

This is the slightly revised version of an article that has originally been published as:
Frank, Ruediger (2006): Classical Socialism in North Korea and its Transformation: The Role and the Future of
Agriculture, in: *Harvard Asia Quarterly*, Vol. X, No. 2, online at
<http://www.asiaquarterly.com/content/view/172/43/>

Classical Socialism in North Korea and its Transformation: The Role and the Future of Agriculture¹

by Ruediger Frank

East Asian Institute, University of Vienna, Austria

- Abstract -

Agriculture is not the dominant sector in North Korea's mostly industrial economy. Nevertheless, it is of crucial importance given the country's low level of international integration and the resulting limited capacity to acquire food through international trade. Moreover, the few so far successful examples of a gradual socialist transformation in China and Vietnam started out with reforms in agriculture. These two points provide enough justification to have a closer look at that sector and its possible role for the future of North Korea. This will be done following Kornai's (1992: xxvi) advice who urges us to "study the classical, prereform system, for that is the only route to a thorough understanding of the problems, crises, and vicissitudes met with by the socialist reforms, and then of the state of affairs and the problems as the post socialist transition begins." Accordingly, the paper starts by exploring the general characteristics of state socialism as witnessed in the Eastern Block with a particular emphasis on agriculture, before contrasting the results with the specific case of North Korea. Based on Kornai's theoretical framework, the reasons for the relative functioning of the North Korean agriculture over the last decades will be discussed, as well as the new circumstances that made a continuation of the old approach impossible and demanded a policy change. A discussion of the various options for reform will be followed by a reality check considering a sufficient likelihood of regime stability as one precondition for a top-down reform process. Finally, the actual reform measures and their future will be discussed.

¹ The author would like to thank the Korea Foundation and the Graduate School of International Studies of Korea University in Seoul for their support of the research that led to this paper.

Food in a National Economy

The main product of agriculture is usually food, which from an economist's perspective is a rather unique good. Until an individual has acquired the subsistence ration, or until market saturation has been reached on the macro level, demand for food is price inelastic.² In other words: no matter how high the price, to ensure physical survival a rational individual would spend resources as long and as much as his (or her) resources permit. In this stage, food is food; corn, rice, wheat, meat, vegetables - they are almost perfect substitutes. Preferences such as taste exist but do not matter. This changes rapidly once the individuals have secure access to food. Instantly, demand becomes income and price elastic, the consumption of starchy food declines, and the consumption of meat, fruits and vegetables typically rises. Consumer preferences start to matter, and producers react by diversifying their supply.

North Korea clearly is in the first stage, with aggregate food supply well below the market saturation level. So what is the way out? There are two ways of increasing the food supply in a national economy: domestic production and import. The latter has the benefit of allowing domestic producers to focus on their country's comparative advantage and of letting consumers benefit from lower production costs in other economies. However, import comes at a price that is usually calculated in hard currency, another good of short supply in North Korea. The opportunity costs of food imports are particularly high for less developed countries that have very limited sources of hard currency due to small export amounts and a low international credit rating, and who therefore rather prefer to use its scarce resources to import technology, capital goods or consumer goods for the elite.

Domestic food production has the great advantage of not directly requiring hard currency, although it might do so indirectly - for example for fertilizer or energy imports. This can at least partially offset a comparative-advantage-based inefficiency. Strategic considerations can have similar effects³. In North Korea, both factors seem to play a role. Most importantly, the issue of food provision is closely related to the system of political economy predominant in a given country. This relates to production and distribution, affects producers and consumers, and finds its expression in quantity, quality, diversity, and price levels.

² Elasticity measures the relation between change rates. The price elasticity of food demand, for example, measures how strongly demand for food reacts to price increases or reductions. Inelastic demand means that there is no reaction to price changes.

³ The dependency of industrialized countries on oil and the resulting power imbalance has often led to dramatic events such as the various oil crises and military conflicts over access to oil fields. The exposure of the developed countries vis-à-vis petrol exporters is immense; how much bigger would this vulnerability be if the product in question was food, and the result of a boycott would be famine instead of a traffic collapse.

While being unique in many respects, the North Korean system is socialist in principle, as the analysis below suggests. This fact determines the available options among which policy makers, producers and consumers can choose. The following section explores the limits that such a system faces generally, and specifically with regard to agriculture.

Socialism⁴ and Agriculture

The Classical Socialist System

Although each country that has in the past officially branded itself as “socialist” showed very specific characteristics depending on the respective natural and social resource endowment, it is still possible to extract a set of features that are common to all these cases and define the classical socialist system.⁵ These are, in hierarchical order: (1) Undivided power of the Communist Party and dominant influence of the official ideology; (2) Dominant position of state- and quasi-state ownership; (3) Preponderance of bureaucratic coordination; (4) Plan bargaining, quantity drive, paternalism, soft budget constraint, weak price responsiveness etc.; and (5) Forced growth, chronic shortage economy, labor shortage and unemployment on the job, the system specific situation and role of foreign trade etc. (Kornai 1992: 361 calls this the “main line of causality”).

North Korea shows all these characteristics. The Communist Party (Korean Worker’s Party) has the power monopoly, although the borders between the party and the military are somewhat blurred. With *juche*,⁶ North Korea has its dominant ideology. The industry is owned by the state, agriculture is collectivized, and society (including the economy) is centrally administered by an omnipresent bureaucracy.

The effects of these attributes continue to closely resemble Kornai’s model. On the supply side, this includes an inclination to over-invest and little consideration of costs and returns in investment decisions because of the absence of an exit mechanism and of incentives for effi-

⁴ Kornai (1992) is one of the standard works on the socialist system. This book corresponds perfectly with the author’s own first-hand observations under socialism and will therefore be used as the primary source of theoretical reference for this part.

⁵ Kornai sees four stages of socialism: revolutionary-transitional, classical, reform, and post-socialist, although “Interpretation of the prototypes as consecutive historical periods can be accepted only as an initial and not entirely accurate approach... In some countries the order of appearance is different, or the stages alternate with one another.” (1992: 19)

⁶ This ideology was created to respond to threats stemming from the competition between Moscow and Beijing for hegemony within the socialist camp. In short, it refuses the one-on-one copy of alien concepts and rather stresses the need to apply any orthodoxy to the concrete and specific conditions of Korea. Major components are an emphasis on self-reliance in ideology, foreign policy, military affairs and the economy. Jorganson (1996) defines *juche* as a “country-specific ethnic nationalism.”

ciency.⁷ Return on investments was of secondary importance for producers due to their soft budget constraint: capital came from the state, not from their business activities, and bankruptcy was not a threat. Accordingly, production decisions were made to please the higher levels of the hierarchy, not the consumers. North Korea exhibits a strong paternalism including reluctance on the side of the bureaucracy to leave anything to spontaneous development. From a general point of view, North Korea was a typical example of a seller's market.⁸ The changes that can be observed since Kim Jong-il took over power, including the constitutional amendment of 1998,⁹ explicitly targeted this kind of behavior, thereby indirectly confirming that it existed.

A central plan combined with a seller's market implies a fixation with quantity and numbers instead of quality, which is also true for North Korea. The chronic labor shortage has led to a number of big and small "work harder" campaigns, of which the much publicized *cheollima*-movement¹⁰ is just one example. As in most other socialist societies, foreign trade in North Korea is conducted by central authorities and is closely linked to political decisions. The characteristic socialist shortage economy can easily be observed in North Korea, where at one point it has reached its most extreme stage: a food shortage. Also typical and systemic has been the focus on large-scale heavy industry investment while simultaneously, light industries, services and agriculture have long been neglected.

Unlike producers, individuals faced a hard budget constraint, but nevertheless responded weekly to prices because it was not their financial resources that decided about the chance to acquire goods or services, but other criteria such as availability and social capital such as personal networks or ranking in the state hierarchy. Accordingly, the price system has been distorted for decades. This situation has, however, been changing strongly after the reforms of July 2002 and the subsequent re-monetization of economic transactions in North Korea (see Cho 2002).

It would be misleading, and in fact wrong, to point at the many differences between North Korea and the Soviet model of socialism and conclude that this is a unique case for which

⁷ This is what Kornai calls the "soft budget constraint".

⁸ The buyer bears all the transaction costs: he acquires information on where and how to get the product (hence there is no advertising), he adjusts to the supply by the seller (forced substitution), he does his best to win over the seller, and he mainly bears the consequences of uncertainty and hence has to build up reserves including the capability to produce a good in short supply himself. The latter explains the high degree of vertical integration in a socialist economy (Kornai 1992: 246ff.). "The seller's market eliminates the incentive of competition. It is not worth trying to cut prices, improve quality, or introduce new products in order to win buyers, because the sale is guaranteed in any case." (Kornai 1992: 301).

⁹ Article 33, for example, urges the consideration of costs, prices and profits in economic management.

there is no previous experience. At a certain level of abstraction, there is not much mystical about North Korea's economic and political system. Although not all analysts would call it "socialist" according to orthodox Marxist-Leninist standards, North Korea clearly has exhibited the features of a typical classical socialist system as laid out by Kornai. This leads to the expectation that the same is true for the country's agricultural sector.

Socialist Agriculture within the Classical System

Agriculture is an integral part of a classical socialist system, but at the same time possesses a number of very distinctive characteristics that help to explain its specific role. These features include the ownership structure most prominently, as well as the related ranking of this sector in the eyes of decision makers in the party and the bureaucracy.

There appears to be a politically determined hierarchy among economic sectors under socialism. Lenin called mining, energy production, and manufacturing the "commanding heights" of an economy (Kornai 1992: 71). Agriculture is not mentioned in this connection and often becomes associated with backwardness. In North Korea, as in most other socialist systems, for decades the emphasis of economic policy was on heavy industry. The status of agriculture has only recently been upgraded.¹¹

A glance at the ownership structure helps to understand why agriculture receives a relatively less favorable treatment under socialism. It can be very cumbersome to integrate a peasant into a standard, i.e., ownership-determined class based socialist ideology.¹² Is a farmer who owns his own land, house, cattle and tools but produces hardly more than what guarantees subsistence for himself and his family a capitalist? The criterion "ownership of means of production" would suggest an affirmative answer. Marx, however, decided to label as a capitalist someone who, on a permanent basis, *employs (and thereby exploits) labor* to utilize the means of production he owns. From this perspective, a farmer tilling his own land together with his family is not necessarily a capitalist; yet, a shadow of a doubt remains. Not least because of this ambivalence, the worker in the class hierarchy within a typical socialist society is usually

¹⁰ referring to the "1000-ri-horse", a magical winged animal that, according to a popular legend, was able to travel a huge distance in just one day

¹¹ In the 2005 and 2006 New Year Joint Editorials, published by the party's newspaper Rodong Sinmun and setting the key priorities for the year, agriculture was characterized as the "main front of economic construction" (), referring to Kim Il-sung who is quoted as saying "rice means socialism" ().

¹² According to the Communist Manifesto, there are two antagonistic classes (the working class and the bourgeoisie) that cannot be simply "joined". Membership in these classes is determined by the individual's ownership of means of production, which in turn decides whether one exploits or is being exploited.

positioned above the farmer; both form an alliance, but the worker leads. When it comes to investment decisions, agriculture certainly suffers from this ranking.

Socialist Agriculture: Collectivization and Efficiency

After the socialist revolution and the typical land reform that expropriates “rich”¹³ landowners and distributes their land among farmers, collectivization is a political imperative for the Communist party for a number of reasons. Socialist revolutionaries usually had made the promise that they would eliminate backwardness quickly and start a fast process of catching-up and development; this brought broad strata in society over to their side (Kornai 1992: 161). After revolution, they have to deliver; classical socialist systems usually show a great haste in reaching these developmental goals. Furthermore, the danger stemming from an independent political force based on a private ownership structure in agriculture is unacceptable.

From a socialist point of view, therefore, simply maintaining the status quo after the land reform is impossible. Individual success as a farmer is almost self-prohibiting, since it would transform him into a wealthy peasant who would then have to fear persecution for political reasons. Accordingly, collectivization is the logical next step, but not the last one. The Communist parties in classical socialist systems were usually quite suspicious of collective ownership, regarded it as transitional, and intended to transform it, sooner or later, into state ownership. This process was particularly far advanced in the Soviet Union, where the proportion of land used by *sovkhoz*¹⁴ grew from 9.6% in 1953 to 53.4% in 1983 (Gregory and Stuart 1986: 269, quoted in: Kornai 1992: 83). The goal of these measures was to turn members of a cooperative into agricultural workers. The Great Leap Forward¹⁵ in China is another extreme example of the general socialist attempt to resolve the ideological challenge posed by semi-private ownership in agriculture.

There are economic arguments pro or contra collectivization. The concept of economies of scale¹⁶ suggests that bigger production units are more cost efficient; investments can be made into machinery, and division of labor allows for a specialization that enables cooperatives to apply advanced farming techniques. However, the absence of any incentive stemming from

¹³ The actual definitions of „rich“ vary. Usually, ownership beyond certain acreage, permanent employment of outside labor and/or ownership of agricultural machinery are used as thresholds (see Kornai 1992: 77).

¹⁴ Russian acronym for sovyetskoye khozyaystvo (state-owned farms); kolkhoz (kollektivnoe khozyaystvo) were collective farms

¹⁵ A bold move aimed at simultaneously raising the output of industry and agriculture. The latter was to be achieved through scrapping individual and collective farming (in 1957, China had about 800,000 collective farms) and organizing food production in Communes, of which by the end of 1958 over 26,000 existed embracing 98% of the farming population (Hsü 1995). The move ended in a severe famine.

direct ownership implies less enthusiasm and initiative, a moral hazard to free-ride, and hence lowers productivity. Whether the actual result of the equation (effects of economies of scale minus effects of depersonalization of property) is positive or negative obviously depends on the relative size of both components. Propaganda, supervision and other means of control can be utilized to keep the latter part as small as possible.

An important practical issue is whether the actual conditions in a nation's agriculture provide sufficient room for the development of economies of scale. The answer depends strongly on the geographical conditions and the type of agricultural products. The combination of large plains and wheat will show much better results than small valleys and paddy rice fields. The validity of the argument that small farmers cannot afford the investment to purchase machinery can be challenged by the experience of socialist countries themselves. Such machinery can be rented, as was the case in the Machine and Tractor Stations (MTS).¹⁷ A positive result of the collectivization of agriculture is that it turns the hitherto hidden unemployment under the family system into a visible oversupply of labor, thereby releasing a vast labor surplus to the other sectors (Kornai 1992: 205). However, this is a one-time effect that also depends on favorable conditions within the society for mobility.

The experience of the Soviet Union shows economic effects of collectivization that follow a u-curve: First, output dropped dramatically, but eventually rebounded to reach pre-collectivization levels. However, research on cases where relatively reliable quantitative data are available suggests that despite some growth, the potential output is not reached under collectivization; this is highlighted by the significantly higher output of so-called household plots, which farmers were allowed to till privately (for data for the Soviet Union, see Kornai 1992: 81). With the less favorable natural conditions of North Korea as a mountainous country and under the specific conditions of paddy rice production, that does not allow most cooperatives to grow beyond a relatively small size, we can expect the positive effects of economies of scale to be even lower in that case.

The beneficial effects of economies of scale must be contrasted with the negative aspects of the partial separation of ownership and management brought about by collectivization. Under a centralized economic system, agriculture comes under the influence of the party line of command and becomes integrated into the politically determined hierarchy of economic priorities. Members of a socialist cooperative usually do not have the possibility of exit, to freely

¹⁶ The costs per unit decrease with rising output.

¹⁷ First introduced in the Soviet Union, the MTS were a shared resource of agricultural machinery and technical personnel.

determine the leadership of the cooperative, to decide on what to produce, and on how to use the cooperative's income.

Socialist Agriculture, Plan Bargaining, and the Incentive Structure

Many typical negative effects of a centrally planned and administered economy can be observed in agriculture despite its semi-private nature. One of the major problems is the lack of a proper incentive structure to maximize output, to use inputs economically, and to follow the central plan faithfully.

Theoretically, the implementation of the plan in a classical socialist system is compulsory, creating big difficulties in branches of the economy that are dependent on unpredictable natural conditions. Since no negotiation is possible about the result of production, this bargaining process is transferred to the pre-production, planning stage. Accordingly, a production unit has a strong incentive to fix a target that is as low as possible. Kornai calls this attitude "withholding performance". To the individuals, it is clear that missing the plan targets is risky. However, substantial overfulfillment of the plan is dangerous, too, since it sets a new minimum for following plan negotiations. Accordingly, the production units in such a planning system have a strong disincentive to produce significantly more than the plan requires. By this mechanism, low productivity becomes institutionalized.

The absence of exit mechanisms contributes to the phenomenon that firms in socialist systems (including agricultural cooperatives) tend to be less eager at fulfilling contracts, either with other firms or with the state. In the socialist system, negotiation is always possible, often because there is no alternative (Kornai 1992: 141f.). A non-performing firm cannot be closed, so the bureaucracy has an interest in getting as much of the formerly agreed amount of output as possible through "soft" means. The firm is aware of that and develops skills to make such a negotiation acceptable and to avoid stern punishment.

When extensive methods of growth are exhausted, raising productivity remains the only option for increasing output. In lieu of market signals, the typical way to do so is the utilization of non-material incentives through propaganda or coercion. The "revolutionary fervor" and readiness for personal sacrifices that can be observed shortly after the revolution tend to be of a temporary nature and quickly make room for a desire to get back to "daily normal life" (Kornai 1992: 29). This has its repercussions for output in agriculture, too; in particular since the new collectivized ownership structure provides only weak material motivation for productivity increases. The aforementioned distribution of wealth through re-distribution after the

expropriation of rich land owners can be done only once and cannot be repeated. Accordingly, the enthusiasm created by this measure naturally declines. The de facto reversal of redistribution that happens through collectivization also does not contribute to the farmer's readiness to increase productivity.

Kornai (1992: 42) makes an important observation: under a socialist system, "prestige" can only be acquired within the limits set by the bureaucracy¹⁸. Alternative sources of prestige as they exist in pluralist societies with private economies, such as business success, income, or wealth, are of secondary importance or do not matter at all. In other words, for an individual, attaining high output does not matter as much from an economic perspective as it does with regard to the *political* return this effort yields.

If this is the case, under a totalitarian political system, why not simply issue an "order" to increase agricultural production? The problem is systemic: Directives from above will not necessarily result in increased production; they will result in attempts to please the higher levels of the bureaucratic hierarchy. This is a subtle difference: not the order is obeyed, but the institution that issues the order. Output increase is only one way to achieve this goal; others are plan bargaining, misinformation, or delegation of responsibility. A firm under socialism has a multitude of economic, political and social goals - defined by the "party line" - that compete with each other (Kornai 1992: 125). It is therefore indeed possible, as will be argued below, that despite the rigid political system in North Korea, agricultural producers might indeed be withholding performance.

Prices and Shortage in Socialist Agriculture

Among the consequences of an economic structure as discussed above are a distorted price system and a chronic undersupply of goods and services, also known as a shortage economy. Both factors have their consequences for agriculture and food production.

As well as all other producers under socialism, cooperatives are weakly responsive to price signals because of the soft budget constraint, the seller's market, and the limited utility of money in their economy as discussed above. Kornai (1992: 153) further reminds us that consumer prices in a classical socialist system are of a particular political relevance. Accordingly, these prices are set depending on political, not economic considerations. Prices for consumer goods, which do matter because households unlike producers face a hard budget constraint, are deliberately utilized to influence the spending pattern of citizens. Typically, so-called lux-

ury goods¹⁹ receive a heavy price markup that functions like a tax, while basic goods such as staple food are heavily subsidized, sometimes to an extent of 100% (free medical service, childcare etc.).²⁰

In reality, often acute shortages of the subsidized goods occur, leading to a paradox situation: the state, by artificially lowering the actual price below the equilibrium price, increases demand for goods that are in short supply such as, in the case of North Korea, agricultural products, thereby shooting its own foot. The inability of the inefficient socialist economy to produce a sufficient amount of these basic goods poses a serious political challenge, because it collides with the claims made during the socialist revolution: a better life for all. This can directly lead to a legitimacy crisis, especially when there were few alternative promises, and public support of the system depends on the ability to deliver in the economic sphere. In cases such as North Korea, with a high ideological component in the bundle of promises on which the party-state's legitimacy is based, this problem is not as severe, although of course still quite significant. Nationalism, absent or less part of the official state policy in most European socialist countries, thus makes a big difference.

Because prices cannot send effective signals or convey information that is appreciated, the inclination to have realistic prices is low, as is the readiness to adjust them. Furthermore, inflation is usually regarded as a sign of capitalist backwardness. Admitting that signs of such backwardness exist in the allegedly "superior" socialist system creates high political costs for the party-state. On the other hand, the beneficial effects of a realistic price system are small because prices as such do not have the important function as in a market economy. Accordingly, in a classical socialist system the price relations are usually heavily, continuously and deliberately distorted, and the expressiveness of single prices is limited. Kornai (1992: 152) puts it more bluntly: "the relative prices emerging under the classical system are arbitrary and irrational". Among the reasons why prices still exist under classical socialism at all, he notes, is the necessity to compare values of qualitatively unlike goods or services.

Wages are the price of labor; accordingly, what has been said on prices in general also applies here. Under socialism, wages are relatively performance-inelastic. Withholding performance is therefore not only a rational option for a firm, but also for efficiency-oriented individuals,

¹⁸ with the exception of academics, artists, or sports figures

¹⁹ In standard economics, a luxury good is characterized by a positive correlation between price and demand. Here, "luxury good" refers to non-basic products, such as consumer electronics, cars, coffee, etc.; the actual classification of luxury goods varies among socialist systems.

who are neither influenced by negative incentives (fear to lose their job) nor by positive incentives (higher wages)²¹. The party-state reacts with ideological and administrative counter-measures such as propaganda or intensified control. These, however, face a number of insurmountable obstacles. The authorities cannot be everywhere. More importantly, the actual ability of a worker is known only to himself; the supervisors are left guessing based on his previous and society's average performance.

This asymmetric distribution of information has the same consequences as we would expect in any standard economic model: a typical prisoner's dilemma and an agency problem. Even if no member of a work team would actually withhold performance, the very suspicion that this could be the case will compel each team member to invest less effort; just in case. The other team members' doubts turn into a self-fulfilling prophecy and start a vicious cycle. Unless ideological incentives will be reliably able to influence 100% of the workforce, which will rarely be the case, such a non-material incentive system will not work. The state, frustrated and facing a growing inefficiency of its economy, typically reacts with intensified political repression²², which is therefore endemic under classical socialism.²³

According to Kornai (1992: 233) an economic system is a shortage economy (a term I prefer over "wartime economy") when the following conditions coincide: shortage phenomena are general, frequent, intensive, and chronic. Queues, or their virtual form (waiting lists), are a typical expression of shortages. Factors such as state ownership, central planning, bureaucratization of the economy and the absence of a functioning coordination via price signals lead to the inefficient allocation of resources. It is important to note that these inherent features of the classical socialist system are the reasons for low output, or a shortage. Accordingly, a sustainable solution must either touch upon these issues, or fail.

Shortage under socialism is unique if compared to a market economy insofar as that the individual usually cannot solve it by increasing the price he is willing to pay; since producers are only weakly price responsive and consumption is deliberately discouraged by the bureaucracy, individuals are either forced to purchase another product because it is available (forced

²⁰ Price statistics show that selected foodstuff such as coffee was treated as luxury goods, too. While the price for bread or public transportation was much higher in West Germany than in East Germany, coffee or electronic goods cost significantly more in the East than in the West (Kornai 1992: 157).

²¹ Some flexibility exists with regard to the type of job, and if the state manages to provide enough consumer goods that are desired and available through harder work. In North Korea, this rarely seems to be the case.

²² For a classic on this question, see Hayek (1994) who argues that sooner or later, repression naturally becomes a feature of any collectivist society.

²³ As I have argued elsewhere, the introduction or strengthening of material incentives during perfection measures or reforms therefore has an added value in terms of improved human rights and more political freedom (or less oppression); see Frank (2005b).

substitution, see Kornai 1992: 231), or to postpone the purchase (forced saving). Although hardly of much relevance to the individual, it makes a big systematic difference whether someone is starving because there is no food to buy, or because he does not have enough resources to pay the price. The at least partial marketization and monetization of food distribution in North Korea therefore represents a major step towards normalization, despite the so far unsatisfactory results.

Returning to the systemic limitations of socialist economies, it's worth noticing that one logical reaction to shortages by individuals, as well as by firms, is hoarding. As such, a certain good such as food (or tires, spare parts, clothing etc.) is not bought when it is needed but when it is available, based on the expectation it can be used to barter it against another good or to have it in stock when the need actually emerges. This rational individual behavior aggravates shortages. The scarcity of a product itself often serves as a signal to consumers to buy it, not only genuine need²⁴. The consequence is that in order to overcome a shortage, the bureaucracy has to find means to provide much more than is actually needed, in order to calm the expectations of another shortage and/or to provide enough to not only cover the immediate demand, but also the demand created by hoarding. Since shortages usually occur for goods that are already very scarce, it is almost impossible for the bureaucracy to fight the problem. The expectation of shortages is often self-fulfilling (Kornai 1992: 286).

One way to get around a shortage produced domestically by the inefficiency of the socialist system is import from capitalist countries. This makes the earning of convertible currency crucial - which would not justify, but to a certain degree explain, the propensity of countries like North Korea to engage in hard currency-earning activities that are deemed illegal by international standards or agreements, such as trade in narcotics or counterfeiting. A less costly alternative to trade is the inducement of one-way transfers, mostly relief goods such as food or medicine. North Korea has been successfully engaged in this practice for decades and has acquired substantial experience in this field (see Frank 1996).

A typical reaction to shortages of vital goods is rationing. This is not a phenomenon unique to North Korea, and is not necessarily related or limited to staple food. Gasoline, coffee, access to higher education etc. have been rationed to ensure that the aggregate supply available (or deemed to be acceptable) can be distributed as equally as possible. Waiting times are also

²⁴ In the early 1980s, together with two teenage friends we put signs reading “only one piece per customer” on a number of otherwise quite unattractive products in an East German supermarket and watched how people started purchasing these goods. The dire consequences of such a subversive act could only be prevented through intensive interventions from our parents and teachers.

a form of rationing, and refer to goods such as cars, telephone lines, and housing. Various kinds of rationing can be observed in all classical socialist systems, including mechanisms of enforcement. Rationing is distribution through bureaucratic coordination and, accordingly, leads us to expect a commensurate level of corruption. Rationing renders the price mechanism (or what is left of it) dysfunctional, but on the other hand supports the emergence of a shadow economy that follows market rules.

On a side-note, it should be mentioned that not everyone suffers from a situation as described above. Kornai (1992: 328) points at the benefits of those who supply the rare goods and thereby generate rents. These individuals or firms cannot necessarily be expected to have a genuine interest in ending the shortage per se. Depending on their ability to capture the decision making process, such quasi-monopoly interests could hamper efforts at productivity increases that would threaten the status quo of the economic system's structure.

There are other factors that tend to stabilize such an actually suboptimal situation. Kornai (1992: 50) notes that as the classical socialist society develops, the former more general sources of ideology "tie in very closely" with emerging, very particular characteristics of the system to "justify what arises in practice" (ibid.). North Korea's *juche* ideology is a typical example. This does not only explain why the cases of "actually existing socialism"²⁵ often differ so much from the classical writings; it also provides a clue to the question of why, despite many obvious shortcomings that should inspire both the elite and the people to look for alternatives, classical socialism was able to exist for considerably long periods of time.

Options for Reform in North Korea

We have seen that the North Korean economy including agriculture exhibit the major features of a classical socialist system and accordingly also suffer the consequences. The shortage as described above and the many problems resulting from it - individual dissatisfaction, threatened legitimacy, and mounting corruption - does not pass by unnoticed by the leadership. Socialist systems tend to be slow to change, but provided that enough political capital²⁶ can be accumulated to push for an elimination of the shortage as described above, what actions can be expected, and what will their effects be? Again, reference to Kornai's work proves quite helpful before turning to the concrete North Korean case.

²⁵ in German: Realexistierender Sozialismus

²⁶ Depending on the concrete case, one could imagine various forms: pressure from below, powerful reform factions in the party, an enlightened leader, external pressure, etc.

Obstacles to Change

All socialist systems have exhibited the serious and obvious shortcomings as described in the first section of this paper. Yet these systems did not collapse right away, but were able to survive for decades and in the case of North Korea continue doing so. The logical conclusion is that there must be very powerful obstacles to change or reform. In addition to the arguments briefly introduced above - vested interest in maintaining the status quo, connection of the leadership's legitimacy to the result of the country-specific development process of classical socialism - there are other factors that have proven to be effective impediments to changes.

A serious ideological problem is the "Messianic" belief (Kornai 1992: 50-51) that socialism is destined to save mankind, and the conviction that the socialist system is both economically and morally superior to the capitalist system. Decades of continuous propaganda make it difficult to radically challenge the basic principles of socialism such as state ownership and rule by the Communist party. Moreover, socialism itself is often regarded as a good of intrinsic value, despite its performance. This helps to understand why this term is so stubbornly defended, as we see in the case of China or North Korea, even if reality has changed substantially. It also provides strong incentives for the bureaucracy to continuously look for methods to "make socialism work", based on the assumption that the socialist system is good, that the fate of society is connected to the fate of the socialist system, and that the obvious non-performance is a threat to that system.

Changes of the status quo imply a discussion of the need for action and of alternatives; as far as we can tell as outside observers, North Korea has been remarkably silent in this respect, especially when compared to China (even pre-1979). The reason could be that such a debate will lead to a polarization of (at first virtual) opinion that can serve as a nucleus for the emergence of very real political factions. The consequences are twofold: an open discussion about changes will generally be avoided by the group in power, and the identification with certain proposals can quickly be equated with membership in an existing or previously purged political faction and will therefore be shunned by rationally acting individuals. The result is an almost total lack of dynamics. A way out of this deadlock situation can only be provided by the highest authority in the system itself. For North Korea, this would be Kim Jong-il. Only if he explicitly decides that it is appropriate to explore new ways in the management of the economy including agriculture, will the bureaucracy react.

Not Yet Reforms: The “Perfection Drives”

As the problems of the classical system aggravate, the leadership becomes aware of them but remains convinced that the system itself is right, arguing that correct principles are (just) not applied exactly and consistently enough (Kornai 1992: 396). A usually short-lived process of changes starts that does neither affect the Communist party rule nor state ownership - the mainstays of classical socialism. Bureaucratic coordination through direct control and planning basically retains its dominant role. The aim of adjustment measures to be described below is to *improve* the planned economy, not to *replace* it. Such often consecutive “perfection programs” have taken place several times in various socialist countries, including North Korea.

Among typical perfection measures (see Kornai 1992: 401ff.) were a reorganization on the upper level of bureaucracy (new organizations responsible for specific issues such as quality control; reduction of hierarchy levels to streamline the flow of command and information; merger of organizations to streamline their operations and harmonize operations), the merger of firms (to come closer to the ideal of “no overlapping investments”), an improvement of planning and direct control (application of mathematical econometric methods, computerization, cutting plan indicators, more emphasis on value than on quantity, emphasis of profit instead of gross output, etc.).

Despite these efforts, Kornai argues that socialist systems are not at all able to truly self-reform, because the reason for the relative stability of classical socialist systems is the strong coherence of their components. This prohibits reform for the sake of survival, because once single elements are altered, the whole construct would collapse: “it produces a fabric so closely woven that if one strand breaks, it all unravels sooner or later” (Kornai (1992: 383; see also xxv and 288ff). Since the primary reasons for the shortage phenomena under socialism are neither mistakes of participants in the economic process, nor economic backwardness or a faulty economic policy, no reform that does not touch the system itself could be successful. The causes of shortage are system specific; they are related to the typical structure of power, ideology, ownership and coordination.

But even though efforts at reforming the system without replacing it might in the end turn out to be futile, there are powerful inducements obliging the system to change (Kornai 1992: 382). These include the accumulation of economic difficulties through, among others, the lag in technological development, increasing debt, the worsening state of neglected sectors, and the decreasing surplus mobilizable by extensive methods. Other inducements are a growing

public dissatisfaction over economy-related issues, a growing crisis of confidence by those in power, and not least the outside example of reforming socialist systems.

What Makes a Reform a Reform?

Reform is a term that is often used arbitrarily. The North Korean side has in most cases tried to avoid *gaehyeok* (개혁, reform) and instead used *jeonbyeon* (전변, change) or *balhyeon* (발현, development); terms such as “transition” or “transformation” are strongly rejected. In other socialist countries, one euphemism for policies that broke with the past was “new”, as in New Economic Policy, New Economic Measures, or New Economic System of Planning and Guidance. The latter - failed - campaigns explain why it is necessary to give the question of terminology some serious consideration; by no means do changes in economic policy have to lead towards a development that brings about lasting improvements. In fact, the debate whether North Korea has entered the true reform stage or just undertook a few ad hoc, cosmetic improvements or perfection measures is one of the major foci of academic discussion in the field of North Korea research.

For the qualitative assessment of changes of the status quo, Kornai (1992: 386) suggests two dimensions: “depth” and “radicalism”. Depth refers to the importance of the field in question to the stability of classical system. Radicalism measures the decisiveness and the degree to which a certain measure is taken. Following his “main line of causality” (see above), Kornai insists that a true reform requires changes in the Communist party power monopoly, the ideology and the state’s ownership of means of production; especially the latter have to affect large and significant parts of the economy.

As evidence from other cases suggests, we would have to expect, as a first step, that the leadership of a classical socialist country becomes aware of the growing economic difficulties and in a second step builds an internal consensus that something has to be done. This can end in a purge, but might also develop into a perfection drive. These measures will not touch the pillars of the system. Depending on their success, external factors and domestic political processes, a return to the original status quo or a tendency towards deeper and more radical change can be expected. This is not an easy decision. As the history of perfection drives in socialist countries suggests, it takes more than one unsuccessful attempt to realize that something more radical has to be done, and to build up a reform pressure that will overcome the obstacles mentioned above.

A departure from classical socialism starts when there is a discussion of imitation or incorporation of certain features of capitalism into the system, and if an end to the self-imposed isolation from the outside world can be observed (Kornai 1992: 52, 59). This marks the beginning of a process that, depending on the internal and external conditions, can either proceed smoothly over a longer period of time, or lead to a quick qualitative change, either through collapse or, as in the case of East Germany, integration into a capitalist system.

Markets play a particular role in this process. They are nothing entirely new to socialism; an informal economy existed in every classical socialist system, although its actual forms differed. Examples include production or services performed by one individual for another (typing, baby-sitting, cleaning, repair etc.), subletting, trading outside the framework of officially allowed commerce, "black" transport by drivers of state-owned vehicles, etc. Not the emergence, but the strengthening and the actual weight of these "parallel markets" (Kornai 1992: 156) matter.²⁷

Agriculture: A Pioneer Sector for Reforms?

The very nature of agriculture as discussed above makes this sector particularly suitable for an increased role of markets and experiments with new forms of ownership. The bad performance of the socialist economy is particularly painful if the good in short supply is food. A famine, the most extreme form of such a situation, can serve as a powerful force to overcome the obstacles to reform and to strengthen the position of those who argue for radical changes.

The ideologically inferior status of agriculture if compared to sectors such as manufacturing or mining as discussed above can turn out to be a blessing. Resistance against substantial changes will naturally be less intense in a field of secondary priority²⁸. The formally non-state collective ownership structure, the small size of villages, the huge and close family networks in rural areas and the (distant) memory of private land ownership make a change of property rights easier than, for example, in the case of a steel work. As China's example suggests, it is the de facto situation that matters: a "contract" or "family responsibility" system legally retains the collective or state ownership but in fact marks a transfer of property rights into private hands, with all the desired and hitherto suppressed effects.

²⁷ A term I prefer over "black markets", as the latter imply a degree of illegality that does not exist.

²⁸ I have used this argument elsewhere to support a more active engagement of the EU in Korea; the secondary importance of this region for Europeans would make it well suited to serve as a testing ground for the so far underdeveloped Common Foreign and Security Policy that is hampered by collisions of bilateral interests.

Specific Features of the North Korean System

Whereas the condensed experience of Eastern Europe as presented by Kornai is extremely helpful in the analysis of North Korea, there are nevertheless features that let North Korea stand out as a very particular case. This primarily refers to Kornai's list of axiomatic principles that are kept intact even during the reform period, and which increasingly let reality and ideology of the changing system become contradictory (see 1992: 414f.). A look at the case of North Korea shows that not all items on the list can be observed in the DPRK.

The most important difference is in ideology. Neither the strict reliance on the teachings of Marx and Lenin, nor unconditional fidelity to the Soviet Union has been excessively taught in North Korea. On the contrary, the mainstay of the *juče* ideology is its independence from all orthodoxies. The teachings of Marx and Lenin are described as "outdated", and too closely following the example of others is branded as standing in the slavish tradition of "serving the Great" (, *sadae*) that cost Korea its independence about a century ago. This is one of the reasons why the outside example did not lead to a subsequent reaction by North Korea to the European reforms that started in the late 1980s. Is the rule of the Communist party as such challenged in North Korea? The emphasis on leadership by the army is difficult to interpret, since according to the Military First Policy, the army equals the party. All high-ranking military officers are also party members, which makes it difficult to uncritically follow the mainstream assumption of North Korea watchers that there is a rivalry between party and military. I have argued elsewhere (see Frank 2003) that despite some theoretical inconsistencies, statements like "not the working class, but the army is the most revolutionary force [

]” by Kim Jong-il himself mark an ideological departure from classical socialism in North Korea and the entry into the reform stage. The North Korean leader in 2001 publicly demanded a “gigantic change” and the abolishment of old concepts (Kim 2001). However, it remains to be seen what the actual implications of such a policy are in the long run.

All these uncertainties notwithstanding, Kornai's argument remains valid that a change will be without a substantial effect if it does not touch upon the very reasons for the socialist system's inefficiency. This paper is not normatively demanding such changes. However, an objective analysis and evaluation of the developments in North Korea's agriculture has to include the question whether changes are “reforms”, i.e., deep and radical, or whether they only constitute a quantitative “perfection drive”.

Agriculture in North Korea

Rivalled only by foreign trade, agriculture is the aspect of the North Korean economy on which, despite serious shortcomings, we possess the largest amount of relatively reliable quantitative and qualitative information. In addition to satellite imagery and scattered reports from defectors, the major sources of this data are studies on the natural conditions in the North of Korea conducted before 1945, when access was less restricted than currently, and reports by various NGOs and International Organizations that have been present in North Korea in connection with relief efforts after the famine that broke out in the mid 1990s, demanding an unknown number of casualties. The World Food Program and the FAO have been particularly active in monitoring food distribution, regularly and systematically visiting agricultural cooperatives as well as cooperating with North Korean authorities. The results of this intelligence gathering have been published in various forms, including yearly FAO/WFP Crop and Food Supply Assessment Reports. The latest available report was finished in November 2004. For 2005, no report was published. The continuation of the publication of these highly valuable sources of information is uncertain due to the changes in the policy of the North Korean government vis-à-vis foreign humanitarian NGOs since September 2005.

Natural conditions

Although assessments related to the ability to achieve food self-sustainability differ in detail, there seems to be a broad agreement in the literature that the natural conditions for agriculture in North Korea are not optimal.

The Korean peninsula is not very large, yet climatic conditions differ significantly. This is particularly true for the winter season. A distance of just 600 km accounts for a difference in the average January temperature of 10°C (0° in South Jeolla, -10° in South Pyeongan). If we include the two extreme points, i.e. Jeju to the South and the Chinese border to the North, this difference is 24°C (+5°C vs. -19°C) over a distance of just 900 km. In one station in the North (Junggangjin), a low of -43.6°C stood opposed to a high of 38°C, resulting in the enormous temperature range of 81.6°C. The frost-free period lasts between 160-190 days.

As Lautensach (1945/1988: 85) observed with regard to climate, Korea is in a transition zone between the continental and the maritime spheres. Generally speaking, the North is much colder than the South, with the exception of the East coast which, however, is of little relevance to agriculture due to the scarcity of arable land reduced to a narrow strip between the Taebaek Mountains and the Eastern Sea. The climatic conditions, in particular the low tem-

peratures in the winter, prevent autumn planting in the North, where most cultivated plants are spring crops.

Levels and distribution of precipitation are not perfect either. In addition, the variations of precipitation from year to year are extreme. In overly wet years the amount of precipitation can exceed the mean by 90%, in overly dry years it can be 57% below average. A deficit of more than 40% “has a devastating effect on the rice harvest” (Lautensach 1945/1988: 93). Both draughts and severe floods are frequent. The distribution of precipitation over the year is very uneven, with most being concentrated in the monsoon season and in particular being connected to typhoons and cyclones; about 60% of yearly rain falls in the three months between mid-June and mid-September (FAO 2004). Flood disasters do not only destroy the plants, but also the fields on the hill slopes, causing erosion and increasing the sandiness of the soil (Lautensach 1945/1988: 172).

The climatic conditions and the resulting shorter growing season have led to a much smaller amount of farmland being used for producing rice (1/3 in the North vs. 3/5 in the South; see Ireson 2006). The FAO estimates DPRK arable land at about 2 million hectares, or 17-18% of the total area of 122,543 square kilometers. About 1.4 million hectares are suited to the production of cereals. The remaining 0.6 million hectares are used to produce vegetables, fruits, ginseng, tobacco etc. The options for expanding these areas are regarded to be very limited (FAO 2004).

Agricultural Production

Food in North Korea is produced mainly in the cooperatives. Private plots (kitchen gardens)²⁹ exist but so far play a minor role, mainly due to their small size. In a successful attempt to increase the productivity of collectively tilled land, many smaller fields have been transformed and re-aligned into well laid-out regular plots with uniform depth - a measure that has so far increased the overall paddy production area by about 60,000 hectares. Since 2004, the state has allowed, and supervised, the establishment of private semi-formal mini-cooperatives (FAO 2004).

The same source reports that the total area under paddy in 2004 was 583.000 ha, maize 459.000 ha, potato 89.000 ha, and other cereals 60.000 hectares. Production of rice in 2004 was 2,370,000 tons, maize 1,727,000 tons, potatoes 258,000 tons of cereal equivalent, and

²⁹ Kitchen garden production is mainly for household consumption. About 57 percent of the PDS (Public Distribution System) dependent population have kitchen gardens with an average size of 53 m², and nearly all co-op farmers have a kitchen garden, with an average size of 79 m² (FAO 2004).

other cereals 119,000 tons. Winter and spring double-crop production added 166,000 tons of winter wheat, 64,000 tons of spring barley, and 255,000 tons of cereal equivalent of spring potato. The total cereal production for 2004 was estimated to be around 5,064,000 tons.

Each of the approximately 1.67 million cooperative farm households is entitled to a private garden of about 100 square meters. A significant proportion of urban dwellers also have access to garden plots. The FAO estimates that North Korea's total household-garden area amounts to about 25,000 hectares. A typical pattern of cultivation in these gardens is an early crop of potatoes and green maize, followed by vegetables such as cabbage, peppers, radish and garlic. The estimated production of maize and potatoes from this source is about 50,000 tons. Production from hill slopes (more than 15 degrees) is estimated by the FAO to be around 50,000 tons.

Paddy is typically planted in nurseries at the beginning of April and transplanted in late May or early June. To compensate for low soil fertility, seed rates are high. According to the North Korean Ministry of Agriculture (see FAO 2004), 230,173 nutrient tons of fertilizer were used during 2004. Of the total 72 percent was provided as humanitarian assistance by the Republic of Korea, the European Union, the FAO and various NGOs. Domestic production amounted to 56,524 nutrient tons.

Distribution of Agricultural Products

In addition to the final products that are distributed to the consumer, producers need seeds, fertilizer, labor and machinery. In the past, distribution was monopolized by the state. Recently changes have occurred, in particular in the distribution of food to the final user. After a period of a coexistence of state and market distribution since 2002, in autumn 2005 the state distribution of staple food has reportedly been reintroduced.

In 2004, the daily grain ration available from state distribution centers at subsidized prices was 600 g per day for farmers and about 300 g per day for the about 16 millions workers. The prices in the Public Distribution System (PDS) prices were reported in 2004 to have remained unchanged at 44, 24 and 27 won/kg for rice, maize and wheat, respectively, since July 2002. If we contrast this with an estimated inflation rate of about 200% annually,³⁰ the level of subsidization that was eliminated by the price reforms in 2002 has climbed back to its previous

³⁰ Calculation by the author based on various methods, including wage development, price developments for basic goods on the markets, and unofficial exchange rate fluctuation. The data used are all samples which have been contrasted with other evidence; however, it cannot be proven that these samples are indeed representative, hence the calculations have a high risk of a large error margin.

heights. The logic of economics would suggest another price adjustment, which for political reasons, however, seems difficult to undertake.³¹

A certain amount of paddy and maize seed, produced by specialized cooperatives or state farms, is provided on credit each year to cooperative farms through the government's distribution system. The government's policy on fertilizer distribution is based on two main principles. It should be equitably distributed and, within the constraints of availability, it should be allocated according to each area's production potential (FAO 2004).

Agricultural products can be sold to the state or at informal and formal markets. The latter have gained more and more recognition by the state and have been promoted in the last years. North Korean officials³² insist that at least one such market exists in each county, city, or district. Vendors pay a stall fee to the state, and the authorities regulate vendors' access to these markets. The FAO reports that particularly weak groups such as unemployed women are sometimes given preferential access. As was the case in any typical socialist shortage economy, extensive selling and bartering also takes place outside the official marketplace amongst neighbors and between rural and urban populations. According to the WFP Country Office, less formal (but not illegal and tolerated) trading of agricultural products at road junctions, county borders, etc. has visibly increased. The same is true for petty trade in handicrafts³³ or snacks and services such as shoe or bicycle repair. The policy change that allowed North Koreans to use previously banned bicycles³⁴ can also be assumed to have contributed greatly to an expansion of small-scale trading activities.

Problems of North Korean Agriculture

Agriculture does not exist separately from other sectors of North Korea's economy. It competes with other sectors for inputs of labor, capital and technology. The availability of these inputs depends on their overall scarcity level, as well as on administrative and political decision-making and priority-setting. It is no surprise to see that in principle, North Korea's agri-

³¹ As discussed above, classical socialism is bound by its own claims of moral and economic superiority. Price increases, in particular for "basic" goods such as staple food, are regarded to be an expression of failure and hence usually avoided. The fact that North Korea had a price reform in July 2002 can therefore not be overemphasized. However, it is not clear whether the leadership estimates its political capital to be high enough for another, or a continuous, price adjustment.

³² personal communication with the author

³³ The author had a chance to buy art works in Gaeseong in 2004 and 2005. The traders were obviously licensed and their business sanctioned by the officials, but they were ready to bargain which indicates the private nature of their activities.

³⁴ When the author visited North Korea in 1991, he was told that bicycles would reflect backwardness and therefore were not a proper means of transportation in an industrialized country such as North Korea. In lieu of alternative means of transportation, North Koreans had to cover huge distances by foot.

culture exhibits the difficulties of a shortage economy as described above. Although estimates on actual production and demand vary, it is widely agreed that under present conditions, the country is not able to produce a sufficient amount of staple food. Based on FAO calculations, the shortage for 2004 was around 900,000 tons. This deficit has been covered by food aid, concessional trade with China and South Korea, and commercial imports.

The latter are relatively low since, as a typical socialist economy, North Korea suffers from a chronic shortage of hard currency. This has negative effects on agriculture in that it restricts the import of crucial inputs such as fertilizer, and simultaneously increases the demand for food production to substitute for grain imports. The latter is a political demand too, in the context of the leadership's attempt at retaining the highest possible degree of self-sustainability in its economy. As Ireson (2006) notes, this leads directly to the observation of the already theoretically discussed low price elasticity for investments. In other words, for those in charge it does not matter much that the yield increase reached by higher inputs of fertilizer comes at a cost that is higher than the worth of the additional output.

With the limited availability of imports, the overall problematic state of the national economy including energy production and the chemical industry affects agriculture even stronger by seriously reducing the available inputs of fertilizer and irrigation (electric pumping) as well as agricultural machinery (plowing, threshing, seeding, transportation). Since the natural conditions (arable land, temperature, and precipitation) require a relatively intensive agriculture, these structural constraints have significant effects on output. In 2004, the number of tractors in North Korea was 64,062, of which only 57.5 percent (36,836) were operational. Accordingly, about half of the land in the main farming areas is still prepared using draught cattle and human labor, which strongly reduces productivity. Not least because of the desolate condition of farm machinery due to a lack of spare parts, fuel, and tires, yields per hectare dropped to about 50% since the 1980s, when they used to be around seven to eight tons (FAO 2004).

Electricity shortage is another problem of country- and economy-wide dimension. Despite great progress in the construction of gravity-fed irrigation systems in recent years, most systems still depend on electrically powered pumping stations. The FAO reported that some farms depend for their irrigation on series of ten or more pumping-stations and are consequently very vulnerable to water and electricity shortages.

Reform Options and Possible Problems

We often encounter the methodological problem of being able to observe events in North Korea but lacking a reliable official explanation. Against this background, Eberstadt (2002) suggests to theoretically construct a rational (from the point of view of the North Korean leadership) path of reform, and use this as a key to “uncode” the meaning behind actual events.

Applying this to agriculture, we have at first to conclude that the food shortage in North Korea is of a systemic nature. It is part of the overall problem of an inefficient socialist shortage economy. However, the yields per hectare have at least until the 1980s been much higher than the current ones. This provides a certain rationale for solving the food shortage through perfection measures, rather than risking a true reform. Before analyzing some of the actual measures, we should ask: Can such quantitative changes lead to a sustainable and significant improvement of the food supply situation?

A look at the division of labor between the various sectors of Korea’s national economy before division suggests that theoretically, self-sustainability could be possible provided productivity grew at least as fast as the population.³⁵ According to Woo (1991: 41), about 35% of Korea’s food production in 1945 was located in the North, which would have been sufficient to feed the one third of all Koreans who lived in that part of the peninsula.

This is supported by Ireson (2006) who argues that in principle, North Korea could reach self-sufficiency in agricultural production relatively quickly and without changing the current economic system qualitatively. In his excellent analysis of the sources for the low output of North Korean agriculture, he argues that: Agriculture in North Korea under classical socialism³⁶ was driven by ideological considerations rather than an economic cost-benefit analysis; the farming crisis originates from an energy crisis; the collapse of preferential trade relations with the socialist camp disrupted the pre-1990 equilibrium; natural conditions make sufficient agricultural production dependent on high inputs of labor, fertilizer, and energy; and that the socialist centralization of agriculture has eliminated valuable local know-how.

Ireson argues that these points, although quite significant, can be effectively addressed within a relatively short period of time. The cornerstones of such a program would be an enhanced

³⁵ According to the 1944 Japanese census, the population of the Northern provinces was around 8~9 million people; the current population estimates for North Korea range between 22~24 million, an increase by 2.5~3 times.

³⁶ Ireson does not use that term directly. I have applied it here for the sake of consistency with Kornai’s terminology and to imply that a departure away from that system is taking place.

mechanization,³⁷ the utilization of natural fertilizer by growing and plowing green manure, crop rotation of corn or wheat with legumes such as soy beans, a reduction of potato farming, planting permanent crops on hill slopes, and many others. He estimates the costs for such a program to be around 840 million US\$ over four to five years. Although it would require “substantial changes in the way the DPRK interacts with the outside world” as well as “internal changes in the economy”, Ireson is quite optimistic based on his own observations as the director of the American Friends Service Committee (Quaker) agricultural development program in North Korea.

In the case that North Korea is able to ensure stable self-sustainability in staple food, import is the only way out. These imports can take the form of humanitarian aid or deliveries at concessional terms for strategic reasons. However, it cannot be expected that such politically motivated preferential treatment could constitute a lasting solution. Moreover, as welcome as such free gifts of course are in North Korea, they seriously collide with the self-reliant spirit of *juche*, which has not always to be taken literally but still is much more than just propaganda.³⁸ Rather, we would expect attempts at a rehabilitation and modernization of the industrial base and an expansion of the current import substitution strategy into export promotion, which does correspond well with developmentalist propositions (see Prebisch 1950, Nurkse 1953, Rosenstein-Rodan 1976). In reality, in all likelihood we will see a combination of all these approaches: quantitative changes to improve the output of agriculture, probably along the lines suggested by Ireson; active utilization of political capital to induce further aid and assistance; and a modernization and export promotion drive for the industry.

A major topic of debate is the utilization of market incentives for farmers to increase output. As I have argued elsewhere (see Frank 2005a), the practical introduction of market distribution of staple food encounters significant problems in a country that suffers from a chronic shortage, or undersupply, of this vital good. In such a case, based on the assumption that the aggregate survival ration is lower than the aggregate demand for food and all other conditions being equal, a rationing system is the only way to ensure that every individual receives enough food to survive. If rationing is given up and instantly replaced by market distribution, the result will most likely be disastrous. Those individuals with the biggest resources (money,

³⁷ Ireson suggests replacing the currently used centralized threshing machines by mobile ones, which will reduce transportation costs and losses, and will provide straw as natural fertilizer. Other suggested measures including the introduction of rotary disc plows that could quickly plow green manure into the soil in spring; seed drills for wheat, soybean and corn; and the purchase of trucks for transportation to make tractors available for field work.

³⁸ As repeatedly expressed in discussions with the author, North Korean bureaucrats understand that interaction and exchange with the outside world is inevitable and perfect autarky impossible. Actual policy aims at reducing reliance in particular through diversification, which is a strategy commonly used by many smaller countries.

political capital, etc.) will purchase more than what they need for survival, leaving those with the lowest purchasing power without any access to food. This would trigger a humanitarian crisis and create or highlight a situation of material inequality that would substantially increase the risk of large-scale public unrest. As Kornai had pointed out, one of the major weaknesses of socialist systems is their claim for economic and moral superiority and equality, creating an imperative to deliver. A famine that affects the whole population can, with some luck, be ideologically explained by bad natural conditions or outside influence; this is what happened during the 1995-1997 famine in North Korea.³⁹ However, a situation where the rich and the privileged eat while the "ordinary" people starve is not sustainable, in particular if the scale and visibility of this inequality rises significantly beyond previous levels.

Structural issues represent a very basic problem for reform in North Korea. According to the (South Korean) Bank of Korea's ECOS database, agriculture contributed only about 27% to North Korea's GDP in 2004. This can be seen both as a blessing and as a curse. On the positive side, developmental economics suggest that industrialization is a factor that positively contributes to a country's development. Furthermore, considering the much lower relevance of agriculture for the national economy as, for example, in China around 1978 where it accounted for around 70% of the GDP, one would assume that the risk of a reform policy would be smaller and hence the readiness by the leadership to take that risk higher.

However, the effect of agriculture-related measures on the whole economy will naturally be much smaller in line with the sector's weight. Even if the productivity and output of one third of the economy - agriculture - can indeed be increased, the remaining two thirds will continue to function as badly as before. As known from the theoretical discussion of various "Big Push" concepts in development economics, to ensure success both a critical mass as well as sufficient backward and forward linkages (see Hirschman 1958) of the "pushed" sector have to exist. It is doubtful whether this can be stated for agriculture in North Korea. The concept of linkages suggests that marked improvements in agriculture will only be achieved if producers of fertilizer, energy and transportation services increase their output - which would necessitate reforms in the respective sectors and not in agriculture alone, thereby complicating the whole process and making it less likely and more prone to failure.

Recent evidence suggests that indeed, the results of the economic changes in agriculture have been unsatisfactory and at least partially detrimental. Among the effects of the cautious mar-

³⁹ The absence of any significant uprising in such a situation is striking. One way to explain this phenomenon is that the population did not hold the leadership responsible for the famine - this time. The economic adjustment policy of North Korea has its roots in the critical situation of those years.

ketization of agriculture was a hyperinflation that reached around 200% annually since 2002.⁴⁰ This differs greatly from the Chinese experience. There, the inflation rate after the introduction of agricultural reforms in 1979 had hovered around 7.3 % until 1987 but rose to 18.5% in 1988 and reached its peak in the first three months of 1989 with over 27% (Nathan 1989) after a badly prepared and soon reversed price reform. The Tiananmen incident of 1989 can in many respects be connected to the deterioration of the economic situation caused by this price increase. The much higher inflation in North Korea must have sent shockwaves through the leadership against this background and explains the attempts at reintroducing public distribution in late 2005.

Among the reasons for the different development of prices after the first market-oriented changes in China and North Korea is the fact that, very differently from China, 70% of North Koreans are not employed in agriculture. This (suffering) majority acts as buyers of food and thereby drives prices up, while the (benefiting) number of sellers - the farmers - is relatively small. Marketization of staple food leads to greatly increased incentives for producers of agricultural products and to an output increase in the long run, just as desired by the reformers.⁴¹ However, strong demand combined with weak supply and an otherwise absent macroeconomic policy results in high inflation which is undesirable. To make matters worse, it affects the majority, a factor that does not only count in pluralist democracies. The costs for possibly offsetting these effects by subsidization will be restrictively high.

The number of beneficiaries of such a situation in an economy with few farmers is small, whereas the number of those who suffer is relatively big. This implies a huge potential for political discontent. Moreover, it creates a high upward pressure on industrial wages. If the latter do not grow quickly enough, workers have no choice but to engage in sideline activities to be able to pay the ever-rising market prices. In fact, for the North Korean worker, it might at some point appear to be uneconomic to show up at the workplace at all. The consequences for the already suffering industry are tremendous.

The North Korean government's September 2005 decision to prohibit the free trade of staple food on the markets, to reintroduce public distribution for these goods, and to make the size of

⁴⁰ This number is based on the author's own calculations. The North Korean government does not publish any statistics on inflation; neither is a basket of goods and services available for such a calculation. The 200% as provided here are based on very selective, single case observations of increases in wages, prices for selected goods in state stores, and the market exchange rate for foreign currencies. The correctness of this number is highly doubtful; however, it would be equally misleading to expect an inflation rate that substantially deviates from this estimate.

⁴¹ Or so we would expect. Substantial gains are a side-effect for traders who can accumulate capital and either act as small-scale investors, or as sources of investment capital.

the ration depend on whether the receiver works at a regular job or not, can be interpreted as an attempt at pulling the emergency break. The price reforms of 2002 have achieved their goal of creating, through marketization and monetization, incentives for agricultural producers to raise output. They have, however, failed to ensure equal access to a minimal amount of food and hence had to be adjusted. This backward step can be interpreted in a positive way: the leadership is obviously willing and able to react to changes in the economic situation, and apply economic rather than other incentives to enforce a certain kind of behavior. I have suggested elsewhere (Frank 2005a) that the price reforms of July 2002 have to be seen as part of a larger program including the rehabilitation of the industrial sector, which was to be financed by external sources. The admission of the abductions during a summit between Kim Jong-il and Junichiro Koizumi in September 2002 - an absolutely remarkable event given North Korea's previous record of strict denial - did not generate the expected public support in Japan for a normalization that would have involved substantial financial transfers.⁴²

Transferring decision-making rights from the state to individual farmers or cooperatives means weakening control over actual production. This is no problem as long as increased sector productivity is the goal. If, however, the output increase of staple food is hoped for, the outcome might be quite unsatisfactory. Based on experience in other countries, the FAO (2004) points at the fact that cash crops such as tobacco can be much more profitable than staple food. The North Korean government is aware of that; cultivation of such cash crops is currently restricted until the targets for staple cereals are met. This suggests a cautious approach towards a "perfection" of agriculture if the goal is to raise the output of staple food, but also means a serious interference with the same market mechanism that is supposed to solve the current shortage. This creates the very real danger of undermining the whole reform effort and seems to suggest a broad "adjustment" encompassing all sectors rather than isolated, sector-specific measures. For a country as North Korea, with its relatively small size, weak international integration and a predominantly industrial economic structure, a sustainable solution of the food shortage could be the combination of a deregulation of agriculture with similar efforts in industry, services and foreign trade. This, of course, is much riskier and requires much more investment of political capital than reforms that are limited to agriculture only, and hence lowers the overall probability of advancing beyond mere perfection measures.

⁴² Based on various approaches, such as rumours or extrapolations of the amount paid to South Korea in 1965, an estimate of about 10 billion US\$ was discussed (and repeatedly denied).

The History of Economic Changes in North Korea

The Northern half of Korea had started to build a Soviet-type centrally planned economy right after liberation in August 1945, exhibiting the typical features described by Kornai such as: nationalization of industry; expropriation and land distribution, later collectivization of agriculture; a one-party rule; and a growing importance of bureaucratic coordination. Resource allocation was done mainly through central planning and the role of free market forces declined. With the introduction of a coupon system for most goods and state-organized procurement, a de-monetization of the economy took place for consumers and producers. External economic support played an important role in the country's development strategy, but declined after the 1950s due to political issues such as the Sino-Soviet conflict and never rebounded to initial levels, but also not fully transformed into normal bilateral trade relations.⁴³ The situation was even worsened by the Nixon-shock of 1971, when the unexpected rapprochement between the U.S. and China forced the DPRK to invest even more scarce resources into an autonomous military industry. North Korea under its self-reliant ideology carefully avoided full membership in the socialist countries' military alliance (the Warsaw Treaty) as well as in their economic alliance (Council of Mutual Economic Aid).

Against this background and given the decades of existence of a classical socialist system, it is no surprise that North Korea had its "classical" perfection measures before. The Mass Line has to be mentioned here, which had started in 1958, the year of the Chinese Great Leap Forward. Its most prominent expression was the *cheollima*-movement. The message was and is simple: "work harder". There are various derivatives of this principle, like the "see-the-morning-star-movement", i.e., getting up early to work longer, as well as the various "speed battles" ahead of important events such as the birthdays of the leaders, the day of independence, party congresses, and so forth. Such "battles", a name that hints at the closeness of economic administration and military top-down command structures, lasted up to 100 or even 200 days and achieved little more than the typical withholding of performance as discussed above.

Two other perfection attempts are even mentioned in the constitution. The *Cheongsanri*-method (; article 13) was developed by Kim Il-sung during one of his "on-the-spot-

⁴³ The economic relationship with East Germany is in many respects a telling example for the DPRK's cooperation with other socialist countries. In 1971, trade with North Korea accounted for a meager 0.37 per cent of East Germany's overall trade. In parallel with the increasing economic difficulties of the socialist partners, their propensity to agree on politically motivated, but economically unprofitable exchanges decreased. Accordingly, the portion of East Germany's trade with North Korea declined to an even more miniscule 0.032 per cent by 1988 (See Frank 1996, *GDR Statistical Yearbook*).

guidance” in a village of that name in the spring of 1960.⁴⁴ The method is aimed at improving farm work by encouraging a closer cooperation between the peasants and the leadership of the cooperatives. The same principle as applied to industry is the *Dae-an*-system (대안제; article 33), developed during an on-the-spot-guidance in a factory for electric appliances in 1961. It aims at the integration of workers in the management process. The overarching principle is “one for all, and all for one” (article 63). This is reminiscent of the Chinese principle of the “three equalities”, in which party cadres, technicians and masses were to merge to one single-hearted unity. The mentioned militarization of all aspects of society was further emphasized by the creation of the “Five Fronts” by Kim Il-sung in 1974: construction, industry, agriculture, transport, and fishery.

One of the most recent campaigns in the context of the mass line is the “torchlight of *Ranam*”⁴⁵, started in a coal mining machine complex in the province North-Hamgyeong. Kim Jong-il had visited this mine after returning from his trip to Russia on August 21st, 2001. The basic elements of the campaign, as reflected in a *Rodong Sinmun* editorial of November 22nd of the same year, are not quite new and remind of the *Dae-an* system: The manager, the party secretary, and the chief engineer put their forces together. However, the goal is slightly different. The primary objective of this new movement is “to fulfill the tasks as set by the party to the letter, instead of uttering empty words and shouting empty slogans” as well as “to protect the leader at the cost of our lives”.

Among current non-ideological perfection measures targeting agriculture directly are various land reclamation projects and the construction of a large number of new reservoirs and especially the Baegma-Cheolsan waterway (in cooperation with the FAO) to improve water availability. In the field of energy, there is a mixed strategy of small hydroelectric power plants, the utilization of alternative forms of energy, and the construction of nuclear power stations⁴⁶. Experiments with economic cooperation with non-socialist countries have started in reaction to the developments observed in China after the 3rd Plenum of the 11th CPC Congress in late 1978. A few years and high-level visits later, North Korea passed its first Joint Venture Law

⁴⁴ This is a system of leadership by personal example, during which the leader visits production facilities, army units, etc. and provides hints on how to conduct business. Until his death in 1994, Kim Il-sung made about 8,000 on-the-spot guidance tours, inspecting 18,000 organizations (NK Chosun, Feb. 18. 2001).

⁴⁵ The “torchlight of *Ranam* (란암)” is part of the effort to build a militarily and economically powerful nation, known as *gangseong daeguk* (강성대국). Back in the late 19th century, after Korea was cracked open by the Japanese and fought for its independence, the term *puguk kangbyong* (부국강병) was created, literally meaning “rich state and strong army”. The parallels between these two slogans are no coincidence. An even earlier version, *fukoku kyohei* (富国強兵), was the motto of the Japanese modernization drive known as the Meiji Restoration around 1868.

in 1984. In 1991, the Rajin-Seonbong Special Economic Zone was founded in the country's Northeast with the support of the UNDP.⁴⁷ However, both measures produced much less revenue than expected and are usually considered a failure.

Especially the quantitative measures aiming at increasing labor productivity through extensively increasing the input of labor showed little lasting success; the potential of such attempts appears to be exhausted. However, there could be some space for qualitative perfection measures such as suggested by Ireson (2006). These concepts depend on a functioning industry to provide electricity, chemicals and machinery, as well as on international cooperation, which again implies more of a broader reform than a narrow improvement. A linear regression of the North Korean sectoral growth rates⁴⁸ for 1991-2004 produces a correlation coefficient of 0.44 for agriculture/forestry/fisheries and mining/manufacturing, and 0.41 for agriculture/forestry/fisheries and electricity/gas/water. The correlation is, however, weaker than the value of 0.77 between mining/manufacturing and electricity/gas/water. Despite justified doubts about the reliability of those data, they seem to support what is evident from a qualitative point of view and actually not very surprising: agricultural production in North Korea depends on the inputs of industrial products such as fertilizer, machinery including fuel, and of electricity and water. Accordingly, improvements in these areas will affect agricultural output.

The Measures of July 2002: Reforms or Perfection?

Against this historical background, the measures taken after the famine and after Kim Jong-il's official rise to power in 1997 are indeed different. In the amended constitution of 1998, the kitchen gardens (see above) were mentioned, alongside "costs, prices and profits". The economy has clearly received more attention than before. Started in 1998 and intensified after the summit meeting between the North and South Korean leaders in 2000, a program for South Korean tourists has brought in much needed hard currency into the DPRK. Moreover, the idea of Special Economic Zones has been resuscitated. The Gaeseong industrial zone in the Southwest is now open to South Korean investors and appears to function much better than the failed version in the Northeast, as the author could confirm during two visits.

The most dramatic sign of the economic reform was an adjustment of the state price system on July 1st, 2002. The heavily subsidized price for rice was raised to a more realistic level and

⁴⁶ For a rich source on North Korean energy, see www.nautilus.org

⁴⁷ For more information on the Tumen River Area Development Programme, see <http://www.tumenprogramme.org>

the subsidization of rice through high procurement and low retail prices was ended. The nominal wages were not only increased by 1,800-5,400 per cent, but also reclassified according to types of labor. The domestic currency was devalued vis-à-vis the US\$ by about 7,500 per cent, which was very unusual as a first step and hints at the expectation of massive international cooperation. However, this hope, if it existed, never materialized.

Production teams in agriculture were reduced to the size of 2-3 families and a new accounting system was introduced to increase the responsibility of individual industrial production units. The currency exchange certificates, still in place in China in the early 1990s, were abolished.⁴⁹ Rental fees on land and agricultural equipment were introduced. Cooperative farms were allowed to sell up to 40 % (previously 20 %) of their products outside the state system. The working units in agriculture were significantly downsized, from 100 persons to only 10 persons, and the family farming system was gradually re-introduced to boost the feeling of responsibility. The individual farming lands were expanded from 100-170 m² to about 1,300 m². The “peasant’s markets” (*nongminsijang*), although not illegal before, received a boost in official recognition, and eventually the range of goods allowed to be traded on these markets was expanded to industrial goods, as was reflected in the new official term “market” (*sijang*). Their number grew substantially since March 2003 due to governmental efforts, raising the number of large-scale general markets to 300 nationwide, including 40 in Pyongyang alone.⁵⁰

The markets reacted to the state’s price adjustments, and especially to the inflationary push provided by the growing nominal wages, with rapidly increasing prices. This resulted in a social stratification according to the individual’s position at the markets. While producers and sellers are doing well, consumers have to find additional or new sources of income which appears to be particularly difficult in the cities. However, as the modest but stable growth rates suggest, the price reforms have at least partially been successful: The sectoral contributions to GDP in North Korea in 2004 were, according to Bank of Korea (BOK) estimates, about 32% for services, about 27% for agriculture, forestry and fishery, 27% for mining and manufacturing, about 9% for construction, and around 4.5% for electricity, gas, and water. Whereas the weight of agriculture had remained relatively stable since 1990, mining and

⁴⁸ source: Bank of Korea

⁴⁹ It has to be noted that this process had already taken place in late 1997 in the Rajin-Seonbong SEZ (see Noland 2000: 69); this coincides with the estimated start of the reform policy around 1997/1998 and the function of SEZs as testing grounds for new policies.

⁵⁰ See MOU (2005): Recent Changes in North Korea, Seoul: Ministry of Unification, http://www.unikorea.go.kr/data/eng0303/000158/attach/eng0303_158A.pdf

manufacturing saw a decrease by over 13%, while services gained around 14%. The growth rate of agriculture sector in 2004 was significantly higher (4.1%) than for manufacturing (0.4%), light industry (-0.2%), heavy industry (0.7%) or services 1.4%. Only electricity, gas and water reached a comparable growth rate (4.5%) according to the Bank of Korea estimates⁵¹. These numbers look modestly impressive if we consider that North Korea's agriculture declined throughout the 1990s (1990: -9.8%, 1993: -7.4%, 1995: -10.5%).

The long-term planning horizon of the economic changes finds its expression in the increasing eagerness of the North Korean state is to let its bureaucrats learn the mechanisms of a market economy. Since the late 1990s, we can observe an almost hectic activity concerning various training measures. The author has been part of so far three such programs in Korea and Europe. The major topics requested by the North Korean side are international trade, international financial institutions, free market economy principles, international accounting standards, international debt management, corporate management training, insurance and re-insurance, regulatory policy, international law, FDI promotion, marketing, principles of taxation, corporate governance, stock market operations, in addition to many others (see Frank 2002).

Recent Developments and Outlook

The acute famine appears to be over, although NGOs and defectors continue to report occasional food shortages. North Korea has in the 1990s overcome the double shock of the collapse of socialism in the Soviet Union and Eastern Europe plus the death of its founder Kim Il-sung and found a new way to survive. The utilization of the nuclear card, aid from China and cooperation with South Korea are important components of this strategy⁵². So far, the normalization of relations with Japan and the United States remains outstanding but will nevertheless be high on the agenda of Pyongyang's policy makers for the expected significant direct and indirect economic benefits.

⁵¹ It has to be noted that inevitably, the correctness of these data is questionable. They are estimates at best. However, through various direct and indirect channels, the South Korean side has acquired a remarkable know-how in North Korea research. The reliability of relative numbers - which sector grew stronger - must be assumed to be higher than that of absolute growth rates.

⁵² A political debate is being waged in South Korea and on the international scene about the actual effects that the bilateral transactions with North Korea have. These often take the nature of transfers that are not monitored according to the WFP's standards. South Korea's non-trade engagement with North Korea has made a jump after the famine and the first inter-Korean summit meeting. The yearly combined amount of food aid, KEDO contributions, fertilizer deliveries, railroad and tourism investments, having hovered mostly around 20~30 million US\$ until 1999 (with the exception of 1995: 241 million US\$), since 2000 has been well above 500 million US\$ annually (for details, see Manyin 2005: 38).

The argument that North Korea's comparative advantage is not in agriculture obviously does not discourage its leaders from trying to keep or even develop this part of their economy. The North Korean leadership has explicitly recognized the importance of agriculture as a sector of its economy in various key documents. A glance at the official numbers of the state budget reveals that while expenditure for defense has remained more or less stable (14.6% in 1999, 15.9 in 2005), the share of agriculture has increased significantly from 11% to 29% in the same period.

How can this be explained? The answer is a mix of necessity and deliberate decisions. First of all, it is obvious that a famine makes food production a top political priority. Beyond this, there are other arguments pro agriculture. Food is a strategic good for any country, especially for one as concerned with its independence as North Korea. If the economic system is left unchanged, the chronic shortage of convertible currency under classical socialism makes import substitution very attractive, as inefficient it may be. Furthermore, once the leadership reluctantly realizes the need to change, deep-seated ideological reservations make it easier to experiment with private ownership and market distribution in agriculture than in the industry or the service sector. If the North Korean leadership puts an emphasis on agriculture, this could partially be motivated by the desire to keep this engine of change running while simultaneously hoping to be able to prevent the process from becoming uncontrollable.

A major question for the future of North Korea's economic development including the solution of the food problem is the origin of what has been achieved so far. The mainstream opinion is that there were no reforms but rather ad-hoc perfection measures, that the government was forced to accept some improvements by the famine and domestic discontent, and that external support will prevent further changes, bolster the military and allow the leadership to return to its previous soviet-style economic policy. However, there are some strong arguments against such a view.

The timing of actual events is confusing. After entering into the 21st century, the reform pressure on the North Korean leadership has clearly become less severe than during the preceding decade. This would support the expectation of a typical post-perfection situation: the changes lead to a partial improvement of the situation, the pressure for change is reduced, and business continues to be conducted as before. However, this was not the case. Moreover, the most substantial changes including the price reforms of July 2002 started long after the famine years. The argument that the leadership was left with no option but to rubber-stamp developments that had happened spontaneously during the chaos and desperation of the "arduous march" is

somewhat weak. While this assertion might be true to a certain extent, it does not explain why this approval happened relatively late, why there was such a thorough ideological preparation including a constitutional revision, and why the actual changes went far beyond what was achieved during the famine. Moreover, a number of those developments have indeed been reversed, such as the lifting of the domestic travel ban or the trading of staple food on the markets, but others were left untouched, such as the markets themselves, the single currency, and economic cooperation with the outside. There is also - very surprisingly - no indication of significant public resistance that would justify the “fear of the masses” hypothesis.

With a look into the future, it is questionable whether it is possible at all to reverse the institutional development that is the most significant yet underestimated consequence of the economic measures⁵³. Though not making headlines in the Western press, the societal relations in North Korea have changed dramatically. It is virtually impossible to undo what the monetization of the economy has done to individual’s outlook on their own life and their place in society. In addition to loyalty to the state, there now exists an alternative way of advancing. The politically enforced uniformity of living conditions that applied to most North Koreans has been rapidly replaced by social stratification according to material wealth on a large scale. In a monetized economy, political power is closely related to economic power. Unless the top leadership decides to start a massive purge and to expropriate the new rich - a step that would be politically risky and therefore must be considered unlikely - these winners could become the nucleus of a middle class that would exhibit the same characteristic as elsewhere: a strong distaste for extremes. The South Korean case has shown how such a middle class can eventually become a progressive force under a dictatorship and a conservative force thereafter.

This “normalization” of North Korea may not directly lead to transformation; however, it could well be a necessary condition. The only event of adequate magnitude to reverse this institutional change would be a socialist or a cultural revolution. The former option has already been exhausted, and the other one will be shunned by the leadership for the sake of stability. Another war could provide the momentum for returning to centralized control of economic activity; however, in addition to the high costs, it is doubtful whether the leadership in North Korea expects to be the winner in such a confrontation.

Irreversibility does, however, not mean constant progress. A look at agriculture shows that the signals emanating from North Korea so far are mixed. After increased food production and contributions from China and South Korea had led to an improvement of the food situation, in

September 2005 the North Korean government announced the reintroduction of the Public Distribution for staple food, banning the trade of these goods on the markets. North Korean officials explained to the author that this would not hamper the new incentive structure since the state would now pay much higher procurement prices to the peasants. This is, however, a weak argument given the high inflation. On the other hand, scattered evidence suggests that the ban is actually only enforced for rice. Moreover, the reintroduction of the PDS was primarily directed at fighting inflation and making state-owned workplaces more attractive to workers (who receive their food rations there), and not at discouraging exchanges at the markets. The latter remain intact, another sign that the North Korean leadership tries to fine-tune the changes instead of reversing them. In addition, the controls at the Chinese border are lax enough to allow a continued stream of refugees. Kim Jong-il has reportedly showed continued interest in the Chinese development model in 2006.

Another controversial recent North Korean decision was to expel international aid organizations including the WFP, officially end humanitarian aid, and request development assistance instead. However, despite an initial state of shock in the NGO community, there are good chances that the latter will remain operational in North Korea. On February 23rd, 2006, the WFP reported that a new North Korea Aid Plan worth about 102 million US\$ was approved by the Executive Board, although the resumption of food aid was connected to improved conditions for WFP monitoring and its overall operations in North Korea. Again, one gets the impression that foreign contacts are stabilized to better match the political priorities of the leadership, but by no means given up.

The systemic problems of North Korea as a classical socialist country have been aggravated after the collapse of the socialist system. In this context, the neglected agricultural sector experienced serious difficulties that led to a severe famine in the mid 1990s. These events were so threatening that they convinced the leadership to embark on perfection measures that go well beyond earlier attempts without, so far, violating Kornai's combined principles of Communist party power monopoly and state ownership of means of production. However, the development of North Korea is an ongoing process. Looking back a decade from now, we might find that agriculture provided the momentum to lead North Korea into a post-socialist future.

⁵³ Chun (1999:132) has emphasized the impact of changing values even before the price reforms when market transactions were still limited in scope and scale.

References

- Cho, Dong-ho (2002): : 가
(Normalization of the Economic System: Evaluation and Appraisal of Recent North Korean Economic Measures), Seoul: Korea Development Institute, <http://www.kdi.re.kr>
- Chun, Hong-Tack (1999): The Second Economy in North Korea, in: Park, Jae-kyu (ed., 1999): North Korea in Transition and Policy Choices: Domestic Structure and External Reforms, Seoul: Kyungnam University Press, pp. 107-135
- Eberstadt, Nicholas (2002): If North Korea Were Really Reforming, How Could We Tell - And What Would We Be Able to See?, in: Korea and World Affairs, Vol. 26, No. 1, Spring 2002, pp. 20-48
- FAO (2004): *FAO/WFP Crop and Food Supply Assessment Mission to the DPRK*, November 2004, Rome: FAO and WFP
- Frank, Ruediger (2002): EU - North Korean Relations: No Effort Without Reason, in: *International Journal of Korean Unification Studies*, Seoul: Korea Institute of National Unification, 11/2, 2002, pp. 87-119
- Frank, Ruediger (2003): The End of Socialism and a Wedding Gift for the Groom? The True Meaning of the Military First Policy, *NAPSNET Special Report and DPRK Briefing Book* (Transition), Dec. 11th, 2003, online at http://www.nautilus.org/DPRKBriefingBook/transition/Ruediger_Socialism.html
- Frank, Ruediger (2005a): Economic Reforms in North Korea (1998-2004): Systemic Restrictions, Quantitative Analysis, Ideological Background, in: *Journal of the Asia Pacific Economy*, Vol. 10, No. 3, pp. 278-311
- Frank, Ruediger (2005b): Food Aid to North Korea or How to Ride a Trojan Horse to Death, in: *Nautilus Institute Policy Forum Online* 05-75 A, 13.09.2005, <http://www.nautilus.org/fora/security/0575Frank.html>
- Hayek, Friedrich A. von (1994): *The Road to Serfdom*, Chicago: University of Chicago Press
- Hirschman, Albert O. (1958): *The Strategy of Economic Development*, New Haven, CT: Yale University Press
- Hsü, Immanuel C.Y. (1995): *The Rise of Modern China*, New York: Oxford University Press
- Ireson, Randall: *Food Security in North Korea: Designing Realistic Possibilities*, Stanford: Walter H. Shorenstein Asia-Pacific Research Center Working Paper, Feb. 2006, http://iis-db.stanford.edu/pubs/21046/Ireson_FoodSecurity_2006.pdf

- Jorganson, John (1996): Tangun and the Legitimization of a Threatened Dynasty: North Korea's Rediscovery of Tangun, in: *Korea Observer* XXVII/2, pp. 273-306
- Kim, Jong-il (2001): 21, (The 21st Century is a Century of Great Change and Creation), in: Rodong Sinmun, Jan. 04, 2001, p. 2
- Manyin, Mark E. (2005): *Foreign Assistance to North Korea*, CRS Report for Congress, Library of Congress, Congressional Research Service, Order Code RL31785, May 26, 2005, p. 38
- Nathan, Andrew (1989): Politics: Reform at the Crossroad, in: Anthony J. Kane (ed.): *China Briefing 1989*, Boulder et. al.: Westview Press, pp. 7-25
- Nurkse, Ragnar (1953): *Problems of Capital-Formation in Underdeveloped Countries*, 1962 edition, New York: Oxford University Press
- Prebisch, Raúl (1950): *The Economic Development of Latin America and Its Principal Problems*, New York: United Nations
- Rodong Sinmun (2003a): (The Military-First Ideology is an Invincible Banner for the Cause of Independence in Our Era), March 21, 2003, <http://www.kcna.co.jp/calendar/2003/03/03-22/2003-03-22-011.html>
- Rodong Sinmun (2003b): (The Military-First Policy is an Invincible Precious Sword of Victory for the Sovereignty of the Nation), April 3rd, 2003, <http://www.kcna.co.jp/calendar/2003/04/04-04/2003-04-04-003.html>, accessed May 1st, 2003
- Rosenstein-Rodan, Paul (1976): The Theory of the Big Push, in: Gerald Meier (ed.): *Leading Issues in Economic Development*, Oxford: Oxford University Press, pp. 632-636