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ABSTRACT  North Korea started serious economic reforms in July 2002. The regime’s credo is the coexistence of a state-directed economy and a market economy. The weight of the latter will be increased gradually, depending on success and political stability. The paper explores the costs and benefits of the reforms and suggests their support. In the short run, the price reforms resulted in purchasing power gains for everybody, although these gains are now offset by inflation. The reforms have been well prepared ideologically to secure a controlled process. The pragmatic replacement of socialism by nationalism as the core ideology as well as the transformation of the military into the new aristocracy at the expense of the party created new political options for the North Korean government.

KEY WORDS: North Korea, DPRK, reforms, economic reforms, price reforms, ideology
JEL CLASSIFICATIONS: P2, O1, O2, Q1, R38

Introduction

Since the price reforms of July 2002, the international community appears to be increasingly accepting the fact that changes, or even reforms, are going on in the Democratic People’s Republic of Korea (DPRK or North Korea). However, the reasons for these changes, their catalysts and their background remain more or less in the dark, making both a proper understanding of the ongoing processes as well as a reliable assessment of the future of the political and economic reforms in North Korea difficult. This article seeks to fill this gap by combining (1) theoretical considerations...
on the transition of North Korea’s socialist economy; (2) a microeconomic analysis of the price reforms; (3) a textual analysis of major North Korean sources; and (4) reports by defectors and other sources on the changed situation after the price reforms, with all due caution. This methodology reflects an emphasis on the knowledge of institutions, or the ‘rules of the game’ as North (1992, p. 3) defines them, allowing us to integrate the DPRK’s economic policy into the wider framework of ideology (Denzau & North, 1994, p. 21). The latter is of particular importance since the very existence of the DPRK as a state depends on the stability of the ideological foundation of its political system. Historical evidence such as P’yongyang’s behavior in the Sino-Soviet conflict (Frank, 1996; Suh, 1988) shows that the North Korean leadership is ready to sacrifice economic success for the sake of regime stability. Economic reforms therefore have to be analyzed in connection with their political and ideological surroundings.

The cases of China and Vietnam have shown that a transition can take place without the dramatic change in the political systems that we have witnessed in the case of Eastern Europe (Nathan, 1997; Griffin, 1998; Litvack & Rondinelli, 1999; White, 2000). However, geographic and demographic conditions as well as the institutional foundations of these two countries differ too much from North Korea to expect that they can directly serve as a model of development. North Korea has to be regarded as a single, specific case of transition where often alternative solutions for important problems are found.

Field research in North Korea is difficult, although the situation appears to be changing gradually. While there are hard facts available, they are still rare and their reliability often has to be questioned. More than in most other cases, we therefore have to rely on deduction and a qualitative analysis of a complex reality, which leads to an emphasis on understanding the society and its institutional construction before attempting to interpret economic reforms.

The major objectives of this article are threefold: (1) to discuss a proper way of how to introduce the market mechanism to North Korea without causing a humanitarian catastrophe and without destroying the current political system; (2) to find out what the intentions of the reformers in P’yongyang were; and (3) which actual effects the price reforms had on the economy and the society.

**A North Korean Dilemma**

In this part, it will be shown why North Korea cannot simply replace its socialist economy by introducing a free market mechanism. However, reforms in this direction have in fact taken place in North Korea, reflecting the understanding by decision-makers in P’yongyang that the incentives provided by the free market are important and superior to the hitherto employed socialist methods of productivity increase (for a detailed discussion, see Kornai, 1992). A theoretical solution to this dilemma is presented in Figure 1.
Figure 1. Food distribution in case of undersupply.

The chart shows how a market for food would function according to basic economic theory. It is important to recall some features of this standard model to understand why a free market could lead to disastrous results in North Korea. In this first step, important political and institutional implications are ignored. They will be supplemented later.

In a well-functioning competitive market, the intersection of the two curves of demand and supply marks the equilibrium E where a certain quantity of the good \( x_E \) is produced and sold at a certain price \( p_E \). The equilibrium on the output side \( x_E \) marks the amount of full rations for 100% of the population; full rations means that people can buy and eat as much as they want, which is usually more than they need to stay alive.\(^1\)

If in a functioning market the total output falls below the equilibrium point as marked by \( x_E \), the price would rise above \( p_E \), creating incentives for new producers to enter the market or for existing producers to increase their output. In a standard capitalist economy, such a situation will not result in a famine, because there usually is a constant overproduction of food. In these economies, the primary utility of food

as a source of energy has become secondary. Various food items are no longer perfect substitutes, but compete with each other for the taste of the customers. A temporary shortage of caviar or Coca Cola will not result in mass starvation.

For North Korea, the situation is very different. Food still predominantly has its primary function of keeping people alive. In this case, any output below $x_E$ means that less than 100% of the population would be able to buy full rations. If the output is $x_{avail}$, then only those consumers who can pay a price within price range $M$ (between $p_{max}$ and $p_{avail}$) will be able to buy as much as they want. Consumers who can afford full rations at this price would be unlikely to buy less than they could, so the remaining consumers who are not able to pay a price above $p_{avail}$ are almost certain to end up with less than they want, and in the worst case with less than they need.

Existing data about the food situation in North Korea appear to be fairly accurate (see FAO, 2002). They suggest that the available output has been below $x_E$ throughout many years of North Korea’s existence. How could a political system survive this? The answer is the absence of the market mechanism as described above. The state managed the difference between the aggregate full rations (what people want, or $x_E$) and aggregate survival rations (what people need, or $x_{min}$) through equal distribution. While such a system means an undersupply by market standards, it nonetheless keeps all citizens alive. Ideological efforts help to explain the situation (‘siege mentality’, see Harrison, 2002, pp. 8ff.) and make any output level between $x_{min}$ and $x_E$ sustainable.

In such a setting, two problems exist: (1) the available output $x_{avail}$ is not allowed to fall below $x_{min}$, and (2) there are no market incentives functioning as signals to producers. In case (1), even equal distribution would not prevent starvation, making the situation politically unsustainable. It appears that the years 1995–1997 marked such a scenario. Problem (2) led to various attempts at finding alternative mechanisms for productivity increases, such as the extensive use of workforce (ch’ollima-movement) and party involvement in agricultural management (ch’ongsanri-method).

A number of events suggest that finally, the DPRK leadership has come to the conclusion that the established methods of economic policy cannot deliver the desired results. Looking at the successful cases of China and Vietnam and faced with the loss of its major allies around 1990, the leadership obviously has decided that the necessary incentives for increased production should come from free markets. Evidence for this can be found in the approval of farmer’s markets as mentioned in the 1998 constitution, and similar references to issues like ‘kitchen gardens’ (t’obat; article 24), ‘costs, prices and profits’ (wônga, kagyôk, suiksông; article 33), and ‘special economic zones’ (article 36).

The desire for market incentives and the effects of a sudden introduction of the market as shown above result in a serious dilemma. Ideological considerations aside, the expected grave economic disparities, in particular when they go as far as forcing one part of the society into starvation while their more affluent neighbors live well, will not be tolerated and would lead to a destabilization of the political system. This is unacceptable for the North Korean leadership.
To complicate the situation further, the market signals operate on a time lag – they will not create immediate results; rather, it will take time for producers to receive the signals, react, and finally increase their food output. In North Korea, there is usually only one harvest per year of basic crops like rice, corn and potatoes, so it might well take two, three or more years after the introduction of a market system to produce the desired outcomes.

However, there is a theoretical solution to this dilemma. Assuming that the discontent will be smaller if, despite visible disparities, the survival of everybody is guaranteed, a hybrid system is a rational option. In this case, we would see a parallel existence of state-distribution at subsidized prices and free markets, where prices would not be regulated, i.e. certainly much higher than in the state distribution system. Looking at the model above, the state would distribute a certain amount of the available food evenly (not more than $x_{\text{min}}$, probably less), securing the survival of all. However, the state would not distribute all of the available output ($x_{\text{avail}}$), but allows at least the difference between $x_{\text{min}}$ and $x_{\text{avail}}$ to be handled by the market. Here, those who do have the necessary funds to buy additional food on a free market have a chance to upgrade their sufficient rations depending on their resources, up to full rations. The result is still discrimination and a segregation of the society, but a less extreme and painful one; the free market has a chance to develop and to send signals to producers. The preferential treatment of certain groups within the society could then be handled in the same indirect way as we know it from other countries – these groups would receive more money to allow them to buy more goods on the market, rather than receiving higher rations or the permission to shop in special stores. In line with this, we would expect a policy that introduces different incomes for various professions, and in general increases the purchasing power of selected societal groups. As will be shown later, it can reasonably be assumed that such redistributive effects were indeed one of the goals of the July 2002 price reforms.

There is one important necessary condition for this system to function properly, which has far-reaching implications for the international policy vis-à-vis North Korea: the available output must be bigger than $x_{\text{min}}$, so that the state has enough food available for distribution to stave off starvation. 'Available output' means the sum of domestic production and international contributions. Only if there is more to distribute than the absolute survival ration for each citizen, will there then be space for the market element in the described hybrid system. In fact, while the portion of the output distributed by the state is static, the portion distributed via free markets grows with the available output. The conclusion is simple: more food aid means more market. If the morally questionable option of utilizing food as a weapon were to be chosen by the international community, it would not lead to anarchy and an eventual destabilization of the regime as long as the available output does not fall below $x_{\text{min}}$. It is, however, not to expect that all neighbors would accept such an extreme scenario, so that any reduction in food aid will be counterproductive.
A brief excursion is in place here to estimate how large $x_{\text{min}}$ would be for North Korea. The FAO (Food and Agriculture Organization) has published quantitative data on the energy requirements of humans (see Table 1):

Assuming a relatively easy workload, 2300 kcal appear to be the minimum daily energy requirement. As the FAO (2000, p. 1) emphasizes, people in countries with malnutrition tend to have a very one-sided diet, extracting about 75% of their daily energy need from starchy basic foodstuff (this percentage is only about 50% for other countries). A simple calculation now leads us to determine the minimum rice requirement to ensure long-term survival: 75% of 2300 kcal is 1725 kcal, and 100 g of uncooked rice provide 370 kcal. This means that the survival ratio (1725 kcal) would be contained in about 466 g of uncooked rice. For those individuals with medium workload, the daily ration of uncooked rice would have to be about 515 g, and for heavy work 592 g. Assuming that easy, medium and heavy labor are relatively equally distributed, this leads to an average daily rice demand of 524 g. If we now multiply the 524 g of uncooked rice with 23 million people and 365 days, we reach the conclusion that the minimum rice supply to ensure survival in the DPRK would be 4.4 million tons yearly. In other words, $x_{\text{min}}$ is about 4.4 million tons of rice or rice equivalent as an aggregate for the North Korean national economy, or about 524 g for individuals. North Korea’s total cereal production (including potatoes calculated as cereal equivalent) was estimated to be around 3.8 million tons in 2002/2003 (FAO, 2002, Figure 4), the import capacity (commercial and concessional imports) was estimated at around 0.4 million tons (FAO, 2002, Table 4). These numbers indicate that the available output in the DPRK is close to $x_{\text{min}}$ and not much higher. In this case, allowing the distribution of food via free markets is only possible if the purchasing power of the customers on these markets is raised, because the state supplies only a part of the survival ration.

Evidence from North Korea suggests that indeed, a hybrid system as described above has been chosen by the leadership to help cushion the economic effects of transition. There are indirect statements like the one in the 2003 New Year’s Joint Editorial: “We should manage and operate the economy in such a way as to ensure the

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**Table 1. Daily energy need (in kcal) and rice equivalent**

<table>
<thead>
<tr>
<th>Workload Level</th>
<th>Male, height 1.71 m, weight 54 kg</th>
<th>Male, height 1.71 m, weight 73 kg</th>
<th>Female, height 1.59 m, weight 47 kg</th>
<th>Female, height 1.59 m, weight 63 kg</th>
<th>Simple arithmetic average (rounded)</th>
<th>75% rice equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light workload</td>
<td>2335 kcal</td>
<td>2786 kcal</td>
<td>1846 kcal</td>
<td>2223 kcal</td>
<td>2300 kcal</td>
<td>466 g</td>
</tr>
<tr>
<td>Medium workload</td>
<td>2682 kcal</td>
<td>3199 kcal</td>
<td>1941 kcal</td>
<td>2337 kcal</td>
<td>2540 kcal</td>
<td>515 g</td>
</tr>
<tr>
<td>Heavy workload</td>
<td>3164 kcal</td>
<td>3775 kcal</td>
<td>2154 kcal</td>
<td>2594 kcal</td>
<td>2920 kcal</td>
<td>592 g</td>
</tr>
</tbody>
</table>

Source: FAO, 2000, p. 6; calculations in rows 6 and 7: R. Frank.
largest profitability while firmly adhering to the socialist principles.’ (People’s Korea, 2003). ‘Largest profitability’ stands for free markets, while ‘socialist principles’ stands for state distribution. The same dual standard can be found in the constitution, which has been amended in 1998. In article 20, it states that ‘means of production are owned only by the state and . . . cooperative organizations’, but private property is also allowed and guaranteed, such as ‘the products of individual sideline activities, including those from the kitchen gardens of cooperative farmers and income from other legal economic activities’ (Art. 24). So-called ‘farmer’s markets’ (nongmin sijang) always have existed in North Korea, although their number was small, trading days were few, and restrictions high. In the 1990s, the importance of these markets has increased significantly. As of 2001, Harrison (2002, p. 40) estimates their number at about 300, based on interviews with aid workers who had access to 163 out of 210 counties in the DPRK. According to official North Korean sources, the function of these markets was expanded in early 2003 to trade not only agricultural products, but also ‘various kinds of industrial goods’ (Kim, 2003). This indicates that, originating from the determination to solve the food problem, there are spillover effects to the markets for other goods.

A Challenge for the Ideology

North Korea is a country in which official ideology plays an exorbitantly important role for the stability of the political system. Its two major components are the ultra-nationalist chuch’ e-ideology11 and the admiration of the leader.12 Against this background, systemic stability is seriously threatened when changes in economic policy, and the subsequent social and political ramifications this entails, are not accompanied by a proper ideological support. In fact, for the introduction of such a profound measure as a market economy, we would expect a long-term ideological preparation. The existence of such a propagandistic offensive would, in turn, prove that the reforms are part of a well-designed plan, rather than ephemeral, ad hoc measures. In this part, it will be explored whether the DPRK is following the Chinese model of adjusting the ideology, followed by a brief analysis of North Korean propaganda. It will be shown that Chinese concepts are applied only on a selective basis, the North Korean leadership is aware of the ideological implications of economic reforms, and that it has found its own solutions.

The Chinese ‘three represents’ Korean style?

Among the most spectacular cases of successful13 transition is the People’s Republic of China. It is no surprise that developments in this country, which for centuries has been a source of inspiration for Korea, had their effects on the North Korean leadership after the dawn of the reform era under Deng Xiaoping in late 1978. Harrison (2002, 28) argues that the beginning of economic reform in the DPRK directly followed a number of visits by leaders including Kim Il-sung to China in the early 1980s.
While it appears that the very idea of introducing an alternative to the Soviet-style economic model did indeed reach P’yongyong via Beijing, this does not necessarily mean that North Korea is following the Chinese path towards the goal of a more efficient economy, neither technically, nor ideologically. The differences in geography, demography, history and relevance of ideology make a direct application of the Chinese reform model difficult. When China began its reforms in 1979, about 71% of the population was living in the agricultural sector; the numbers for Vietnam one decade later were similar. In North Korea, just 33% of the workforce is subject to increased revenues, as they are generated by increased prices for agricultural products (Noland, 2003, p. 40). The population of China is over 1.2 billion, while that of North Korea is just about 0.022 billion, or 1.8% of China. The North Korean territory is 0.12 million square kilometers, or 1.25% of China’s 9.6 million square kilometers. This makes the application of a centralized system of control easier for the DPRK, but keeping special economic zones isolated much more difficult. It would not be unrealistic to expect that South Korea in the 1960s and 1970s, under a nationalist ideology, military rule and with large, well-protected and state-controlled conglomerates, would be a much more suitable model of economic take-off.14 In fact, it appears that such North Korean chaebol do already exist in the second economy.15

But China faces the same difficulties as North Korea in explaining how a socialist ideology and a market economy can go together. Again, there are important differences between the DPRK and the PRC. Kim Il-sung ascended to power thanks to the Soviet Union, and was able to keep power only after the Chinese supported him during the Korean War (for a detailed analysis, see Suh, 1988). This made his position extremely weak and led him to suppress any sign of political opposition, while Mao was strong enough to openly compete with alternative ideas within his party. There is no Deng Xiaoping who could be rehabilitated in North Korea. Mao started a number of spectacular experiments, such as the Great Leap and the Cultural Revolution, while Kim Il-sung always opted for a smoother development. The Chinese in 1978 were ready for a thorough reform, because they were exhausted and disillusioned by the preceding two decades of social experiments. Although the North Koreans had to go through the famine of 1995–1997,16 this experience is not seen as the expression of a failed policy, but as the consequence of a mixture of bad luck (natural disasters) and international pressure. Ideology still has a much more crucial role for keeping the DPRK intact as it did in pre-reform China. Russian analysts argue that in North Korea, reforms will meet much more conservative resistance than in China (Gorbachev Fund, 2003, p. 237).

China’s solution to the ideological problem as described above is called the Three Represents.17 A truly remarkable, but easily overlooked passage of DPRK Finance Minister Mun Il-bong’s speech at the Supreme People’s Assembly session of 26 March 2003, sounds strikingly similar to this Chinese concept:

Our people, holding high the Great Leader’s ideology of nation-building (konguksasang) after liberation, have built a new democratic Korea upon the rubble,
those with strength using strength, those with knowledge using knowledge, and those with money using money. (Emphasis and translation mine; Rodong Sinmun, 2003a)

‘Strength’ (him), in this formulation, stands for the workers and farmers, whereas ‘knowledge’ (chisik) stands for the intellectuals; all three groups are represented in the Worker’s Party’s emblem (hammer, sickle, brush). ‘Money’ (ton), however, is a new component, and would appear to stand for those who excel in commercial activities. Successful North Korean entrepreneurs are in the process of being integrated into the society. It is remarkable that the leveling of the ideological battlefield has already begun, with the state apparently paving the way for the integration of a social group that does not even exist yet.

Lately, it seems that North Korea has found another way to deal with this issue. In connection with the ‘Military First’ ideology (sŏn’ gun sasang), we note a significant, dramatic approach, changing the very nature of the DPRK (for a more detailed account, see Frank 2003b). North Korea’s emphasis on the military, as threatening as it might appear, is not new and hence only of secondary relevance. More importantly, military ‘first’ means that something else becomes ‘second’. The Rodong Sinmun is very specific about this issue:

... it [the military first policy, RF] is a line... putting the Army before the working class (Rodong Sinmun, 2003b).

This means that, in fact, North Korea gives up the idea of socialism in Marx’ sense. The ideologues in P’yŏngyang seem to be well aware of that:

In the past, it was recognized as an unbreakable formula in socialist politics to put forth the working class. However, the theory and formula that was generated one and a half centuries ago cannot be applicable to today’s reality. (Rodong Sinmun, 2003c)

‘One and a half centuries ago’ refers to the Communist Manifesto, the first written codification of Marxism. In terms of logic, the argument is quite remarkable and appears again and again in Kim Jong-il’s North Korea: In application of the creative principle of chuch’ē, it is emphasized that the past was the past and required other approaches than the present.

To fully understand the magnitude of the issue, a brief look at Marxist theory is in place. There are two classes, with membership determined by the economic conditions of the individuals. There are those who own means of production and engage in making profit by exploiting the workers and competing with each other, and there are those who do not own means of production, have to sell their workforce and get exploited. The interests of these two classes are antagonistic; contradictions will aggravate, workers and capitalists will engage in class struggle. Eventually, the working class led by its agent, the party, will win and establish the dictatorship of the proletariat (see Kornai, 1992, pp. 360–379; Caporaso & Levine, 1996, pp. 55–78).

There are only two classes, and there is no room for the army as an independent unit
in Marx’s economically determined theory. The army is part of the state, the state is the instrument of the ruling class, and hence after revolution, the army becomes a tool of the working class. Since it is staffed by working class members, the army might be seen as a subset of the working class, but it is by no means a class itself. North Korean propaganda deliberately distorts this definition of class:

The revolutionary army is composed of the most brilliant advance warriors among the other classes and circles [tar’un mod’un kyegeupal kwakey’ung] who are ready to lay down their lives in the revolution... (Rodong Sinmun, 2003b)

One just has to serve some time in the army (‘... the discharged soldiers trained in the People’s Army excellently play a leading role ...’, Rodong Sinmun, 2003b), or show loyalty to it, or work for it. Instead of the economically determined, more or less objective criterion of class membership, it is the politically determined and highly subjective relationship with the military that decides whether a North Korean is with the state and the nation, or against it.

This marks a great opportunity. It helps Kim Jong-il simply to circumvent the need to force the group of entrepreneurs, who will emerge as one of the results of successful economic reforms, into an obviously anachronistic ideological and propagandistic corset. The Chinese solution for the same problem, the Three Represents, is much less elegant and works there because not too many citizens really care about ideology anymore. For the small North Korea with the almost religious function of ideology, things are different. The Chinese developed their Three Represents long after realities in their country had changed; Kim Jong-il shows exceptional foresight to deal with this issue now, in this early stage of economic reforms.

The working class loses its position as the leading group in the North Korean society. Without the working class, what happens to socialism and its final stage, communism? There is strong evidence that nationalism, in the form of chuch’ê, will take socialism’s place:

Nation is [positioned] over class and stratum, and the fatherland is over idea and ideology. (Rodong Sinmun, 2003c)

Socialism is equaled with independence:

The current era is one in which a life-or-death struggle is waged between socialism and imperialism and between the force of independence and the force of domination. (Rodong Sinmun, 2003b)

The transition will be smooth, because already since its introduction in late 1955, chuch’ê began gradually to replace Soviet-style socialism in North Korea. Kim Jong-il has now only finished what his father once started. He thereby en passant mastered to resolve the inherent systemic contradiction of socialist countries: a universalistic ideology, by definition one of class, not of nation, stood opposed to nation states within the socialist camp, each with their own and often (a Neo-Realist would say necessarily)
conflicting national goals. It is impressive to see how the chuch’e ideology designed to keep external influence at bay (‘our-style-socialism’ originally meant ‘not-Soviet-or-Chinese-style-socialism’) is now used to replace socialism by nationalism and to explain dramatic changes as nothing but the application of the ‘creative principle’.

New requirements of a new era

A central element of North Korean official propaganda regarding the reforms is the idea that ‘old concepts worked under old conditions, but new conditions require new concepts’. An increasing number of North Korean publications contain slogans that sound like heresy at the first glance, such as the following bit of advice offered up by the editorial staff of the North Korean state’s official propaganda mouthpiece (for more details, see Frank, 2003a):

Functionaries for economic guidance shall free themselves from the old viewpoints of the past era (chinan sigiúi nalgún kwanjomesò) . . . (Rodong Sinmun, 2003a)

Kim Jong-il himself formulated it even more bluntly in January 2001:

Things are not what they used to be in the 1960s. So no one should follow the way people used to do things in the past . . . We should make constant efforts to renew the landscape to replace the one which was formed in the past, to meet the requirements of a new era (saeroun sidaëü yogue makke). (Kim 2001)

How much more explicit can we expect the top man in P’yongyang to be? ‘Past’ (chi’nan nal) is defined as a period during the existence of the DPRK, not prior to the founding of the state. Saying ‘replace’ (kù myônmorùl ilsinsik’ida) is as close as one can get to demanding reform. Indeed, the very title of Kim Jong-il’s article contains the words ‘gigantic change’ (koch’anghan ch’onbyon). North Korean officials go even further in interpreting their leader’s words. A representative of the State Planning Commission is quoted as saying:

Kim Jong-il stresses that all the outworn and dogmatic ‘Soviet-type’ patterns and customs should be renounced in the fields of economic planning, finance, and labor management . . . He also points to the fact that foreign trade should be conducted in accordance with the mechanism and principles of capitalism. (People’s Korea, 2002b)

This approach is remarkable. The past is closely connected to Kim Il-sung, and criticizing the past would actually mean criticizing the Great Leader, even though the terms ‘dogmatism’ and ‘soviet-style’ suggest something else. This way to deal with the past shows how secure the power of Kim Jong-il is, how determined North Korea is to reform itself, and what a high degree of flexibility the chuch’e ideology contains. However, the ‘creative stand’ as mentioned above has always been one of
the cornerstones of the DPRK’s ideology of the last decades, as the following quote from 1977 shows:

The creative stand is the revolutionary stand of opposing dogmatism and applying the universal principle of Marxism-Leninism and the experience of other countries to suit the historical conditions and national peculiarities of one’s own country. In order to maintain the creative stand in the building of an independent national economy, our Party held fast to the revolutionary principle of the working class, studied the actual conditions of our country and had anything suitable to them accepted boldly without being restrained by any accepted formulas and propositions. As for the experiences of other countries we adopted useful ones, not unnecessary and harmful ones. And in cases of adopting good ones, too, we improved and reshaped them to suit our realities. (Economic Research Institute, 1977, p. 31)

*Embracing the market: the ‘correct understanding’ of a socialist economy*

The propaganda did not only deal with the general question of changes, as shown above. It also covered more specific questions, such as the function of markets in a socialist country. The highest possible authority, Kim Il-sung himself, is quoted as saying:

Originally, it was not in a socialist system nor in a capitalist system that the term market first began to be used; the term was used in feudalist societies. (Kim Il-sung *Works*, Volume 23, p. 466, quoted in: Yi, 2002)

North Korean economists accentuate the provisional character of a socialist society as the transitional stage towards communism, and point to the fact that, due to this transitional character, there is a relationship between commodities and money which requires markets. They also confirm the dualistic or hybrid structure of the economy, as presented above:

In the socialist society, the domestic market is divided into two markets: the market, which is established based on the socialist economic forms, and the farmers market. (Yi, 2002)

The course of development is said to point into the direction of the state regaining control over the markets:

The farmer’s market . . . is a supplementary form that transitionally exists until such time when all consumer goods are sufficiently produced and supplied by the state and when cooperative ownership is turned into an all-people ownership. (Yi, 2002)
Pointing to the fact that the experiments of ‘revisionist’ countries with a socialist market economy have ended in failure, it is claimed that the Korean Worker’s Party was the first in the world that completely resolved the issue of the socialist market not only theoretically but also in practice. Since most of the transactions in the DPRK are happening between state-owned enterprises, this leaves the state with the opportunity to perform its economic guidance functions, including systematic distribution, thereby guaranteeing state control of the economy.

In a market where the production means are circulated through the material supply work, the law of a systematic and balanced development of the people’s economy and the law of production and other socialist economic laws function, and the law of value, which is the law of production and commodities circulation, also functions as a backup, though it is limited to an extent. (Yi, 2002)

It is emphasized that the portion of transactions still controlled by the state is very large, and cannot be regarded as a free market. The reason is that while management and utility rights of the concerned commodities are indeed transferred, final ownership remains unchanged, since both parties to the transaction are actually state-owned.

The same dual or hybrid system as described for business-to-customer relations in the case of agricultural goods exists in business-to-business relations as well, with the so-called ‘material trading markets’ being the market component supplementing the state’s role. The enterprises are allowed to produce more of a certain good than the plan dictates, and then to offer it to other enterprises in exchange for goods that those enterprises have produced in excess of planned output.

Organizing a material trading market for plants and enterprises enables those plants and enterprises . . . to supply each other with the surplus materials produced . . . in the course of production and operation activities and with the materials that [they] can freely dispose of according to the state’s rule, which allows the free disposal of some product portions in order to promote the enterprises’ comparative individuality and creativity. This makes it possible to mobilize internal reserves . . . (Yi, 2002)

Again, the idea is to stabilize the state-controlled system and to supplement it, not to replace it. Officially, P’yongyang’s position is that markets have a temporary right of existence in socialism, which by its nature is a transitory stage, but that these markets will become obsolete once their job is done and communism is reached. It is, however, highly questionable that those who benefit from the free market portion of the hybrid system (including those who benefit via corruption) will be willing to give it up; it is even more doubtful that the production level will be sustainable once the incentives from the market segment are removed. More importantly, the market structures and numerous transactional relationships in place at that point will, in all likelihood, have
changed the society to such an extent that it will be extremely difficult to go back to the status quo ante.

*Letting the people know: the New Year’s Joint Editorials*

To supplement the analysis provided above, it is worth noting the most programmatic propagandistic publication in the DPRK, the New Year’s Joint Editorial of the newspapers of the Worker’s Party, the military and the Youth League. These editorials usually set the stage for the following year and acknowledge developments of the preceding year. The analysis of these annual statements requires some reading between the lines and is therefore highly subjective; nevertheless, they are read and studied over and over again by almost all North Koreans, so the significance and expressiveness of these articles should not be underestimated.

In 1998, the Joint Editorial used old phrases like ‘The socialist fortress of Korean style should be built up in the economy.’ In 1999, the editorial for the first time, but only briefly, mentioned ‘actual profit’ (silli) in economic activities, in addition to a ‘new state structural system’. In the editorial of 2000, in addition to propagating a ‘second ch’ollima advance’, i.e. the continuation of attempts to increase productivity through intensified use of human resources, we find a passage that cautions: ‘We should strongly wage battle to check the spread of imperialist ideas and culture to our country.’ The 2001 editorial characterizes the past, the 20th century, as ‘a century of ch’ollima’, specifically mentioning that this campaign started in the 1950s. This at first sounds like praise, but if contrasted with the above-quoted formulations about remnants of the past that have to be overcome, it could also mean that now is the time to bring an end to old methods of economic policy. At this point, it is worth remembering that publicizing a policy via the Rodong Sinmun is a move that usually comes at the very end of a policy formulation process and marks the beginning of the implementation phase of a policy. Note the connection between the reforms and the person of Kim Jong-il:

> It is a priority task before us to introduce basic innovations in improving our ideas, thought, working style and fighting spirit. The 21st century is a time of great change and creation. Great leader Kim Jong-il leads us and carries out reform in a big way, looking ahead at the distant future. Our revolutionary soldiers should get rid of the old idea and leap forward as Kim Jong-il does. The new century requires a revolutionary plan, unique idea and novel conception and an enterprising working style . . . Economic management systems should be reformed in a way suitable for the new circumstances and atmosphere.

In the 2002 editorial, the ‘changing situation’ is mentioned, along with the caution that people should ensure ‘the highest profitability while adhering to socialist principles’. In January 2003, the Joint Editorial contains the following passages:
We should also heighten the revolutionary vigilance against the imperialists’ ideological and cultural poisoning and firmly preserve our ideology, morality and our noble socialist way of life . . . It is necessary to bring about a fresh change in the economic and cultural construction. It is the fixed will of our party to radically change the appearance of the country and enable the people to live as happily as others in a few years to come . . . We should manage and operate the economy in such a way as to ensure the largest actual profits (kajang k’ün siliřuł) while firmly adhering to our socialist principles.

The latter formulation possesses a key character and was repeated many times, for example in the report on the 2003 state budget (Rodong Sinmun, 2003a).

To conclude, if we analyze how the DPRK has tried to bolster the market reforms in the realm of ideology, there appear to be five basic features of the state’s efforts.

**North Korean ideological approaches to the use of markets**

1. The changes are not changes, they are adaptations of the creative principle as part of the chuch’e Ideology.
2. Changes might occur, but these are signs of developing the right form of a socialist economy, not abandoning socialism in favor of a capitalist model of development.
3. Markets themselves are not something related by definition to capitalism, since they have existed long before and are a naturally occurring phenomenon. As such, emphasizing markets does not mean emphasizing capitalism.
4. Markets exist only temporarily, and when they are no longer necessary, their functions will be gradually taken over by the state.
5. Markets play a supplementary role in increasing the efficiency of state-directed production and distribution, and are not intended to replace state-direction of the economy.

From the analyzed documents, we find that there is indeed a rich fund of research, newspaper reports and propaganda in the DPRK that both emphasize market reforms and attempt to provide a way to embrace these new developments and their results without abandoning the prevailing ideology. North Korea has developed a coherent system of planned, managed and fine-tuned reform, which naturally incorporates a strong trial-and-error element – just like the successful take-off in South Korea under General Park Chung-hee four decades ago.

**The Reform of 1 July 2002**

In an orthodox socialist economy, supply and a large part of the demand are controlled by the state; competition is excluded. Prices do not reflect scarcity levels, but are usually set according to political motivations and based on data collected by a central planning agency. Prices of certain goods – usually covering basic needs such as food
and housing – are often heavily subsidized. A mark-up on ‘luxury’ goods like cars, electronics, etc, or simply a hidden redistribution of state revenue is used to balance the losses.20 Thus, even in a socialist economy, prices have their role.

Nevertheless, serious distortions in the price system leading to a negation of the role of prices altogether can exist in a socialist economy for a long time without causing a breakdown, as long as the domestic economy remains a closed system, i.e. isolated from the international market. If we look at the history of economic planning in the DPRK, there are phases of severe re-adjustments after almost every standard plan period,21 which in fact renders most of the country’s economic planning questionable. Between 1996 and 2003, no economic plan whatsoever has been announced – but the economy functioned, however badly. Thus, although there were many reasons for the economy to collapse in the past, like mismanagement and the sudden disintegration of the Socialist Camp, it did prevail. If, however, prices are expected to influence the activities of individual and corporate economic agents, a price reform is among the logical first steps. The price reforms of 1 July 2002 marked the beginning of the implementation phase of a substantial change of the economic system.

The price reforms have to be seen in connection with earlier North Korean attempts at improving the performance of the national economy. After the first visible sign of economic reform, the Joint Venture Law of 1984, a serious change on the domestic scene occurred in the early 1990s with the creation of the first North Korean Special Economic Zone (Rajin-Sonbong in the Northeast). The increased prominence and weight of the farmer’s markets led to a dual price structure for many goods, just as described above from a theoretical point of view. This part will cover the price reforms as a real case of reform, and provide an analysis of their intentions, follow-up measures, and actual results and implications.

**Announcement of the price reforms**

Among the first news about the price reform, effective 1 July 2002, was a semi-official article (People’s Korea, 2002a). A number of interesting conclusions can be drawn from this short text.

1. **The overall goal of the leadership in North Korea is certainly to stay in power and to stabilize its position:**

   These measures, effective July 1, are intended to comprehensively improve the people’s living standard based on the new economic policy mapped out by General Secretary Kim Jong Il to build an economically powerful nation.

2. **The reformers claim not to reform anything at all, but just to improve the existing system and to (re)enforce long-standing principles:**

   The more one produces profits and the harder he works, the larger share he takes. On the contrary, if one does not work hard and produces less profits
than required, he receives a lower wage. This is the socialist principle of
distribution.

3. Transparency is emphasized in connection with the reforms, and subsidies are to be cut:

A government official of the State’s Price Control Bureau says: ‘If we are
to pursue a policy of seeking more real profits, each worker must know
the real situation of his own economic activity.’ He means that the present
economic situation requires cutting much of state subsidies and applying a
market price system to all sectors.

4. The guiding ideological foundations of the society are not to be touched; the
reforms are backed by the highest authority, risking being personally connected
to a failure:

The recent series of economic measures came in line with General Secretary
Kim Jong II’s new economic policy, whose essence is that the basic method of
socialist economic management is to gain maximum profits while adhering
to socialist principles.

5. To secure stability, any sudden or desperate measures need to be avoided. The
people are told that everything is under control and developing under a long-term plan:

According to an official at the State Planning Commission, it was in the
year 2000 that this new economic policy of Kim Jong II began to be put
into practice in earnest on a national scale. It contained the strengthening of
the cabinet’s role as the headquarters of the national economy; the transfer
of authority of economic planning to each leading economic organ at all
levels; the rational reorganization of factories and enterprises and the im-
provement of their management; and the differentiation and specialization
of production.

6. The term ‘competition’ itself is not new to socialist economies. However, it was
used in connection with ‘socialist’ (as in ‘socialist competition’) and was meant to be
a friendly exercise and an ideological incentive for productivity increase. Now,
the losers in the competition have to face serious consequences:

... those factories and enterprises that had failed to produce profits owing
to their outdated technology or obsolete production processes, were closed
down... From July 1 on, factories and enterprises are to be given objective
assessments of their profits, and to encounter stiff competition that they have
never faced before.
7. If the official announcements are to be trusted, costs – and consequently, prices – will really matter in North Korea:

A cost accounting system in economic management will be applied more thoroughly to enterprises, while individual workers will be required to work harder to produce more benefits.

8. Aside from the general goal of increasing the productivity, two specific areas are mentioned: agriculture and international economic relations, especially foreign direct investment:

There is no doubt that strict adherence to the socialist principle that profits should be distributed according to one’s ability, will be an incentive for people to create profits. Meanwhile, the raise in government’s purchase price of rice is expected to stimulate farmers’ enthusiasm for agricultural production . . . A successful implementation of the government’s new economic policy will also contribute to strengthening the Korean wôn and creating favorable conditions for foreign investments in the country.

**Intentions and implications**

The North Korean decision to let the prices rise dramatically, but not in an uncontrolled fashion, appears to be very rational. This approach somewhat diminishes the additional incentives for producers to raise productivity or otherwise expand production, but it also reduces the risk to the regime of instability and/or widespread rioting.

The absolute numbers in Table 2 are of very limited expressiveness. They suggest a significant inflation that has appeared unevenly across a range of products. To understand the intentions behind the reform, we need a tool to determine real price changes. This is obvious since direct and indirect incomes have also been changed.

### Table 2. Recent changes in North Korea’s price system

<table>
<thead>
<tr>
<th>Old (wôn)</th>
<th>New (wôn)</th>
<th>Nominal change factor (times)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice (kg)</td>
<td>0.08</td>
<td>44</td>
</tr>
<tr>
<td>Corn (kg)</td>
<td>0.49</td>
<td>20</td>
</tr>
<tr>
<td>Electricity (kWh)</td>
<td>0.035</td>
<td>1.8</td>
</tr>
<tr>
<td>Bus fare</td>
<td>0.10</td>
<td>2.0</td>
</tr>
<tr>
<td>Basic wages</td>
<td>110</td>
<td>2,000</td>
</tr>
<tr>
<td>Special wages</td>
<td>6,000</td>
<td></td>
</tr>
<tr>
<td>Rice procurement</td>
<td>0.8</td>
<td>40</td>
</tr>
<tr>
<td>1 US$</td>
<td>2.19</td>
<td>150</td>
</tr>
</tbody>
</table>

Calculations in column 4 by the author; Source: People’s Korea (2002a).
With respect to single goods and societal groups, it has to be asked whether the purchasing power of North Koreans was increased or reduced, which signals that sends to consumers and producers, whether the reformers were aware of these signals and if so, what they intended by sending them. In the following sections, we therefore have to weigh the nominal increase rate in the price of every single product by some yardstick. There are several possibilities, each with pros and cons, some of which will be further explored.

**Purchasing Power of Ordinary and Special Wages (State Prices)**

The standard way to calculate changes in real prices and purchasing power is to compare the change rates in nominal incomes with the change rates in nominal prices, assuming that the real value of the currency is an expression of purchasing power. The factor by which the price of the four goods in Table 3 has changed (line 3) is calculated by dividing line 1 by line 2. In the same way, we determine the factor by which the income has changed (line 6). Finally, we divide the nominal change rates in line 6 by those in line 3 and receive the change factor in purchasing power. If this variable is 1.00, there has been no real change in prices, and the purchasing power has remained stable. If it is below 1.00, the purchasing power has been reduced, real prices have been increased.

In looking at Table 3, we see a number of results. First, the real prices have all increased, and the purchasing power of the average wage earner in North Korea based on state prices has been substantially reduced. To illustrate this point: under the old system, an ordinary worker could theoretically buy 1375 kg of rice per month if he were willing (and able) to spend all his income. Under the new price system he could buy merely 45.5 kg of rice. On paper, this marks a significant decrease in purchasing power. We have to consider, however, that a citizen could only purchase a limited amount of rice from the state at those prices, so that the reduction in purchasing power for rice as calculated in Table 3 has not occurred in reality. As will be shown

<table>
<thead>
<tr>
<th>Table 3. Purchasing power changes for ordinary wages (state prices)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rice</strong></td>
</tr>
<tr>
<td>1 New price (wón per unit)</td>
</tr>
<tr>
<td>2 Old price (wón per unit)</td>
</tr>
<tr>
<td>3 Price change factor</td>
</tr>
<tr>
<td>4 New wage (wón per unit)</td>
</tr>
<tr>
<td>5 Old wage (wón per unit)</td>
</tr>
<tr>
<td>6 Wage (wón income) change factor</td>
</tr>
<tr>
<td>7 Purchasing power change (times)</td>
</tr>
</tbody>
</table>

1.0 = no change; 0.5 = pp has been reduced to 50%.
Table 4. Purchasing power changes for special wages (state prices)

<table>
<thead>
<tr>
<th></th>
<th>Rice</th>
<th>Corn</th>
<th>Electricity</th>
<th>Bus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price change factor</td>
<td>550.00</td>
<td>40.82</td>
<td>51.43</td>
<td>20.00</td>
</tr>
<tr>
<td>Wage change factor</td>
<td>54.55</td>
<td>54.55</td>
<td>54.55</td>
<td>54.55</td>
</tr>
<tr>
<td>Purchasing power change (times)</td>
<td>0.1</td>
<td>1.34</td>
<td>1.06</td>
<td>2.73</td>
</tr>
</tbody>
</table>

1.0 = no change; 2.0 = pp has doubled.

later, the picture looks different if the changed income is contrasted with the price changes on the free markets, which is a more realistic approach.

The reduction in Table 3 has happened unevenly, with rice becoming over 30 times more expensive for consumers than it was previously,\textsuperscript{25} while prices for corn and electricity increased by only about two to three times. This supports the hypothesis that a price differential between official and farmer’s market prices had to be reduced or eliminated, and shows that the price distortion under the old system is perceived by North Korean planners as having been especially high in the case of rice. Applying the same method to special incomes (Table 4), a remarkable observation can be made.

For recipients of special wages, the price of rice has increased too, although much less dramatically than for the ordinary wage earners, and not reflecting reality as shown above. However, we also find a visible increase in purchasing power for the other goods. This shows that harder work was to be rewarded by higher benefits of a non-ideological nature. This is a strong indicator of a favorable treatment of particular groups within the society, in this case the receivers of special wages, who are those whose work is considered to be more essential or productive.

Remarkably, the new prices reflect international market standards if we apply the new wŏn–dollar exchange rate, which leads to US$0.29 per kilogram of rice.\textsuperscript{26} Obviously, rice is not overpriced, but the incomes are extremely low – as suggested by US$13.30 per month for ordinary income earners based on the new official exchange rate.

Purchasing Power of Rice and US$ (State Prices)

We have seen above that the price reforms did not necessarily mean a loss of purchasing power for North Korean consumers. If it occurred, this loss was less significant than the enormous nominal price increase rates would suggest. We will now examine the situation of those citizens who would decide to use rice or US$ (or other convertible foreign exchange) as a currency. In this section, we look only at the official prices. An analysis of the purchasing power changes based on the free market prices will be presented later.

Table 5 shows the changes in purchasing power under the new state prices, based on the assumption that an individual would exchange a unit of rice or US$ into wŏn and would use this money to purchase one of the other goods. A number larger than
Table 5. Purchasing power changes for rice and US$ (state prices)

<table>
<thead>
<tr>
<th></th>
<th>Purchasing power of rice</th>
<th>Purchasing power of US$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
<td>0.09</td>
<td>0.12</td>
</tr>
<tr>
<td>Corn</td>
<td>1.23</td>
<td>1.68</td>
</tr>
<tr>
<td>Electricity</td>
<td>0.97</td>
<td>1.33</td>
</tr>
<tr>
<td>Bus</td>
<td>2.50</td>
<td>3.42</td>
</tr>
<tr>
<td>US$</td>
<td>0.72</td>
<td>1.00</td>
</tr>
</tbody>
</table>

1.0 = no change; 2.0 = pp has doubled.

1.0 marks an increase in purchasing power (times). To estimate the effects on the rice producers, we have to consider the procurement price (0.8 won/kg), which before the reforms has been 10 times higher than the price consumers had to pay.

The number for rice is unrealistic, because it is based on a possibility for arbitrage under the old system, which in fact never existed in reality. However, the other numbers are more telling. For producers, it is now 23% more economical to produce rice instead of corn (they would have been able to exchange 1 kg of rice against 1.63 kg of corn under the old system, and against 2 kg under the new system). The price for electricity has remained relatively stable for rice producers, which is important with regard to irrigation. However, rice lost 28% of its purchasing power against the US$, which makes production that yields income in foreign exchange more economical, such as tobacco or silkworms, and selling rice against won instead of US$ more rational than before.

Although the numbers in Tables 2 to 4 suggest an increased relative value of rice, we cannot use this as a proof of higher incentives for rice producers because (1) consumers could purchase only a very limited amount of rice at the old price, and (2) producer’s incentives depend on the procurement price, which has increased only by a factor 50 instead of 550 (see Table 2). This suggests that the primary objective of the reforms has not necessarily been an increased output of rice, but rather the introduction of the market mechanism on a broader scale. However, there still are positive signals to rice producers, in particular if we look at the changes that occurred in the free markets as a reaction to the price reforms (see below). The income of the farmers has grown at the same rate as for the recipients of special wages, resulting in significant purchasing power increases on the free markets (see Table 7 later). The absence of stronger incentives for rice producers in Table 5 (state prices) is only at the first glance surprising. In fact, the consolidated legalization of the farmer’s markets in the early 1990s and the subsequent chance to determine the price for their products freely had already provided these incentives. That North Korea nevertheless has a food crisis depends on other factors, such as climatic and geographic conditions, but most importantly on the serious lack of electricity (needed for irrigation), fertilizer and pesticides. The latter are problems that can only be solved through a reform of the whole economy, in particular the industry. Indirectly, the reforms will therefore
help to increase agricultural production. Unlike China, the DPRK is not an agrarian country, and should be expected to import food, financed by exports of industrial products and minerals.²⁹

For US$, the picture reflected in Table 5 looks somewhat different. The number in the first line is again unrealistic for the same reasons as shown above.³⁰ However, the purchasing power of foreign exchange has increased for all other products, most markedly by 68% for corn. This supports the observation made above that under the new price system, it is more attractive to have US$ than before. Table 5 shows that it is more rational to produce rice, and more attractive to possess foreign exchange. Both mechanisms encourage economic activities and send important signals to the economic agents in North Korea.

Moreover, the increased value of US$ points at the possible intention of the reformers to benefit those who have access to hard currency – in other words, the elite. If these redistributive effects of the price reform were indeed desired, this supports two hypotheses. Either, the elite was able to pursue its group interest and ‘capture’ the decisions of the top policymakers, or the leadership felt the need to preventively pacify the elites by offering them material gains.³¹ The implications would be far-reaching. Either the leadership was coerced to react to the demands of societal groups, meaning a broadening of the political power base and a more heterogeneous power structure; or actual/anticipated resistance within the elite had to be countered – by other means than the use of force, or the reforms were the result of a mix of these factors. All three scenarios imply a weakening top leadership and more diversity in hitherto monolithic domestic politics. This is an important observation, since so far there are no signs of any organized political opposition in North Korea. Unequal treatment can be both a source and a result of socio-political diversification. Significantly varying positions within the society will result in different interests, which, if expressed, create pluralism. The latter is a serious threat to the present relatively homogeneous structure in North Korea’s society and might sooner or later lead to its transformation.

Inflation and purchasing power on the free markets

With regards to inflation, it can be discerned from the raw data contained in Table 2 that the price changes had the function of a one-time inflationary bump, and substantially devalued the won-savings of North Koreans. It is noticeable that no currency reform to balance this effect has happened. As a result, holders of won lost over 95% of their savings’ purchasing power. Intentional or not, this dealt a heavy blow to those who were able to amass considerable amounts of the North Korean currency. This may be of some concern to traders on free markets.³² It would be interesting to know whether certain members of the elite were notified of the price changes in advance and had the chance to convert their won savings into other currencies. The absence of an accompanying currency reform is a strong argument in support of the hypothesis that the government not only sought to eliminate distortions in the
price system, but that it also targeted the financial assets of certain groups in the society.

At this point, it would be helpful to know the inflation rate in North Korea. There are no official data; however, there is a relatively simple way to calculate inflation, which, unfortunately, cannot be used yet. Since we have no chance to create a standard basket of goods and services and watch the development of the sum of the weighted prices over time, especially before and after 1 July 2002, we would simply rely on the budget. Setting the 2002 budget at 100%, we would compare it to the 2003 budget. The percentage increase should presumably be a good estimate (at least of P’yŏngyang’s estimate) of the one-time inflation caused by the price increases. However, the Minister of Finance did not disclose absolute numbers for the budget in 2003 and 2004.

North Korea’s price reforms are a case of inflation that was introduced by the state, not as the result of a large number of independent actions of various market participants. The won has been effectively devalued, both with regards to its purchasing power for rice and with respect to the won–US dollar exchange rate. In order to restore the old relations – provided, they reflected a demand and supply equilibrium – the nominal market prices should be expected to rise. First reports indicated that free market prices indeed reacted (FAO, 2002; Pomfret, 2003). The price for rice reportedly went up by 50% over the last quarter of 2002 and has reached a level of about 250 won by mid 2003, marking a 400% increase. This is still surprisingly little if compared to the increase rates in Table 2. The state has indeed achieved a substantial narrowing of the gap between official and free market prices.

Defectors have provided detailed evidence on the price changes on the free markets after July 2002. Their testimonies on major goods are summarized in rows 2 and 3 of Table 6 and allow us to calculate price change rates on the free markets roughly one year after the price reforms.

Table 6 shows that with regard to their purchasing power on the free markets, consumers have gained substantially from the price reforms. An earner of an ordinary wage has now 18 times more cash available than before 1 July 2002, but has to pay only 3 to 6 times more for products on the free markets. This means an increase in purchasing power by 3 to 6 times. In other words: Under the old system, a worker

| Table 6. Price changes on free markets after 30 July 2002 |
|---------------------------------|------------------|--------------------|
|                                | Before 30 July 2002 | First half of 2003 | Change factor (times) |
| Rice                            | 60–70 won         | 220–250 won per kg | ~4                   |
| Corn                            | 25–30 won         | 150–180 won per kg | ~6                   |
| Pork                            | 100–150 won       | 300–380 won per kg | ~3                   |
| 1 US Dollar                     | 210–240 won       | ~900 won           | ~4                   |
| 100 Chinese Yuan                | 2000–2700 won     | 9500–15,000 won    | ~5.5                 |

Source: www.nknet.org; calculations of average prices and change factors: RF.
Table 7. Changes in purchasing power for various income groups (market prices)

<table>
<thead>
<tr>
<th></th>
<th>Ordinary wages</th>
<th>Special wages</th>
<th>Farmers selling to the state</th>
<th>Farmers selling on the markets</th>
<th>Owners of US$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
<td>4.5</td>
<td>13.5</td>
<td>12.5</td>
<td>1.0</td>
<td>1.1</td>
</tr>
<tr>
<td>Corn</td>
<td>3.0</td>
<td>9.0</td>
<td>8.3</td>
<td>0.6</td>
<td>0.65</td>
</tr>
<tr>
<td>Pork</td>
<td>6.0</td>
<td>18.0</td>
<td>16.7</td>
<td>1.33</td>
<td>1.5</td>
</tr>
<tr>
<td>US$</td>
<td>4.5</td>
<td>13.5</td>
<td>12.5</td>
<td>0.9</td>
<td>1.0</td>
</tr>
</tbody>
</table>

1 = no change; 0.5 = pp was halved; 2 = pp has doubled.

would have received less than 2 kg of rice on the free market for his monthly salary of 110 wón; now, he could purchase over 8 kg. This is still not much, and very likely not enough, but it is definitely a very visible improvement. Recipients of special wages (6000 wón/month) even saw their purchasing power rise by 9 to 18 times. Farmers, who now receive 50 times more for their rice from the state than before, had their purchasing power climb by 8 to 16 times.

Remarkably, the purchasing power of the US$34 has remained relatively stable; the changes calculated in Table 7 do not show a coherent trend and may be attributable to natural price developments on the markets according to changing demand and supply. The same is true for farmers who sell their rice at the free markets – the purchasing power resulting from these transactions has remained stable. However, their income from selling to the state has increased by 50 times (40 wón/kg: 0.8 wón/kg, see Table 2). If they use this income to shop on the free markets, which is a realistic option, their purchasing power has increased significantly. As a result, selling to the state has become less unattractive, i.e. the opportunity costs of this transaction have been reduced. Selling to the state yields not only income in cash, but also in political capital. The argument of reduced opportunity costs of selling to the state can be supported by the following calculation. Under the old system, selling rice on the private market would have yielded 65:0.8 ≈ 81 times more than selling to the state (see Tables 2 and 6). After the price reform, selling on the private market now yields only 240:40 = 6 times more than selling to the state. In other words, it has become 81:6 = 13.5 times less irrational to sell to the state. Finally, farmers are not free to choose their buyers: A certain portion of the harvest reportedly has to be sold to the state, so that indeed, the incomes for the rice producers have risen.

Whereas the calculations in Table 5 were of a more or less theoretical nature to answer the question on the intentions of the reforms, Table 6 and 7 reflect the changed reality in North Korea (provided the defector’s reports are approximately true and the higher wages are indeed paid). We can therefore conclude that about one year after July 2002, the reforms have been a success, not necessarily in terms of creating incentives for producers to raise their output, but certainly encouraging them to sell their products to the state. Most importantly, the reforms appear to have led to an improved living situation for most North Korean citizens.
In the attempt to analyze the indented and real effects of the July 2002 changes, we have so far mostly concentrated on consumers and farmers. However, there are a few numbers that allow us to draw some direct assumptions for fiscal policy and the industry as well.

Fiscal policy and the budget

Under the old system, the state has purchased rice at a higher than the retail price, effectively subsidizing rice production. Assuming that each of the roughly 23 million citizens was given the chance to buy a daily ration of 500 g rice for each of the 365 days of the year from state-run distribution agencies, the yearly amount of state-subsidized rice would have been about 4.2 million metric tons. If the state procured rice for 0.80 wŏn per kg and sold it for 0.08 wŏn, subsidizing each kg with at least 0.72 wŏn, it would lead to yearly subsidies for rice alone of about 3 billion wŏn.35 This equals about 13.84% of the 21.68 billion wŏn36 state budget of North Korea for 2001 (MOU, 2002).

Since 1 July 2002, the purchasing price of rice is 4 wŏn lower than the retail price (see Table 2). That certainly means a substantial fiscal gain by eliminating the subsidy. If the transaction costs per kg are below 4 wŏn, the state now even makes a profit. This adds another piece to the puzzle. Only if the state seriously considers letting money matter in the national economy would it care about sound fiscal policies. The fiscal effect is obvious and can rightfully be assumed to have been intended.

North Korea officially dealt with the budget issue in the 7th session of the 9th SPA (Supreme People’s Assembly, the Parliament) in April 1994, but stopped convening SPA meetings for several years after the death of Kim Il-sung three months later. The first session of the 10th SPA was convened in September 1998. At its second session in April 1999, it disclosed a concrete budget size and continued doing so ever since until 2002. However, when the 2003 budget was announced by Finance Minister Mun Il-bong on 26 March 2003, no absolute number for the new budget size was disclosed this time (Rodong Sinmun, 2003a).

A brief comparison with recent budgets in North Korea shows that the most remarkable features of the 2003 budget were the increased rates in expected revenue and expenditure (+13.6% and +14.4%, respectively). No explanation of the reasons for these changes was given.37 The comparable numbers hovered around 2.3 to 3.2% in the three preceding years of 2000–2002 (see People’s Korea, 2001, 2002c).

The calculations made above on the subsidy for rice suggest that there was no increase in the total budget size at all. Although not explicitly mentioned, the rice subsidies must have been part of the state budget. The price reforms decreased public spending by this amount. We can further assume that the revenues were relatively stable, since no dramatic changes were reported concerning North Korea’s national economy as compared to the previous fiscal year. In that case, the state found itself in the position to spend the spare money on other purposes. This was a chance to
interpret the new fiscal plan as an increase of the overall budget, hinting at great economic success (higher revenues) or a strong determination to serve the people well (higher spending). But in reality, the state just reallocated the funds hitherto used for subsidizing rice. This hypothesis is supported by a comparison of the estimated rice subsidies (about 14% of the budget) with the alleged increases in revenues and spending (13.6% and 14.4%, respectively).

People’s life bonds and a liquidity problem

In his report before the Supreme People’s Assembly on 26 March 2003, the Finance Minister reported that the government planned to issue so-called People’s Life Bonds (inmin saenghwal kongch’ae, see Rodong Sinmun, 2003a). The explicit goal was to utilize ‘idle capital’ in the hands of the citizens; buying these bonds was considered to be a patriotic duty (KCNA, 2003). Without a doubt, this was a dramatic move; the last time North Korea issued bonds was in connection with the Korean War (1950–1953). But is it really true, that, as widely assumed, these bonds were meant to finance the budget expansion as described above? It was shown that very likely, no budget expansion has taken place at all. If this is so, what were substantial amounts of North Korean won needed for? And why should we expect North Koreans to possess ‘idle capital’ after a dramatic devaluation of their savings as shown above?

The DPRK cannot use the domestic currency outside its own territory. No imports can be financed by the bonds, neither of food, nor of goods for the military. Obviously, the newly raised funds are meant to be spent in North Korea. The option of financing a budget deficit has been ruled out in the preceding section. So where else is a sudden and significant undersupply of capital, which is so urgent that it justifies the bonds?

A possible answer comes from the price reforms, especially if we regard them as a part and expression of a serious and far-reaching effort, and not just as an ad-hoc measure.

In all institutions and enterprises a system of calculation based on money will have to be correctly installed, production and financial accounting systems will have to be strengthened, and production and management activities will have to be carried out thoroughly by calculating the actual profits. (Rodong Sinmun, 2003a)

The practical implications of this passage are manifold. First of all, the individual production unit now has to be feasible, and not an aggregate of such units like a conglomerate or combine. In the latter, profit-making subunits would cross-subsidize non-feasible ones. Since the state in North Korea owns all means of production, the country can technically be regarded as one great conglomerate. As long as it at least covered its costs and produced the required output, no corrective action by the state was necessary. This changed as soon as deficits were showing up; however,
due to the described lack of transparency, it must have been extremely difficult for the policy makers to identify industries and enterprises that were to be supported or restructured. Subsequently, they decided to introduce more transparent accounting standards – reminding us closely of the South Korean problems with its chaebol and the reforms after the 1997 financial crisis.

In connection with the price reforms of July 2002, this resulted in a suddenly increased relevance of the usual time lag between production costs and revenues from selling the product. The price for labor rose significantly, by 18 to 55 times (Table 2). A simple calculation helps us to understand the magnitude of the problem: wages have increased from 110 won to a range of 2000 to 6000 won. We have no evidence on the distribution of these wages; however, if roughly 1/3 of the employees received special wages, the average wage in North Korea would now be about 3333 won. Some 14.3 million people in the DPRK are in the working age between 15 and 65 (Statistisches Bundesamt, 1995, p. 27). With an average wage increase of 3223 won per month, the additional cash demand for wages alone would amount to 46 billion won (US$307 million at the new rate of 150:1) per month, or a whopping US$3.7 billion per year. Even if only 25% of the workforce would receive the special wages of 6000 won and the remaining 75% would receive a wage of 2000 won, the average would be 3000 won, leading to a yearly cash demand of US$3.43 billion. If we add increased costs for other inputs, such as electricity, raw materials and half products, rents and so forth, this number might come closer to the 10 billion US$ range – which reportedly is the amount to be paid by Japan in the context of a diplomatic normalization (see below).

The increased wages and higher prices for raw materials and intermediary goods had to be paid before the own products could be sold at adequately increased prices. This created a liquidity crunch. Anecdotal reports suggest that indeed, single enterprises are not able to pay the nominally increased salaries (Pomfret, 2002). The problem as described above obviously exists for real. It can therefore not be excluded that the one-time extra revenue created by issuing the bonds was intended to be used to pay the wages and other production costs until the new price system functions.

Another possible interpretation draws on the fact that ordinary North Koreans saw the value of their savings decline sharply with the price reforms. In addition to the elite, the only ones who could reasonably be expected to have cash to spare for the bonds would have been successful private businesspeople. We cannot rule out the possibility that the bonds were targeting the new rich, both to reduce the cash in circulation, and to give them a chance to prove how patriotic they are. The latter corresponds with the Chinese model and the passage on ‘strength, knowledge, and money’ (Rodong Sinmun, 2003a) as quoted before in the section on the Chinese Three Represents.

The issuance of the People’s Life Bonds signals an effort to prevent the economic and ideological failure of the reforms. It is yet another indicator of the strong determination of the North Korean leadership to stabilize their national economy after
Supporting measures: economic zones and the diplomatic offensive

This article has predominantly concentrated on the domestic economy, leaving out the other, externally oriented, important component of economic reform, the Special Economic Zones (SEZs). It has to be emphasized that the domestic price and market reforms have to be seen in connection with North Korea’s attempts at generating income in convertible currency and technology transfer. It is no coincidence that three out of four currently existing SEZs have been legally created in 2002 after a certain time of preparation. There are indications that the new prices have come closer to those on the world market. In particular, the substantial devaluation of the North Korean won suits economic cooperation with international partners. However, as long as the DPRK remains isolated from access to international financial institutions such as the World Bank, the Asia Development Bank etc, and if the limits on the export of goods produced in North Korea and the embargo on crucial imports to the DPRK are not lifted, the success of these zones remains questionable. This threatens the future of the complete reform package, including the changes in the domestic economic system.

The reform has also been backed up by an all-out diplomatic push to solicit international support. On 9 February 2000, a new treaty on friendship and cooperation was signed between the DPRK and the Russian Federation. Other important events occurring since the year 2000 included the summit meeting between Kim Jong-il and Kim Dae-jung in June 2000, the bold diplomatic initiative towards Europe, which resulted in the establishment of diplomatic relations with the European Union and 14 of its 15 members as of June 2004 (see Frank, 2002), the Mt. Kumgang tourism project, the establishment of the Kaesong economic zone, the Sinuiju zone, the Trans-Korean railway project, the opening of another land route between North and South, and the 2002 summit meeting with Japanese Prime Minister Junichiro Koizumi (only one month after the price reforms).

Conclusion

It has been shown that, from a theoretical economic perspective, the sudden transition towards a market economy would entail consequences that are not in the interest of the North Korean leadership. However, a hybrid system in which the state provides a basic supply of crucial goods and leaves the distribution of the remaining available output to free markets could indeed function. Since ideological stability is a necessary condition for the survival of the current political system, the fact that North Korea over many years and with remarkable creativity attempted to provide an ideological backup to the economic reforms implies that these changes followed a well-designed plan. They were a reaction to the new situation after the collapse of the socialist
block and were inspired by China’s success after 1978, rather than ad-hoc measures in response to the famine in the second half of the 1990s.

In ideology, in particular the continued journey away from socialism towards ultranationalism in the context of the Military First Policy has so far been underemphasized. With regard to the future of the reforms, the attempt to accommodate a not yet existing group of successful entrepreneurs within the ruling ideology is remarkable, in particular since the method applied towards this end seems to differ from the Chinese model. However, private property in the form of production facilities is currently explicitly prohibited by the DPRK’s constitution. It remains to be seen whether, when, and how this legal problem will be handled.

The intentions of the reformers can be derived from the more obvious effects that could have been expected from the price adjustments. These were primarily: (1) to level the distortions in relative prices; (2) to reduce (not eliminate) the gap between state and free market prices; (3) to raise the attractiveness for farmers of selling to the state instead of selling on the markets; (4) to benefit the elite; (5) to reward labor according to its productivity; (6) to bring the prices of key goods closer to world market prices; (7) to encourage production of goods that yield income in hard currency; and (8) to eliminate a heavy subsidy on rice. With the exception of (4), these conclusions point at the serious attempt to change the economic system, albeit gradually and in a controlled fashion.

It is still too early to fully understand all real effects of the reforms, in particular since field research in the DPRK is almost impossible. However, the changes on the free markets as reported by defectors and humanitarian organizations suggest a number of results. Most markedly, the purchasing power of almost all North Koreans has increased, assuming that the new wages are indeed paid and that the citizens cover a portion of their needs via the free markets. Savings have been dramatically reduced in their value, an effect that can be offset only by those who are able to generate profits under the new system, i.e. farmers and traders.

North Korea has survived a number of severe economic shocks in its history, the latest being the ‘arduous march’ of 1995–1997 and the ‘forced march’ of 1998. Pinning hopes on a collapse due to economic hardship might turn out to be naive. Rather, both from a humanitarian perspective and with regard to stability in the East Asian region, a support of the economic reforms appears to be the most rational strategy for the international community. This could mean a long and slow process of change, and the continued power of the current leadership. However, a peaceful transformation undertaken by the DPRK’s own means and at a pace that is self-determined will bring about a more stable, sustainable result. The biggest concern of the international community – North Korea’s nuclear arsenal – has the potential to serve as a deterrent against an attack or as a source of income. Both options come at a high price for the North Korean leadership. They might indeed trigger a military preventive action, or a tightened embargo policy. Therefore, moves to assure the DPRK leadership of its security and offering alternative means of generating hard currency income appear
to be cheap and effective strategies to reduce the North Korean nuclear threat. The support of the economic reforms by increasing the amount of goods available for distribution and thereby raising the importance of the markets is a rational strategy towards that end. If reports about a competition between reformers and conservative forces in North Korea are true, the application of pressure will support the latter, while economic prosperity resulting from the reforms will strengthen the reformers.

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Notes

1. A study by the World Food Program estimates that consumers in Western societies consume about 25% more calories than they need (FAO, 2000).
2. In 1995, the daily grain ratio had to be cut from 450 g to 300 g (Hunter, 2001). Noland (2003, p. 10) mentions a reduction of food available through the state’s distribution networks to as little as 128 g in 1997. As will be shown later, the minimum requirement for survival is about 524 g per day.
3. The North Korean version of China’s Great Leap, although less dramatic. Officially started in June 1958; based on an on-the-spot-guidance by Kim Il-sung in the steel factory at Kangson. In essence it was an attempt to increase productivity by an intensified use of human workforce in lieu of other production factors such as capital and technology. It was not limited to the economic sphere; it aimed at transforming the whole society, and created its own culture (for more details, see Koo, 1992, pp. 33ff).
4. The ch'ongsanri-method (article 13 of the 1998 constitution) was developed by Kim Il-sung during one of his frequent on-the-spot-guidances in spring of 1960 in a village of the same name. The method is aimed at improving farm work by encouraging a closer cooperation between the peasants and the leadership of the cooperatives including the party. The same principle is applied for the industry under the label taean-system (article 33 of the 1998 constitution), developed during an on-the-spot-guidance in a factory for electric appliances in 1961 (for more details, see Panin & Altow 2004, p. 27).
5. Harrison (2002) argues that there is a fight between ‘reformers’ and ‘hard liners’. However, quoting the defected high-ranking DPRK official Hwang Chang-y’op, he cautions not to expect the existence of well organized groups: ‘there are no hard-line or moderate factions, just individuals who recognize the need for change’ (Harrison, 2002, p. 64) Prominent reformers are Chang Song-t’ae’ek (Kim Jong-il’s brother in law), Kim Dal-hyon and Kim Mun-song.
6. The FAO (2002, point 2.3) reaches the same conclusion.
7. This condition applies for the extreme cases where individuals have no resources at all to purchase additional foodstuff on the free markets. In reality, the state’s share of this dual distribution system will be smaller than $x_{\text{min}}$ and the portion of the market will be somewhat larger than the difference between $x_{\text{avail}}$ and $x_{\text{min}}$.
8. Available numbers on the North Korean population are very unreliable. Interview partners from the former Eastern Block emphasized that the DPRK has over decades deliberately published lower than actual figures. Estimates on the death toll of the famine years (1995–1997) vary strongly.
9. It is remarkable how close this estimate comes to real data collected in the field. The FAO (2002, Table 4), with a more refined analysis including the consideration of cereals used to feed livestock, seed requirements and post harvest losses, concludes that the total demand of cereals is about 4.9 million tons. The FAO calculations are based on a somewhat lower daily calorie requirement of 2130 kcal/person/day.

10. Joint editorial by three major North Korean newspapers representing the party, the military and the youth organization, usually setting the tone for the year’s development in all important areas including economic policy.

11. Jorganson (1996, p. 282) describes chuch’e as a ‘culturally specific ethnic nationalism’. He argues that ‘North Korean ideology should be studied in the context of Korean nationalism, historiography and culture, and not simply as another version of communism or an Orientalist other’ (Jorganson, 1996, p. 280).

12. The center is the leader, amalgamating party and masses with regard to organization and ideology and ensuring unitary guidance. The central role in connecting the masses and the leader is played by the party’ (Hyön, 1989, p. 17f.).

13. It has to be noted that this success is doubted by a number of analysts. For a particularly devastating assessment, see Chang (2001).

14. For an excellent study of the South Korean development in the Third and Fourth Republic (1961–1979), see Woo (1991). She particularly highlights the importance of external factors for the success of this take-off, such as the support by the USA. Against this background, the normalization talks with Japan and the nuclear gamble with Washington appear in a different light, as will be shown below.

15. There is some confusion over the term ‘second economy’ with regard to North Korea. Here, it is not applied as a synonym for ‘non-state economy’, but describes the economic activities of the military.


17. In brief, this idea, first floated by Chinese President Jiang Zemin in 2001, signaled the intentions of the Communist Party of China to represent not only workers, farmers and progressive intellectuals, but also the newly emerging entrepreneurs, thereby attempting to bring them and their businesses back under the umbrella of the state and the party, while eliminating contradictions between reality and ideological theory that had emerged as a result of the reforms started under Deng Xiaoping after 1978.

18. The dominance of chuch’e is, of course, nothing new. However, throughout the last decades, North Korean propaganda at least pretended that chuch’e was a form of socialism. This strategy has apparently been changed, and nationalism is promoted even more openly as the core ideological component.

19. See for example the 1998 constitution: ‘The DPRK follows in its activities the chuch’e ideology of the Korean Worker’s Party, which creatively applies Marxism-Leninism according to our country’s realities’ (Article 4, translation mine).

20. For a detailed review of the mechanisms of a socialist economy, see Kornai (1992).

21. The first 7-Year-Plan (1961–1967) was extended by three years; the 6-Year-Plan (1971–1976) was extended by two years; the second 7-Year-Plan (1978–1984) was extended by two years; the third 7-Year-Plan (1987–1993) was followed by a three-year intermediate period until 1996 (Nam, 2001).

22. This does not seem to be easy. Two years later, the North Korean economic journal ‘P’yöngyang Economic Studies’ carried an article explaining a number of very basic things, like the difference between yield, turnover and profit, the due consideration of all expenses in the enterprise’s annual balance sheet, and so forth (Kim, 2004).

23. These planned effects are at the center of this article’s quantitative analysis. The actual microeconomic results still have to emerge, and it can be doubted that we will soon have access to even a minimum amount of data to provide for a reliable ex-post analysis.

24. Since at the focus of this study are primarily the intentions of the reforms, a (semi) official North Korean source has been chosen. An analysis by the Seoul-based Korea Development Institute (Cho, 2002) lists strongly varying information on the old and new prices, showing the confusion related
to data on the DPRK. Anecdotal evidence indicates that many more goods than those mentioned in Table 2 have seen price changes, including important ones like pork and housing. For reasons of analytical consistency, these have not been included here.

25. Divide line 3 by line 6.

26. A 20 pound bag of rice (about 9 kg) cost US$3.99 in a supermarket in New York City in December 2002, resulting in a price per kg of US$0.44 (source: http://my.ctownsupermarkets.com/crcpage.asp?p=2). A metric ton (1000 kg) of rice on the international Cash Market in Asia/Thailand costs US$155 on average, resulting in a price per kg price of about US$0.15. In the European Cash Market, Thai rice on average costs US$253 per 1000 kg, leading to a per kg price of US$0.25. Finally, in the US Cash Market, rice (milled long grain) costs about US$8.60 per 100 lbs, i.e. US$45.3 kg, resulting in a price of US$0.11 per kg (source: www.oryza.com/prices as of 3 December 2002).

27. For producers the prices at which they sell rice vary from those at which they would buy it. Under the old system, a farmer received 0.8 won for 1 kg of rice. Theoretically, if he used this money to buy rice from the state at 0.08 won/kg, he would receive 10 kg (in reality, the coupon system prevented this arbitrage option). Under the new system, the farmer sells 1 kg of rice for 40 won to the state, enough to buy 0.91 kg at the price of 44 won/kg in a state store.

28. Lautensach (1945, pp. 85–93) is very skeptical about the agricultural potential in the North due to cold winters, strong variations in precipitation, and the high likelihood of floods and draughts.

29. The German geographer Hermann Lautensach wrote after an extensive survey that ‘of the leading mineral products of the earth only petroleum and tin are missing’ (Lautensach, 1945, p. 445).

30. If we would discount the subsidy and work with a selling price for rice equal to the procurement price (0.8 won/kg), the purchasing power of the USS would have risen by 24% (1.24), instead of being reduced to 12% (0.12).

31. For this article, ‘elite’ is understood in broader terms than ‘leadership’. The latter term relates to the real decision makers, i.e. Kim Jong-il and the top echelons of the party, the military and the government (see Son, 2003). The elite covers the upper middle class, like members of the Central Committee, provincial party and administrative leaders, high-ranking government officials below the level of ministers, military officers, directors of enterprises, and so forth.

32. Noland (2002) argues that in the future, further adjustments will be needed (continuous versus one-time inflation) and that traders are usually less affected since they escape into alternative currencies.

33. 18:3 = 6 for pork, and 18:6 = 3 for corn.

34. If exchanged for North Korean won at the free market rate.

35. Transaction costs are excluded but would change the result insignificantly, further increasing the subsidies.

36. The available budget data for 2002 (22.17 billion won) are not used since the price changes – including a substantial inflation – were applied in the middle of the fiscal year.

37. Military expenditure was not the reason. Defense spending increased only slightly, showing a stable trend, from 14.3% of the total in 2000 to 15.4% in 2003 (official numbers).

38. Only the Rajin-Sonbong-Zone in the Northeast was founded in 1991–1993; the laws on the zones in the other three corners of the DPRK were passed in 2002: Sinuiju (September), Kumgangsan and Kaesong (November).

39. Art. 24: Private property is confirmed to property meeting the simple and individual aims of the citizen.

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