

Working Paper Series

WP 09-8

SEPTEMBER 2009

Reform from Below: Behavioral and Institutional Change in North Korea

Stephan Haggard and Marcus Noland

Abstract

The state is often conceptualized as playing an enabling role in a country's economic development—providing public goods, such as the legal protection of property rights, while the political economy of reform is conceived in terms of bargaining over policy among elites or special interest groups. We document a case that turns this perspective on its head: efficiency-enhancing institutional and behavioral changes arising not out of a conscious, top-down program of reform, but rather as unintended (and in some respects, unwanted) by-products of state failure. Responses from a survey of North Korean refugees demonstrate that the North Korean economy marketized in response to state failure with the onset of famine in the 1990s, and subsequent reforms and retrenchments appear to have had remarkably little impact on some significant share of the population. There is strong evidence of powerful social changes, including increasing inequality, corruption, and changed attitudes about the most effective pathways to higher social status and income. These assessments appear to be remarkably uniform across demographic groups. While the survey sample marginally overweights demographic groups with less favorable assessments of the regime, even counterfactually recalibrating the sample to match the underlying resident population suggests widespread dissatisfaction with the North Korean regime.

JEL Codes: P2, P3, F22

Keywords: failed states, transition, reform, North Korea, refugees

Stephan Haggard is the Lawrence and Sallye Krause Professor at the University of California, San Diego Graduate School of International Relations and Pacific Studies. He is the author of *The Political Economy of the Asian Financial Crisis* (2000) and coauthor of *The Political Economy of Democratic Transitions* (1995) and *Famine in North Korea: Markets, Aid, and Reform* (Columbia University Press, 2007). He is a member of the Advisory Committee of the Peterson Institute for International Economics. **Marcus Noland** is the deputy director of the Peterson Institute for International Economics, where he is also a senior fellow. He has been associated with the Institute since 1985. He was a senior economist at the Council of Economic Advisers in the Executive Office of the President of the United States and has held research or teaching positions at Yale University, the Johns Hopkins University, the University of Southern California, Tokyo University, Saitama University (now the National Graduate Institute for Policy Studies), the University of Ghana, the Korea Development Institute, and the East-West Center. Noland is the author of *Korea after Kim Jong-il* (2004) and *Avoiding the Apocalypse: The Future of the Two Koreas* (2000), which won the 2000–2001 Ohira Memorial Award, and coauthor of *Famine in North Korea: Markets, Aid, and Reform* (Columbia University Press, 2007).

Authors' note: We would like to thank the Smith Richardson, MacArthur, and Korea Foundations for their financial support and Jennifer Lee for conscientious research assistance. We also want to thank Dan Pinkston and Chung Tae-un for their assistance in conducting the interviews.

INTRODUCTION

Models of the political economy of reform, including transitions from socialism, typically begin with some bargaining over policy among elites or special interests with heterogeneous preferences (Drazen 2000, Roland 2000). Such bargaining may delay reform (Alesina and Drazen 1991) or be resolved in ways that lead to Pareto-improving changes in government policy: stabilization, liberalization, or other structural and institutional reforms such as improved protection of property rights.

However, early analysts of the transition in the Soviet Union and Eastern Europe noted that “reform” was not simply a result of top-down changes in policy. Rather, the transition to a market economy was also a result of independent changes in the behavior of economic agents that preceded as well as followed reform efforts, including the emergence of grey and black markets and even “spontaneous privatization” (Fischer and Gelb 1991). Similar processes of “reform from below” have also been observed in cases of state failure, such as Somalia, where the collapse of a highly predatory state may have actually improved welfare (Leeson 2007; Powell, Ford, and Nowrasteh 2008).

In this paper we analyze a unique survey of refugees to document a similar process in North Korea: efficiency-enhancing institutional and behavioral changes that arose not as a result of policy reform but as an unintended (and in some respects, unwanted) private response to state failure. We show that these market-oriented adaptations were relatively unaffected by both government reforms and their partial reversal.

The North Korean case is of interest because of the state’s particularly rigid form of socialism. In the late 1980s the North Korean economy went into a secular decline, accelerated by the break-up of the Soviet Union and the dissolution of the Eastern Bloc. During the mid-1990s, the country experienced one of the most destructive famines of the 20th century (Haggard and Noland 2007). With the state unable to provide food through the socialist public distribution system (PDS), small-scale social units—households, work units, local party organs, government offices, and even military units—initiated entrepreneurial coping behavior, much of it technically illegal, to secure food.

These adaptations included innovative uses of existing institutions and practices. One example is the use of the August 3, 1984 movement, a campaign originally intended to mobilize marginal participants in the labor force to employ waste materials for the local production of consumer goods. The August 3rd provisions were used both by enterprises to shed workers, particularly women, and by workers, who—for a fee—could be classified as August 3rd workers and thereby shift from employment in the planned sector to alternative, higher-efficiency activities in the emerging market sector. Thus the program was associated with marketization, taking the forms of both involuntary “necessity entrepreneurship” by redundant workers and voluntary “opportunity entrepreneurship.” “Market creep” was by no means confined to institutions or activities permitted by statute, however, as managers, entrepreneurs, and workers also drifted into market activities well beyond the permission and reach of the state.

Following the peak famine years of roughly 1994–97, the state had to choose between reasserting control over the fraying state socialist system and ratifying the process of marketization from below through complementary changes in institutions and policy. After some minor adjustments starting in 1998, the government launched a poorly designed reform program in July 2002 that nonetheless decriminalized some of the coping behaviors that had arisen in the previous decade; among the more significant measures were an overhaul of administered prices and wages and the limited introduction of material incentives in both the industrial and agricultural sectors (Haggard and Noland 2007). Beginning in 2005, the state had second thoughts and began to reverse earlier reforms. Yet as we show, such retrenchment did not necessarily reverse the process of marketization that had been set in train during the famine period; indeed, we document substantial continuity in market-oriented behavior from the famine to the present, regardless of changes in government policy.

Documenting changes in North Korea's notoriously closed economy presents formidable challenges to researchers.¹ One aspect of North Korea's unhappy history over the past two decades, however, has been an exodus of refugees, mostly into China. Researchers have begun to exploit this opportunity, as they did earlier with Chinese and Soviet refugees (see Chon et al. 2007; Lee 2007; Kim and Song 2008; Lee et al. 2008; Chang, Haggard, and Noland 2008, 2009). This paper extends this literature by presenting the results from a 2008 survey of 300 North Korean refugees living in South Korea that sought to document and understand the process of marketization from below.

Such surveys are susceptible to two sorts of bias: an intrinsic one involving self-selection and an extrinsic one involving unweighted samples. With regard to the first, those who risk trying to leave North Korea probably have some otherwise unobserved individual characteristics that differentiate them from the rest of the population; these may include more adverse life experiences and more severely truncated opportunities, both of which could give rise to behaviors and attitudes that are quite different from the population as a whole. The survey presented below may thus accurately capture the views of the refugee community in South Korea but may not accurately reflect the experiences of the current North Korean population.

A second, more tractable issue is that the population of refugees may not be demographically representative of the resident, nonrefugee population, overrepresenting particular segments of the population such as women or people from particular occupational categories. This problem can, in principle, be addressed *ex post* using multivariate techniques, as is done below.

1. The standard toolkit includes press and nongovernmental organization (NGO) reports that tap into refugees or networks of informants within the country itself and documents and data that emanate periodically from the multilateral institutions, such as the World Food Program. Visiting delegations also conduct interviews and take controlled tours, but exposure is usually confined to officials in Pyongyang—and to official pronouncements—and can provide only highly indirect information on economic and social change on the ground.

We begin with a brief description of the sample, which itself suggests a number of interesting features of North Korean society. We then turn to the results, focusing on the changing nature of the household economy and the consequences of both marketization and top-down reforms. Starting with the income side of the household ledger we document the pervasive engagement in market activities, particularly in the form of trading. Most striking are new estimates of the extent to which households relied on market income; a significant share of respondents report relying on the market for virtually all of their income. The household income results are consistent with those for household demand. We confirm that the famine was associated with a decline in the state's role in food provision and a dramatic increase in households' reliance on market purchases. Moreover, we show that this crucial component of marketization was not simply an artifact of the famine but has become an enduring feature—a constant—of the North Korean economy.

We then consider the effects of government policy on household behavior, drawing on questions about changes that occurred both in the wake of the 2002 reforms and the subsequent 2005 retrenchment. We find that while policy changes had effects at the margin, their magnitude was small. There is little evidence that these respondents relied more on the market after the 2002 reforms than they did before or that various controls reintroduced beginning in 2005 fundamentally reversed the process of marketization. Nor did we find large differential effects across demographic groups, for example, between farmers who might have benefited from de facto price reforms and urban consumers. However, there is strong evidence that both the reforms and their partial reversal are associated with increasing corruption, inequality, and changed attitudes about the most effective pathways to higher social status and income.

SAMPLE CHARACTERISTICS

The results reported in this paper are drawn from a November 2008 survey of 300 North Korean refugees living in South Korea. The sample mirrors what is known about the refugee community resident in South Korea: The overwhelming majority of the sample is prime-age adults, with just over half between the ages of 35 and 50, and a majority of them are women (63.3 percent).² Residents of the northeast provinces are overrepresented, as has been the case with previous surveys conducted in both China and South Korea. Most respondents are from North Hamgyong province (50 percent), followed by South Hamgyong province (14.7 percent), two provinces in the far northeast of the country. This distribution of responses actually makes these provinces somewhat less overrepresented than in earlier surveys, but these provinces nonetheless account for only about 23.2 percent of the North Korean population (Smith 2009).³

2. It should be noted that the refugee community in South Korea may not be representative of all those who have left North Korea. For example, an earlier survey conducted in China found that men and women were represented in roughly equal numbers (Chang, Haggard, and Noland 2009).

3. There are two main reasons for the overrepresentation of the northeast provinces: These rust belt areas were by consensus

North Korea's mandatory education includes a year of kindergarten, four years of primary school, and six years of middle school. At the end of compulsory education (age 15–16), students are channeled into technical school (2–3 years), college (4 years), or university (4–6 years), and from the latter they may go on to pursue postgraduate studies. In our sample, fully 61 percent of the respondents report having only a middle-school education, which is approximately equivalent to graduating from high school. Another 15 percent report that they have technical school training and 21 percent have college training. It is impossible to say whether this distribution of educational attainment belies North Korean claims about the extent (not to mention quality) of education, but it is nonetheless revealing.⁴

The large number of women in the sample somewhat complicates the occupational status of the respondents; fully 52 respondents, or 17.3 percent, reported that they were housewives. If we look only at those in the economically active population—excluding housewives, students, and retirees (73 respondents, or just under one-quarter of the sample)—the largest category in the workforce was laborers (40.1 percent), followed by government workers (18.9 percent), merchants (7.9 percent, with nearly two-thirds being women), and professionals, farmers, office workers, soldiers, and others (each between 5 and 7 percent).⁵ The pattern of responses is highly correlated with responses to a question about the respondents' fathers' occupations, suggesting little occupational mobility, with laborer fathers (41.3 percent) and government-employed fathers (21.7 percent) the two dominant categories, and little intergenerational movement across categories.

The North Korean regime has conducted a series of classification exercises, dividing the population into categories of reliable supporters, basic masses, and “impure class”; these are commonly called the “core” (*haek-sim-gun-jung*), “wavering” (*gibon-gye-cheung*), and “hostile” (*gyo-yang-dae-sang*) classes, and family background is a key determinant of life in North Korea (Hunter 1999).⁶ In our sample, the bulk of

the worst affected by the famine, and their geographical proximity to China makes egress easier relative to other parts of North Korea.

4. A question about the education of the respondents' fathers suggests at least some increase in educational attainment over time: 17 percent report that their fathers had only an elementary education compared with only 1.3 percent of the respondents with elementary education in the sample.

5. The small share of farmers in the sample is unusual compared with past surveys. However, 14 percent responded that their work unit was a state farm or cooperative and in answer to a different question, 133 respondents— 44.3 percent of the full sample—answered that they worked on a state farm or collective. A closer inspection of this group reveals that 54 of them, just over 40 percent, self-identify as “laborers.” For our purposes, it is useful to separate out this entire group as “state farm or collective employees” even though they reflect a variety of different occupational categories (in addition to farmers and workers, this group includes 34 housewives, 11 administrative staff [professional, government, office worker/teacher], 6 merchants, 6 students, 2 soldiers, and 2 “other”). Because of their involvement in state farms and collectives and their probable rural location, we would expect them to constitute a distinct group.

6. Core supporters of the government, including party members, enjoy educational and employment preferences; are allowed to live in better-off areas; and have greater access to food and other material goods. Those with a hostile or disloyal profile, such as relatives of people who collaborated with the Japanese during the Japanese occupation, landowners, or those who went south during the Korean War, suffer a number of disadvantages, are assigned to the worst schools, jobs,

respondents is categorized as wavering (61.7 percent), with 11 percent hostile and 13.7 percent reporting that they did not know. Nonetheless, 13.7 percent reported being in the core group, suggesting that even privileged political status did not provide benefits adequate to deter migration. There is some evidence of a cross-generational downward drift in status, though the classification of respondents is statistically indistinguishable from that of their fathers. Taken as a whole, these indicators depict a relatively stagnant society, though it is also possible that the relatively low education levels and lack of occupational or political mobility reflect the stunted opportunities for those who took the risk to migrate, including as a result of their political status.

A final set of demographic variables of importance are the dates when respondents left North Korea, the amount of time they spent abroad before coming to South Korea, and the amount of time they have spent in South Korea. The date of exit is crucial in methodological terms, because it determines the relevant time frame for all of our retrospective questions about conditions at the time they left North Korea.

There is ample variation in the sample in this regard. With respect to time of departure, we have an adequate number of respondents to divide the sample in multiple ways. For some purposes it is useful to consider what we call the pre- and post-reform subsamples, with those who left in 2003 and after the post-reform group. These two groups are almost exactly equal in size. For other questions the pre-reform group is divided into a “famine era” group (those who left in 1998 or before, roughly 25 percent of the sample) and a “post-famine” group (1999–2002, again 25 percent). Similarly, we can divide the post-reform group into a “post-reform” group (those who left between 2003 and 2005, 35 percent of the sample) and a “post-retrenchment” group (2006 and after, 15 percent).

The duration of time respondents spent outside North Korea, particularly in South Korea, may also be important in shaping attitudes and perceptions.⁷ Those with the perspective of a long-time refugee in a third country or as a resident of South Korea may view North Korea very differently because of the tribulations of being a refugee (particularly in China) or socialization to alternative views of the country (particularly in South Korea).

SOURCES OF HOUSEHOLD INCOME

Historically, money and prices played little role in North Korea’s planned economy. Urban residents received monthly rations for household goods distributed at nominal prices; workers on agricultural

and localities, and sometimes wind up in labor camps.

7. By subtracting the date they left North Korea from the date they arrived in South Korea, we can also tell how much time respondents spent as refugees in third countries. The sample confirms the difficulties of getting from North to South Korea; the modal response was two years and the median three, but nearly 30 percent of respondents spent more than five years abroad before getting to South Korea.

cooperatives and state farms retained annual in-kind allotments of food and received a basket of consumer goods in return for agricultural output sold to the state at a derisory procurement price.

The most common work unit classification among the respondents was state-owned enterprise (SOE), both for the respondents themselves (22.7 percent) and for spouses (31 percent). In addition, a significant share of respondents (10 percent of the sample) worked for the August 3rd unit of an SOE. State farms or cooperatives accounted for 14 percent of respondents and 10 percent of spouses, although, as we have seen, this underestimates the share of rural population in the survey. Government and party offices accounted for 9 and 2 percent, respectively; the army was also represented among the refugees.

Engagement in private activities, particularly trading, is ubiquitous (table 1).⁸ More than 70 percent of respondents and more than 60 percent of their spouses report that they engaged in trading, magnitudes consistent with an earlier survey cited in Kim and Song (2008) and Lee et al. (2008). Also fairly common were participation in other private business activities (18.9 percent of respondents and 20.1 percent of spouses) and participation in August 3rd units (14.9 percent of respondents and 18.1 percent of spouses) even though only 10 percent of the sample and only 2.7 percent of the spouses reported these as their primary work units.

The respondents were asked what share of household income came from private business activities at the time they left North Korea, a more accurate indicator of dependence on the market than simple engagement in a given activity. The results are staggering (figure 1). Nearly half the respondents reported that *all* of their income came from private business activities at the time they left North Korea. More than two-thirds of the respondents—69 percent—reported that half or more of their income came from such activities. Only a handful of respondents—4 percent—reported that none of their income came from the market. Moreover, there appears to be little difference across the famine, post-famine, post-reform, and post-retrenchment periods; dependence on market income was high in all periods, although by the post-reform and post-retrenchment periods virtually every household received at least some income from the market.⁹

What is striking about the extent of engagement in the market is its uniformity across the sample and along multiple dimensions. Regressions are estimated in two forms: ordered probits on the ordinal responses in figure 1 and a simple probit in which the sample is divided between those who received all

8. The question was whether “in addition to your regular work, did you ever engage in the following activities,” allowing them to list all that apply: private trading; providing private services (hairdresser, bicycle repair); other private business activity; and August 3rd unit. The inclusion of August 3rd units using this phrasing of the question was designed to catch activities outside of regular employ, i.e., the possibility that the respondent was formally working for an SOE and lists it as the primary work unit but in fact was working in an August 3rd unit. However, we cannot rule out the possibility of double-counting since the questionnaire includes August 3rd units in the main question concerning work unit.

9. The apparent lack of trend is consistent with an earlier survey done largely on refugees who left North Korea before either the 2002 reform or the 2005 retrenchment (Kim and Song 2008, Lee et al. 2008).

their income from the market and those who received nonmarket income (table 2). The list of variables *not* robustly correlated with the market component of family income is long. Respondents' sex, age, year or "era" of departure from North Korea, time in South Korea or third countries, educational attainment, residence in the capital city, Pyongyang, or in the northeastern provinces of the country, political classification, and occupation had no effect on their propensity to engage in market activity. The two variables that are robustly correlated with the market as a source of income are residence in a province bordering China (which surprisingly was negatively correlated with market income) and work unit.¹⁰ The excluded group in the regressions was workers in August 3rd units, which we would expect to be the most market-oriented group because of the very nature of these enterprises. Regular SOE workers, government or party employees, and soldiers were all less likely to receive income from the market than these August 3rd workers. Agricultural cooperative or state farm workers also received less income from the market (regression 2.1), though employment in this sector is not correlated with receiving all income from the market (regression 2.2).

The raw results on sources of household income may reflect overweighting of some demographic groups relative to the current North Korean population. In principle, the coefficients reported in table 2 can be combined with national-level demographic data (see sources in appendix) to derive projected values, conditional on the fact that these models have been estimated from a sample of refugees whose experiences may not mirror those of the society as a whole. The sample and projected national means, along with their 95 percent confidence intervals, are displayed in figure 2. There is little difference between the sample values and the projected nationwide results, though the projected nationwide results are a bit lower (indicating that our sample overrepresents the most marketized demographic groups), but for both specifications the results fall easily within the 95 percent confidence limits.

While these refugees do not appear unrepresentative in terms of identifiable demographic markers, they may be distinctly disaffected and, because of their disaffection, they may have relied more on the market than typical North Koreans. Moreover, these individuals might have sought additional sources of earnings to finance their exit from the country; income-earning strategies may be endogenous to subsequent exit. We can examine this possibility indirectly from the expenditure side. Do we observe similar patterns of marketization? This question proves to be complex because as with sources of income, existing state institutions persist at the same time that markets emerge alongside and even within them.

HOUSEHOLD EXPENDITURE

The food economy is a microcosm of the broader institutional and behavioral changes that swept through North Korea in the 1990s. Almost one-third of respondents reported having lost a family member

10. Although one might expect that marketization had proceeded the furthest in the areas bordering China, the results of table 2 are consistent with those obtained by Haggard and Noland (2009) that grain prices in the border region were not distinctly lower than in other parts of the country.

during the famine, and the grassroots marketization of the economy in the 1990s that began with food subsequently spread to other products (Haggard and Noland 2007). In principle, urban residents, about two-thirds of the population, were fed via the state-run quantity rationing system, the PDS. Yet fully 28 percent of urban residents in the sample indicate that they *never* received food through this channel.

Among those who indicate that they received food from the PDS, more than 20 percent say it had ceased to be the primary source of food by 1993. Within two years, less than half of the respondents were obtaining food primarily through the PDS.¹¹ Instead, the market and self-production became the primary means of accessing food (figure 3). The fact that so many reported growing their own food is particularly revealing given the low share of farmers in the sample, suggesting that even nonagricultural households resorted to self-production. The number of respondents relying on the public sector fell further among those who left in the immediate post-famine period: Not a single respondent of these 74 said they relied primarily on the PDS, and only two reported relying primarily on their workplace. The number of respondents relying primarily on the PDS or their workplace increased marginally among those who left in the post-retrenchment period; conditional on the underlying characteristics of this smallest subsample, this shift could signal some success on the part of the government in reconstituting the PDS. But in both of the post-reform subsamples, the dominant answers remain reliance on the market and self-production of food.

A more refined sense of the reliance on the market for food can be obtained by grouping respondents by time of departure (figure 4). Both the high level of reliance on the market and the persistence of such reliance over time are striking. Nearly 40 percent of urban residents reported having purchased all their food in the market, more than half reported purchasing at least 75 percent. Only in the final, post-retrenchment subsample does the share not purchasing any food in the market rise above 10 percent, and fully half of the respondents in this group reported receiving all their food through the market.

Again, we estimated ordered probits for the ordinal response displayed in figure 4 and probits on those respondents reporting that they obtained all their food through the market (table 3). As with the income regressions, the list of correlates that are not robustly correlated with marketization of consumption is long. Neither age, year or “era” of departure from North Korea, time in South Korea or third countries, educational attainment, geographical markers, nor political classification matters in this regard. The failure of any of the “era” variables to be significantly correlated with the share of food obtained in the market (controlling for demographic characteristics) is significant, since it undercuts the

11. These results hold for the full sample, the post-famine subsample, and the post-reform subsample, demonstrating that they are not simply an artifact of sample truncation or censoring associated with early leavers providing relatively early dated responses to the question.

weak evidence that might be adduced from figure 3 that the state had reconstituted the PDS in the post-retrenchment period. Rather, the regressions underscore the consistency of involvement in the market and the apparent absence of a time trend.¹²

Gender is the only robust correlate with marketization of consumption: Women reported purchasing a higher share of their consumption from the market and were more likely to get all their food from the market. This result may reflect the fact that as a matter of state policy, women were more likely to be shed from SOEs, and men were more likely to remain employed. However, this pattern might also be an artifact of the household division of labor. If women were responsible for shopping, their answers may more accurately reflect real household consumption patterns. If so, the significance of the gender variable would be misleading. In the regression on consumption share obtained through the market, farmers were less likely to buy food from the market (presumably because they had access to rations at the time of the harvest and grew their own food) and workers in SOEs were less likely to get all their food from the market. Yet despite these expected differences, the more striking finding is that the centrality of the market on the consumption side mirrors the high degree of market involvement with respect to income.

Finally, we do the same counterfactual computation of projected national values as we did in the case of household income (figure 5). As in the income regressions, there is a statistically insignificant tendency for the projected national values to exhibit less market orientation than the raw survey figures.

EVALUATION OF POLICY

South Korean government statistics indicate that North Korea experienced a cumulative decline of 33 percent in real per capita income from its peak in 1990. Careful reconstruction of balance of payments statistics suggest that the economy bottomed out in 1998 and recovered slowly from 1999 on (Haggard and Noland 2008). In July 2002, the government initiated a major policy reform with four components: microeconomic policy changes, including alteration of administered prices and wages; macroeconomic policy changes, including the introduction of direct taxes; establishment of special economic zones; and aid-seeking.¹³ The government subsequently reversed field starting in 2005, including a failed attempt to reconstitute the PDS and new controls on both domestic markets and cross-border exchanges.

As a component of the reforms, North Korean enterprises were instructed that they were

12. The income regressions in table 2 and the consumption regressions in table 3 were reestimated jointly but did not yield appreciably different results and in the interests of brevity are not reported.

13. Three analytically distinct price changes occurred, each with its own political economy implications: changes in relative prices and wages, which could be interpreted as an attempt to increase the role of material incentives; a 10-fold increase in the price level, which could be interpreted as an attempt to deal with monetary overhang; and ongoing inflation (perhaps 130 to 140 percent annually between 2002–2005), which was the product of the collapse of fiscal revenue, exacerbated by the maintenance of a bloated military—over 1 million troops in a country of perhaps 22 million people.

responsible for covering their own costs. At the same time, however, the state administratively raised wage levels—with certain favored groups such as military personnel, party officials, scientists, and coal miners receiving supernormal increases—and continued to maintain an administered price structure, which tended to badly lag the inflation in market prices. In the absence of any formal bankruptcy or other “exit” mechanism, enterprises squeezed between these conflicting constraints had no prescribed way of ceasing operations. Some enterprises remained in operation at extremely low levels of capacity utilization—supported by fiscal subsidies or central bank loans. But another tack was for SOEs to engage in entrepreneurial activity, either by establishing “funding” and “foreign exchange earning” squads within the SOE or by effectively outsourcing entrepreneurship and adjustment via August 3rd activities and other more informal variants of it.

In the agricultural sector, the government increased the procurement prices of grain (to boost the volume of food entering the PDS) and at the same time dramatically increased PDS prices to consumers. The nominal retail prices of grain rose 40,000 percent or more in the six months following reform. However, procurement prices did not keep pace with rising market prices, and anecdotal accounts suggest that the policy was not successful in coaxing local supply back into PDS procurement channels.

At the same time that the government was undertaking microeconomic reforms, its inability to secure resources from the fraying SOE and cooperative sectors forced it to undertake a fundamental fiscal and financial reform. With the central plan crumbling, the government was no longer able to raise significant revenue through a “transactions tax” levied through the central plan.¹⁴ Unable to tax effectively, the government initiated a campaign to sell “People’s Life Bonds” in March 2003, an instrument more closely resembling a lottery ticket than a bond as conventionally understood. The government then attempted to address its underlying fiscal crisis by moving from the “transactions tax” system to direct taxation of enterprises’ profits, as in a market economy. This reform proved highly problematic. The enterprises did not have the accounting systems to make this shift feasible nor, for that matter, did the state. For 50 years the economy had run on the basis of centrally orchestrated quantity planning, not financial accounting of profits and losses. Not until March 2003 was accounting legislation enacted, and not until September 2003 was the Tax Collection Agency even organized! Amid this chaos, one tack was to push responsibility for tax collection down to local governments that were then supposed to share collections with the center. Not surprisingly, it appears that the local authorities were unwilling and/or unable to carry out these responsibilities. In sum, rather than “leading” the transition, the reforms were responses to the de facto marketization we have described. Raising controlled prices was a response

14. Lim (2005, 7) quotes a purported internal North Korean document from October 2001 in which Kim Jong-il, who took power following the death of his father, Kim Il-sung, in 1994, bemoans the loss of state control over the economy and concludes, “Frankly the state has no money, but individuals have two years’ budget worth.”

to the emergence of market prices that more accurately reflected real scarcities. The granting of some managerial autonomy to SOEs and price incentives to farmers were efforts to coax economic activity from the market back into state-controlled entities and channels. And the tax and financial reforms clearly reflected the declining ability of the state to access resources through the planning process. In sum, “reforms” were motivated in part by efforts to reestablish control. As marketization continued apace, it is not surprising that the state lost confidence in the reform effort and reverted to more direct forms of economic control.

An open issue is the degree to which marketization accelerated after the 2002 policy changes, which did decriminalize some entrepreneurial coping activity, or whether these modest gains were in fact reversed starting in 2005 as the state, made more confident by improving conditions, introduced new controls.

Prior surveys of North Korean refugees reported a decline in “criminal” activities in the post-reform period, but they do not document an increase in marketization, which as we have shown from our survey continued to operate at a high level (Lee 2007; Chang, Haggard, and Noland 2009). However, a crucial question is whether marketization continued apace as a result of the reforms or in spite of them. Figure 6 reports responses to questions about the business environment from all 196 respondents who engaged in private business or market activities, grouped by time of departure. In each case, respondents were asked to rate their opinion or belief on a scale of 1 to 5, where 1 indicates strong disagreement and 5 indicates strong agreement. We report here the combined share of respondents who answered “totally agree” and “agree.”

While the results show some differences among those who left North Korea before or during the famine, among those who left after the famine, there is virtually no difference between those who left before and after the 2002 policy changes. Relative to the famine period, the responses do document an increased ease in trading in and accessing legal markets. But these changes are already apparent in the post-famine cohort; basic markers do not change much after the introduction of the 2002 reforms or the 2005 retrenchment. Indeed, a higher number of respondents from each post-famine cohort agrees that continuous changes in rules and regulations disrupted market activity and that they had to engage in bribery, with 85 percent of respondents in the most recent, post-retrenchment period reporting they had to bribe to conduct their commerce.¹⁵ Bribery is apparently one response to the state’s attempt to tighten controls.

The respondents were also asked a series of questions designed to identify changing perceptions of the most effective pathway to both higher social status and income (figures 7 and 8). When asked about

15. The high reported response to changing market rules parallels a similar result obtained in a survey of 300 Chinese firms doing business in North Korea, where 79 percent of the respondents cited arbitrary changes in rules and regulations as a barrier to doing business in North Korea.

the best way to get ahead in North Korea, officialdom (including government and party) trumped both the military and engaging in business, with more than 70 percent of the respondents citing it in all sample periods. But “engaging in business” more than doubled, from 8 percent among respondents departing in the famine era to 18 percent among those leaving in the post-reform periods.¹⁶

A more striking set of social changes is apparent from a question about “the easiest way to make money in North Korea: work hard at assigned job, engage in market activities, engage in corrupt or criminal activities, or none of the above?” (figure 8). Although securing a government or party position is highly desirable (figure 7), there is no sense that merit is rewarded; only a small—and falling—share reported that working hard at one’s assigned job yields fruit (figure 8).¹⁷ The most frequent response in all three periods—consistently over 65 percent—was that engaging in market activities was the easiest way to make money, but a steadily increasing share—approaching 30 percent in the post-reform cohort—saw corruption and criminality as the most lucrative career path.

These results shed important light on the responses to the question about how to get ahead in North Korea. Read in conjunction, the answers to these two questions suggest strongly that an official position is valuable not because hard work and merit are rewarded but because it provides a platform for engaging in business or corrupt or criminal rent extraction.

Among those who left North Korea after 2002, 81.9 percent (n=122) report awareness of the reforms, which is not surprising given the dramatic changes in both nominal and relative prices that accompanied them. Of these respondents, most believe that the reforms supported marketization (table 4). However, by even larger margins, they associate the policy changes with increase in materialism (92 percent), corruption (89 percent), and inequality (84 percent). In interpreting these responses, it is important to recall that reforms can have wrenching and contradictory effects. On the one hand, the policy reforms decriminalized some coping behaviors, presumably reducing the risk premium on these activities, a point that is substantiated in table 4. On the other hand, the reforms involved significant institutional as well as policy changes and were accompanied by triple-digit inflation.

To probe in more detail the perceived consequences of the reforms, we asked a series of questions about the reforms’ effects on particular economic activities. Table 5 reports responses to a set of questions posed to respondents who were employed in the agricultural sector about practices at the time of their departure relative to the situation 10 years earlier. Comparison of the responses provided by those

16. Interestingly, despite the proclamation of “military-first” politics, the army declines as a way of getting ahead: While institutionally the military may experience rising influence, from an individual standpoint, the largely conscript army is not seen as a channel of advancement, with not a single respondent in the most recent subsample citing it as the way to get ahead.

17. Indeed, in the post-reform period only a single respondent believed hard work at an assigned job was the way to succeed.

who left before and after the reforms does suggest a modest increase in the ability to sell products on the market (42 and 53 percent, respectively); an attenuation of disagreement with a statement about autonomy in decision-making; and an increase in the frequency of rule-changing (which could be good or bad).¹⁸ Most respondents replied negatively to the bottom line question: “Did you become better off?” However, in the post-reform subsample, there was evidence that fewer thought that their situation had deteriorated, and at least some thought that it had improved.

A similar set of questions asked to respondents who were employed in SOEs elicited a similar pattern of responses: documentation of increased marketization, though not much evidence of an acceleration of marketization in the post-reform subsample (table 6). In contrast to the farmers, whose terms of trade may have improved following the reforms, even fewer of the previously privileged urban proletariat thought that their situation had improved. Indeed, negative responses in the post-reform subsample increased slightly, with nearly 4 out of 5 workers disagreeing with the statement that they had become better off.

The responses of government or party office workers to a similar set of questions illuminated that marketization reached into the state itself (table 7). Seventy percent of the respondents reported their units spending more time on money-making activities outside their traditional duties, and only 8 percent disagree with this characterization. Even larger margins (82 percent affirmative, 4 percent negative) supported the notion that over time public officials became more corrupt, substantiating the links between state positions, corruption, and personal advancement observed in the previous section. The majority of the respondents agreed with the statement that over time more effort was devoted to ideological indoctrination in their offices, as authorities responded to eroding discipline with ideological campaigns. Finally, on the bottom line, “you became better off” question, the majority disagreed, but the share (58 percent) was much lower than in the rural (66 percent) or SOE (79 percent) sectors, again reinforcing the notion that the state held a relatively privileged position.

Table 8 reports ordered probits on the responses to the “you became better off” question. Again, the list of variables that are not robustly correlated with the responses is long: sex, age, year of departure from North Korea, time in South Korea or third countries, educational attainment, and residence in the capital city Pyongyang or in a border province.¹⁹ Several robust correlates, however, beginning with departure

18. The number of those who left “post-retrenchment” is relatively small at the sectoral level and not reported separately.

19. Unlike the results presented in figures 1 and 3, where the responses were to a factual question “what share of your income was earned in the market,” the assessment of whether one is better off is inherently more subjective. As a consequence we also tried a number of “experiential variables”: whether the respondent had a family member die in the famine, whether the respondent knew about the aid program but believed that they had not received aid, whether the respondent had been arrested or incarcerated, as well as a number of others. These variables were not robustly correlated with the evaluation of whether one had been made better off. Due to the stratification of North Korean society, to a certain extent these experiences are bundled, and collinearity across responses meant that one could generate significant coefficients on some regressors in particular specifications. For example, if work in a party office was excluded from the specification, the coefficient on death of a family member was sometimes significant.

from North Korea in 2006 or more recently (the “post-retrenchment” era), are positively associated with this self-assessment. Employment in an SOE is negatively correlated; state-sector workers did not believe that they had fared well under the new order. Professional and merchant occupations are both positively correlated with the self-assessment of well-being (regression 8.1). Involvement in the August 3rd program and, to a lesser extent, participation in unspecified private activities are negatively correlated with the self-assessment of well-being (regression 8.2). This result could be regarded as surprising—involvement in the market was associated with lower self-assessment of well-being—except that it is important to recall that involvement in the market reflects a mix of “opportunity entrepreneurship,” which would presumably reflect improved well-being, and “necessity self-employment” by women, for example, involuntarily shed from SOE employment. This is consistent with the predictably negative relationship between formal-sector wages and informal activity obtained in an earlier survey of refugees who departed during the pre-reform period (Kim and Song 2008). And not surprisingly, membership in the core class and (less strongly) the wavering class are both positively correlated.²⁰

Tables 5 to 7 depict pervasive disappointment with developments within North Korea. The table 8 regression results—asking respondents to compare their current situation with their status 10 years earlier—indicate that members of the more politically favored classes, professionals, and merchants—i.e., those best positioned to exploit emerging opportunities, be they legal or not—are less unhappy than most, particularly compared with the industrial proletariat. While the August 3rd workers were the most marketized group, some of them were involuntarily shed from SOEs, particularly women. Apparently the only thing worse than being an SOE employee is being a redundant SOE employee in a society without any real social safety net. It is also striking that in none of the reported regressions, on household income, expenditure, or satisfaction, is educational attainment directly correlated with outcomes. Rather, the importance of political class and sector suggests a society in which position is paramount and returns to human capital quite low.

Crisis-induced marketization has one silver lining. Residence in North or South Hamgyong, provinces in the northeast that constitute the North Korean rust belt and by consensus were the areas worst-hit by the famine, is positively associated with the self-assessment of improvement in well-being. People from the worst-affected regions and those who compared recent experiences with the famine era a decade earlier, have marginally more positive assessments. While conditions are bad, the emergence of markets has acted as a kind of safety valve most acutely felt in the worst conditions. Obviously, well-functioning markets supported by appropriate state institutions would be preferable to marketization

20. It is possible that class and occupation are endogenous to the self-assessment of whether one is better off. As a check, the regressions were reestimated replacing the respondent’s class and occupation with their father’s (specifications 8.3 and 8.4). When these instruments are used, political class no longer is correlated with the assessment of well-being.

in the absence of institutions, but even irregular markets appear to have an ameliorative effect. But this finding has deeper significance, mirroring the results of China's Great Leap famine (Yang 1996). Areas that were hardest hit by the famine also may have experienced the most robust marketization and thus may be poised over the long run to be centers of more dynamic growth and de facto reform.

Finally, we do the same counterfactual projection of national values on the basis of the estimated coefficients in table 8, converting the mean responses, originally scored on a 1–5 metric, to a 0–100 scale to generate an “approval rating.” Sample approval ratings are simply the scaled mean score of each response variable. To calculate approval ratings, we predict the probability of observing each response conditional on estimated national values of each explanatory variable. The predicted probabilities sum to one. To estimate the mean response we sum the products of each score and its predicted probability, which gives us a probability-weighted mean response. We then convert this value to a 0–100 scale. The same procedure is applied to calculate minimum and maximum predicted probabilities of each outcome, which are estimated at the 95 percent confidence level and used to establish confidence intervals for each response estimate. The results of these predictions are reported in figure 9.

Unlike the previous counterfactual projections on household income and expenditure, there are noticeable differences in attitudes derived from the raw survey data and projected national responses, though it is not possible to categorically state that the projected national values are different than the reported values derived from the sample once the 95 percent confidence interval is taken into account. The survey sample marginally overweights demographic groups with less favorable assessments of the regime, with the central projected values implying 10 to 15 percentage points higher positive assessments by the national population. That said, the projected “approval rating” of the North Korean regime by the national population is less than 40 percent in all specifications.

CONCLUSION

Economists often think of the state playing an enabling role in economic development— providing public goods, such as the legal protection of property rights, while the political economy of reform is conceived in terms of bargaining over policy among elites or special interest groups. We document a case that turns this perspective on its head: efficiency-enhancing institutional and behavioral changes arising not out of a conscious, top-down program of reform, but rather as an unintended (and in some respects, unwanted) product of state failure. Responses from a survey of North Korean refugees demonstrate that the North Korean economy marketized in response to state failure with the onset of famine in the 1990s, and subsequent reforms and retrenchments appear to have had remarkably little impact on some significant share of the population. There is strong evidence of powerful social changes, including increasing inequality, corruption, and changed attitudes about the most effective pathways to higher social status and income. These assessments appear to be remarkably consistent across demographic groups.

While the survey sample marginally overweights demographic groups with less favorable assessments of the regime, even counterfactually recalibrating the sample to match the underlying resident population suggests widespread dissatisfaction with the North Korean regime, its capabilities, and accomplishments.

APPENDIX

Due to lack of a comprehensive and reliable data source for North Korea, the national-level values used in the computation of the counterfactuals were constructed using various sources and techniques. To match our sample, data on population between the ages of 15 and 64 were taken from the International Labor Organization's database.²¹ Female and regional population shares were taken from UNFPA (2009).

For the occupation variables, shares of students and soldiers were calculated from the Korean Statistical Information Service (KOSIS) database (available at www.kosis.kr). Data on labor force distribution from the United Nations Committee on Economic, Social and Cultural Rights Report (2002) were used to assign shares for professionals, government/office workers, farmers, laborers, and teachers. The share of merchants was based on an estimate of the number of traders (Gey 2004). The share of housewives was represented by the economically inactive female population between the ages of 25 and 64 under the assumption that women who are not employed are housewives and that by law and practice, women under 25 are not allowed to get married (Hunter 1999). The shares of social class variables were calculated by averaging figures from Kim (2000) and Hunter (1999).

To calculate work unit values, the army and unemployed or retired were assigned the values of soldiers and economically nonactive in the KOSIS database. The shares for "state farm or agricultural cooperative," "state owned enterprise (SOE)," and "government or party office" were distributed in the same proportion as estimates of agriculture, industry, and the service sector reported in Noland (2000), with SOE employment adjusted for August 3rd workers using Gey's estimate of traders. The remaining work unit share was allotted to "other work units."

Finally, for the four variables that represent participation in private activities, the total share of the population engaged in private activities was set equal to 0.473, the central estimate of national-level marketization of the food economy from Haggard and Noland (2007). Estimates of the number of individuals engaged in various forms of market activity could then be constructed by assuming that the distribution of different types of activity mirrored the refugee sample.

To model current attitudes, we assumed that residents reflected the views of those who had most recently emigrated, i.e., the post-retrenchment departure dummy was set equal to one and the dummies for other eras of departure zero. The categorical and binary dependent variables were converted to a 0–100 scale from which the probability weighted mean responses were calculated.

21. International Labor Organization, LABORSTA Labor Statistics Database, Geneva, available at <http://laborsta.ilo.org> (accessed on July 28, 2009).

REFERENCES

- Alesina, Alberto, and Allan Drazen. 1991. Why Are Stabilizations Delayed? *American Economic Review* 81, no. 5: 1170–88.
- Chang, Yoonok, Stephan Haggard, and Marcus Noland. 2008. *Migration Experiences of North Korean Refugees: Survey Evidence from China*. Working Paper 08-04. Washington: Peterson Institute for International Economics.
- Chang, Yoonok, Stephan Haggard, and Marcus Noland. 2009. Exit Polls: Refugee Assessments of North Korea's Transition. *Journal of Comparative Economics* 37 no. 2: 144–50.
- Chon, Hyun-Joon, Moon-Young Huh, Philo Kim, and Chin-Soo Bae. 2007. *An Assessment of the North Korean System's Durability*. Studies Series 07-03. Seoul: Korea Institute for National Unification.
- Drazen, Allan. 2000. *Political Economy in Macroeconomics*. Princeton: Princeton University Press.
- Fischer, Stanley, and Alan Gelb. 1991. The Process of Socialist Economic Transformation. *Journal of Economic Perspectives* 5, no. 4 (Autumn): 91–105.
- Gey, Peter. 2004. North Korea: Soviet-Style Reform and the Erosion of the State Economy. *Dialogue and Cooperation*, no. 1. Available at www.fes.or.kr (accessed on July 28, 2009).
- Haggard, Stephan, and Marcus Noland. 2007. *Famine in North Korea: Markets, Aid, and Reform*. New York: Columbia University Press.
- Haggard, Stephan, and Marcus Noland. 2008. North Korea's Foreign Economic Relations. *International Relations of the Asia-Pacific* 8, no. 2: 219–46.
- Haggard, Stephan, and Marcus Noland. 2009. Famine in North Korea Redux? *Journal of Asian Economics* 20, no. 4: 384–95.
- Hunter, Helen-Louise. 1999. *Kim Il-song's North Korea*. Westport, CT: Praeger Publishers.
- Kim, Byung-Jo. 2000. The Structure of North Korean Social Conflict and its Causes [in Korean]. *Yeon-gu Non-mun Jaryo* 2000-1. Available at www.koreascope.com (accessed on July 28, 2009).
- Kim, Byung-Yeon, and Dongho Song. 2008. The Participation of North Korean Households in the Informal Economy: Size, Determinants, and Effect. *Seoul Journal of Economics* 21, no. 2: 361–85.
- KINU (Korea Institute for National Unification). 2008. *KINU Insight* no. 8 (September). Seoul: Korea Institute for National Unification.
- Lee, Kyo-Duk, Soon-Hee Lim, Jeong-Ah Cho, Gee-Dong Lee, and Young-Hoon Lee. 2008. *Changes in North Korea as Revealed in the Testimonies of Saetomins*. Studies Series 08-05. Seoul: Korea Institute for National Unification.
- Lee, Young-Hoon. 2007. Survey of the State of Economic Transformation in North Korea as Told Through DPRK Defectors [in Korean]. Bank of Korea Institute for Monetary and Economic Research. Available at www.bok.kr/index.jsp (accessed on July 25, 2007).
- Leeson, Peter T. 2007. Better Off Stateless: Somalia Before and After Government Collapse. *Journal of Comparative Economics* 35, no. 4: 689–710.
- Lim, Wonhyuk. 2005. *North Korea's Economic Futures: Internal and External Dimensions*. Washington: Brookings Institution. Available at www.brookings.edu (accessed May 24, 2009).
- Noland, Marcus. 2000. *Avoiding the Apocalypse: The Future of the Two Koreas*. Washington: Institute for International Economics.

Powell, Benjamin, Ryan Ford, and Alex Nowrasteh. 2008. Somalia after state collapse: Chaos or improvement? *Journal of Economic Behavior and Organization* 67, no. 3/4: 657–70.

Roland, Gérard. 2000. *Transition and Economics*. Cambridge: MIT Press.

United Nations Committee on Economic, Social and Cultural Rights. 2002. *UN Committee on Economic, Social and Cultural Rights: Addendum to the Second Periodic Reports Submitted by States Parties, Democratic People's Republic of Korea*, May 15, 2002, E/1990/6/Add.35. Available at www.unhcr.org (accessed on September 8, 2009).

UNFPA (United Nations Population Fund). 2009. Preliminary Results of the 2008 Census of Population of the Democratic People's Republic of Korea conducted on 1–15 October, 2008. On file with authors.

Yang, Dali. 1996. *Calamity and Reform in China: State, Rural Society, and Institutional Change Since the Great Leap Famine*. Stanford, CA: Stanford University Press.

Copyright © 2009 by the Peterson Institute for International Economics. All rights reserved. No part of this working paper may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, recording, or by information storage or retrieval system, without permission from the Institute.

Table 1 Engagement in private activities (percent share of those who answered “yes”)

In addition to your work duties, did you ever engage in the following activities:	Respondent	Spouse
Private trading	70.9	60.2
Provision of private services	8.9	10.4
Other private business activities	18.9	20.1
August 3rd unit	14.9	18.1

Source: Authors' calculations.

Table 2 Household income regressions

	Income share from private business activities (categorical)	All income is from private business activities (binary)
	(2.1)	(2.2)
Hometown in provinces bordering China (N. Pyongan, Jagang, Yanggang and N. Hamgyung)	-0.339** (0.134)	-0.273* (0.154)
Workunit: state-owned enterprise	-0.621** (0.252)	-0.682** (0.281)
Workunit: state farm or agricultural cooperative	-0.606** (0.275)	-0.291 (0.304)
Workunit: government or party office	-0.756** (0.302)	-0.655* (0.342)
Workunit: army	-0.797** (0.337)	-1.160*** (0.434)
Workunit: unemployed or retired	-0.395 (0.277)	-0.080 (0.303)
Workunit: other	-0.259 (0.252)	-0.133 (0.276)
Constant		0.413* (0.250)
Number of observations	300	300
P-value	0.0140	0.00692
Chi-squared	17.57	19.44
Log likelihood	-478.5	-197.3
Pseudo R-squared	0.0180	0.0470

*** p<0.01, ** p<0.05, * p<0.1

Note: Standard errors in parentheses.

Source: Authors' calculations.

Table 3 Household expenditure regressions

	Share of family's consumption of food purchased on the market (categorical)			100 percent of family's consumption of food was purchased on the market (binary)		
	(3.1)	(3.2)	(3.3)	(3.4)	(3.5)	(3.6)
Female	0.351*** (0.134)	0.380*** (0.142)	0.358** (0.144)	0.460*** (0.164)	0.508*** (0.172)	0.443** (0.177)
Occupation: professional		-0.259 (0.377)	-0.209 (0.385)		-0.816* (0.458)	-0.701 (0.474)
Occupation: government/office worker		-0.346 (0.316)	-0.281 (0.336)		-0.452 (0.362)	-0.239 (0.394)
Occupation: farmer		-0.574 (0.388)	-0.772* (0.453)		-0.155 (0.436)	-0.283 (0.514)
Occupation: merchant		-0.345 (0.370)	-0.390 (0.380)		-0.555 (0.431)	-0.538 (0.448)
Occupation: housewife		-0.123 (0.316)	-0.176 (0.322)		-0.215 (0.353)	-0.263 (0.363)
Occupation: student		-0.178 (0.358)	-0.302 (0.363)		-0.549 (0.418)	-0.759* (0.429)
Occupation: laborer		-0.281 (0.293)	-0.252 (0.303)		-0.328 (0.330)	-0.209 (0.346)
Occupation: teacher		-0.295 (0.414)	-0.360 (0.432)		-0.401 (0.475)	-0.458 (0.501)
Occupation: soldier		-0.232 (0.401)	0.103 (0.454)		-0.616 (0.494)	-0.253 (0.563)
Workunit: state-owned enterprise (SOE)	-0.202 (0.215)		-0.398 (0.263)	-0.598** (0.259)		-0.602* (0.314)
Workunit: August 3rd unit of an SOE	0.089 (0.264)		-0.067 (0.305)	-0.123 (0.304)		-0.082 (0.351)
Workunit: state farm or agricultural cooperative	-0.052 (0.270)		-0.203 (0.334)	-0.309 (0.318)		-0.270 (0.397)
Workunit: army	-0.223 (0.314)		-0.636 (0.409)	-0.539 (0.395)		-0.590 (0.517)
Workunit: unemployed or retired	-0.048 (0.239)		-0.268 (0.278)	-0.228 (0.275)		-0.232 (0.321)
Workunit: other	0.180 (0.217)		-0.025 (0.269)	0.037 (0.246)		0.147 (0.308)
Constant				-0.309 (0.225)	-0.196 (0.322)	-0.022 (0.416)
Number of observations	300	300	300	300	300	300
P-value	0.0299	0.176	0.218	0.00106	0.0326	0.0179
Chi-squared	15.52	13.94	20.05	24.19	19.66	30.01
Log likelihood	-463.2	-464.0	-460.9	-191.0	-193.2	-188.1
Pseudo R-squared	0.0165	0.0148	0.0213	0.0596	0.0484	0.0739

*** p<0.01, ** p<0.05, * p<0.1

Note: Standard errors in parentheses.

Source: Authors' calculations.

Table 4 Perceptions of the reforms (percent, post-reform subsample n=122)

	Post-reform				Post-retrenchment			
	Agree and totally agree	Neutral	Totally disagree and disagree	Unclear/ don't know	Agree and totally agree	Neutral	Totally disagree and disagree	Unclear/ don't know
The reforms allowed more people to trade in the market	55.4	28.9	15.7	0.0	51.3	25.6	12.8	10.3
The reforms increased the amount of goods in the market	57.8	21.7	18.1	2.4	59.0	15.4	15.4	10.3
The reforms increased the amount of food in the market	48.2	28.9	18.1	4.8	53.9	15.4	20.5	10.3
After the reforms, people started to care only about money	89.2	7.2	2.4	1.2	97.4	0.0	0.0	2.6
After the reforms, corruption increased	91.6	4.8	2.4	1.2	84.6	7.7	2.6	5.1
As a result of the reforms, society became more unequal	84.3	8.4	4.8	2.4	84.6	7.7	5.1	2.6

Source: Authors' calculations.

Table 5 Pre- and post-reform perceptions of agricultural policies (percent)

Relative to conditions 10 years earlier, at the time of your departure:	Pre-reform (~2002)				Post-reform (2003~)			
	Agree and totally agree	Neutral	Totally disagree and disagree	Unclear/ don't know	Agree and totally agree	Neutral	Totally disagree and disagree	Unclear/ don't know
The cooperative or farm had more control over planting decisions	18.5	21.5	46.1	13.9	29.4	17.6	42.6	10.3
There was greater availability of inputs such as fertilizer	6.2	35.4	52.3	6.2	11.8	26.5	54.4	7.4
The government or coop managers seemed to take more and more grain from the cooperative each year	52.3	26.2	12.3	9.2	61.8	25.0	11.8	1.5
You had more access to land to grow what you wanted	18.5	26.2	49.2	6.2	29.4	16.2	50	4.4
You had more opportunity to trade farm products on the market	41.5	29.2	27.7	1.5	52.9	27.9	17.6	1.5
The government changed the rules more often	40	21.5	9.2	29.2	64.7	22.1	2.9	10.3
You became better off	4.7	20.3	71.9	3.1	17.6	16.2	66.2	0.0

Source: Authors' calculations.

Table 6 Pre- and post-reform perceptions of state-owned enterprise reforms (percent)

Relative to conditions 10 years earlier, at the time of your departure:	Pre-reform (~2002)				Post-reform (2003~)			
	Agree and totally agree	Neutral	Totally disagree and disagree	Unclear/ don't know	Agree and totally agree	Neutral	Totally disagree and disagree	Unclear/ don't know
More of your enterprise's output was sold on the market	58.7	6.5	30.4	4.4	43.8	25	25	6.3
More of your work was done outside the enterprise	69.6	10.9	15.2	4.4	72.9	10.4	14.6	2.1
People did not seem to work as hard for the work unit as in the past	73.9	17.4	8.7	0.0	77.1	10.4	10.4	2.1
My factory was involved in market activities outside the plan	58.7	15.2	21.7	4.4	47.9	31.3	12.5	8.3
The quality of social services at my work unit declined	76.1	13	6.5	4.4	87.5	10.4	2.1	0.0
The government changed the rules more often	65.2	8.7	6.5	19.6	58.3	27.1	0.0	14.6
You became better off	2.2	17.4	76.1	4.4	8.3	10.4	79.2	2.1

Source: Authors' calculations.

Table 7 Government and party office perceptions of reform trends (percent)

Relative to conditions 10 years earlier, at the time of your departure:	Pre-reform (~2002)				Post-reform (2003~)			
	Agree and totally agree	Neutral	Totally disagree and disagree	Unclear/ don't know	Agree and totally agree	Neutral	Totally disagree and disagree	Unclear/ don't know
Over time, more effort was spent on ideological and propaganda work in our office	54.2	16.7	25	4.2	50	30.8	7.7	11.5
Over time, corruption by public officials and high-ranking officers increased	87.5	8.3	4.2	0.0	76.9	7.7	3.9	11.5
Over time, our office/unit devoted more time to money-making activities not directly related to our official or traditional responsibilities	66.7	12.5	12.5	8.3	73.1	15.4	3.9	7.7
Our office competed against other government, party, military organizations in money-making activities	45.8	29.2	12.5	12.5	26.9	42.3	15.4	15.4
The government changed the rules more often	41.7	25	12.5	20.8	53.9	34.6	3.9	7.7
You became better off	16.7	12.5	62.5	8.3	19.2	23.1	53.9	3.9

Source: Authors' calculations.

Table 8 Self-assessed improvement regressions

	You became better off (categorical)			You became better off (categorical)	
	(8.1)	(8.2)		(8.3)	(8.4)
Post-famine period (1999~2002)	-0.170 (0.205)	-0.170 (0.213)	Post-famine period (1999~2002)	-0.201 (0.204)	-0.182 (0.211)
Post-reform period (2003~2005)	-0.004 (0.187)	0.010 (0.190)	Post-reform period (2003~2005)	-0.058 (0.184)	-0.031 (0.187)
Post-retrenchment period (2006~)	0.446** (0.227)	0.396* (0.230)	Post-retrenchment period (2006~)	0.398* (0.222)	0.347 (0.225)
Worked at a state-owned enterprise at the time you left North Korea	-0.508*** (0.173)	-0.510*** (0.175)	Worked at a state-owned enterprise at the time you left North Korea	-0.457*** (0.160)	-0.431*** (0.162)
Worked in the government, party office, or military at the time you left North Korea	0.167 (0.234)	0.170 (0.236)	Worked in the government, party office, or military at the time you left North Korea	0.267 (0.193)	0.291 (0.197)
Hometown in Far Northeast provinces (North and South Hamgyung)	0.304** (0.147)	0.318** (0.149)	Hometown in Far Northeast provinces (North and South Hamgyung)	0.335** (0.148)	0.353** (0.152)
Class: core	0.876*** (0.300)	0.850*** (0.304)	Father's class: core	0.113 (0.274)	0.123 (0.276)
Class: wavering	0.664*** (0.252)	0.649** (0.258)	Father's class: wavering	0.092 (0.231)	0.112 (0.234)
Class: hostile	0.509 (0.315)	0.382 (0.324)	Father's class: hostile	-0.024 (0.283)	-0.087 (0.287)
Participated in private trading		-0.105 (0.150)	Participated in private trading		-0.131 (0.151)
Participated in providing private services		0.260 (0.262)	Participated in providing private services		0.268 (0.264)
Participated in other private business activities		-0.384** (0.182)	Participated in other private business activities		-0.252 (0.185)
Participated in August 3rd unit activities		-0.618*** (0.215)	Participated in August 3 unit activities		-0.678*** (0.213)

(table continues on next page)

Table 8 Self-assessed improvement regressions (continued)

	You became better off (categorical)			You became better off (categorical)	
	(8.1)	(8.2)		(8.3)	(8.4)
Occupation: professional	0.947** (0.405)	0.919** (0.409)	Father's occupation: professional	0.987** (0.404)	0.895** (0.410)
Occupation: government/office worker	0.265 (0.347)	0.303 (0.352)	Father's occupation: government/office worker	0.212 (0.281)	0.295 (0.285)
Occupation: farmer	0.031 (0.452)	-0.023 (0.457)	Father's occupation: farmer	-0.087 (0.340)	-0.022 (0.348)
Occupation: merchant	0.729* (0.405)	0.819** (0.411)	Father's occupation: merchant	0.079 (0.360)	0.240 (0.374)
Occupation: housewife	0.192 (0.344)	0.145 (0.348)			
Occupation: student	-0.068 (0.477)	-0.188 (0.483)			
Occupation: laborer	0.030 (0.332)	0.052 (0.337)	Father's occupation: laborer	-0.197 (0.258)	-0.144 (0.263)
Occupation: teacher	0.395 (0.468)	0.400 (0.472)	Father's occupation: teacher	0.321 (0.420)	0.508 (0.425)
Occupation: soldier	0.127 (0.452)	0.175 (0.458)	Father's occupation: soldier	-0.154 (0.374)	-0.161 (0.376)
Number of observations	263	263	Number of observations	263	263
P-value	0.000133	5.42e-06	P-value	0.00118	5.99e-05
Chi-squared	48.36	64.10	Chi-squared	38.75	53.90
Log likelihood	-324.6	-316.7	Log likelihood	-329.4	-321.8
Pseudo R-squared	0.0693	0.0919	Pseudo R-squared	0.0556	0.0773

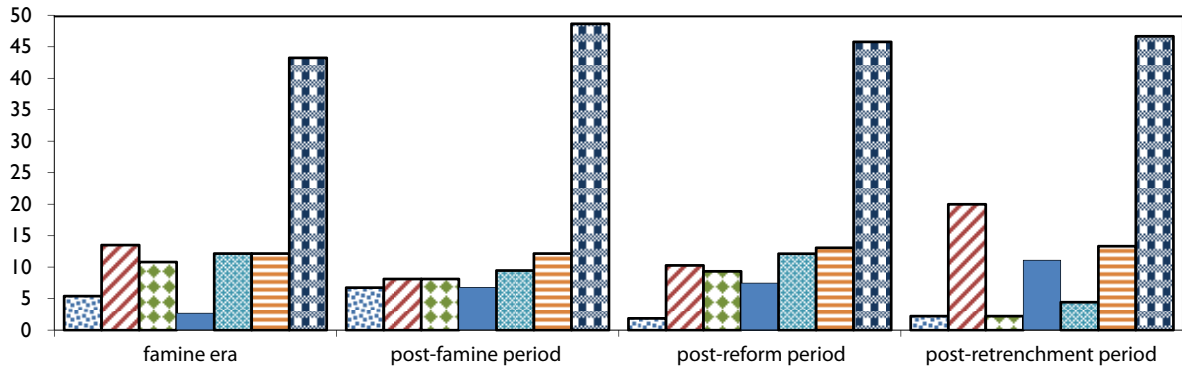
*** p<0.01, ** p<0.05, * p<0.1








Note: Standard errors in parentheses.

Source: Authors' calculations.

Figure 1 Share of total income that came from private business activities

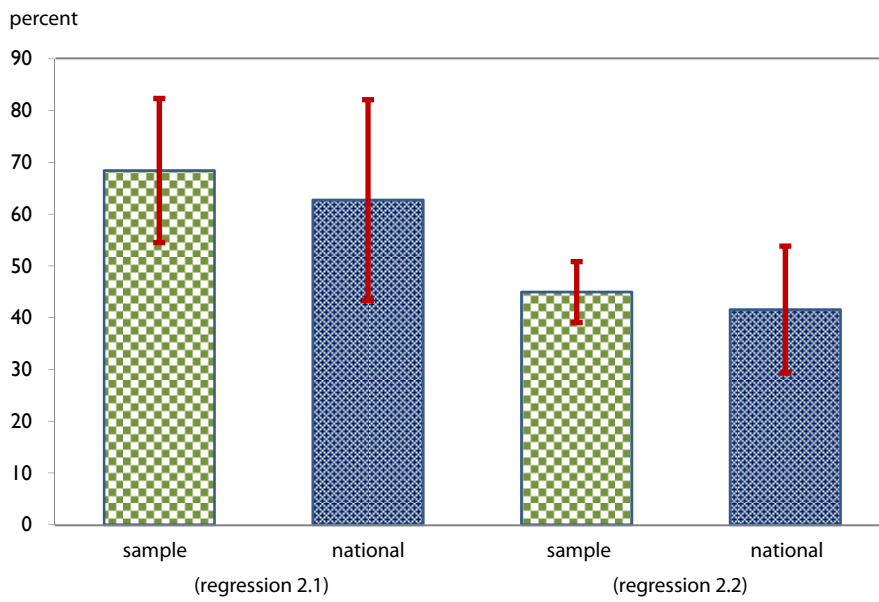
percent



-  none of our household income came from private business activities
-  less than 10 percent
-  10-25 percent
-  25-50 percent
-  50-75 percent
-  more than 75 percent
-  all of our income came from private business activities

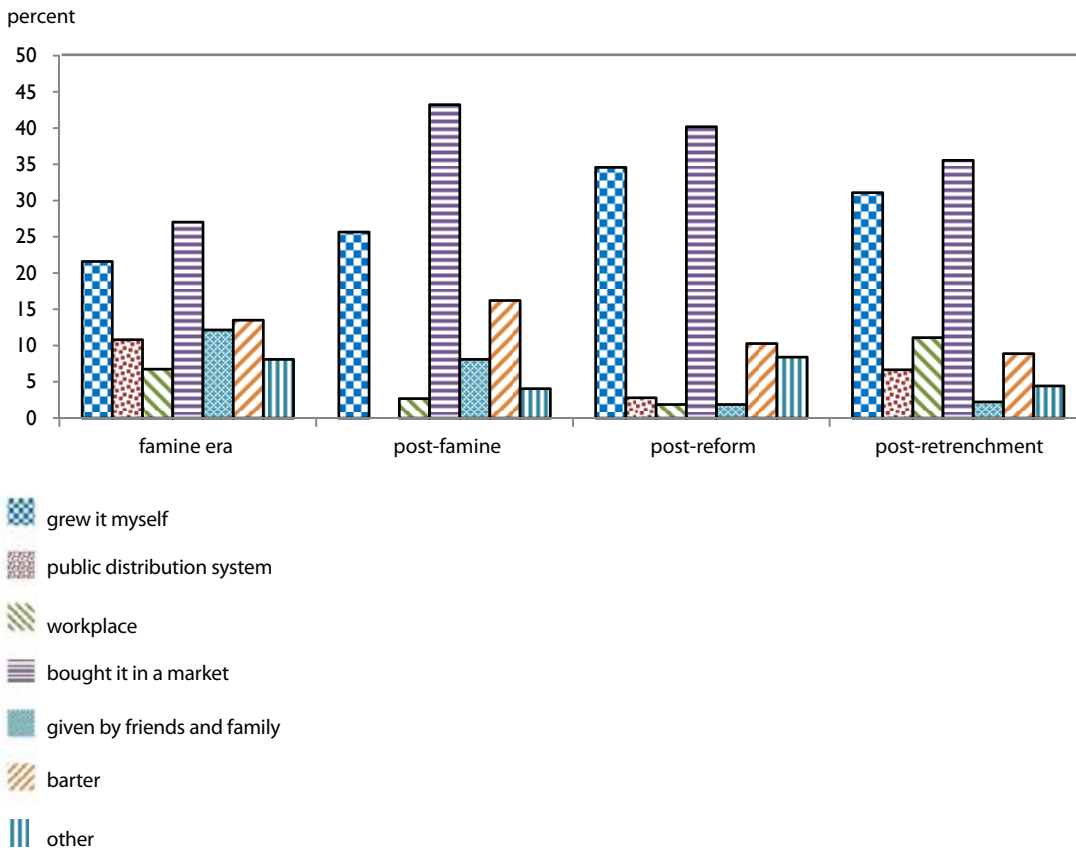
Source: Authors' calculations.

Figure 2 Share of total income that came from private business activities: sample vs. national projection



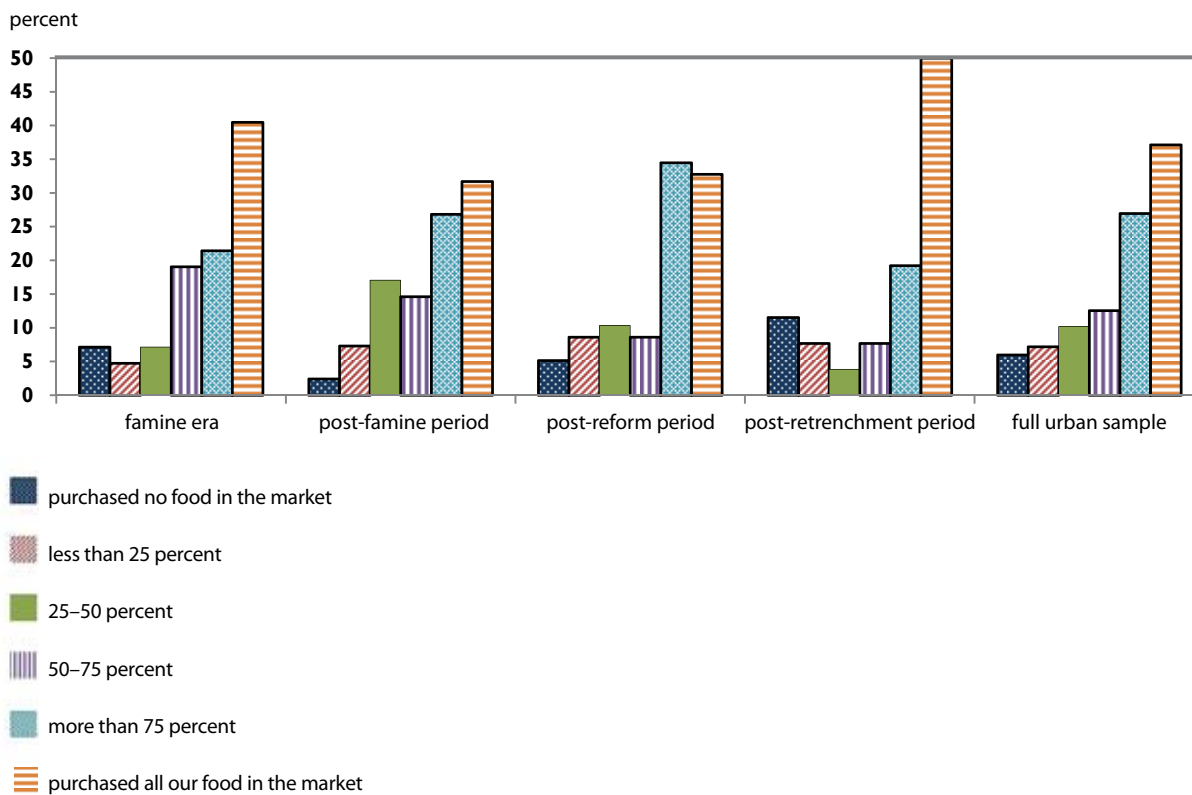
Source: Authors' calculations.

Figure 3 Primary source of food at the time respondent left North Korea



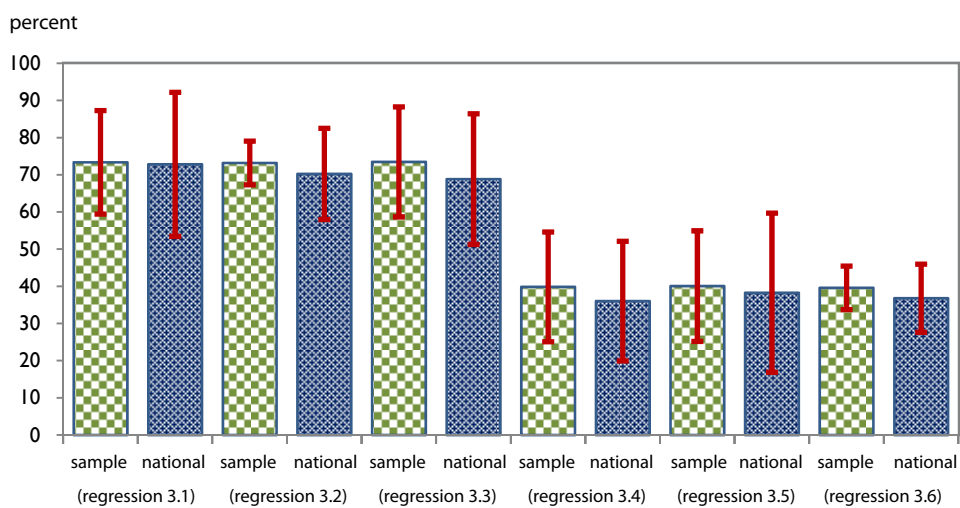
Source: Authors' calculations.

Figure 4 Share of family's consumption of food purchased in the market, urban sample (n=167)



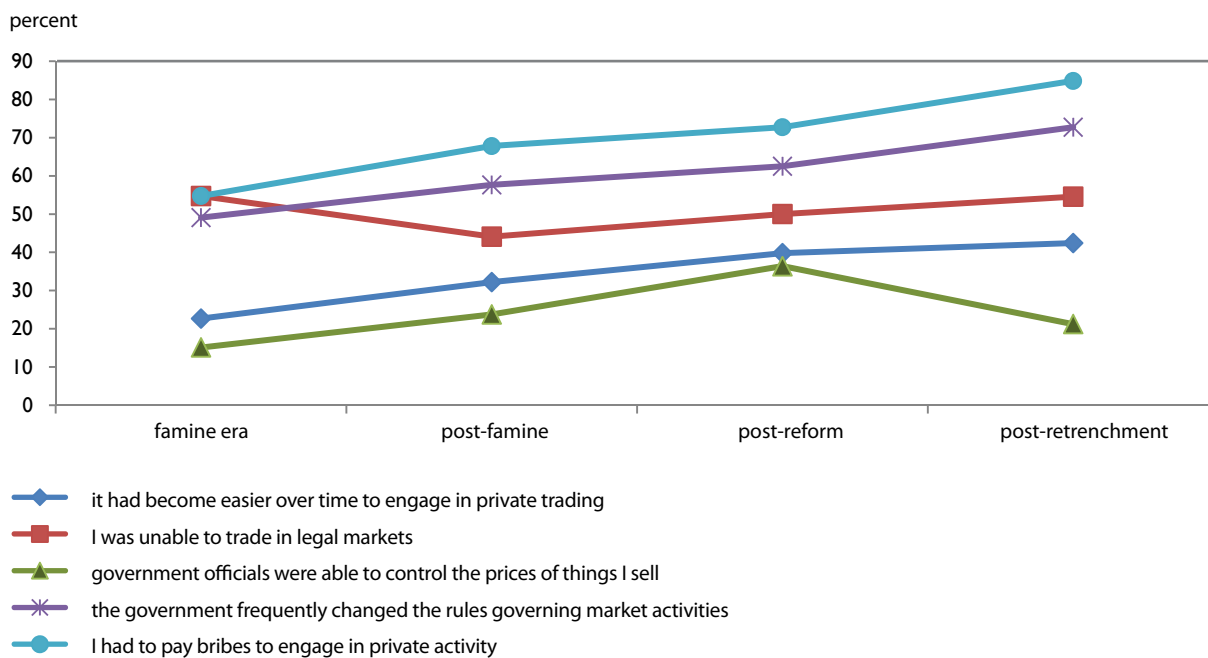
Source: Authors' calculations.

Figure 5 Share of family's consumption of food purchased on the market: sample vs. national projection



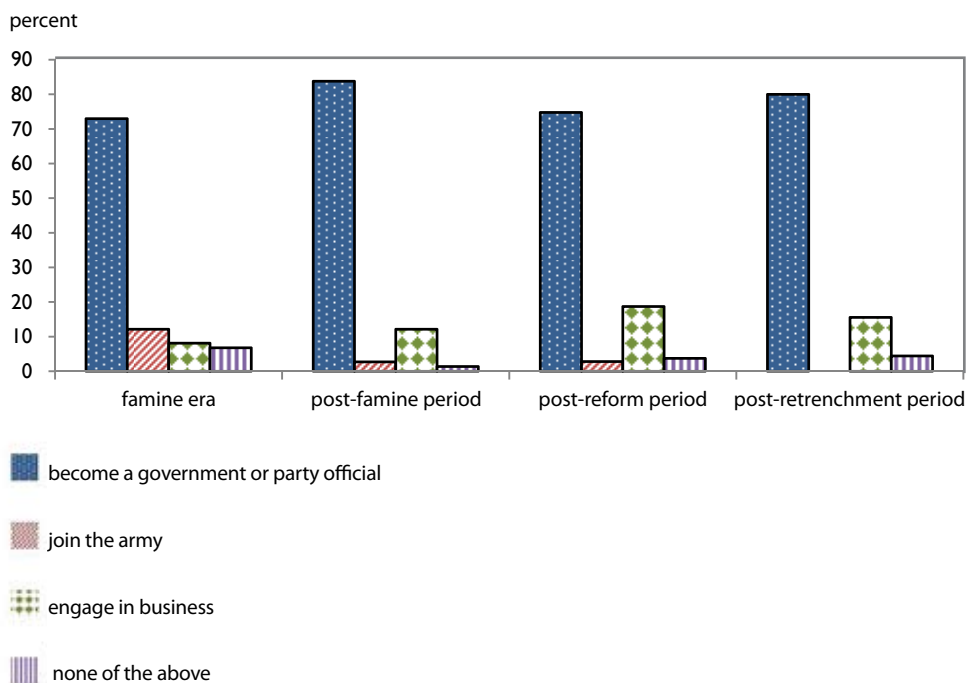
Source: Authors' calculations.

Figure 6 Perceptions of the business environment for market and private activities (share of respondents answering “totally agree” and “agree”)



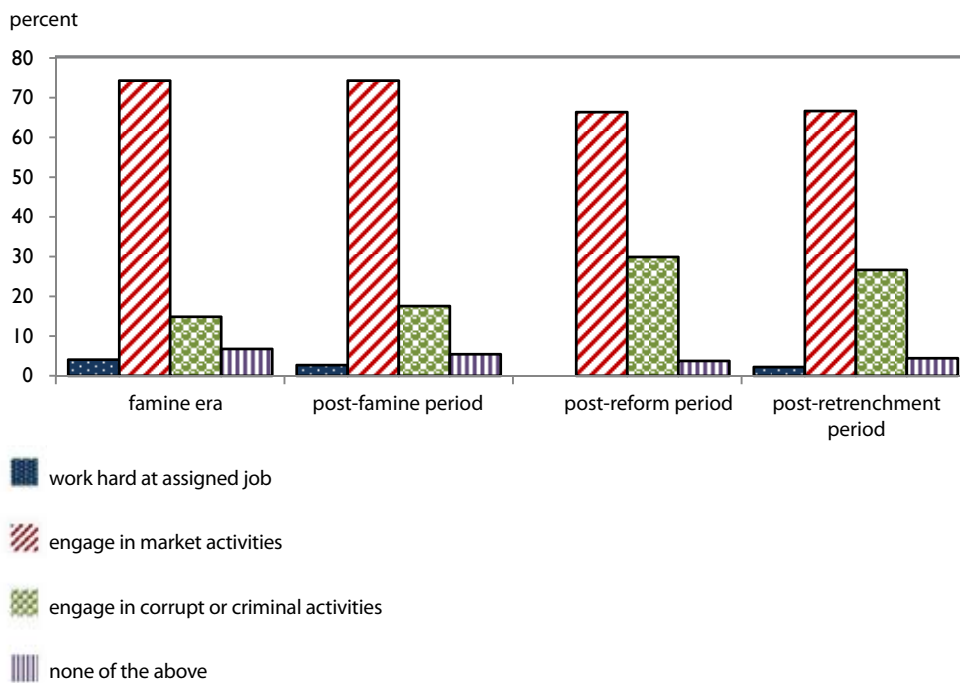
Source: Authors' calculations.

Figure 7 Best way to get ahead in North Korea



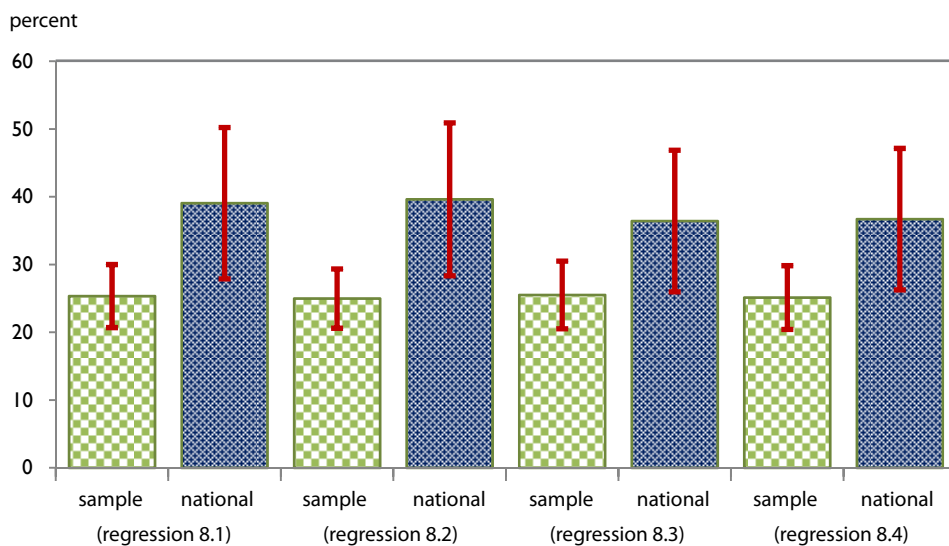
Source: Authors' calculations.

Figure 8 Easiest way to make money in North Korea



Source: Authors' calculations.

Figure 9 You became better off: sample vs. national projection



Source: Authors' calculations.