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Reconsidering Soft Budget Constraint

—In Case of Chinese Privatization and Economic Growth

Yoshihiro Masuda^① Makoto Nishibe^②

Abstract: What made Chinese economic success possible? Traditional orthodox economics only explains recent Chinese economic growth on the surface. On the other hand, it identifies China's socialist economy with a version of capitalistic economic growth just as developing countries. Although the Chinese economic reform, needless to say, contains economic growth in its object, conventional orthodox development theory does not give us enough exposition about the intrinsic strength of China's economy.

"Soft budget constraint" (SBC) is generally understood as a cause of failure in planed economies. This softness produces static inefficiency in the sense that supply-demand imbalances cause shortage. However, on the other hand, we cannot imagine our daily economic activities in the world without all slack. In our view, softness to some degree enables economy to develop and grow in the long run. In that case, dynamic key force, such as the incentives for innovation, could be more important than the static efficiency for sustainable economic development. We try to show that strictly hardening could get rid of the slackness that is necessary for sustainability of economy, by reconsidering Chinese success from alternative market vision, in this paper.

1. Introduction

What made Chinese economic success possible? Some insist that Asian export-oriented, as opposed to import-substituting, trade structure would be advantageous in capital accumulation through earning foreign currency, and others believe that private property rights raised its economic efficiency. These visions explain recent Chinese economic growth on the surface. On the other hand, it identifies China's socialist economy with a version of capitalistic economic growth just as developing countries. Although the Chinese economic reform, needless to say, contains economic growth in its object, conventional orthodox development theory does not give us enough exposition about the intrinsic strength of China's economy. We try to depict the other factor of Chinese success from alternative market vision.

"Soft budget constraint" (SBC) is generally understood as a cause of failure in planed e-

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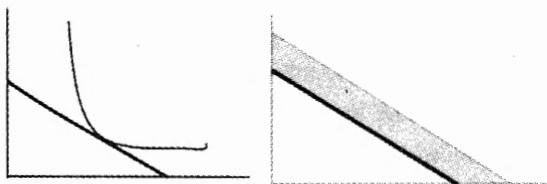


Figure 1

straints, therefore, many economists recommend elimination of all softness and hence inefficiencies^①. However, on the other hand, we cannot imagine our daily economic activities in the world without all slack. In our view, softness to some degree enables economy to develop and grow in the long run. In that case, dynamic key force, such as the incentives for innovation, could be more important than the static efficiency for sustainable economic development.

After recent world financial crisis, governments including China are eager to implement the radical economic restructuring, which contains hardening budget constraints. We try to show that strictly hardening could get rid of the slackness that is necessary for sustainability of economy, by reconsidering Chinese success, in this paper. We start following section by discussing the orthodox understanding on SBC.

2. Soft Budget Constraint

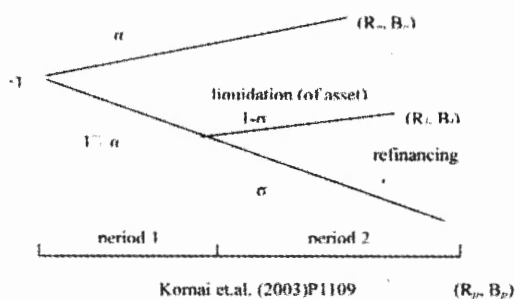
The term “soft budget constraint” is originally introduced to explain the phenomena in socialist planned economies by Kornai. J. In orthodox micro-economics, the term budget constraint is used to represent upper limit of expense to restrict consumer appetite, and consequently determines affordable consumption demand, whereas the supply side (producer) has no such condition^②. When Kornai studied “shortage” in planned economies, he illuminated firm’s inefficient economic behavior. He supposed that the SBC explains why firms tend to ignore their efficiency. In his understanding, any firm is faced with budget constraint either in planned economy or in market economy. A firm has to attain his objective under that constraint just as consumer decision making, it can be depicted on the Figure 1. The left-hand figure shows normal (hard) budget constraint with indifferent curve, each just as consumer decision making, it can be depicted on the following figure. The left-hand figure shows normal (hard) budget constraint with indifferent curve, each consumer determine his purchase in the tangent point. SBC can be depicted by the shade in the light-hand figure. Because any state owned enterprise (SOE) expect that the government will cover his loss with positive probability, its budget line is not a strict straight line, but also a stochastically extended area. In capitalistic economy, a firm must cover its expenses out of its initial endowment and revenue with borrowing. If it fails to do so, it has no choice but to go bankrupt. Contrary to this case, state owned enterprises having reliance to governmental support can survive after its loss-making behavior, logically they does not need to optimize their profits. According to Kornai (Kornai et al. 2003 p1101–1103), there could be many ways to softening budget constraint: 1. fiscal means (direct subsidies and tax concession), 2. soft bank

① In orthodox economics, “efficiency” indicates the state where scarce resource allocation is properly maintained. We show representative surplus analyses in this usage.

② Any producer can borrow his requiring money from banks, in compensation for its interest.

credit (bad loans and arrears of payment etc.), 3. indirect support (tariff and entry barrier). He, however, insisted that the softness in itself existent both in capitalism and socialism, but socialist economies lack the mechanism that impedes its cycle. Namely, the softening of budget constraint make an individual expects to receive support, he all the more becomes to depend on the government.

It was not clear why the government bailouts loss-making firms, whereas the firm's incentive for receiving support is obvious in Kornai (1979) ^①. This issue was answered with game theoretical explanation, as follow figure shows, in his recent work (Kornai et al. 2003).



Here, R and B mean a gross monetary return and a private benefit, suffix g, l, and p mean good, liquidation, and poor. Greek letters α and σ mean the probability of attaining good performance and of being rescued by the government. The cost for rescue is assumed as -1. Each individual firm which wants to maximize its private benefit has an incentive to submit poor project, if and only if its expected benefit is positive^②. Thus, there is a minimum degree of softness^③. While on the other hand, the government will either finance all projects or none of them, because ex ante it cannot distinguish between good and poor projects. Projects will be financed if their expected social benefits are positive^④ in first period, and all poor projects will be refinanced in second period^⑤. In short, the government cannot identify poor project on the ground of ex ante uncertainty in first period, similarly it is rational to refinance poor project in second period.

This theoretical explanation mentioned above supposes the relationship between the government and state owned enterprises. However, the orthodox micro economic explanation would not necessarily be the case even in modern capitalistic economies. For instance, "it is quite rare these days for a large bank in severe financial trouble to go out of business", "bailouts are common among various nonprofit organizations, such as hospitals, schools, and universities that spend more than their revenues" (Kornai et al. 2003 p1097). As these examples show, the softness of budget constraint is not

① He mentioned the existence of paternalism, but did not explain why government behaves paternalistically.

② $\sigma B_R + (1 - \sigma) B_L \geq 0$

③ $\sigma \geq \frac{-B_L}{B_R - B_L} \equiv \underline{\sigma}$

④ $\alpha(R_g + B_g + E_g - 1) + (1 - \alpha)(R_p + B_p + E_p - 2) > 0$ E denotes the external effect such as increasing employment.

⑤ As long as $R_L + B_L < 1$

intrinsic in socialist planned economy. Both economic systems are confronted with a certain degree of soft budget constraint, and any individual must behave with bounded rationality. Even so, it was obvious for Kornai that the difference of economic performance between planned economy with market economy. Then he viewed the difference of economic performance as the difference of the degree of softness. According to Kornai (1998), the harder budget constraint in an economy, the more loss-making firms must exit from its market. In other word, in the sense that “exit (elimination)” is the source of economic performance, he thinks that efficiency matters.

Budget constraints might have been harder than present time in incunabula of capitalism, because an entrepreneur had no expectancy to be “rescued” by various institutions that modern economy had built, at that time^①. If it was truth, had incunabula of capitalism been more efficient than modern capitalism? Subsequent history of capitalism shows opposite inclination in its development. We cannot prove that only the pursuit of efficiency enable to grow of economy. We consider the inherent strength of capitalism in following part.

3. What Is the Strength of Capitalism?

Compared to socialist planned economy, the relative strength of capitalist market economy has been insisted for long time. Especially the “Socialist Economic Calculation Debate” must be noticed as a turning point of this issue. In 1920, Austrian economists Mises and Hayek doubted the feasibility of socialism in terms of rational economic calculation and efficient resource allocation, and opposed to the market socialism, which is derived from Neoclassical general equilibrium theory, shown by Lange. This controversy was put to rest with Lange’s introduction of a trial and error method. It showed the feasibility of planned economy, at least in efficiency about resource allocation, to the surface. In the 1980s, Neo-Austrian economists such as Lavoie and Kirzner criticized the Neoclassical standard account and its static vision of the market. They changed the focus from equilibrium to process, from substantive rationality to procedural rationality, and from perfect competition to rivalry (Nishibe 1998).

We grasp the strength of capitalism as twofold: on the one hand there is ‘the elimination of inefficiencies by means of a stick’ and, on the other hand, there is ‘the creation of diversity by means of a carrot’. The former indicates that capitalism is strong because it contains a mechanism whereby economic inefficiency ‘selected out’ through the process of competition thus yielding high overall efficiency and growth (ibid). The idea of hardening budget constraint which is derived from the SBC theory mentioned above belongs to this “a stick” type approach. Because many economists including Kornai think that the failure of socialist planned economy are able to be attributed to inefficiency occurred from SBC problem.

Kirzner, on the other hand, who regards the alertness of an entrepreneur as an effective eliminator of ignorance of market opportunities, focuses on ‘the elimination of inefficiencies by means of a carrot’. However, Kirzner is unable to properly identify the important function of the market as being ‘the creation of diversity by means of a carrot’ (ibid). He sees the function of market mechanism as the process that the alertness of entrepreneur converts ‘ignorance’ to explicit knowledge^②, but, in

① The entrepreneur who failed his business was arrested and imprisoned, otherwise hanged himself in 18th. Modern capitalism generally has some institutions to support, at least, a part of loser.

② According to Kirzner, it is called a series of steps that adjust previous ‘ignorance’ through discoveries.

this way, temporal inefficiency must converge to equilibrium sooner or later.

The first position that stress the ‘the elimination of inefficiencies by means of a stick’ can be called ‘adaptation to environment,’ and the second position that stress the ‘the creation of diversity by means of a carrot’ can be, to the contrary, called ‘creation of environment’. The essential difference between these two is based on understanding for “competition”. As the general equilibrium theory depicts, if each individual maximizes its objective function adapting to exogenously given prices and adjusts its demand and supply for goods and services, temporarily existing inefficiencies will be eliminated through the competition characterized by ‘the elimination of inefficiencies by means of a stick’. ^① On the other hand, the second position pays attention to the competition that innovations create economic environment in it self by expanding information set of technology and preference. The general equilibrium theory, however, cannot treat this dynamic process that ‘creation of environment’ type competition brings. Although current market fundamentalism insists that relaxation of regulations stimulate competitions and selection pressure make economy efficient, it should be noticed that the ‘creation of environment’ type competition is a source of the relative strength of capitalistic economy.

Compared to orthodox vision, Kirzner’s vision mentioned above seems to pay attention ‘creation’ at first glance, we think however that his process of discovery is nothing but digging out an unused profit opportunity which is in existence, it is not able to be seen as intrinsic creation^②. We should note, however, that he indicated the elimination of ignorance and/or error by ‘a carrot’ (pure profit) proceeding spontaneous discovery, not only by ‘a stick’ (losses and bankruptcy).

It is obvious that socialist planed economies have lacked diversities in its goods production^③, in the sense that it is also obvious that the most significant factor of failure in former Soviet Union can be attributed to absence of technological innovation. Needless to say, lack of diversity is attributed to lack of incentive system for product innovation^④. From hence, it can be said that Soviet-type planed economy lacks incentives for creation of diversity and novelty which market economy equip, thus ‘the creation of diversity by means of a carrot’ does not work in its economy. Conventional economic theories, either in capitalistic economy or in socialistic planed economy, have not paid much attention to this dynamic incentive for innovation. Although recent growth theories try to treat technological innovation endogenously, their assumptions are not necessarily assured to be valid^⑤. More importantly,

① For instance, inefficient technologies will be eliminated, because each firm must determine the technology and the output maximizing its profit under the condition of production possibility frontier.

② His innovation hypothesis and teleological discussion are incoherent (Nishibe 1998).

③ Diversity of goods was considered rather than what complicate planning operation and impede its efficiency. Producer goods and military goods that recorded high growth of output in former Soviet Union might be affected by the lack of diversity, but the inconveniences under monotone consumer goods are widely known.

④ Orthodox economics have not given greater importance on diversity. Their one or two goods models have not got the diversity of products into consideration.

⑤ We don’t discuss about this issue here, except for one example mentioned below (cf. Jones 1998 ch.8). In technical aspect, AK model is based on the differential equation $K=sY-dK$ (rate of investment s , capital consumption d), and income Y is defined as $Y=AK$, thus this differential equation means first order linear growth. Empirical evidences, however, don’t generally bear out the assumption that the exponent of K is 1.

they only try to explain the shift of probabilities of discoveries, but the motivation for innovation. At least, existing endogenous growth theories have not explained the different probabilities of discoveries between two economic systems, because the differential equation of probabilities of discoveries is exogenously given as a function of labor engaged in R&D and existing idea^①.

4. Property Right and Efficiency in Case of China

We mentioned the strength of economy from alternative perspective above, but we have to discuss the other issue. Namely, many economists may stress the relative strength of capitalism based on private ownership, in spite of the obvious importance of incentives for product innovation. Especially, new institutional school emphasizes the importance of clearly defined private property right. In this part we discuss the relationship between property right and economic performance through considering Chinese distinct style called ‘vaguely defined property right (Weitzman&Xu 1994),’ and we try to further discussion whether China needs consolidate institutions for intellectual property right or not.

Needless to say, China has adopted socialist market economy since the reform and opening-up. It was Township-Village owned enterprises (TVEs) that gave a boost to economic growth. TVEs showed remarkable performance especially in the beginning of reform, in spite of collectively owned organizations^②. It has been a mystery of Chinese miracle at that time. Nowadays, most of TVEs have been converted to private one, and many economists conclude that private property rights improved efficiency and accelerated economic growth as a consequence. However, recent Chinese economy indicates interesting cases. Namely, today’s average Chinese state owned enterprises indicate higher performance than average private enterprises (Zhang 1997). Some kinds of entry barrier which governments set up might be advantageous to SOEs, at the same time SOEs have to cover higher welfare cost for education, medical service and so on. Furthermore they are impossible to evade tax (Kato & Kubo 2009). Chinese SOEs have shown positive growth rates trough the reform since 1978, Chinese economic growth is not explained by the displacement of labor from inefficient state sector to efficient non-state sector, thus orthodox economists have not provided persuasive explanation, whereas Chinese economists often unambiguously grasp Chinese economic reform as “incrementalism”.^③ We try to show the limitation of existing “efficiency” framework.

According to Kornai, SOEs need not pursuit profits under soft budget constraints^④, thus socialist economies must be inferior to capitalist economies in their efficiency. Chinese cases give us two interesting questions which many economists have ignored. The first question is that private property

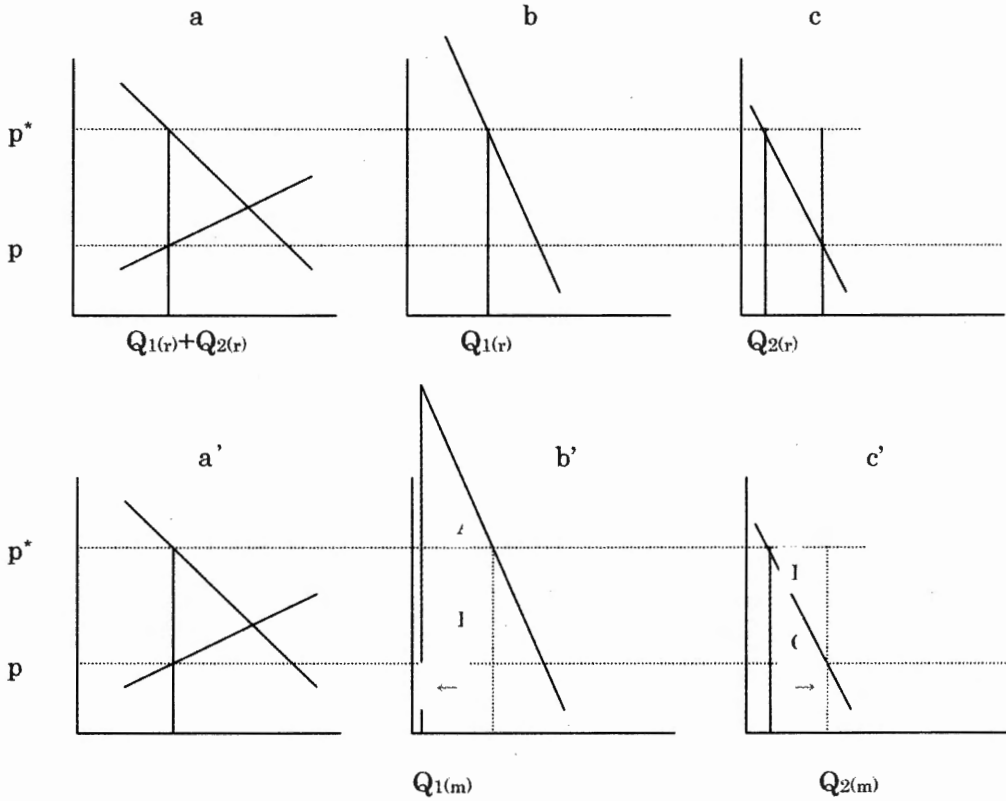
① A growth rate of knowledge is defined by the following differential equation $A = \delta L_A^{\lambda} A^{\Phi}$. Here, δ and Φ are supposed as constant number, and λ is a parameter defined as $0 < \lambda < 1$.

② It should be noticed that TVEs only mean non state owned enterprises, which include de facto private ownership, hence that, strictly speaking, they are nominal collective ownership (Masuda 2007).

③ The word “incrementalism” is used in Stiglitz (1999), which means the reform without reduction of existing sector. cf. Lin & Cai (1994), Fan (2003). They are based on different standpoint about the purpose of Chinese government, on the other hand, they hold common understanding that China’s reform have not proceeded by the effective reallocation of resources.

④ Kornai’s idea can be applicable to all type of collective ownership, for instance the social ownership in former Yugoslavia.

rights may not be the necessary condition for feasible economic system. So called “efficiency” is depicted by the loss of social surplus in orthodox economics. When many economists discussed about reform style of socialist economy in 1990s, mainstream school advocated “radical” and others who criticized it, otherwise, propounded “gradual”. Generally speaking, the former insisted that existing inefficient SOEs would diminish total social surplus therefore reform must be implemented as soon as possible. Murphy et al. (1992) showed the inefficiency as loss of social surplus^① figured below (Murphy et al. 1992 p893–894).



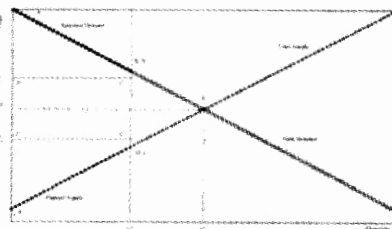
Murphy et al. (1989) p893-894

Here, p is rationed price and p^* is marginal valuation^②. When one market for input goods (a) could be divided into two sectors containing SOEs with price ceiling (b) and free private enterprises (c), partial reform would make social surplus decrease. In the loss of surplus is depicted by triangle A + rectangle B (b'), on the other hand triangle C means the increase of surplus. Because square of rectangle B is equal to triangle C plus triangle D, square of A+B is strictly larger than C. Other economists often use similar surplus approach in the sense that the existence of rationing impedes achievement of surplus maximization (Sheng 2003).

① Orthodox economics generally define social surplus as $\int_0^{Q_0} D(Q)dQ - p_0 Q_0 + (p_0 Q_0 - \int_0^{Q_0} S(Q)dQ)$
 $D(Q)$ and $S(Q)$ represent demand function and supply function, p_0 and Q_0 each mean equilibrium price and equilibrium volume of transaction.

② Marginal valuation is equal to inverse demand function $p=D^{-1}(Q)$ here.

However, some economists insist that the economy characterized by SOEs with rationing can attain equivalent efficiency under some conditions. Lau et al. (1997, 2000) showed that partial reform can attain equivalent efficiency, if the production factors have enough mobility between two sectors, as below (Lau et al. p126).



Even if rationed price was lower (p^1) or higher (p^2) than equilibrium (p^E), market sector could attain efficiency by eliminate the dead weight loss^①.

The issue seems to exist in rationing or price regulation than in property right as we introduced existing studies above. We assume that intellectual property right play decisive role in proceeding innovation, while Property right around means of production might not be important. If that is the case, how Chinese economy could have developed in spite of its institutional backwardness in intellectual property right? We presume that imitations have stimulated economic activities substituting for innovation. Both of innovation and imitation are characterized excess profit as incentive. In orthodox economics, all excess profits must be 0 in equilibrium, therefore the motivation of innovation or imitation is understood just as resource saving. However, as we assume, if they enable antecessor to earn excess profits, R&D would be payable in different sense with orthodox growth theories. Imitation is, in addition, feasible with relatively small cost, while innovation generally need a large amount of initial investment.

We presume that China has grown its economy through imitation of various technologies and products because of its backwardness of intellectual property right so far. This development style might have been feasible as far as secondary industry has been main engine of its economy. However, the more its economy matures, the more potential room for imitation will diminish. We should reconsider what induce innovation, variety and the strength in dynamic process.

Finally, we consider the second question that static efficiency may not be the only factor for economic development in following section.

5. SBC and Loosely Connected System with Buffer

Statically efficient economic system must be tightly connected system as the Neoclassical school supposes. However we can observe opposite examples in our daily life. While Firms keep some amount of stock of inventories at any time for avoiding the potential loss caused by sold-out, all economic agents including produces and consumers keep some amount of cash for casual payments and use credit system for mutually saving their payments of cash. Such stocks of inventories and cash as well as credit work as buffers that disconnect various relationships among agents in our economic system. Namely, they enable buying and selling by means of money to be done freely from spatiotemporal material constraint^②. Our economies can be maintained by omnipresence of these kinds of looseness or softness, and possible fluctuations can be absorbed in such looseness so as to stabilize economies. If the market system was tightly connected system without any looseness, it could be easily broken down by such unexpected shocks as severe financial crisis.

According to Kornai, development of credit has made economic systems soften since incunab-

^① This type of surplus approach is also used by Koo & Obst (1995) and Miyamoto (2004).

^② Morioka (2005) studied quantity adjustment by paying attention for function of stock. He analyzed trajectories of differential equation in many models as alternative approach for Neoclassical comparative statics.

ula of capitalism. If we grasp economic system as “a stick” system, his insight might provide us fruitful guide lines for analyzing economy. In the recent world financial crisis, the central governments and banks of the US, UE and Japan determined to adopt such ultimate rescue plan as capital injection or emergent money lending to major banks, insurance companies and securities companies. We can imagine that the financial system would collapse if the government did nothing to save those financial institutions. However, in order to maintain the economic system, we need to have safety nets to prepare for systemic risks and governmental aid to salvage the shipwreck.

Kornai undoubtedly made great contribution to economics by paying attention to softness. Even though he, differently from the Neoclassical school, recognizes the existence of slackness in capitalist or socialist economies that represents itself as excess or shortage of goods and labour, it is a pity that they both analyze economic performance based on a similar market vision which regards the market as a tightly connected system, and their analyses tend to ignore such other important factors for economic development as imitation and innovation. We need to have a new vision of the market as the loosely connected system with buffers in order to estimate what institutions and incentives can really make economic systems evolutionarily sustainable and creative.

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