

Economic Reform in North Korea: Is China's Reform Model Relevant to North Korea?

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North Korea has enforced a blackout on almost all economic statistics for about thirty years, and the capacity to analyze the economy on the basis of solid statistical data remains limited. Nevertheless, piecemeal sources from North Korea available to outside observers and analysts overwhelmingly attest to the scale of the economic problems currently confronting the country.

The North Korean economy under the flag of Juche ideology is showing serious symptoms of degenerating. It is cut off from access to foreign technology and information networks, it has a grossly inefficient manufacturing sector still characterized by a highly centralized, obsolete command system of management, it is plagued with significant structural imbalances, rapidly ageing and inefficient plants and severe quality control problems, and of course there is the exorbitant burden of defense spending. In particular, the recent deterioration of a friendly relationship with China and Russia has worsened the situation; North Korea recorded its first negative GNP growth rates since 1990 due to a reduced supply of crude oil and other raw material, as the table shows. With an apparent awareness of the seriousness of their economy, North Korean leaders can hardly stick to current

Major indicators of North Korean economy: 1990-92

Indicators	Unit	1990	1991	1992
GNP	100 mil.US\$	231	229	211
Imports	"	26.2	17.1	16.4
Exports	"	20.2	10.1	10.2
Total Trade	"	46.4	27.2	26.6
Foreign Debt	"	78.6	92.8	97.2
Government Budget	"	172	171.7	184.5
Electricity supply	100mil.KWh	277.4	263	247
Crude Oil Import	10,000 ton	252	189	152
Cereal	"	481.1	442.7	426.8
Steel	"	336	316.8	179.3
Cement	"	613	516.9	474.7
Fertilizer	"	158.6	143.5	138.5
Coal	"	3,315	3,100	2,920
Textiles	100 mil.M3	2.0	2.1	1.7

Source: Figures for 1990: Estimations by the Unification Board

Figures for 1991 and 1992: Estimations by the Bank of Korea

economic managerial practices forever, and will have to take responsibility to reform North Korea's saggy economy.

Generally in the centrally planned socialist economies, inability to create a dynamic relationship between productivity and output growth is the most important economic reason behind economic crisis. To the extent that the Stalinist administrative planning model did produce rapid industrialization at the initial stage of socialist economic development, it too contained the seeds of its own destruction. At the beginning of the industrialization process, central planning focused attention on the highest priority areas: the need to produce basic goods. As industrialization proceeded, however, the economy became more complex. In such a more complex environment, retention of that original mechanism is inefficient, and imbalances among industrial sectors appear.

In order to resolve the economic problems socialist economies were facing, in the earlier years various experiments were intro-

duced to improve some of the planning mechanisms, either by giving a certain amount of autonomy to various enterprises or by introducing new levels of supervision or new incentives. More radical economic reform measures were attempted in the 1980s. In the throes of the collapse of Eastern Europe and the Soviet Union and the acceleration of China's economic reform process, a market system based on various types of property rights was introduced as the major coordination mechanism for resource allocation.

Hence from the historical experience of economic reform in socialist countries we can discern two types of reform approach: improvement in the planning mechanism and the introduction of a market mechanism based on clearly defined property rights. In this context, the prediction of North Korea's possible economic reform path should be based on a theoretical foundation that can explain its stance toward the two alternative approaches.

When it comes to a possible path for North Korea's economic reform, the Chinese reform model is often mentioned, and without any substantive analytical efforts it is generally cited that Pyongyang is following China's economic reform strategy. Usually such vague arguments are grounded on two aspects of the country's reform approach: First, as its economic reform proceeds, the political and economic spheres have been increasingly separated. The former is relatively untouched, maintaining the original one-party rule by the Chinese Communist Party (CCP). Second, China has preferred a gradual approach to shock therapy for the implementation of market mechanism.

In this study, however, it is systematically argued that such aspects of China's economic reform process are simply irrelevant to the analysis of the possible path of North Korea's economic reform; our major concern is whether it will merely improve its planning mechanism subject to ideological constraint or adopt a market mechanism to improve its economic performance.

First, it is true that we cannot expect North Korea's political system to evolve into a multi-party system in the foreseeable future, but in the sense that China's political ideology hardly affected the basic direction of economic reform since 1979, the situation in North Korea will be radically different. Second, the issue of Chinese "gradualism" for marketization and privatization of its economy related only to the problem of order and speed in the process. Since market-oriented reform is the prerequisite for such discussion, the issue will not be relevant to our discussion unless we conclude that North Korea will indeed adopt marketization and privatization as the major approach in the near future.

This study has three objectives: (1) to provide a framework by which the basic determinants of the diversified economic reform process of socialist countries can be clarified; and (2) to prove that the "North Korea will adopt China's reform model" argument is unfounded; and (3) to provide a perspective for North Korean economic reform policy. The first section thus provides a simple but comprehensive analytical framework for the study and clarify the necessary conditions of market-oriented reform in a socialist economy. Next, through the analysis of the Chinese reform process empirical validity of the framework will be proved. The last section examines the possible course of North Korean economic reform process.

Analytical Framework

The collapse of Eastern Europe and the Soviet Union together with China's market-oriented reform process has shifted the focus of all attempts to predict the order and speed of marketization and privatization in the socialist economies. For socialist economies such as North Korea, situated just at the starting point of economic reform and without ideological sanction for marketization and privatization, the question at stake is under

what conditions they will opt to implement the market mechanism as the main approach to improve economic performance.

In this context, any attempt to predict the course of a socialist economic system must rest on a theory of regulatory and systematic transition. Recent studies and writings in that area have been abundant but confusing. One of the most serious deficiencies in the studies is the ignorance of the procedure by which the direction of economic reform is determined in a socialist economy.

Structural factors of an economy and the pattern of individual economic agents set the constraints or rules subject to which economic systems evolve and transit, and the existing economic system must be treated as the result of the choice of the decision-maker (whether democratic representatives or communist party leader). No matter how dictatorial or ruthless a regime may be, its economic system must have still have evolved through choices, and a theoretical explanation of the choice procedure is necessary.

This section synthesizes and extends a teleological approach to the economic analysis by Adolph Lowe¹ which he termed instrumental analysis, and the transaction-costs approach to the problem of institutional change by Steven N. S. Cheung.²

According to Lowe,³ the objective of instrumental analysis is to "search for the economic means suitable for the attainment of any stipulated end."⁴ In the instrumental approach, three sets of

1 Lowe A., *The Path of Economic Growth*, (Cambridge Univ. Press, 1976); *Essays in Political Economics: Public Control in a Democratic Society*, (New York: New York Univ. Press, 1987).

2 Cheung, Steven N.S., *Will China Go "Capitalist"?* (London: The Institute of Economic Affairs, 1982).

3 Lowe, A., *The Path of Economic Growth*.

4 Lowe only applied the instrumental approach to the analysis of traverse paths within a well-defined social context, an experiment on the integration of a changing social structure into Lowe's instrumental approach was undertaken by C. Gehrke and M. Knell in the context of the macroeconomic consequences of the transition of economic system in Eastern Europe. "Transition from Centrally Planned to Market Economics," in Knell, M. and Rider, C. (eds.)

data must be known: (1) the initial state of the economic system, (2) its macro-goal or terminal state, and (3) certain laws, rules, and empirical generalizations through which the suitability of means for the attainment of those ends can be established.

Given this data, Lowe argues, the following unknowns can be determined: (1) the path or the succession of macro-states of the system suitable to transform a given initial state into a stipulated terminal state, (2) patterns of micro-behavior appropriate to keeping the system to the suitable path, (3) micro-motivations capable of generating suitable behavior, and (4) a state of the environment including, possibly though not necessarily, political controls designed to stimulate suitable motivations.⁵

Instrumental analysis, therefore, formalizes the design of public controls consistent with the desired growth path or macro-goals. This ensures that a "goal-adequate" transition path can be established optimizing the use of available technology, subject to certain social, cultural and technical constraints. For analytical purposes, Lowe separates structure analysis related to the social, cultural and technical constraints from force analysis, which deals with the patterns of behavior and motivations of individual economic agents that initiate and sustain the motion of the system along a structurally determined path.

The framework can be extended to provide a theoretical basis for the analysis of choice of economic reform strategy in socialist economies, insofar as the improvement of the planning mechanism and the market-oriented reform are regarded as alternative means to achieve the desired terminal state. But in the application of Lowe's instrumental approach to the choice problem of reform strategy in socialist economies, judgement of the appropriateness of a chosen strategy is apt to be a subjective

Socialist Economies in Tradition: Appraisals of the Market Mechanism, (Vermont: Edward Elgar Publishing Co., 1992).

5 Lowe, A., *Essays in Political Economics: Public Control in a Democratic Society*, (New York: New York Univ. Press, 1987), p. 172.

process such that the framework alone cannot be utilized to predict the reform path. Thus, the approach should be complemented with more positive concepts, and Cheung's transaction-costs approach for institutional change is adequate for the purpose.

According to Cheung, institutional change in an economy becomes predictable only when the costs relevant both to the operation of alternative arrangements and to carrying out the change can be properly identified.⁶ Although Cheung analyzed the transaction cost in relation with the transformation of property right system in China,⁷ and we can extend his conception and combine it with Lowe's instrumental analysis to provide an analytical framework for the study.

Cheung's approach⁸ has three very important implications: (1) If institutions could be adopted or changed without cost, the institution chosen would always be that which incurred the lowest operating costs in the use of resources. (2) If the costs of adopting or changing institutions are significant, the one adopted for a given purpose may not have the lowest operational costs among the available options. (3) If some institutional option is available that would operate at lower cost, it will be chosen if the shift costs less than the potential saving on operations.

Equipped with related conceptual tools for the analysis, a full description of the analytical framework is now possible:

Reform measures in a socialist economy characterized with disequilibrium and low productivity generally aim (1) to improve productivity and raise output levels in the industrial sectors where shortage prevails, (2) to raise the output of consumer goods and improve living standards, (3) to keep an optimal amount of investment that will sustain growth rates, provide a

6 Cheung, Steven N.S., *Will China Go "Capitalist"?*, (London: The Institute of Economic Affairs, 1982), p. 33.

7 Ibid.

8 Ibid., p. 38.

self-sustaining growth path by removing bottlenecks, and be allocated so as to have a positive impact on both the production of consumer goods and the trade balance.

Given the initial status of the economic system and goals of economic reform, according to the instrumental approach suitable means for the attainment of ends should be established. That is, because of the intrinsic problems in the economic system, systemic change within a centrally planned economy is inevitable.

On the one hand, various reforms were introduced in these economies even before market-oriented reform measures were consistently implemented under ideologically favorable circumstances in the 1980s. Although differences between countries appeared in methods and results, the universal motive for these reforms was to improve the effectiveness of the planning model and to try new planning techniques. For that purpose, the primary effort was made in the areas of developing indices to improve product quality and incentive structure. With advanced planning methods and sophisticated indices, cycles of decentralization in decision-making appeared, within guidelines set by planners and followed by a period of recentralization.

On the other hand, by the beginning of 1990s, it became clear that the major socialist economies including Eastern Europe and Russia as well as China opted to move towards granting a larger role to market forces and reducing the role of bureaucratic decision-making, rather than attempting to improve the planning process. Generally, market-oriented reform includes these: (1) implementation of several different forms of private ownership, (2) decentralization of the economy by reducing the duties of the planning bureaucracy, (3) enforcement of enterprise autonomy in decision-making for managerial affairs, and (4) price reform by removing much of the central bureaucracy's role in setting prices. Justification for introducing market-oriented reforms seems to be provided by the development of a static general equilibrium model and the positing of a Pareto equilibrium position based on the functioning of the market mechanism.

At this point of the analysis, it becomes apparent that it is the institutional framework that lies behind the crisis of centrally planned economies. But comparing economic problems in a centrally planned economy with the diversified crises facing socialist economies in transition indicates that the institutional framework behind free markets and private property is not the only alternative. This means that marketization and privatization themselves cannot be unconditioned objectives of economic reform in the socialist countries. Therefore, the relative advantage as reform approach between improvement in the planning mechanism and market-oriented transition can only be determined by the perception of the costs related to the choice of resource allocation system by the relevant country.

In this context, Cheung's transaction-cost approach can be applied. In applying the approach to the analysis of reform strategy of a centrally planned economy, we can broadly define costs incurred by the reform approach into two categories: (1) those incurred as remaining under the centrally planned economic system only with the improvement of the planning mechanism, and (2) those incurred in adopting the market-oriented resource allocation mechanism. These costs may be incurred in terms of economic problems due to the rigidity and inefficiency of central planning in the first case and possible political crisis, macroeconomic instability and social problems (such as rent-seeking activities and ideological contamination) in the second case.

The magnitude of costs are determined by the interaction of the structural factors and the adaptability of individual behavioral patterns under the evolving resource allocation system. Given the specific social structure and technological structure of a socialist economy, the cost for market-oriented reform is determined by the expediency of implementation of the market mechanism characterized by the existing decision-making structure,

information structure, and incentive system of the economy.⁹ The cost of the chosen reform strategy supposed to lead the economy from initial to terminal state is also determined by the compatibility of the evolving economic system with the achievable changes in the patterns of micro-behavior that result from reshaping the social structure. Limitations, therefore in the learning abilities of individuals and their ability to adapt themselves to the changing social environment can constrain the range of feasible transition paths and incur costs in system transition.

In the process of implementing market-oriented reform measures, some features that are believed intimately related to the capitalist market economy might also be regarded as part of the cost of adopting the market mechanism. Such features include income inequality, rent-seeking activity, market failure, ideological contamination, and loss of economic sovereignty. In addition to this, political risk for the decision-maker following the adoption of market-oriented reform, as it necessitates a more decentralized decision-making process and freer information flow, is another important factor affecting the cost of changing the resource allocation system for a centrally planned socialist economy.

In sum, a centrally planned socialist economy subject to economic problems will choose to improve the planning mechanism or to take market-oriented reform measures according to the relative costs of the alternatives.¹⁰ If the price for a centrally

9 Conn, D. "The Evaluation of Centrally Planned Economic Systems: Methodological Prospects," in Zimbalist, A. (ed.), *Comparative Economic Systems: Present Views*, (Boston: Kluwer-Nyhoff, 1984.), pp. 15-46; Neuberger, E and Duffy, W., *Comparative Economic Systems: A Decision-Making Approach*, (Boston: Allyn and Bacon, 1976.).

10 In a purely economic point of view, the costs of operating a resource allocation system will depend on the costs that constrain institutional choice. Thus, it can be argued that relative lack of institutional choice under the centrally planned economies means that the costs of operating that system are necessarily higher than those of operating a private-enterprise system. This logic can be given some credit by the poor economic results of the centrally planned economy in the past compared to the relatively successful capitalist market economy.

planned economy to adopt market mechanisms in terms of the costs defined above is deemed too high, the decision-maker will decide to stay in the original system and at best will try to reform the economy by improving the planning mechanism. In that case, the market-oriented reform strategy will be adopted only when the shift costs less than the potential savings in operation.

The analytical framework developed in this section can be utilized to understand the imperative of market-oriented economic reform strategy in China and to predict North Korea's possible economic reform path in the future. The rest of the study will be devoted to the job.

China's Economic Reform Model

According to the analytical framework proposed above, the economic reform process in a centrally planned socialist economy can be regarded as a chosen path from the initial state to the goal state of the economy, given economic problems facing the economy. And the economy will adopt market-oriented reform measures, insofar as the institutional shift costs less than the potential savings, by adopting the market as the coordination mechanism of the economy. In the process, the magnitude of costs are determined by the interaction of the structural factors and the adaptability of individual behavioral patterns under the evolving resource allocation system. This section will prove the validity of the analytical framework against China's reform experience.

Reform objectives in China

In the communique of the Third Plenary Session of the Eleventh Central Committee of the CCP in December 1978, which is often cited by economic literature as a critical turning point in China's economic reform process, rapid, sustained growth of the economy and improvement in living standards of people were stated as the ultimate objectives of economic policy. In the same docu-

ment, some major imbalances among industrial sectors were blamed as a main source of macroeconomic instability.

In order to achieve the objectives that would seem to be difficult to compromise simultaneously, improvement in efficiency in the Chinese economy was urgently required—not just the massive resource mobilization and capital investment that generated growth under previous economic system.¹¹ Therefore, improving economic efficiency itself became an interim goal of the reform process to achieve the ultimate objectives of economic policies in China.

In addition, recognition of the limitations of the previous cyclical alteration of administrative decentralization and recentralization as the main approach to adapt Soviet-type central planning to China's economic conditions, together with a favorable political environment, provided the ideological sanction for development and expansion of the market mechanism after 1978.¹² In fact, this feature indicates a major departure from the approach to economic reform since 1979 from previous attempts

11 Using relatively robust methodology compared with the previous studies, Chen, Wang, Zheng, Jefferson, and Rawski calculated the average annual output growth rate in the Chinese industry during 1953–1978 as 10.1%, which is by any standards impressive. But, the average annual growth rate of total factor productivity during the same period was only 1.3%. This indicates the impressive growth had been achieved only through a rapid growth of input. Chen, K., Wang, H., Zhang, Y., Jefferson, G.H., and Lawski, T.G., "Productivity Change in Chinese Industry: 1957–1985," *Journal of Comparative Economics*, December 1988, pp. 570–91.

12 We can identify two surges of economic decentralization in China in the pre-reform period: the first accompanied the Great Leap Forward during 1957–1958, and the second one throughout the Cultural Revolution period (1966–1976). Although the subsequent recentralization movements made the system unstable, such experiences had great impact on the Chinese economy in the sense that they have established the principle outlines of planning and management system that endured until the reforms began at the end of the 70s. Nevertheless, since it was only a problem of the division of responsibility between administrative levels, there had been no genuine relaxation of control over the autonomy of enterprises. Enterprises were merely shuttled back and forth between central and local authorities.

to improve economic performance, which were subjected to the constraints of Maoist ideology.¹³

Main components and consequences of reform

As was mentioned above, any economic system has four components: the decision-making structure, the information structure, the incentive structure, and the coordination structure. In this paradigm, the market mechanism is a means of coordinating economic activity and thus falls in the last category. We note that the first three components of an economic system are characterized by the coordination structure adopted, and all the components are interrelated to one another. In order to have functioning markets, the economic system must not be centralized in decision-making authority. The market system is also characterized by decentralization and horizontal flows of information, and the market transmits information to transactors through market prices. Since the economic reform process began at the end of 1978, there has been considerable progress in the development and expansion of the role of the market mechanism in the allocation of agricultural and industrial products, and corresponding reductions in the role of planning and administrative allocation. China's reform effort in the decision-making structure has been directed towards an increase in autonomy in various aspects of managerial affairs in production units. Greater flexibility of prices due to the introduction of a two-track price system and an expansion of markets comprise the vital part of industrial reform

13 Throughout most of pre-reform period, China's economic development was characterized by a strong ideological tendency towards self-reliance and by extreme egalitarianism. Despite the positive effect of the ideology for mobilization of local resources for its own development, the consequential redundant construction and the shortages of basic materials became major obstacles to efficient operation of the economy. Similarly, although the strong egalitarian ethic that emphasized the distributive role of planning was conducive to eliminate abject poverty in China, the resulting weak economic incentive system acclimatized the economy to inefficient operation, or "eating from the same pot."

in the information structure. Finally, as the reform effort in incentive structure, financial or material incentives for enterprises and individuals have been introduced. In view of China's commitment to improving the efficiency of the economy, other reforms can be understood as the natural process following the initial reform package.

On one hand, China's highly pragmatic approach to economic reform and the tendency to rely on the results of policy experiments for implementation of reform measures caused the reform process to proceed along a natural order without serious resistance. On the other hand, however, the practice brought about uneven progress in reform among different aspects within a sector of the economy as well as among different sectors. The most rapid progress has been made where the resistance to reform, from the related political power or the prevalent economic practices, was weakest.

Without either a comprehensive and detailed planning system or a smoothly functioning horizontal coordination mechanism on the eve of economic reform, the market-oriented reform in the Chinese economy has been given impetus by its own momentum since the reform process began. As reform proceeded in China, the underlying logical coherence among reform measures moved the components of the economic system close to those of an economic system based on market forces. Even in the areas such as the factor allocation mechanism and the ownership system where reform process has been lagged relatively behind, considerable progress has been accomplished due to the mutually reinforcing feature of Chinese economic reform.

As a result of market-oriented reform, there is various available quantitative evidence indicating the expanding role of markets in the allocation of resources in China since 1979. Among others, one of the most prominent changes is the sharp reduction in the number of commodities subject to central planning and allocation. The share of industrial input allocated by mandatory state plan, for example, dropped from 70 percent of total demand

of local governments and enterprises in 1980 to only 20 percent in 1987.¹⁴

Another indicator that provides a more concrete view of reducing the role of planning in resource allocation in relation with expanding market forces is the declining share of the products whose prices are fixed by the state. By 1987, for manufactured consumer goods, the share of transactions conducted at free market prices or quasi-free market prices (state guidance price) reached 55 percent of total sales (for agricultural products the share was around 70 percent), and for production input, about 40 percent of total transactions. As a result, even in a short time a substantial flexibility was observed in industrial product prices. This indicates the existence of what appears to be genuine market prices in China's economy.

Overall, as a major effort for economic reform in China, the share of planned allocation of resources has been reduced rapidly in its variety and magnitude, and consequently such change set the stage for an operating market in China. At the beginning of the 1990s, therefore, although a sellers' market still seems to prevail in the supply of certain raw materials and semifinished goods, general market conditions for consumer goods and producer goods are characterized by features generally seen in a buyers' market. In combination with the Chinese government's stable attitude in favor of the expansion of the market mechanism, all these changes have been conducive to foster competition between individual economic agents.

Market-oriented reform as the optimal choice

On the basis of the rationale behind our analytical framework, China's pursuit of an effectively functioning market throughout the 1980s can be perceived as the result of choice on the part of

14 Guojia Jingji Tizhi Gaige Weiyuanhui, *Ten Years of Economic Reform*, (Beijing: Jingji Guanli Chubanshe, 1988), p. 798.

the leadership based on the comparison between the benefit of institutional shift and the cost of operating a pre-reform system improved only in its planning mechanism. Given China's reform objectives at the end of the 1970s, the relative magnitude of the costs perceived by the leadership were crucially dependent upon the social and technological structure and the popular adaptability inherited from the pre-reform period. If the structure and individual agents' behavioral pattern had been inadequate for such an institutional shift, then the costs in terms of macro-economic instability and political risk for the leadership would have been insurmountable. In this context, the structural legacy and the people's experience from the pre-reform period were crucial.

The policy of self-reliant industrialization at the local level in the pre-reform period had a fundamental impact on China's economic system. Through all the back-and-forth movement of economic power between central and the local governments in the pre-reform period, the former had relinquished control of substantive financial and material resources and found its ability to influence local decision-making severely restricted. Thus, by the end of the Cultural Revolution, the Chinese economy was very much decentralized, with the balance of power between center and localities having shifted significantly local.

The regional self-reliance policy called for provinces and even prefectures and counties to build relatively complete and independent industrial systems, and the policy called for the development of small scale production facilities alongside large ones. All this gave rise to a proliferation of medium- and small-scale enterprises. From 1970 to 1978, for example, the number of enterprises rose from 195,000 to 348,000. Incorporating the large number of small enterprises into state material allocation plans would have been an almost impossible job without enormous cost in terms of time and money.

The weakness and fragmentation of planning in the pre-reform period left a vacuum in the resource allocation mechanism,

which had to be filled in some way to keep the economy operating. Ad hoc administrative directives by lower-level government authorities at the provincial and local levels undoubtedly is one of the alternatives. As another, the vacuum left by weak planning also stimulated a more market-like mechanism to arise, both as part of the disaggregation of the relatively coarse targets and allocations handed down by the planning system as well as as a supplement to planned allocation. Under the circumstances, productive units were responsible for a significant volume of retail sales even in the pre-reform period. Their share in retail sales of consumer goods and industrial inputs, for example, was never below about six percent, and it rose steadily during 1970s.

Nevertheless, as the market-like mechanisms were fairly tightly controlled by lower-level government supervisory authorities and thus price flexibility was most probably non-existent, the general problems related to the rigid administrative control of an economy still existed. Hence, if the Chinese leaders had decided to retain the pre-reform institutional arrangement, the operating cost in terms of sectoral imbalances and inefficiency would have been enormous. In addition, economic gaps among different regions could have further aggravated the inefficiency of central planning. In sum, the social and technological structure of China in the pre-reform period was able to keep the cost of institutional change due to the market-oriented reform at lower level.

On the other hand, since individual economic agents whether enterprises or consumers were accustomed to the operation of market-like mechanisms for extra-plan products and resources at the local level during the pre-reform period, the cost of adjustment of individual behavioral patterns of the market mechanism was relatively low in China. On the part of policy-makers, it should be noticed that the elderly Chinese leadership by whom the reform has proceeded had had substantial market experience before 1949, so the unpredictable fluctuation of the economy in the course of reform was able to be controlled at low cost.

In addition, the cost of the market-oriented reform in terms of political risk for China's pro-reform leadership could be kept at a manageable level, since an antipathy against extreme leftism prevailed after the horrible experience of the Cultural Revolution. With optimism about the political impact of the reform policy, the Chinese leadership has kept a stable attitude in favor of the expansion of the market mechanism as the main direction of reform.

Given the economic structure of China in the end of 1970s, the operating cost of a centrally planned economy in terms of sectoral imbalance and inefficiency was insurmountable and even increasing. Moreover, thanks to the attempts to adopt the Soviet economic model to the Chinese reality in the pre-reform period, by the end of the 1970 China had a substantially decentralized and regionally self-sufficient market-like extra-plan material allocation mechanism. Under such an environment, a decision-making structure, incentive structure and information structure adequate for efficient market operation could be established relatively cheaply. Individual economic agents' behavioral patterns fostered by engaging in the extra-plan activities in the pre-reform period also contributed to reduce the side effects of the market-oriented reform. In addition, the small political burden on the pro-reform leadership in China made them underestimate the possible cost of an operating market mechanism.

In sum, for China, the savings on operating cost was larger than the cost incurred from the institutional shift of resource allocation mechanism. Hence, China's market-oriented reform strategy can be regarded as an optimal choice through comparison of operating cost versus shift cost.

Prospects for North Korea's Economic Reform

In China the extent of economic decentralization and regional self-sufficiency through the extra-plan resource allocation mechanism in the pre-reform period, as well as the political impact of

the reform policy, were regarded as the major causes of the perceived high operating cost of central planning mechanism and the low transformation cost. In the following part of the study, to predict North Korea's reform path relying on this analytical framework, I have analyzed North Korea's economic conditions according to similar perspectives.

Economic reform as an imperative

To get a clear picture of the economic difficulties North Korea is facing, it is convenient to distinguish three stages of its economic development since 1953: post-war reconstruction (1953–1960), self-reliant heavy industrialization (1961–1970), and industrialization under repeated readjustment (since 1971). With the successful implementation of the first five-year plan (1953–1957), by 1960 pre-war production levels had already been overtaken in many industries. Throughout the 1960s, North Korea placed particular emphasis on the rapid development of self-reliant heavy and machine industry as the Soviet-China relationship deteriorated and the Cultural Revolution in China proceeded. At the same time in the second half of the 60s, North Korea expanded military spending to the extent that the economy could hardly bear it. Sectoral imbalances developed from over-ambitious and irrational industrialization policy during that period, and North Korea's industrial technology lagged far behind the international standard.

In the early 1970s, they attempted to maintain competitiveness through massive imports of Western machinery and plants. But it was unsuccessful due to the unfavorable international economic environment, and it saddled Pyongyang with much of the foreign debt it now carries. The economy began to drift into stagnation through the 80s, and the situation was aggravated by the developing crisis in socialist bloc economies. Declining markets, fall-off in foreign aid and the emergence of problems in the supply of many key commodities such as petroleum were all

factors that forced North Korea to consider developing foreign trade with non-socialist countries such as Japan and the West. Policies encouraging joint ventures and re-emphasizing light industry in order to develop specific products for export were adopted, and direct or indirect trade links with South Korea were also established.

But such ad hoc measures fell well short of anything resembling the systemic reform in other socialist countries, and the economic performance of North Korea has continuously deteriorated into the 1990s. The table at the beginning of the article shows how serious are the economic problems facing the country. Seemingly bereft of policies for achieving new economic input to the existing structure, the country inevitably will implement some kind of systematic reform.

Limitations of reform measures

As a result of the economic downturn in the 1960s, since the 1970s North Korea has attempted to improve its economic performance through various measures including foreign trade expansion. As the industrialization policy relying on the expansion of foreign trade with the West in the early 70s fell short of expectation and sectoral imbalances in industry simultaneously became aggravated, North Korea adopted some reform measures. Signs of such a change first appeared in January 1984 when the Supreme People's Assembly passed the resolution, "On Further Strengthening South-South Cooperation and External Economic Work and Further Developing Foreign Trade." Among the issues addressed in the resolution is a call for economic transactions "even with the capitalist countries with whom our country has not yet established diplomatic relations."

Then on 8 September 1984 the Joint Venture Law was promulgated, only to bring about poor results in inviting foreign capital. This line of policy was extended in the 1990s as the Investment Law for Foreigners was promulgated in 1992, which was fol-

lowed by the adoption of related laws on joint ventures and foreign enterprises. Without systematic linkage between domestic and external economy and meaningful price system in North Korea, however, other than earning some hard currency, such limited approach to the expansion of foreign economic relationship cannot be expected to assume a positive economic role.

Another reform measure was called by Kim Jong Il on August 1984 as he emphasized an increase in the supply of consumer goods by means of "tapping and using by-products, waste materials, and other inner reserves." Moreover, consumer goods produced under the program were allowed to be sold through something like a free-market mechanism. But the program could only be an attempt to squeeze some consumer goods out of an industrial structure that is geared to heavy industry, reflecting a continuing unwillingness to reallocate investment resources from heavy to light industry. It was apparently seen as a means of mobilizing the untapped local resources rather than an attempt to utilizing any market mechanism, since it was designed to keep any deviations from the central planning system within carefully monitored limits.

Since 1985, a new management system for industrial enterprises called an "independent accounting system" has been in effect, North Korean enterprises are now permitted more independent decisions about the mix of production factors and are allowed to retain a part of excess profits for the expansion of production, welfare benefits and bonuses. Nevertheless, the increase in enterprise discretion applies only to production input and not to decisions regarding products, prices, and marketing. In reality, moreover, there still exist the same bureaucracies authorized to assign workers to specific job sites, allocate equipment and materials, and distribute funds to enterprises. This so-called independent system cannot independently account for the economic performance of an enterprise.

Therefore North Korea's planning system, still based on the principles of central planning, has the following main features:

(1) decision-making authority is excessively concentrated on central government and ministries. Therefore, the center not only possess the power for macroeconomic control, but it also determines the mandatory guidance line for microeconomic decisions. (2) The major adjustment mechanism is administrative control rather than indirect control through economic levers and market adjustment mechanisms. In compliance with mandatory planning, a unified allocation system of industrial goods by quantity at fixed price comprises the major part of the material allocation system.

Unlike China, North Korea has never dubbed its efforts to improve economic performance as "economic reform." The systematic economic reform in other socialist countries is seen by the Pyongyang leadership as capitalism rearing its ugly head. They believe that the economic problems North Korea is confronting can be resolved only by effective utilization of the central planning mechanism, that the malfunctioning economy is due to unfavorable international economic environment and incorrect measures adopted by individual economic agents in the process of plan implementation.

Thus, even though sustained growth and improvement in the living standard is the general objective of economic policy in China and North Korea, their approaches are quite different. China well understood by the end of 1970 the limitations of a centrally planned economy from their experience in adapting the Soviet model. North Korean leadership is still stuck on the basic principles of Stalinist central planning.

China's main approach was to put the economy into an orbit of intensive growth by improving the economic efficiency in the allocation of resources. Marketization of the economy to an appropriate extent was considered an interim goal. But the solution seen by Pyongyang is to implement yet another plan to fill the gap left by the previous one. Due to lack of historical pragmatism they simply underestimate the operating cost of their economic system.

Prospects for the North Korean reform path

The benefit from systematic transformation of the resource allocation mechanism in a socialist economy can be estimated by comparing the operating cost of the central planning mechanism with transformation cost, which is determined by the structure of the economy and the behavioral pattern of individual agents. Usually an economic system is characterized by the decision-making structure, the information structure, the incentive structure and the coordination structure.

In China the pre-reform economic system was substantially decentralized, and market-oriented reform could be implemented at relatively low cost. But North Korea has never attempted a genuine transfer of economic power from the central government to the local level. Even in cases that room to participate in the decision-making process did expand formally to some extent to local authorities or to enterprise managers, they still tended to keep looking to the party and central government bureaucracies for guidance and intervention. For political consideration they wanted to live up to the expectations of the central government in order to maintain a good relationship with them.

Without experience of economic decentralization, as the financial status of the central government has deteriorated North Korea has made efforts even to intensify the extent to which the economy is centralized in terms of finance and property rights. Therefore, the decision-making structure, information structure and incentive structure have all been shaped in compliance with the needs of central planning, and the economic structure lacks a horizontal coordination mechanism. In that case, it goes without saying that the individual economic agents are not accustomed to the norm upon which smooth operation of a market mechanism is based. It makes the leadership perceive an institutional shift to market-oriented reform as tremendously expensive.

Furthermore, the political risk for the North Korean leadership, probably putting the legitimacy of the regime in danger, is

another factor that makes the transition cost insurmountable. Ideologically rather than from the viewpoint of economics, for the policy-makers the operating cost of market mechanism would also be too high to be adopted as a cure for their ailing economy. And the magnitude of efficiency gains from market-oriented reform has been estimated to be smaller than losses continuing to operate the Soviet economic model.

For the time beings, therefore, North Korea will attempt to improve its economic performance by innovation in the planning mechanism. In the process they may provide more material incentives and try to decentralize managerial authority for product units, but the extent to which this happens will be clearly limited on an ideological basis. For the purpose, they will devise certain indices or models to improve the efficiency of investment, to minimize production costs and to increase labor productivity. At the same time, as far as the leadership attributes its economic problems to external factors, they will try to resolve shortages and bottlenecks of its economy through ceaseless creation of quantitative targets.

In the long run, however, by trial and error it will be clear that the fundamental problem of North Korean economy is not due to the temporary difficulties in importing crude oil and raw materials but to the inefficiency of the Soviet economic model. In that case, some kind of horizontal coordination mechanism will develop as a result of continuing trial and error towards economic reform, and eventually, the perceived transition cost will be sufficiently lowered. With the expansion of foreign economic relationships, the ideological barrier could be lowered and individual behavioral pattern will also adapt through a learning process. Then, the perceived cost of market-oriented reform will be sufficiently lowered and the resources allocation mechanism in North Korea will shift. The time span occupied by centrally planned resource allocation system will be elastic depending upon the political atmosphere surrounding the Korean peninsula.

Conclusion

North Korea in the beginning of the 90s and China at the end of 70s each have different initial economic conditions by which operating costs and transition costs of an economic system are determined. Even though the common objectives of economic reform in the countries are rapid, sustained economic growth and improvement of the living standards, their reform strategies are rather different.

Given the initial economic conditions in China, its adoption of market-oriented reform can be explained by a relatively low transition cost compared with the operating cost of their centrally planned economy, as perceived by the reform-minded leadership. In contrast, for the moment, the transition cost perceived by the North Korean leadership is tremendous relative to the operating cost of the centrally planned economy in terms of political risk and macroeconomic controllability.

In the intermediate term, therefore, North Korea will attempt to improve its planning mechanism and international economic relationships without a systematic reform of the current resource allocation system. In the long run, however, as the perceived cost of institutional shift decreases and the operating cost of centrally planned resource allocation system increases, North Korea will seek to implement market mechanism into its economy. But not soon.