The Chinese Railway Ministry subsequently informed them that the action was undertaken in response to the loss of 1,800 rail wagons in North Korea. As one UN official explained, "Our food is sitting in warehouses in China bagged and ready to be loaded, but our suppliers are not being allocated wagons." Beginning on the weekend of October 13–14, North Korea began returning the cars and Chinese authorities began allocating them to the relief agencies on a one-for-one basis. As the story began to appear in the world press, China relented, and by October 20, a substantial volume of aid was again flowing across the border.

Figure 1 North Korea Food Balances, 1995/96-2007/08



Sources: USDA, FAO/WFP, Authors' calculations

**Figure 2 Chinese cereals exports to North Korea
(three month moving average)**

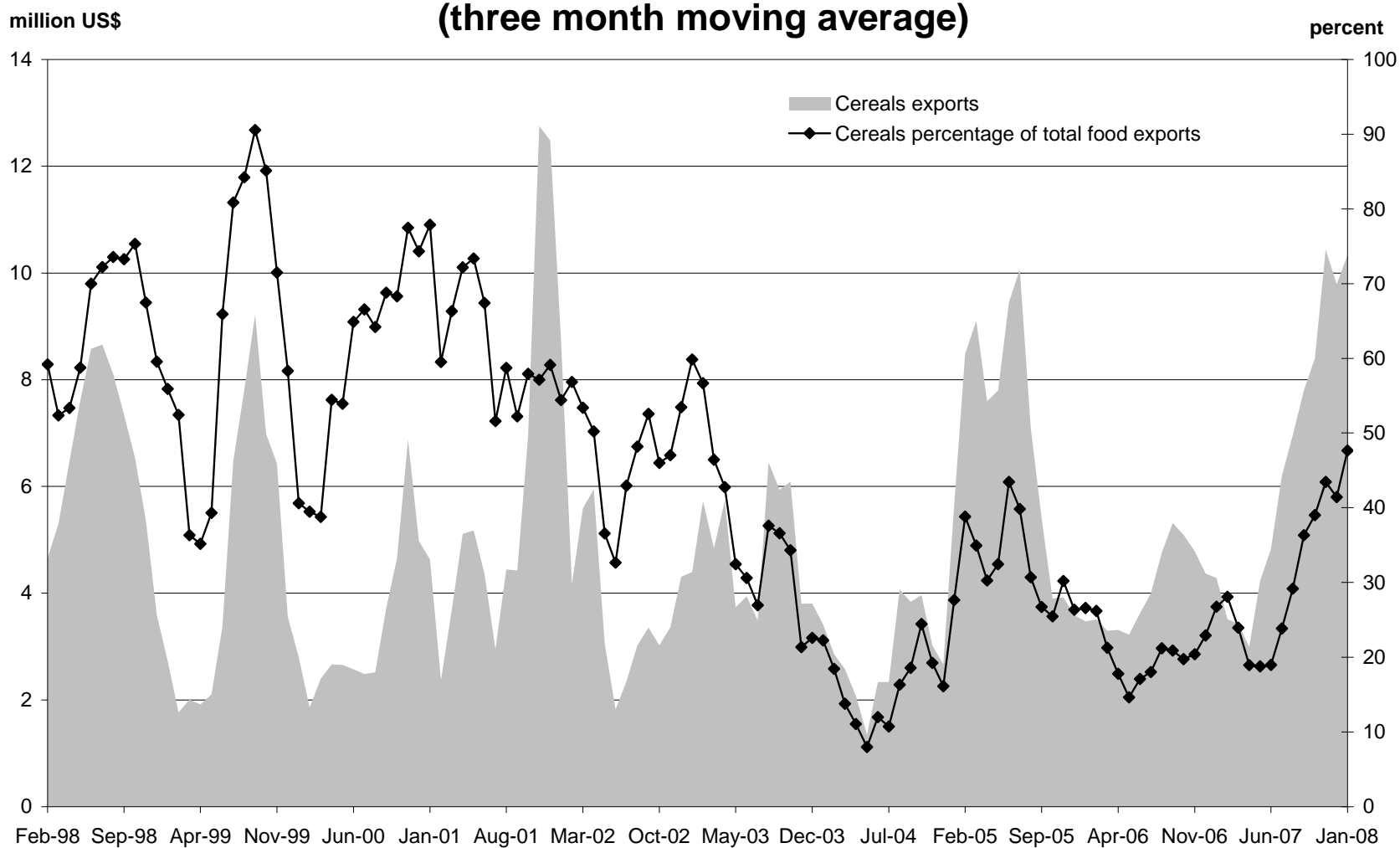


Figure 3 North Korea nominal food prices

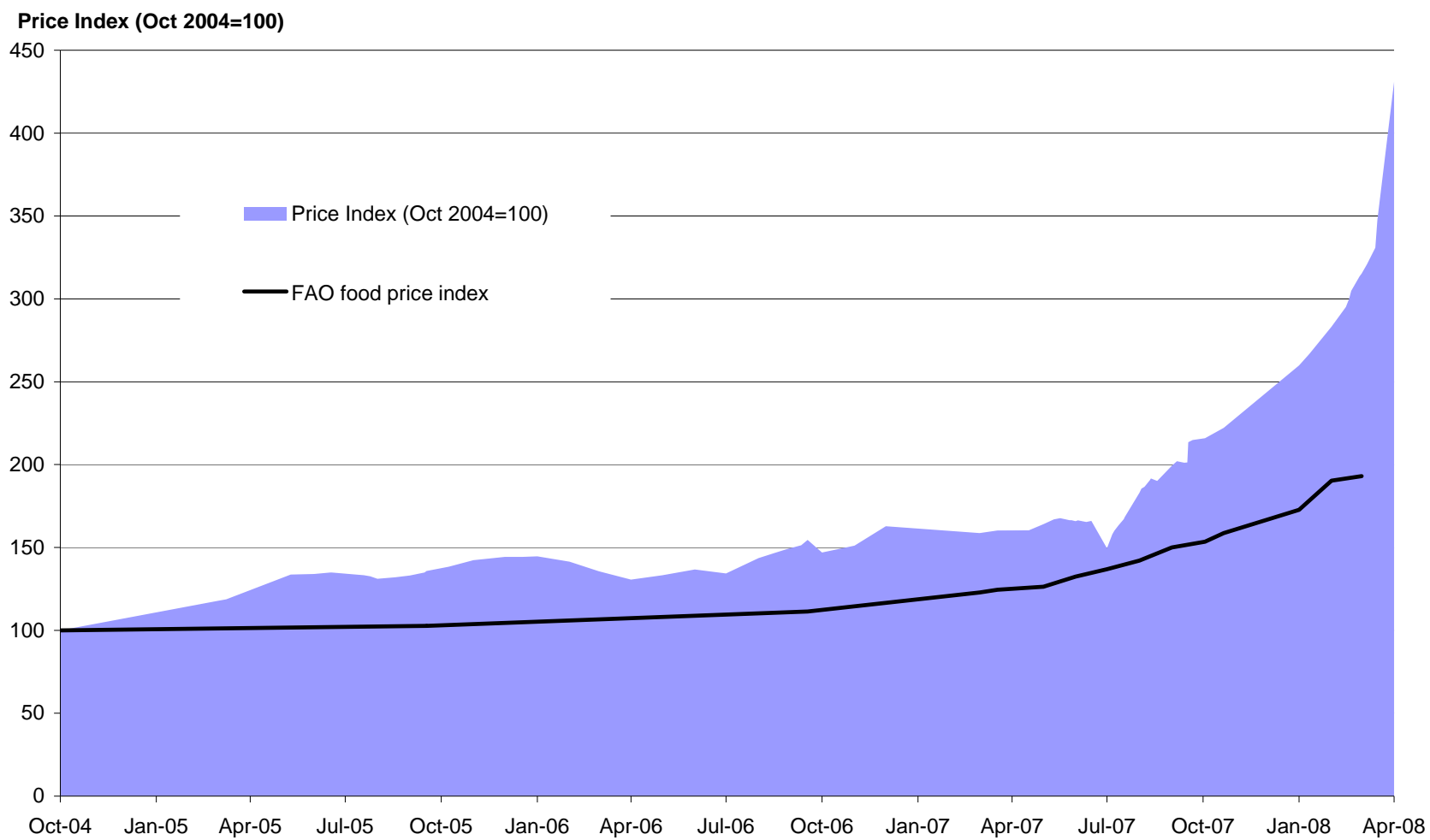


Table 1 Food prices and price ratios in selected North Korean cities (actual prices in won)

City	Month	Low		High		Average	
		Rice	Corn	Rice	Corn	Rice	Corn
Hamheung	March	1,900	950	1,900	950	1,900	950
	April	2,600	1,100	2,700	1,200	2,650	1,150
Hoeryong	March	1,600	650	1,600	750	1,600	700
	April	2,500	1,100	2,500	1,100	2,500	1,100
Pyongyang	March	1,800	1,000	1,900	1,000	1,850	1,000
	April	2,500	1,400	2,500	1,500	2,500	1,450
Sariwon	March	1,900	900	1,900	900	1,900	900
	April	2,100	1,300	2,100	1,300	2,100	1,300
Wonsan	March	1,900	900	1,900	900	1,900	900
	April	2,500	1,400	2,500	1,500	2,500	1,450

Source: Good Friends, *North Korea Today*.