

Exit Polls: Refugee Assessments of North Korea's Transition

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Abstract

Results from a survey of more than 1,300 North Korean refugees in China provide insight into changing economic conditions in North Korea. There is modest evidence of slightly more positive assessments among those who exited the country following the initiation of reforms in 2002. Education breeds skepticism; higher levels of education were associated with more negative perceptions of economic conditions and reform efforts. Other demographic markers such as gender or provincial origin are not robustly correlated with attitudes. Instead, personal experiences appear to be central: A significant number of the respondents were unaware of the humanitarian aid program and the ones who knew of it almost universally did not believe that they were beneficiaries. This group's evaluation of the regime, its intentions, and accomplishments is overwhelmingly negative—even more so than those of respondents who report having had experienced incarceration in political detention facilities—and attests to the powerful role that the famine experience continues to play in the political economy of the country.

JEL codes: P2, P3, F22

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INTRODUCTION

During the 1990s, North Korea experienced one of the worst famines of the 20th century.¹ The inability of the state to fulfill its most basic obligation under the socialist compact forced households, enterprises, and local party, government, and military entities to engage in entrepreneurial coping strategies to secure food. Part of this adjustment has been the movement of significant numbers of North Korean refugees to China.²

Given the lack of reliable data on the North Korean economy, this refugee population constitutes a potentially important source of information on changing economic conditions within the country.³ In this paper we present results from a survey of more than 1,300 North Korean refugees in China on economic developments in North Korea. Not surprisingly given their refugee status, the respondents express considerable dissatisfaction with the regime, though some of the results are startling in the particulars: Nearly 10 percent of the sample report having been incarcerated in political detention facilities, and a substantial number report no knowledge of the decade-long humanitarian aid program which at its peak in principle fed more than one-third of the population. Among those who were aware of the program, 96 percent did not believe that they were beneficiaries, instead indicating that the aid was funneled to the military and other politically connected groups. Questions concerning the level of development in the North and South suggest widespread—although by no means unanimous—skepticism about the regime’s propaganda claims.

The survey includes respondents who exited North Korea before the introduction of reforms in 2002 as well as those who left afterwards. There is some evidence that this dissatisfaction has attenuated in the postreform subsample. However, this group does not report significant improvement with respect to basic issues such as the provision of food. The analysis also suggests that the 2002 reforms may not have

1. More detailed background on the famine can be found in Noland (2000, 2004a), Haggard and Noland (2007a), and additional sources cited therein.

2. See, for example, Human Rights Watch (2002), Refugees International (2005), K. Lee (2006), International Crisis Group (2006), and Haggard and Noland (2006) for overviews. The precise number of refugees who made this journey remains uncertain; estimates range from 20,000 people to as high as 400,000 people, although the high end of this range almost certainly exaggerates the numbers currently in China. See K. Lee (2006, 18–19) for a summary of alternative estimates.

3. North Korea publishes virtually no economic data. It is not a member of international organizations such as the International Monetary Fund or World Bank. United Nations agencies which have maintained a local presence such as the World Food Program (WFP), which has operated a humanitarian relief operation there since 1995, and, until its recent closure, the United Nations Development Program (UNDP), are extremely constrained in their activities. The activities of the Korean Peninsula Energy Development Organization (KEDO) which provided foreign officials access to North Korea outside the capital Pyongyang have been terminated. Apart from interactions with South Korea, foreign official contact is largely limited to a small cadre of elites within the capital. As of this writing, all or nearly all resident private nongovernmental organizations (NGOs) have either withdrawn or have been expelled by the North Korean government. As a consequence, the South Korean government is the ultimate source of much of the data used in public discussions and policy formation. Yet significant questions surround both the quality and veracity of this information, and reliance on a single, potentially politicized, source of information is a cause for concern (Noland 2001, Eberstadt 2007).

deepened marketization in any profound way, but simply ratified the bottom-up process of economic change that had occurred over the previous decade.

Not surprisingly, education breeds skepticism; higher levels of education were associated with more negative perceptions of economic conditions and reform efforts. Other demographic markers such as gender or provincial origin are not robustly correlated with attitudes. Instead, personal experiences appear to be central: Those believing that food aid was diverted have even more negative views of the regime than those who were incarcerated, indicating the powerful role that the famine experience continues to play in the political economy of the country. Under the strong assumption that the pattern of responses elicited from the refugees mirror those of the underlying population, multivariate regressions can be used to control for the demographically unrepresentative nature of the sample *ex post*.

CONTEXTUAL BACKGROUND

Some context is necessary to appreciate the institutional transformation of the North Korean economy addressed in the survey. At the close of the Second World War the former Japanese colony of Korea was partitioned into zones of US and Soviet military occupation in the southern and northern parts of the peninsula, respectively. Under Soviet tutelage, North Korea adopted central planning notable in the degree to which markets were repressed. *Juche*, normally translated as “self reliance,” was adopted as the national ideology, though in fact, North Korea always remained reliant on external support.

North Korea made a fateful decision to pursue the goal of national food security through a misguided strategy of self sufficiency. Natural conditions including a high ratio of people to arable land and short growing seasons were inauspicious. To compensate, a highly industrial input-intensive system of agricultural production, involving, for example, the heavy application of chemical fertilizers and the extensive use of electrically driven irrigation—both of which were dependent on imported oil—was developed to maximize yields. Farming was collectivized and subjected to central planning, and private trade in grain was banned.

Beginning in the mid-1980s, external shocks associated with deteriorating relations with the Soviet Union and the subsequent dissolution of the USSR and the Eastern Bloc contributed to the implosion of the industrial economy. Deprived of industrial inputs, agricultural yields and output fell—and remain—below 1990 levels. The government’s response was to suppress consumption, initiating a “let’s eat two meals a day” campaign in 1990 or earlier and cutting rations delivered by the public distribution system (PDS), the quantity rationing system from which urban residents, roughly two-thirds of the country, obtained their food.

It was not until spring 1995 when a famine was under way that North Korea appealed for external assistance.⁴ Aid was rapidly forthcoming, but the government impeded the normal assessment, monitoring, and evaluation functions of the relief organizations—for example, prohibiting the use of Korean speakers and banning access and relief to certain geographic areas, including ones suspected to be the worst affected. Estimates vary widely, but the most sober academic research suggests that between 1994 and 1998, the famine killed perhaps 600,000 to 1 million people, or roughly 3 to 5 percent of the precrisis population. Certain groups and geographical areas (particularly the three northeastern provinces [figure 1]) were disproportionately affected, generating the highly nonuniform incidence of elevated mortality and malnutrition that persist to this day (Haggard and Noland 2007a).

From 1995 on, the state-administered PDS did not deliver minimum human needs, even on paper. With the state unable to play its traditional role as a provider of food, households came to increasingly rely on the market to obtain food. Local institutions were left to fend for themselves; government, party, and military entities, as well as work units, began to exhibit a variety of coping behaviors including foraging and other forms of prohibited movement, using barter and eventually monetized trade to secure food. Those with access to the border regions also sought to engage in trade and barter with China. The authorities responded by tolerating to a greater or lesser degree unauthorized internal movement and the development (and/or expansion) of informal markets, including the revival of traditional farmers' markets. The marketization that began with food gradually encompassed a broader range of household goods, in part building upon officially sanctioned cottage industries for consumer goods that began in 1984 ("the August 3 campaign for people's goods"), as well as forced sales of household items by liquidity-constrained households to secure food and increasingly gray-area activities by local government and party officials and enterprise managers.⁵

The result of these crisis-driven adaptations was a considerable decentralization of the industrial economy, with local political authorities and managers playing a more important role. The loosening of the central distribution mechanism was manifested in an increase in direct sales outlets where these ventures sold directly to public at noncontrolled prices as well as an increase in department stores selling Chinese goods at noncontrolled prices, paralleling the shift from the PDS to the market in the case of food. It is difficult to quantify these developments, though one Western firm operating in North Korea during the 1990s estimated that in 1994 the growing "unofficial" economy was nearly one-quarter the size of official output (Michell 1998). The system fraying was sufficiently large enough for the state to establish an ad hoc penal system to handle the surge in criminalized coping behaviors including internal

4. Floods in summer 1995 (and the following summer as well) played an important political role insofar as they facilitated the depiction of the famine being the result of natural disasters, though, in fact, they were a relatively minor contributing factor (Noland, Robinson, and Wang 2001; Smith and Huang 2003).

5. See Lankov (2007) for more institutional detail.

movement for foraging and trade, as well as exit from the country (Noland 2000, Natsios 2002, Hawk 2003).

A variety of evidence documents the increasing prominence of the market as a mechanism for securing food, including the results obtained from household focus group interviews conducted by the World Food Program (WFP) in North Korea, as well as a balance sheet exercise undertaken by Haggard and Noland (2007a). The general conclusion of this work is that at least for the nonprivileged classes, the market has become the primary institutional mechanism for securing food.

Aid played an ambiguous role in this process. On the one hand it was largely distributed through the central government, reinforcing state power. In recent years, as the state has been increasingly unable to procure domestic production, the PDS has become largely a mechanism for distributing aid. Yet aid also encouraged the development of markets, by creating the possibility of capturing astronomical rents through diversion—which could be realized only if markets existed—and providing enormous incentives to create those markets, through entrepreneurial behavior (legal or illegal) to establish the institutional infrastructure of markets, such as entities offering transportation or hauling services.⁶

The availability of supplies outside state control—siphoned off from cooperative farm output, diverted from aid, and obtained through trade with China—was both encouraged by and contributed to the development of the institutional infrastructure of a market, such as traders, transporters, etc. There is evidence that the military has been deeply involved in this process, though not for their own consumption—they have first draw on the North Korean harvest. Rather in the absence of well-defined property rights or dispute resolution mechanisms, their existing organization, as well as resources in the form of men, trucks, fuel, and, it should be said, guns, make them ideally situated to perform the role of middlemen distributors. Military and police organizations are also prominent participants in informal money lending businesses, presumably owing to their unique ability to collect debts.

Careful reconstruction of balance of payments statistics suggest that the economy bottomed out in 1998 and began a slow process of recovery beginning in 1999 (Haggard and Noland 2007b). With the planning mechanism mortally wounded, the payments system collapsed, and with the economy marketizing beyond state control, the government initiated a number of policy changes in July 2002 that decriminalized some of the coping practices that had developed in the previous decade.⁷

6. Estimates of diversion, ranging from 10 to 50 percent have been constructed through a variety of methods. The analytical work has received support from a small but revealing body of documentary evidence of diversion in the form of surreptitiously shot video footage, much of it produced by the Japanese NGO, Rescue the North Korean People Urgent Action Network (RENK). The results of the balance sheet calculation imply the responses obtained by the WFP in their focus groups are consistent with the upper end of that range. With aid feeding roughly one-quarter to one-third of the population over the past decade, these estimates, if correct, imply diversion of aid sufficient to feed roughly 3 to 15 percent of the North Korean people.

7. More complete analyses of these policy initiatives can be found in Noland (2004b), Haggard and Noland (2007a), and sources cited therein.

Rather than “leading” the transition, the reforms were responses to the de facto marketization that the state sought both to ratify but also control, and even to reverse ex post. An open issue is the degree to which marketization, which was already well-entrenched in practice, accelerated after the 2002 policy changes decriminalized much of the entrepreneurial coping activity. Yet the passing of the most severe economic conditions increased the capability of the state to introduce new controls, as it has done on a number of occasions since the reforms were launched.⁸ The refugee survey provides at least some evidence on these issues.

REFUGEE SURVEY

The survey was conducted from August 2004 to September 2005 by 48 individuals trained by one of the authors before conducting the interviews. The timing of the survey is of particular interest because a number of the refugees had direct experience with the economic reforms introduced by the government in summer 2002. A total of 1,346 refugees were ultimately interviewed in Shenyang, Changchun, Harbin, Yangbin, Tumen, Helong, Hunchun, Dandong, Jilin, Tonghua, and Wangqing. We do not claim that they constitute a random sample, which would be impossible to frame: Neither we, nor anyone else, know the underlying characteristics of the refugee population, and “cluster”-type approaches used in other contexts were problematic due to the underground status of the respondents.⁹ Nonetheless, we believe that these interviews broadly reflect the characteristics of the North Korean refugee population and constitute an important window into their current status; moreover, as our subsequent analysis will show, it is possible to use the pattern of responses to identify possible sample sensitivities and control for them ex post.

The sample roughly mirrors the North Korean population as a whole, albeit with the members of lower income classes and residents of the northeast provinces overrepresented, as has been the case

8. For example, during the 2005 harvest, reports began filtering out of North Korea of the government engaging in confiscatory grain seizures and renegeing on commitments to the farmers regarding the shares of output that would be retained by the cultivators for free disposal. Then in September, buoyed by a good harvest and enhanced bilateral assistance from South Korea and China, the government announced that it was banning private trade in grain, resuscitating the PDS, and expelling the WFP and NGOs engaged in humanitarian assistance. In March 2006 the WFP’s Executive Board approved a proposal for a greatly downsized assistance program, acquiescing in North Korean demands for an enormous reduction in in-country staff and their confinement to Pyongyang, making monitoring and assessment virtually impossible.

9. These refugees do not have legal status in China, and many refugees were suspicious and refused to answer on paper and in these cases, the responses were memorized by the interviewers to dissipate this anxiety. To reduce the likelihood of interviewing the same individual more than once, the respondents were not paid. Given the use of multiple interviewers over an extended period of time, however, the possibility of a single individual being interviewed more than once cannot be categorically excluded. In the case of Shenyang, interviews were conducted on two separate occasions. The identities of the respondents in the first set of interviews were recorded, and these individuals were excluded from the second round of interviews. Because of the tightened security situation in the border region, conducting such interviews has become much more difficult if not altogether impossible since the interview period.

with previous surveys conducted in China and South Korea (cf. Robinson et al. 1999, 2001a, 2001b; Lee et al. 2001; Chon et al. 2007).¹⁰ Most of the respondents were prime age adults; the median age of the respondents was 38 years. Females slightly outnumbered males, 52 percent to 48 percent. Most of the sample reported high school education (52 percent), with 44 percent reporting only elementary education. Most respondents were laborers (54 percent), with farmers (34 percent) the next largest occupational group. Other reported occupations included student, trader, professional or technician, administrator, soldier, party official, and government official. Most respondents were from North Hamgyong province (57 percent), followed by South Hamgyong province (19 percent), making these provinces somewhat less overrepresented than in earlier surveys, and all provinces, including the favored capital city Pyongyang were represented. Responses to questions regarding parental background suggest remarkably little social mobility.

In addition to this basic demographic information, the respondents were asked a variety of questions about their experiences in North Korea, such as the availability of food, their means of obtaining food, knowledge of humanitarian assistance programs, record of prior arrests, and incarceration in political detention facilities, as well as questions about their migration experience and their postmigration status and experiences in China.

A unique characteristic of this survey is that it includes respondents who left North Korea prior to the July 2002 reforms, as well as those who had substantial experience (at least one year) under the new policies. The sample can be divided into rough thirds between those who left North Korea before the 2002 reforms; those who left shortly before the introduction of the reforms or had limited experience under the new rules; and those who had more substantial experience of the postreform period. Compared to the prereform subsample, the postreform subsample is younger and more female, with more students and fewer traders. Other demographic markers are not statistically significantly different across the subsamples.

The respondents were presented with a series of statements about the North Korean economy, the policies of the government, and the attitudes of the North Korean public, and asked to indicate their

10. A smaller survey conducted in South Korea (Lee 2007) is an exception: The socioeconomic profile of respondents is decidedly more upscale. Two explanations are possible: First, the Lee sample may be unrepresentative of even refugees in South Korea as comparison to the larger Chon et al. (2007) survey might imply. An alternative explanation is that North Koreans from more advantaged backgrounds may have had more resources to enable them to on-migrate from China to a third country for ultimate settlement in South Korea or disproportionately have family connections in South Korea who could support their effort. Under this interpretation the socioeconomic profile of our sample may in part reflect a sample selection issue where the more advantaged refugees spend less time in China, having an easier time on-migrating successfully. Interestingly, the northeastern provinces are less overrepresented in our survey than in Lee (2007). Indeed, if anything, Lee's sample may embody higher educational attainment than the country as a whole as reported by Eberstadt and Banister (1992a).

agreement running on a scale of 1–5 (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree). The variable names follow in parentheses:

- “Kim Jong Il’s regime is improving” (REGIME);
- “The economy in North Korea is improving” (ECONOMY);
- “The North Korean government is trying to improve social conditions” (SOCIAL);
- “Education in North Korea is improving” (EDUCATION);
- “Restrictions on citizens are tightening” (GUARD);
- “One can purchase any good with money” (PURCHASE);
- “The availability of food has improved in the past two years (i.e., postreform)” (FOOD);
- “North Koreans are expressing their opinions about chronic food shortages” (OPINIONS); and
- “North Koreans believe that South Korea’s economy is worse than North Korea’s” (ECOSK).

The first two statements (REGIME and ECONOMY) are straightforward assessments of political and economic conditions. The third statement (SOCIAL) gets at the respondent’s assessment of the regime’s intent. The next two items (EDUCATION and GUARD) address regime performance in two dimensions. The next three statements (PURCHASE, FOOD, and OPINIONS) elicit more specific information on marketization and the expression of discontent. The final statement (ECOSK) could be interpreted as a barometer of political socialization and the extent to which the government is capable of controlling the flow of outside information.

Before interpreting the results we should flag two caveats. First, it is quite possible that the perceptions of what we call the prereform group were shaped by information that was contemporaneous with the administration of the survey. They could receive such information from the Korean community in China or from other refugees. However, it is a plausible assumption that their impressions were shaped predominantly by conditions at the time they left; these were their last first-hand experiences with the country.

Second, one needs to be cautious in drawing inferences about the impact of government policies per se. In the wake of the famine, economic conditions were improving prior to the introduction of the July 2002 reforms, and the respondents could simply be responding to this improvement in overall economic conditions rather than to the reforms per se. Similarly, evaluations of government performance could reflect both intended changes in policy, as well as unintended “system fraying” at the grassroots level.

Having “voted with their feet,” one would not expect the refugees to have favorable views of the country. Yet the near-unanimity of their responses is striking: Ninety-three percent strongly disagreed or

disagreed that Kim Jong Il's government was getting better (REGIME), despite the fact that the worst of the famine had eased at the time of the survey. There is small, though statistically significant, increase in the mean response and Wilcoxon rank sum score (i.e., a more favorable view of the government) in the postreform subsample (figures 2a–2g).

The sources of discontent are obvious: Ninety-two percent strongly disagreed or disagreed that the economy in North Korea was getting better (ECONOMY), while 62 percent agreed that surveillance was increasing (GUARD), though again there was a small, though statistically significant, improvement in assessments in the postreform subsample. What is less clear is whether these somewhat more favorable perceptions are due to policy or to unintended marketization and loss of state capacity or control; we return to this issue below.

The respondents were asked whether they agreed that the availability of food was increasing and if North Koreans were expressing their opinions regarding the chronic food shortages. Here we focus on the postreform subsample (figures 3a–3b). Almost three-quarters strongly disagreed or disagreed with the statement that food availability had improved in the period following the reforms (FOOD) and 90 percent strongly agreed or agreed with the statement that North Koreans are expressing concerns about chronic shortages (OPINIONS).

The next two statements address the respondent's evaluation of regime intentions (SOCIAL) and its performance in an area where the state is the sole service provider (EDUCATION). Here the sentiments, while negative are less so: Sixty-two percent strongly disagreed or disagreed with the statement that the government was trying to improve social conditions, while 55 percent took the same positions with respect to its performance with respect to education. Again, while respondents in the postreform subsample evaluated the government negatively in both dimensions, their responses were less critical than those of prereform respondents.

Taken together these responses paint a picture of considerable, though attenuating, dissatisfaction with a regime that is beginning to reassert state competence and control after the chaos of the famine era.

The degree of marketization of the economy appears to be advanced: Seventy-seven percent agreed with the statement that one could buy any good with money. Interestingly, there is no statistical difference in the pattern of response in the prereform and postreform subsamples. There are two nonmutually exclusive interpretations of this result. The first is that substantial marketization had already occurred prior to the July 2002 and the postreform periods did not therefore mark a significant change in this regard. A smaller survey of refugees done in South Korea obtained the same finding (Lee 2007). Respondents did not report an increase in marketization, in general or specifically with respect to food, after the 2002 reforms although they did indicate a decline in "illegal activities," presumably market-oriented activities which were technically criminal prior to the reforms. A second interpretation is that

economic policy since 2002 has been a mix of liberalizing and control-oriented measures. As economic conditions improved, the state has attempted to reassert control in particular areas, as illustrated by the 2005 attempt to ban the private trade in grain and revive the PDS.

Lastly, a cornerstone of the North Korean regime is the effort to glorify the accomplishments of the regime vis-à-vis the South, while at the same time assiduously controlling the flow of actual information coming into the country. Most of the refugees interviewed believed that state propaganda was discounted, at least in some dimensions: Seventy-nine percent indicated that they did not believe that most citizens thought that the South Korean economy was worse than the North Korean economy—though nearly one in five respondents indicated that they agreed that this was commonly accepted! Even accepting the implicit sample selection bias embodied in the refugee population, the overwhelming nature of this response would suggest a widespread cynicism about the claims of the regime.¹¹ Curiously, however, the share of refugees who disagree with this statement is lower among the postreform refugees, possibly reflecting improving economic conditions and a somewhat more favorable evaluation of the regime among this subsample as previously noted.

The extent of regime control over information came up in a related set of questions about the food economy. When asked about the international humanitarian aid program, which at its peak in principle was feeding more than one-third of the population, only 57 percent of the refugees knew of the food aid. The refugees who expressed awareness of the humanitarian aid program were then asked if they themselves had received food aid. Only 3 percent responded affirmatively—more than 96 percent indicated that they had not received aid. These answers do not establish that the respondents did not receive assistance. The aid was mainly distributed via the PDS, and the recipients could have thought that it was domestic production; it could have been diverted and sold in the market, and the respondents did not know that they were buying aid, or if they were aware, did not consider it aid since they were paying for it.

The stresses of the past decade have necessitated an ideological reinterpretation of the national ideology of *juche* to legitimate policy changes and justify the departure from the country's socialist tradition. The response has been to intensify the *songun* (“military first”) campaign elevating the military in the North Korean political pantheon. Among those refugees who were aware of the aid program, 94 percent indicated that they believed that it went to the military and 28 percent said that it went to government officials; less than 3 percent said it went to common citizens or others. Again, this does not prove that the aid was diverted to the military and officials. But at a minimum, the responses attest not only to the perceived power and centrality of the military in North Korean life but also to the wider control over information and resources on the part of the regime.

11. Lankov (2007) quotes two traders as indicating that “nearly all” merchants know that South Korea is a rich country, and indeed, that South Korean products are looked upon favorably in the market.

MULTIVARIATE ANALYSIS

The survey responses can be modeled as a function of the respondents' previously discussed demographic characteristics and self-reported personal experiences.¹²

We begin with basic demographic factors. Respondents with low levels of educational attainment (ELEMENTARY) have more positive assessments of the regime on all dimensions. Older respondents (AGE) tend to have less favorable evaluations of the regime (specification 1.1), though the age variable is also correlated with more favorable assessments of its attempts to address social problems (specification 1.3) and deliver educational services (specification 1.4). The age variable is also correlated with the perception that citizens believe government propaganda, or at least its claims that the North Korean economy is superior to the South Korean economy (specification 1.5).

Other basic demographic variables such as sex (FEMALE) and geographic origin (NORTHEAST and PYONGYANG) are generally not robust correlates with respondents' attitudes.¹³ Likewise occupational markers are generally not robust, though respondents from the catch-all "other job" category which includes soldiers, professionals and technicians, administrators, and government and party officials, and might be interpreted as signaling a greater degree of political connection with the regime, have a distinctly more positive opinions about improvements in the government and economic conditions. In "demographics only" specifications (not reported) where the food aid, camp, and arrest variables are omitted, traders, who presumably are the most entrepreneurially inclined, appear to have highly negative assessments of the regime.

In addition to these standard demographic factors, the survey permits us to test for the effects of various personal experiences on refugees' attitudes. North Korea criminalizes unauthorized exit, as well as vaguely defined political offenses, and at the peak of the famine constructed an ad hoc set of detention facilities to deal with technically criminal famine-related coping behavior, such as unauthorized personal movement or selling goods other than homegrown food in the market. More than one-quarter of the survey respondents report having been arrested (ARREST), and nearly 10 percent report having been incarcerated in political detention facilities (CAMP).¹⁴ As discussed in the previous section, a majority

12. Some information that we have on the respondents' experiences, such as knowledge of human trafficking or employment status in China were uncorrelated with their evaluations of the regime in the multivariate regressions and specifications using these variables are not reported in table 1.

13. Geographic origin variables were specified in a number of ways including entering each province separately. The specification which combined the three northeastern provinces into a single variable and distinguished the capital Pyongyang generated the most significant results.

14. Significant numbers of these respondents attest to have witnessed deaths due to hunger (90 percent), beatings or torture (61 percent), executions (27 percent), forced abortions or infanticide performed on women who were pregnant when repatriated from China to North Korea and suspected of carrying binational children (5 percent), or believe that medical experimentation was carried out on prisoners in their camp (55 percent) while incarcerated in political detention facilities. These findings are

of the sample reported knowing about the aid program but believed that they did not personally benefit (FOOD AID).

Scanning the table 1 results, the population that was aware of the aid program but believed that they were not recipients (FOOD AID) is a profoundly embittered group: They have uniquely unfavorable assessments of the regime, its intentions, and accomplishments.¹⁵ Indeed, the magnitude of the estimated coefficients are larger than on those associated with having been arrested (ARREST) or incarcerated in a political detention facility (CAMP). Little or no additional explanatory power was obtained by entering variables associated with having witnessed torture, executions, etc., while in the camps; there is a high degree of multicollinearity across these variables, and for these respondents, the values of the left-hand side variables tend to cluster at the most negative node.

Finally, there is not a lot of evidence that the respondents who experienced postreform conditions have distinctly different views. The postreform variable is significant in only three regressions: The postreform group has distinctly more positive views with respect to the government's efforts with respect to education (specification 1.4), distinctly less support for the proposition that restrictions on citizens are tightening (specification 1.6), and intriguingly, less support for the notion that one can purchase any product with money (specification 1.7).

APPROVAL RATINGS

Conditional on the fact that these models have been estimated from a sample of refugees whose attitudes may not mirror those of the society as a whole, in principle it is possible to combine the coefficients reported in table 1 with national level demographic data to derive projected "approval ratings" of the regime and its policies. Alternatively, this exercise could be interpreted as an informal check on how sensitive the results are to the unrepresentative nature of the sample demographically relative to the general population.

National level values for the regressors in table 1 were constructed largely on the basis of wanting, and unfortunately dated, primary sources, notably the North Korean census of 1987 and the population survey of 1993, as reported in Eberstadt and Banister (1992a, 1992b) and Eberstadt (2007) under the assumption that basic demographic indicators such as the sex ratio, and more heroically, the age structure

broadly consistent with those previously obtained by Lee et al. (2001) for a smaller group of subjects, as well as the findings obtained for a group of 200 North Korean refugees observed in a clinical setting in South Korea (Jeon et al. 2005).

15. Given the skewness of the sample and the likely violation of the normally distributed error term assumption underlying standard ordered probit estimation, the regressions reported in table 1 were estimated semi-nonparametrically with the order of the Hermite polynomial used to approximate the density of the error distribution set at three in all specifications in accord with maximum likelihood tests and the Schwartz Bayesian information criterion; the Akaike information criterion, "which some cases is found to have a tendency towards the selection of models with too many parameters, even asymptotically," indicated a higher order polynomial in two of the seven cases (Stewart 2003, 8).

of the population and its spatial distribution, have not changed in the intervening period. Estimates of educational attainment and the occupational distribution of the labor force are based on data from Eberstadt (2007), adjusted for an estimate of those now engaged in trading activities (Gey 2004). By definition, the postreform dummy is set equal to unity.

The three experiential variables pose particular challenges. In the case of the camp variable, we use the conventional estimate of 200,000 political prisoners, or a bit less than one percent of the population, as the total stock of present and former prisoners, an obviously conservative assumption (Hawk 2003, KINU 2004). To calculate the share of the population that has been arrested, we apply the ratio of ARREST to CAMP in the refugee sample (roughly 2.5:1) and apply this coefficient to the CAMP figure, yielding an estimate of the share of the population which has been arrested of 2.3 percent, again a very conservative estimate. Finally, to estimate FOOD AID, the number of people who fall into the category of knowing of the food aid program but not believing that they were recipients, we take the number of targeted number of beneficiaries at the peak of the WFP program (8 million, 1999–2001) and apply the percentage believing that they were not recipients derived from the refugee survey (96 percent), yielding an estimate for this category of approximately 35 percent of the population.

The mean responses, originally scored on a 1–5 metric, have been converted to a 0–100 scale to generate an “approval” or “temperature” rating, conditional on the strong assumption that the response pattern of the refugees is representative of the underlying national population (figure 4). Alternatively, a comparison of the raw responses from the survey and the projected “national” values can be interpreted as an informal check on the sensitivity of the results to unrepresentative nature of the sample relative to the general population (i.e., too few highly educated people, too many people from the Northeast, etc.). As can be seen in figure 4, there is little difference between the sample values and the projected nationwide results; if anything, the projected national values are actually slightly lower than the sample values in most cases. Demographically speaking, the survey sample marginally overweights groups with slightly more favorable assessments of the regime on most questions.

CONCLUSION

This paper has reported results of a survey of more than 1,300 of North Korean refugees, including those who left the country before the 2002 reforms, as well as those who migrated afterwards. A standard problem with such surveys is that they may misrepresent the attitudes of the underlying population due to the unrepresentative nature of the sample. We have attempted to provide at least a preliminary check on such concerns. Conditional on the strong assumption that the patterns embodied in the refugees’ responses mirror those of the underlying population, counterfactual “approval ratings” suggest that if

anything, groups with marginally more positive evaluations of the regime are slightly overweighted in the sample.

Despite obvious limitations, refugee testimonies can provide invaluable insights in the highly information-constrained environment that North Korea presents. Some of the responses are eye-opening: Nearly 10 percent of the sample report having been incarcerated in political detention facilities, and a substantial number report no knowledge of the decade-long humanitarian aid program which at its peak in principle fed more than one-third of the population. Among those who were aware of the program, 96 percent did not believe that they were beneficiaries, instead indicating that the aid went primarily to the army and other politically connected groups.

When questioned about governance and the economy, the refugees' collective evaluation of the regime, its intentions, and accomplishments is overwhelmingly negative, if moderating slightly in the postreform subsample. However, their responses also suggest that the process of marketization had occurred prior to the introduction of reforms in 2002, that the reforms may not have deepened the process in any profound way, and that the regime had even reversed some elements of marketization after the chaos of the famine era.

Generally speaking, experiential variables such as imprisonment have a larger impact on respondents' views than simple demographic markers such as age, gender, or provincial origin. Particularly noteworthy is our finding that past experiences with the PDS, and with the diversion of food aid in particular, constitute a powerful determinant of public attitudes.

Finally, the survey provides insight into the operation of the humanitarian aid program, now well into its second decade, which has been the longest running channel of international engagement with the North. While the results obtained from this survey do not prove the large-scale diversion of aid, the considerable ignorance of the existence of the effort and the widespread belief that the aid was diverted, primarily to the military, testify to the difficulty of monitoring such an effort and should give pause to policymakers designing future humanitarian or development operations in North Korea. Even if government propaganda is increasingly discounted by the populace, the survey results attest to the regime's substantial control over information and the centrality of the military in North Korean life. At a minimum, these characteristics are likely to pose ongoing challenges to attempts to maintain international standards and norms, with respect to values such as nondiscrimination and transparency.

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Table 1 Sentiments about the North Korean government and economy
(semi-nonparametric estimation of extended ordered probit)

	1.1 REGIME	1.2 ECONOMY	1.3 SOCIAL	1.4 EDUCATION	1.5 ECOSK	1.6 GUARD	1.7 PURCHASE
FOOD AID	-0.79*** (0.12)	-0.79*** (0.11)	-0.73*** (0.11)	-0.89*** (0.12)	-0.44*** (0.08)	0.82*** (0.11)	-0.32** (0.11)
CAMP	-0.32 (0.17)	-0.25 (0.17)	-0.63*** (0.16)	-0.49*** (0.12)	-0.29* (0.12)	0.66*** (0.14)	0.31* (0.16)
ARREST	-0.28* (0.13)	-0.38** (0.14)	-0.32** (0.10)	-0.27** (0.09)	-0.18* (0.08)	0.28** (0.09)	0.08 (0.10)
POSTREFORM	-0.17 (0.09)	-0.06 (0.09)	0.11 (0.07)	0.52*** (0.07)	0.06 (0.06)	-0.21** (0.08)	-0.29*** (0.08)
FEMALE	-0.13 (0.09)	-0.09 (0.09)	-0.06 (0.07)	-0.12 (0.07)	0.03 (0.06)	0.26*** (0.07)	-0.08 (0.08)
NORTHEAST	0.10 (0.11)	0.26* (0.11)	0.26** (0.09)	0.13 (0.08)	0.03 (0.07)	-0.00 (0.07)	0.04 (0.09)
PYONGYANG	0.44 (0.28)	0.48 (0.27)	0.48* (0.24)	0.31 (0.20)	0.31 (0.20)	-0.16 (0.21)	0.72* (0.36)
AGE	-0.17** (0.05)	0.07 (0.05)	0.49*** (0.05)	0.82*** (0.04)	0.23*** (0.05)	-0.22 (0.13)	-0.03 (0.10)
ELEMENTARY	1.06*** (0.12)	0.79*** (0.12)	0.90*** (0.10)	0.57*** (0.09)	0.35*** (0.08)	-0.25** (0.08)	0.35** (0.11)
FARMER	-0.24* (0.12)	-0.19 (0.11)	-0.02 (0.09)	0.07 (0.08)	-0.12 (0.07)	0.21** (0.07)	-0.18* (0.09)
TRADER	-0.58 (0.47)	-0.71 (0.52)	-1.23 (0.68)	-0.31 (0.32)	-1.51*** (0.37)	1.15** (0.36)	1.23* (0.56)
STUDENT	0.19 (0.22)	0.44* (0.22)	-0.05 (0.19)	-0.22 (0.16)	0.20 (0.15)	-0.16 (0.17)	-0.35 (0.19)
OTHER JOB	0.49** (0.16)	0.38* (0.16)	0.16 (0.13)	-0.03 (0.13)	0.10 (0.11)	0.06 (0.12)	0.14 (0.16)
Regression summary statistics							
N	692	692	685	689	689	693	690
Chi-squared	171	148	253	1,561	94	127	85
p	0.000	0.000	0.000	0.000	0.000	0.000	0.000

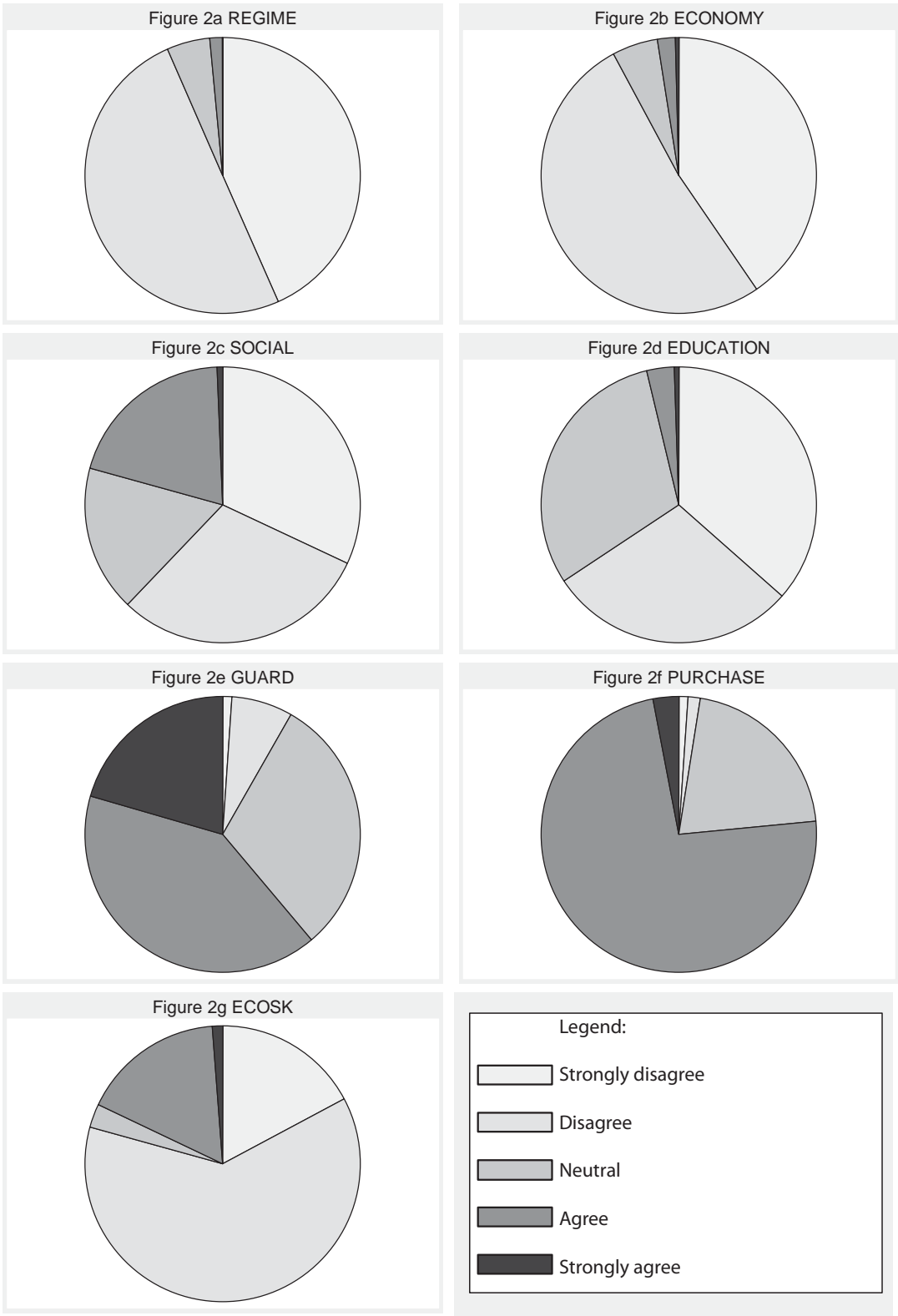
Notes: Standard errors in parentheses. Constants and cut-points suppressed.

* p<0.05, ** p<0.01, *** p<0.001

Figure 1 Map of North Korea



Figures 2a–g Sentiments about the North Korean government and economy



Figures 3a-b Improvements in food availability and public expressing opinions on food shortages

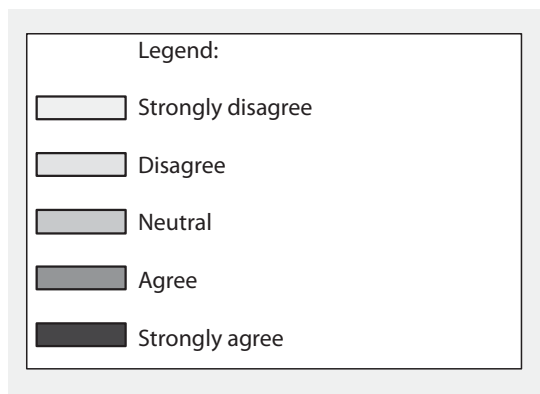
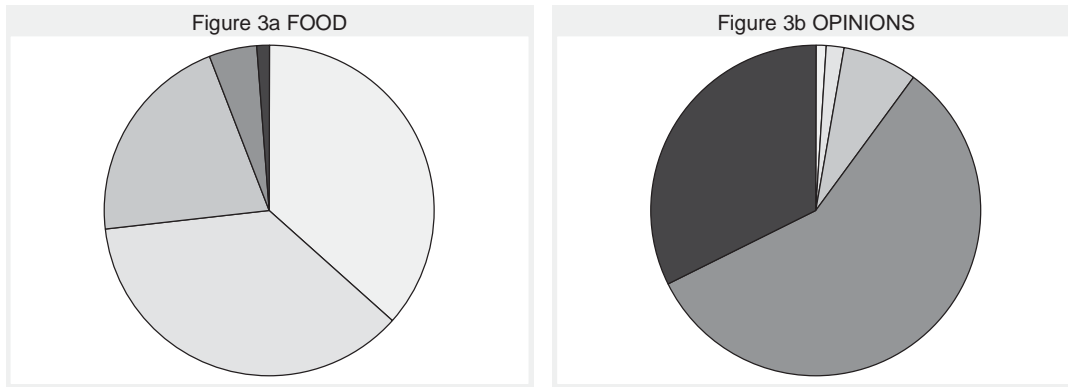
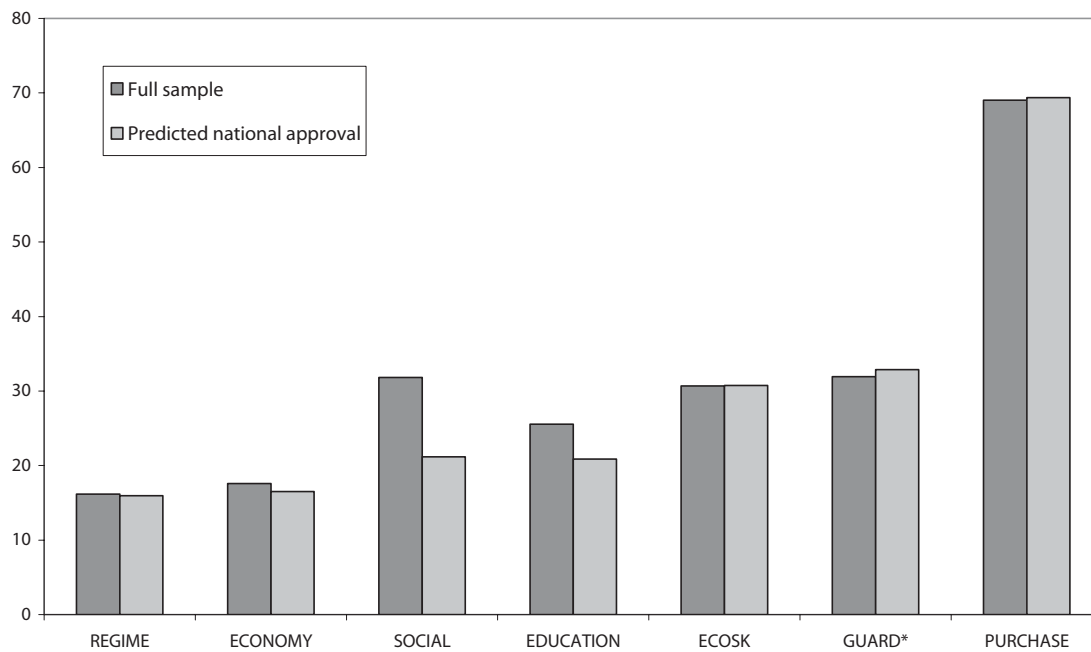


Figure 4 Approval ratings



* = GUARD is inverted such that a lower number equates to a more negative response in this figure for comparative purposes, whereas in the actual data a higher number equates to a more negative response.