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Viability, Economic Transition and Reflection on Neoclassical Economics*

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I. INTRODUCTION

In the 12 years from 1978 to 1990, China's reforms and open door policy generated remarkable achievements, with the country's GDP growing 9.0% annually and its trade volume growing at 15.4% per year. During this period, urban per capita income grew 5.9% annually, while that of rural areas grew at a spectacular rate of 9.9% annually (NBS 2002, pp.17, 94,148). Living standards in China increased significantly and disparities between urban and rural areas decreased.

In the late 1980s and early 1990s, the reform process was poorly understood by the international economics research community and many economists had little confidence in China's approach to reform[1]. Most economists believed that a market economy should be based on private property rights, a feature that the Chinese economy apparently lacked at that time. China's state-owned enterprises (SOEs) were not privatized; a dual-track resource allocation system was prevalent with state planning still playing a very important role alongside markets in resource allocation. These pessimistic economists thought that although China's economic transition was blessed with beneficial initial

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1. There were also economists who held China's reform in high regard. They include Jefferson and Rawski 1995, McKinnon 1994, MacMillan and Naughton 1992, Naughton 1995, Singh 1991, Chen, Jefferson, and Singh 1992, Harrold 1992, Perkins 1988, and Murrell 1991, 1992.

conditions[2], the dual-track system would soon lead to efficiency loss, rent-seeking, and institutionalized state-opportunism (Balcerowicz 1994, Woo 1993, Sachs and Woo 1994 and 1997, Qian and Xu 1993). Some economists even claimed that, despite its initial success, China's dual-track approach to the economic transition would eventually lead the economy to a disastrous collapse (Murphy, Shleifer, and Vishny 1992, Sachs, Woo, and Yang 2000).

At that time, most economists were optimistic about reforms in the former Soviet Union and Eastern Europe (FSUEE hereafter) due to the fact that the reforms in these countries followed policy recommendations based on the basic principles of existing neoclassical economics[3]. The most representative of these policies was the 'shock therapy' implemented in Poland, the Czech Republic, and Russia. Such an approach had three primary components: price liberalization, rapid privatization, and macroeconomic stabilization through elimination of fiscal deficits (Lipton and Sachs 1990, Blanchard et al. 1991, Boycko, Shleifer, and Vishny 1995). These components are considered to be the basis of an efficient economic system in neoclassical economics.

Economists recommending shock therapy also knew the transition from one economic system to another took time and that it was costly to cast aside vested interests. Nevertheless they optimistically predicted that the economies would grow after six months or a year following an initial downturn resulting from implementation of the shock therapy (Brada and King 1991, Kornai 1990, Lipton and Sachs 1990, Wiles 1995). According to their arguments, the FSUEE would soon outperform China, even though the former had instituted their reforms much later. China's progress would be limited by inconsistencies in its economic system exacerbated by incomplete, dual-track reforms.

More than ten years have passed since the predictions of many renowned economists were put forth in the early 1990s. China's annual GDP and trade continued to grow at 9.3% and 15.0%, respectively, in the 1990–2002 period and inflation, as measured by retail prices, was 4.4% per year over the same period (NBS 2002). In the same ten years, the countries that implemented shock therapy experienced serious inflation and economic decline. Russia's inflation rate reached 163% per year, while Ukraine's reached 244% per year in 1991–2000. The cumulative output decline in countries in Central and Southeastern Europe and the Baltics reached 22.6%; in countries of the Commonwealth of Independent States, output fell 50.5%. In 2000, Russia's GDP was

2. The initial conditions that have been regarded as beneficial to China's transition include high proportions of cheap rural labor, low social security subsidies, a large population of overseas Chinese, and a relatively decentralized economy that helped to achieve some short-term progress.
3. The critique in this paper is on the existing economic theories, which implicitly assume that the existing firms in a market are viable, rather than on the neoclassical economic approach, which assumes that a decision maker is rational, that is, he/she will make a choice considered to be the best to him/her among his/her available choices. I owe this clarification to Gary Becker.

only 64% of what it had been in 1990, while in Poland, the best performing economy in the FSUEE, GDP increased only 44% compared with 1990. Meanwhile, the Gini coefficient of income per capita, a measurement of income disparity, increased from 0.23 in 1987–90 to 0.33 in 1996–98 in countries of Central and Southeastern Europe and the Baltics, and from 0.28 to 0.46 in countries of the Commonwealth of Independent States (World Bank 2002). Overall, the countries that implemented shock therapy experienced great difficulties in their reforms, in contrast to the optimistic expectations of most economists. Poland's economic record is the best among the countries of the FSUEE. However, Poland did not completely implement shock therapy. Although prices in Poland were liberalized, most of its large SOEs have yet to be privatized (World Bank 1996, Dabrowski 2001).

In the 1990s, the Chinese economy did suffer from a myriad of problems as predicted by those economists who favored shock therapy. For example, the SOE reforms initiated in the early 1980s have yet to be completed; inter-regional and urban–rural disparities increased after the decline in the 1980s; and the financial system remains weak. However, as noted above, China's GDP and trade continued to grow. Moreover, living standards improved rapidly, especially in the urban areas. Economic development in China not only promoted the welfare of the Chinese people, but also contributed greatly to the world economy. During the East Asian Financial Crisis in 1997–98, the Chinese currency (RMB) did not depreciate, which played an important role in the quick recovery of the East Asian economies from the crisis.

Why then were most economists not optimistic about China's future performance in the early 1990s? Many economists, who participated in the FSUEE reforms, work at the frontiers of economic research and are considered masters of modern economics. Why couldn't they predict and explain the difficulties brought about by shock therapy, and why, at the same time, were they pessimistic about China's approach to transition? As pointed out by Murrell (1995), Stiglitz (1999) and others, many economists did not fully understand the history or the mechanisms behind a planned economy, nor did they understand the essence of economic system transformation in former socialist countries, the foundations of a market economy and the basics of an institutional reform process. However, I argue that the failure of economists' predictions about the performances of the economic transitions in FSUEE and in China is also due to an inherent limitation of the existing neoclassical economic theories in analyzing the problems in economic transitions. The paper focuses on this limitation.

This paper is structured as follows: Section II defines the concept of viability and points out that the existing neoclassical economic theories implicitly assumes that firms operating in the markets are viable, while most firms in traditional planned economies in fact are nonviable due to their governments'

adoption of comparative advantage-defying development strategies. Section III explains why the policies designed according to existing neoclassical economic theories not only cannot remedy the problems in both the FSUEE and Chinese economies, but also why these policies led to results contrary to predicted outcomes. Section IV shows that the viability problem is prevalent both in developing countries and countries in transition. It is thus necessary to treat the viability issue explicitly in analyzing economic problems in transition and developing economies. Section V uses China's transition and SOE reform to illustrate why the transition from a traditional planned economy to a market economy lies in successful resolution of the firm viability problem. Section VI concludes the paper with a suggestion for improving the neoclassical economics.

II. NEOCLASSICAL ECONOMICS, THE VIABILITY ASSUMPTION AND THE FORMATION OF A PLANNED ECONOMY

Theories are used to explain and predict real-world phenomena. If they fail to do so, then the theories must have some fundamental flaws and should be revised or abandoned (Friedman 1953). The existing neoclassical economic theories have performed reasonably well in explaining what happens in the economies of developed countries, but they have been less successful in explaining what happens in transitional economies and developing countries.

Neoclassical economics has a well-known assumption of rationality: given the choices available to a decision maker, he/she will choose the one considered the best. However, there is another assumption – the 'viability' assumption – that is implicitly assumed by neoclassical economists in their analyses. The term 'viability' is defined with respect to the expected profit of a firm in an open, competitive market. If a *normally managed* firm is expected to earn a socially acceptable normal profit in an open, competitive market, then the firm is viable. For a nonviable firm, its establishment or continuing operation would be possible only if the firm receives external subsidies or protection[4]. By implicitly assuming that all firms existing in the markets are viable in their analyses, economists will conclude that a firm that does not earn acceptable profits in an open, competitive market must lack *normal management* and infer that problems must stem from corporate governance, incentive mechanism, property rights arrangement and other market interventions that impede the firm's normal management. Problems in corporate governance, property rights arrangement and so on did indeed exist in socialist economies. Therefore, under

4. The term 'viability' was formally introduced in Lin and Tan (1999). The concept had already been suggested and used in the first edition, published in 1994, of Lin, Cai and Li (2003) as an analytical basis for the formulation of a traditional planned economy. The most comprehensive analysis of this concept can be found in Lin (2003).

the influence of existing neoclassical economic theories, it was believed that the success of state-owned enterprise (SOE) reforms and the transition to a market economy depended on the elimination of those factors that impede the firm's normal management. Shock therapy is based on this theoretical foundation.

Since the inception of neoclassical economics, economists in developed countries have conducted most theoretical explorations. Their research, however, focuses mainly on issues to do with developed countries. It is reasonable for them to assume that firms are viable, since, except for firms in a few minor sectors, governments in the developed countries rarely provide subsidies and other types of support to firms. If a firm with normal management is not expected to earn acceptable profits in the market, the firm will not be set up in the first place. If a nonviable firm is established due to misleading information or mistakes in judgment, investors will withdraw their investments and close down the firm. Consequently, firms that can survive in an open, competitive economy must be viable, i.e., they are expected to earn acceptable profits under normal management. It is therefore appropriate to have an implicit viability assumption in neoclassical economics for analyzing phenomena in developed countries.

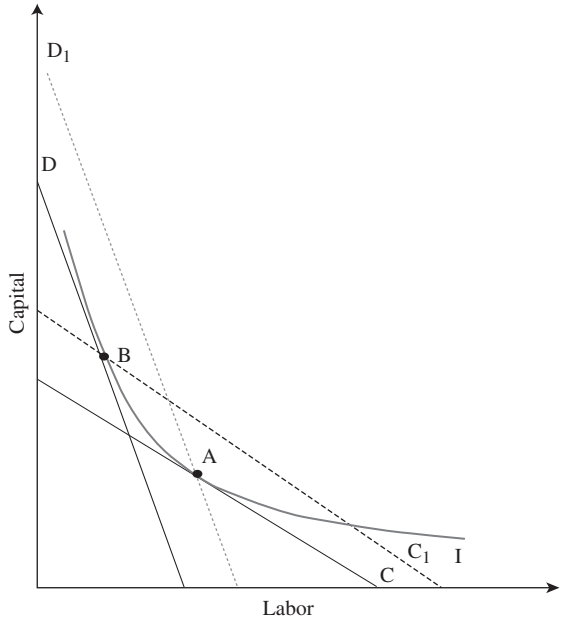
However, as argued by Lin (2003), many firms in transitional economies and developing countries are not viable, i.e., they cannot earn acceptable profits in an open, competitive market even though their management is normal. The non-viability of these firms arises from the fact that the sector in which the firm operates, the products it produces, and the technology the firm uses in production are inconsistent with the economy's comparative advantage as determined by the factor endowment structure, namely the relative abundances of labor, capital, and natural resources.

Figure 1 illustrates the idea of viability in an open, competitive market that produces only one product with two factors – capital and labor. Curve I is an isoquant. Each point on the isoquant represents a specific technology or combination of capital and labor required to produce a given amount of product[5]. y represented by A is more labor intensive than that represented by B. In an open, competitive economy, the least-cost technology is the best. If C is the isocost line in the economy, the adoption of technology A costs the least, while the adoption of any other technology will make the firm incur losses in an open, competitive market. For example, if a firm adopts the technology represented by B, the firm is expected to incur a loss equivalent to the distance from C to C_1. Market competition will make firms that adopt technologies other than A nonviable. Therefore, in an open, competitive market with given relative prices of labor and capital, the viability of a firm depends on its choice of technology. Only the firm that chooses the least-cost technology is viable.

5. The curve can be considered as the envelope of all different kinds of technologies that can be used to produce the product.

Figure 1

Relative Price of Production Factors and Teaching Choice



Whether the economy's isocost line corresponds to *C* or *D* depends on the economy's endowment structure. When labor is relatively abundant and capital is relatively scarce, the isocost line will have the flatter slope of *C* rather than *D*. When capital becomes relatively abundant and labor relatively scarce, the isocost line will change to something like Line *D* in *Figure 1*. Therefore, the viability of a firm in an open, competitive market depends on whether its choice of technology is consistent with the comparative advantage of the economy's endowment structure.

The above conclusion can be extended to multi-product and multi-industry cases. That is, in an open, competitive market, whether or not a firm is viable depends on whether or not the firm's industry, product, and technology choices are consistent with the comparative advantages determined by the economy's endowment structure[6]. If a firm's choices are not consistent with this condition,

6. For detailed discussions of a firm's viability issues in a multi-good and multi-sector context, see Lin (2003). The term 'viability' only refers to whether a firm's choices of technology, product and choice are consistent with comparative advantage determined by the economy's endowment structure. It is noteworthy that a viable firm may not be profitable if its management is poor.

the firm cannot earn acceptable profit in an open, competitive market even under normal management and its survival requires government subsidies and/or protection.

A good example that illustrates the viability concept is the agricultural sector in Japan. The majority of farms in the Japanese agricultural sector are small and owned by individual owners/operators. There are consequently no problems of property rights and corporate governance[7]. Japan, however, is a country endowed with limited arable land and has no comparative advantages in land-intensive agricultural products such as grain; it is also a high-wage labor country with no comparative advantages in labor-intensive agricultural products such as vegetables and fruits. Although Japan's agricultural sector is famous for its delicate, intensive cultivation, the survival of Japanese farms relies on high levels of government fiscal subsidies and tariff protections, without which most Japanese farms could not survive[8].

Many SOEs in transitional economies face the same viability problem that Japanese farms face, due to the fact that these SOEs, especially large SOEs, are established by governments with the aim of competing with developed countries in capital- and technology-intensive sectors, even though their economies are still low-income, and capital-scarce. These governments' strategy collides with the comparative advantages of their particular economies.

As a matter of fact, the traditional central planning system in the socialist economies that existed prior to the current economic transitions was formed endogenously to support and protect these non-viable heavy industrial firms that were not consistent with the economy's comparative advantages[9]. The socialist countries, including Russia and China, were capital-scarce, backward, agrarian economies before their countries adopted a central planning system. In a capital-scarce, agrarian, low-income country, the establishment of a firm in a capital-intensive heavy industry must overcome numerous difficulties. First, construction of the firm takes a long period of time. Second, the key equipment and technologies necessary for the firm must be imported. Third, the initial investment is dauntingly large. At the same time, in a low-income agrarian country, the economic surplus from each period of agricultural production is

7. The problem of corporate governance is due to the separation of ownership and control that leads to incentive incompatibility and information asymmetry between owners and managers. If the owner and manager of a firm is the same person, there will be no problems of incentive incompatibility, information asymmetry, and moral hazard.
8. The price of rice in Japan is about eight times that in the international market. Japan's deflation has lasted for more than a decade since 1991. The formation of the Free Trade Area of ASEAN plus three, including Japan, Korea, and China, stands to increase Japan's exports and foreign direct investments and will help Japan get out of its current deflation. China proposed the ASEAN Plus Three Free Trade Area in 2001, but Japan's response was hesitant due to Japan's need to protect its agricultural sector.
9. On the logic of the formation of traditional planning system in socialist countries, see Lin, Cai, and Li (2003).

very small and scattered widely and thinly across the numerous small rural farms. As a result, such an economy has three distinct characteristics. First, capital is relatively scarce due to the lack of economic surplus, making market-determined interest rates extremely high. Second, exportable goods are limited in variety and quantity. Consequently foreign exchange is scarce and market-determined exchange rates are high. Third, the mobilization of resources for investment in a project that requires large, lump-sum investment is difficult due to the fact that the economic surplus is limited and scattered widely across the economy. The conflicts between the three characteristics of a low-income, agrarian country and the three characteristics of investing in capital-intensive heavy industries in the country require the government to adopt special institutional arrangements to make such investment feasible.

Specifically, to make long-gestation investment projects feasible in China, Russia and other socialist countries, the governments artificially depressed interest rates; to lower the costs of imported equipment and technologies, the governments distorted exchange rates by artificially overvaluing domestic currency; and to mobilize enough surplus for the large, lump-sum investment projects, the governments gave the firms monopolies in their output markets and artificially depressed prices of all kinds of inputs – including wages – so that the firm could accumulate enough surplus for its own investment. As wage rates were suppressed, governments were required to provide workers with low-price living necessities. The distortions in interest rates, foreign exchange rates, wage rates, inputs and living-necessities' prices resulted in shortages of capital, foreign exchange, raw materials, and living necessities. To ensure that these scarce resources would be allocated to firms in the priority sectors, state planning and administrative allocation of resources according to the state plans were required. The above was the logic for the emergence of a traditional, centrally planned system in socialist economies.

Furthermore, if the firms were in private hands, the state could not ensure that the surpluses mobilized through these distortions would be invested in heavy industries according to the state's plans. Therefore, the firms were nationalized so that the state could directly control the rights to invest the surplus. In addition, even though the firms were owned by the state, the state could not overcome the problems of information asymmetry and incentive incompatibility. If managers of firms had discretionary powers, moral hazards would ensue, resulting in the reduction of available surplus for investments. To prevent the erosion of the surplus, the government deprived managers of any autonomy in input, output, and market decisions and in personnel appointments, wage settings, and other managerial discretions (Lin, Cai, and Li 1996, Lin and Tan 1999).

As a matter of fact, the various institutional arrangements, such as distortions in interest rates, foreign exchange rates, prices of raw materials, wage

rates, and commodity prices, the replacement of the market mechanism with plan allocation, and the deprivation of managerial autonomy are all endogenous to the fact that the firms in the government's priority sectors are not viable in an open, competitive market (Lin, Cai, and Li 2003). In the jargon of neoclassical economics, these arrangements are 'second best'. They are required for the maximum mobilization of surplus in different sectors for investment in the priority sectors. With such arrangements, a backward agrarian country such as China could develop nuclear bombs and launch satellites within a short period of time. However, the resource allocation was poor due to investments being made in nonviable firms. The incentives of workers and managers were low due to the manager's lack of autonomy and the disconnection between performance and reward. As a result, the whole economy was very inefficient[10].

Most distortions in the socialist planned economies were formed endogenously by the government for the purpose of facilitating the development of nonviable firms in sectors that were not consistent with the economy's comparative advantages. Since many existing firms were not viable, it is not surprising that existing neoclassical economic theories, with its implicit viability assumption, cannot provide adequate solutions for problems in socialist and transitional economies. If the problem of nonviability is not eliminated, and if the government is unwilling or unable to let the nonviable firms go bankrupt, eliminating distortions and reforming institutional arrangements according to the existing neoclassical economic theories are likely to turn the arrangements from second best to third best. Therefore, the reforms at best will not achieve the intended effects and at worst will exacerbate the situation.

III. NEOCLASSICAL ECONOMICS AND POLICIES OF ECONOMIC TRANSITION

The model of the world we have in our minds will shape our understanding of the real world (North 2002). The existing neoclassical economic theories, formulated in developed market economies, have proved that ineffective corporate governance, deficient property rights arrangements, and the government's interventions in resource allocation are harmful to economic efficiency. Economists, trained with the neoclassical economics, tend to think that existing neoclassical economic theories are appropriate models in the analysis of

10. For efficiency indicators for China before the transition, see Lin, Cai, and Li (2003, ch. 3). For a detailed study of efficiency in the former Soviet Union, see Desai (1990).

problems in transitional economies when they observe familiar problems in corporate governance, property rights, and government interventions. They fail to see the endogeneity of these problems to the nonviability of firms in the government's development strategy. Invited by the governments in FSUEE to design their transition policies, neoclassical economists reached a remarkable consensus about the need to eliminate the distortions and government interventions immediately (Summers 1994, pp. 252–3)[11].

The most prevalent reform policy advice according to the existing neoclassical economic theories is the 'Washington Consensus', which calls for strengthening fiscal discipline, increasing public investments to improve income distributions (most notably in previously ignored sectors with high rates of return), enlarging the tax base, unifying exchange rates, liberalizing trade, removing FDI barriers, privatizing SOEs, lifting regulations on market entry, and protecting private property rights (Williamson 1997). The shock therapy proposed by economists for the transitional economies in the FSUEE was based on this Washington Consensus (Kolodko 2001). Therefore, we can understand why, in the 1990s, economists, with neoclassical economics training, were more optimistic about reforms in the FSUEE that implemented shock therapies and less so about the piecemeal, gradual, dual-track reform approach being followed in China.

The existing neoclassical economic theories not only have an impact on economists working on issues related to developed market economies, but it also influences economists working on issues related to other economies. For example, in the famous debate on socialism in the 1930s, economists, such as Oscar Lange, who believed that the socialist planned economy could achieve the same allocation efficiency by simulating markets, and Hayek, who believed that the socialist economy was doomed to fail due to informational problems, took the viability of firms in a socialist economy as an implicit assumption in their analyses.

The existing neoclassical economic theories also influences economists living in the socialist countries when they analyze the problems of their own economies. Kornai of Hungary is one of the most eminent economists specializing in socialist economy. One of his most important contributions is the concept of the 'soft-budget constraint' (SBC) (Kornai 1986). In many socialist countries, SOEs suffering from poor performance can ask for preferential treatment and subsidies, while private firms in market economies have no choice but to go bankrupt. Kornai proposed that the SBC is the main

11. Certainly, there were exceptions. For example, Murrell (1991) questioned the power of the neoclassical paradigm to explain the differences in the economic performance of market and centrally planned economies and the appropriateness of using neoclassical economics to underpin the reform of centrally planned economies.

reason for a lack of incentives to improve efficiency and for the prevalence of moral hazards in SOEs. He attributes the existence of the SBC to the paternalism of socialist governments toward SOEs. Therefore, he argued that reform in property rights and the severance of firm-state connections must be carried out in order to eliminate the SBC and to promote firm efficiency. In Kornai's theoretical framework, SOEs are implicitly assumed to be viable. However, the SBC in socialist economies emerges essentially from the viability problem of SOEs. In an open, competitive market, these firms would not be able to attract investments in the first place and, if they had investments due to misjudgments or other reasons, the investor would not continue to support their operations once the misjudgments were clarified. To establish these nonviable firms, the socialist governments must take on the responsibilities of protecting and subsidizing the firms. Because of incentive incompatibility, the managers of SOEs have incentives to attribute their losses to insufficient government support/protection, even though the losses arise from incompetent operations and poor managerial discretion. Because of information asymmetry, the governments cannot know what levels of protection and subsidy are adequate. Therefore, the governments cannot resist the firms' requests for more support and the firms' budget constraints become soft (Lin and Tan 1999). Therefore, the SBC of SOEs essentially results from the problem of nonviability rather than from the paternalism of socialist governments. Similarly, even in non-socialist countries, the SBC will exist in nonviable firms if the government is responsible for the establishment of these firms. The large *chaebols* in Korea are illustrative of this fact.

If the viability problem is the root of the SBC, we can predict that if the viability problem is not solved, the SBC will not be eliminated even though the socialist government is overthrown and all firms are privatized. In fact, that is what happened in the FSUEE. In these countries, the democratically elected governments replaced the socialist governments and shock therapy as well as privatization were implemented, but the SBC still existed and in many cases the incentives of privatized firms' managers to bargain for more supports and protection became significantly higher than the incentives of SOE managers[12]. According to the World Bank's studies, after full-scale privatization in the FSUEE, the subsidies that firms received from governments did not decrease – in some cases, they even increased (World Bank 1996

12. Before the introduction of 'shock therapy', firms were state owned and managers were civil servants of the state. The subsidies they received from the government could not fall into their own pockets without the managers facing the possibility of corruption charges. However, after privatization, government subsidies could be channeled into the legal incomes of managers. Thus, the incentive to push for subsidies and preferential treatment increases and the problem of the SBC becomes all the more serious.

and 2002)[13]. At the same time, taxation capacities were weakened significantly after shock therapy. This, combined with high subsidies to firms, led to extremely high inflation in these countries.

It is not only that the shock therapy formulated according to the existing neoclassical economic theories did not work in the FSUEE but also many reform measures based on the existing neoclassical economic theories or on the experiences of developed economies created similar problems in China[14]. The reform of SOEs is an example[15]. At the beginning of the reforms in the early 1980s, it was believed that the root of SOE problems was in the lack of autonomy of SOE managers with disconnection between reward and performance. Therefore, decentralization reforms were initiated to increase managerial autonomy and to allow SOEs to retain a certain share of their profits to be used at their own discretion. These measures were effective in pilot experiments, but became ineffective when they were implemented nationwide. Empirical studies found that the reform increased SOEs' productivity but their profitability declined (Lin, Cai, and Li 2001). Many scholars thought the discrepancy arose from the arrangement of property rights because the firms were owned by the state but were operated by the managers, who were not the owners and did not have incentives to increase the returns to the equity owner, the state. Based on this diagnosis, the reform measures, starting in the late 1980s, promoted modern corporate governance in SOEs with the establishment of boards of directors and supervision boards to delineate clearly the owners' rights. A publicly listed company was considered to have the best corporate governance and property right arrangement, since the value of the firm would be evaluated before it went public and after being listed the equity would be held by both the

13. According to empirical research, some firms after privatization increased their efficiency, but others did not (Lavigne 1995, p.175, Djankov and Murrell 2002). In my judgment the key lies in whether or not the firm was viable before privatization. If it were, then efficiency would increase after privatization; if it were not, such firms would experience a decrease in efficiency. After seeing that privatization did not help to solve the SBC and improve firm efficiency, many economists realized the importance of improving corporate finance and market competition. As former Chief Economist of the European Bank and Vice President and Chief Economist of the World Bank, Nicolas Stern, commented, 'good corporate governance of public firms and sound competition policy are at least as essential for recovery as privatization and liberalization.' (Stern 1996, p.8). Poland's former first deputy premier and Minister of Finance, Grzegorz Kolodko (2000, ch. 4) holds the same opinion. However, the fact that many share-holding companies in China did not show significant differences in their financial indicators from non-listed companies after five years of being listed shows that if the problem of viability goes unresolved, good corporate governance and sufficient market competition will not come about unless bankruptcy is permitted. (Lin and Tan 1999, Lin, Cai, and Li 2001).
14. Since 1978, when China initiated its reforms, the two most significant changes, summarized by Deng Xiaoping as the two 'unexpected results', were the success of the household responsibility system (Lin 1992) and the remarkable growth of the township and village firms (Lin and Yang 2001). These reforms were not designed by reformers ex ante, but adopted by peasants spontaneously in practice.
15. Regarding academic debates and policy measures on SOE reform, see Lin, Cai, and Li (2001).

state and non-state investors. In addition to monitoring by the board of directors, non-state shareholders would have incentives to monitor the company's management and operations since they would care about the returns on their investments. Nevertheless, in reality, after a few years, the financial performance of the majority of listed companies did not differ from those of non-listed companies (Lin 1999). At the beginning, the poor performance of listed companies was attributed to the fact that only small, individual investors owned the non-state stocks and these individual investors had little incentive to monitor the managers because the returns to the small individual stockholders' efforts would be negligible. These small shareholders were thought to be interested in the short-term price changes in stocks, which made stock markets highly speculative with high turnover rates and short holding periods.

In developed countries, institutional investors play an important role in equity markets. An institutional investor has the capacity to hold a substantial portion of a listed company's shares and thus has greater incentive to monitor the invested company's management than does an individual investor. In addition, an institutional investor can hire professionals to analyze the listed companies' reports and operations. If an institutional investor decides to hold the shares of a company, the institutional investor is likely to hold the shares for a long period of time. Therefore, Chinese researchers thought the introduction of institutional investors would stabilize China's stock markets so investment funds were introduced in 1998. However, speculation in the stock markets did not stop. Making things worse, many investment funds not only speculated in the stock market but also manipulated stock prices. How could this happen? The reason still lies in the problem of the nonviability of these listed companies. Without the ability to earn acceptable profits in an open, competitive market, these companies cannot afford to distribute dividends to shareholders, which means that not only small individual shareholders but also institutional investors can only profit through speculation on stock prices. With large amounts of money at their command and a small portion of stocks in circulation for each listed company[16], these institutional investors resorted to manipulation of stock prices to make profits (Lin 2001, 2004).

In conclusion, for firms to exist in the markets of developed countries, they must be viable. Therefore, the viability is an acceptable implicit assumption in the existing neoclassical economic theories for explaining phenomena in developed countries. Policy reforms, based on the existing neoclassical economic theories or the experiences of developed countries, have failed to

16. In China only about 25 percent of the total stock of a listed company was issued to non-state investors and could be traded in the stock markets. The other 75 percent was still owned by the state and could not be traded in the stock market. Among the 1200 or so listed companies, only a few have distributed dividends to stockholders (Lin 1999).

achieve their intended goals in the transitional economies because most firms in transitional economies are not viable.

IV. THE PREVALENCE OF THE VIABILITY PROBLEM AND THE EXPANSION OF THE NEOCLASSICAL FRAMEWORK

The firms' viability problem and the resulting institutional arrangements not only appear in transitional economies but they are also widespread in developing countries. Upon seeing the decisive role of industrialization in promoting the economic and political powers of developed countries, many leaders of developing countries that achieved independence after World War II attempted to develop advanced industrial sectors comparable to those in developed countries against their own comparative advantages (Chenery 1961, Krueger 1992)[17]. They did so by intervening in factor prices, the financial system, international trade, and investment – without realizing that the industrial structures of developed countries were endogenously determined by their own particular factor endowment structures. Through such efforts, the developing countries were able to establish firms in the advanced sectors. However, those firms were not viable in an open, competitive market, and government interventions on prices, resource allocations, and market competition were required to maintain the firms' survival. Those interventions inevitably led to the prevalence of rent-seeking and crony capitalism, which finally resulted in unequal distributions of income, low efficiency, and social and economic instability (Krueger 1974, Lin 2003)[18].

This phenomenon also existed in some newly industrialized economies. Korea's situation serves as a good illustration. China's Taiwan Province has higher per capita income than that of Korea. But the *chaebols* in Korea are more technologically advanced and capital-intensive than comparable firms in Taiwan[19]. During the East Asian Financial Crisis in 1998, Taiwan's foreign

17. The view of former Indian Prime Minister Nehru is most representative of this. In 1938, before India's independence, he was the President of India's State Planning Commission. He wrote: 'in the context of the modern world, no country can be politically and economically independent, even within the framework of international interdependence, unless it is highly industrialized and has developed its power resources to the utmost. Nor can it achieve or maintain high standards of living and liquidate poverty without the aid of modern technology in almost every sphere of life'. (Nehru 1946, p. 413; quoted from Srinivasan 1994, pp. 155–156).
18. Such tendencies characterize India and Latin America. On India, see Swamy (1994). On Latin America, see Cardoso and Helwege (1992).
19. Take the IT sector as an example. Taiwanese firms, such as TSMC, mainly do OEM, while Korea's Samsung and Hyundai Electronics carry out independent R&D and product innovations. For a comparative study of IT development strategies in Taiwan and Korea, see Lin (2000). Furthermore, in the automobile industry, Korea produces complete cars, while Taiwan is renowned only for parts production.

exchange rates devalued by only 15% and it was the only economy that achieved positive growth in East Asia except for Mainland China, which was insulated from the crisis by its currency inconvertibility and control of capital accounts. Taiwan grew by 4.5% and 5.7% in 1997 and 1998, respectively, which was remarkable considering the terrible external environment at that time. As such, Taiwanese firms manifested themselves as being competitive and viable. The Korean economy collapsed during the East Asian Financial Crisis and Korea had to borrow heavily from the International Monetary Fund. After the elimination of state protection and subsidies to large firms in accordance with the conditions of the IMF's rescue package, 20 out of 30 Korean *chaebols* have now gone bankrupt, which showed that these firms were not viable and could not survive without government protection.

In market economies, the protective measures provided to nonviable firms are similar to those in socialist economies: depression of interest rates; administrative allocation of bank loans to provide cheap funds to nonviable firms; and establishment of various import barriers to prevent competition from developed countries. The protected firms are in sectors that collide with the economy's comparative advantages and produce little economic surplus. The firms, consistent with the economy's comparative advantages, face discrimination and eventually experience difficulties developing. As a result, the funds that could be mobilized for development purposes would dry up. If external borrowing is not allowed, as was the case in India, Pakistan, and most socialist countries, the economies will stagnate; if external borrowing by firms or governments is permitted, as in the Latin American countries, Korea, Thailand, and Indonesia before the East Asian Financial Crisis, debt crises ensue (Krueger 1992).

When debt crises occur, countries have to seek rescue from the IMF under the existing international financial arrangements. The IMF rescue packages usually come with conditions, requiring a series of reforms and structural adjustments in the recipient countries. The concept of such conditions is itself based on the 'Washington Consensus', which requires that macro-policy distortions be corrected, that government cease interventions in banks and firms, and that corporate governance be improved. The Washington Consensus, reflecting the basic principles of the existing neoclassical economic theories, implicitly assumes that firms are viable. Therefore, the conditions aim to eliminate protection and subsidies without any attempt to solve the firms' viability problems. If nonviable firms constitute only a small share of the economy, as is the case of Bolivia, shock therapy is possible and growth can quickly resume when increases in efficiency offset the shock of bankruptcy suffered by nonviable firms in the wake of Washington Consensus measures. However, if nonviable firms constitute a large share of the economy, as is the case in transitional economies, a shock therapy would lead to an *L* curve rather

than a *J* curve in the pattern of GDP growth after implementing the therapy (Lin 1998)[20].

Since the existence of nonviable firms is a common reality in socialist, transitional and developing economies, it is inappropriate to assume implicitly that firms are viable in the analysis of the economic problems in these economies and to formulate reform policies based on such assumptions and analyses. Problems of viability should be taken explicitly into consideration in analyzing economic development and transition.

Upon reflection, neoclassical economics has been enriched through a process of abandoning unrealistic and implicit assumptions. The basic framework of neoclassical economics was laid down in Alfred Marshall's 'Principles of Economics' in 1890. Among others, Marshall's framework had several implicit assumptions, including perfect information, zero transaction costs, and the viability of firms in an open, competitive market.

Economic theories are instruments to help people explain what has been observed and to predict what will happen. According to Friedman (1953), the acceptability of a theory depends not on whether the assumptions of the theory are realistic, but on whether the implications drawn from the theory are consistent with empirical observations. Marshall's framework is very powerful in explaining and predicting a number of economic phenomena in market economies – when the prices of certain products increase, the purchases of those products will generally decline, for example. However, the assumptions in Marshall's framework also limit its explanatory power on certain issues. For example, under the assumption of perfect information and zero transaction costs, there will only be one price for a product in a competitive market, allowing little room for price differentiation.

One of the main contributions by George Stigler at the University of Chicago was to abandon the implicit assumption of perfect information and to introduce the concept of incomplete information into economics with the added considerations of the value of information and the cost of information collection and processing. His contribution makes information an important variable in modern economic analysis. Other economists, such as Joseph Stiglitz, George Akerlof, and Michael Spence, further emphasized that not only is information incomplete, it is often distributed asymmetrically among producers, consumers, and principles and agents. Furthermore, according to Marshall's framework,

20. The difference in the shares of nonviable firms in the economy might explain why the shock therapy recommended by Sachs succeeded in Bolivia but not in the FSUEE economies. Bolivia is a poor, small economy. Therefore, the resources that the government could mobilize to subsidize the nonviable firms were small. Therefore, the share of nonviable firms in the economy must also be relatively small. Stiglitz also questioned the universal applicability of the Washington Consensus (Stiglitz 1998), but he did not consider the possible impact of nonviable firms in developing and transitional economies and their limitations on policy choices.

resource allocation by markets is most efficient. Knowing this, it is difficult to explain why there are firms operating in accordance with non-market allocation mechanisms. Ronald Coase contributed to neoclassical economics by abandoning the zero transaction cost assumption and initiating research on contracts, property rights, and non-market institutions.

Economic theories are like maps. A map is not the real world itself, but a convenient tool to help us understand the surrounding environment and what will be seen in different directions. Maps, by nature, must be simplified, but if some important landmarks are ignored or incorrect, the maps will mislead us. When we discover mistakes in a map and similarly in a theory, corrections must be made. Due to the prevalence of viability problems in socialist economies, transitional economies and developing countries, the implicit assumption of viability should be relaxed in analyzing the economic problems and designing policies to solve problems of these economies. With the understanding that many firms may not be viable, transition and reform policies should be designed accordingly. The success of transition and reform depends on the creation of conditions that make nonviable firms viable, in lieu of following shock therapy and Washington Consensus reforms unconditionally.

In addition, the objective pursued in national development must also be reformulated. Traditionally, political leaders, economists and the social elite in developing countries aim to develop advanced technologies and industries similar to those of the most developed countries within the shortest period of time. However, the structures of industry and technology that are consistent with an economy's comparative advantages are endogenously determined by the economy's existing factor endowment structure. Ignoring the existing differences between its own endowment structure and that of developed countries, the government in a developing country often tries very hard with good intentions to develop the same industries and technologies as those in developed countries. In effect, the government's efforts make firms in the priority sectors nonviable because they lack the ability to survive in open, competitive markets. Therefore, the government has to subsidize and protect these firms through price distortions, interventions in resource allocations, and so on. Rent seeking, the soft budget constraint, macroeconomic instability, income disparities, stagnation, and crises are the consequences of the government's development attempts in spite of its initial good intentions.

Based on the concept of viability, the objective of national economic development should be to upgrade the economy's endowment structure. With the upgrading of the endowment structure in the economy, firms in open, competitive markets will upgrade their industrial, product, and technological levels accordingly in order to ensure their competitiveness in the markets (Lin 2003). Since the endowment of land (and natural resources) in a country can be treated as given, the upgrading of the endowment structure means an increase

in the amount of capital to each worker. Capital comes from the accumulation of economic surplus. To upgrade the endowment structure most rapidly, a maximum economic surplus should be produced in each period, and a large proportion of this surplus should be saved for capital accumulation. If a country develops its industries, technologies, and products along the lines of its existing comparative advantages, the economy of the country will be most competitive, produce the maximum possible amounts of surplus, create the highest possible returns to capital, and have the highest incentive to save. Consequently, the upgrading of the factor endowment structure in the economy will proceed most quickly. Firms' decisions are based on product prices and production costs, but not on the factor endowment structure in the economy. Therefore, the government should maintain openness and sufficient competition in the market so that the price structure will reflect the relative abundances of the factor endowment structure[21].

V. VIABILITY AND ECONOMIC TRANSITION

The firms in heavy industries prioritized by the government in traditional centrally planned economies are not viable in open, competitive markets. The objective of the transition from a traditional centrally planned economy is to establish an open, competitive market economy. In the process of transition, however, the viability problem of those firms in the sectors inconsistent with the economy's comparative advantages turns from implicit to explicit. Whether the transition will be stable and successful very much depends on how the viability problem is solved.

Nonviable firms cannot survive in open, competitive markets without government subsidies/protections. The shock therapy, adopted in the FSUEE, attempted to eliminate all distortions and government interventions simultaneously or in short sequence. If implemented forcefully, the shock therapy inevitably led to large-scale bankruptcy and unemployment, thus prompting economic collapse and social instability. Such results are understandably not acceptable to a functioning government. Consequently, many governments in the FSUEE had to find ways to provide protection/subsidies continuously to a large number of nonviable firms, resulting in the embarrassing situation of shock without therapy (Galbraith 2002).

21. In a developing country, the government may also use an industrial policy to assist firms' upgrading of technology, product and industry in responding to change in the economy's endowment structure by providing relevant information, coordinating required investments and compensating for externalities of innovation. However, the industry promoted by the industrial policy should be consistent with the comparative advantages of the new endowment structure and as such the firms are viable in an open, competitive market (Lin 2003).

China has adopted a gradual, piecemeal, dual-track approach since the transition started in 1979: on the one hand, the Chinese government has relaxed their strict control of resource allocations and has allowed new entries to sectors in which China's economy has comparative advantages; and, on the other hand, the government has continued to provide protection and support to firms in traditional sectors to buffer them from the threat of bankruptcy, while taking measures to reform them. The first track enhanced the efficiency of resource allocation, created a new stream of resources, and provided conditions for the reform of the traditional sectors. The second track prevented the collapse of the economy during the transition process. This dual-track approach has maintained social and economic stability, achieved dynamic growth, and ensured the transition to be Pareto or Kaldor improvement (Lin, Cai, and Li 1996).

However, China's transition towards a market economy depends on a final solution to the viability problem of firms in the traditional sectors. Since the viability problem is not yet solved, the Chinese government has been required to continue its interventions in markets in order to protect/subsidize the nonviable firms and the interventions come with consequences. For example, along with China's rapid economic growth in the transition process, the share of non-performing loans in the four big state-owned commercial banks has increased sharply, corruption is widespread, and regional income disparities are widening. To a large extent, these problems arise from the fact that SOEs still depend on government subsidies and protection to survive. After 1983, the form of Chinese government support to SOEs changed from direct fiscal appropriation to offering low interest-rate loans from the four state banks. Currently, over 70% of loans from the four state banks go to SOEs, but due to their poor performance, many SOEs have been unable to repay the loans. Therefore, the banks accumulate large amounts of non-performing loans. To support SOEs, the government also limits the market entry of private interests into certain sectors to give SOEs in those sectors monopoly position. Therefore, rent seeking to obtain preferential loans or market entry licenses is prevalent among SOEs and non-SOEs, adding fuel to the widespread corruption. In addition to subsidizing SOEs, the government artificially depressed the prices of agricultural products and minerals under the traditional planning system. Such price distortion has continued after the reforms as a means to subsidize the nonviable SOEs. The comparative advantages of eastern China lie in manufacturing industries; those of central China lie in agriculture; and those of western China lie in minerals and natural resources. Since the reforms began, the eastern region has made huge progress in the development of manufacturing industries by taking advantage of the superior geographical and market conditions and has increased substantially imports of low-priced agricultural and mineral products from the central and western regions. In

essence, the relatively poor central and western regions have been subsidizing the development of the relatively rich eastern, industrial region. Regional disparities are widening as a result. If the viability problem of SOEs is solved, there will be no reason to continue their subsidization and protection through low-interest loans, monopolistic practices, and the depression of prices for agricultural and raw materials. The remaining distortions and government interventions can then be eliminated (Lin, Cai, and Li 2001)[22].

The viability problem of SOEs can be solved according to four different strategies, depending on the nature of the SOEs' outputs (Lin, Cai, and Li 1999 and 2001). The first group includes mainly the defense-related SOEs whose production, intensive in both capital and technology, runs against China's comparative advantages, but their outputs are essential for national security. For this group of SOEs, direct fiscal appropriation is necessary for their survival and the government should directly monitor their production and operations. It is reasonable to expect that there are only a few SOEs in this category. The second group of SOEs also requires intensive capital and technological inputs for their production, but their outputs are not sensitive to national security and they have large domestic markets. Examples of this category are the telecommunications and automobile industries. For this category of SOEs, the government can adopt a 'market for capital' approach to get access to capital from international markets and remove the adverse impact of the domestic endowment structure on these firms' viability. There are two ways to achieve this goal: one is to encourage SOEs to go public on international equity markets; the other is to set up joint ventures with foreign companies and get direct access to foreign technologies and capital. China Mobile, China Telecom, and China Petroleum have followed the first approach and many automobile makers in China have followed the joint-venture

22. Besides the viability problem, the SOEs in China have an additional problem of social burdens. Before the economic transition, the investment in heavy industry provided limited employment opportunities. The government was responsible for urban employment and usually assigned several workers to a job, resulting in labor redundancy in SOEs. The workers also received low wages, which were enough for covering current consumption only. Before the transition, SOEs remitted all their revenues to the government, and the government used fiscal appropriation to cover SOEs' wages, pensions of retired workers and other expenditures. Therefore, the labor redundancy and the pension expenditure were not burdens on SOEs. After the reforms, SOEs started to be responsible for their workers' wages and retirement pensions. The newly established TVEs, joint ventures, and other non-state firms are in sectors that are consistent with China's comparative advantage and they do not have the problem of labor redundancy and unfunded pensions for retired workers. I call the issue arising from the viability problem the SOEs' 'strategic burden' and the additional cost arising from labor redundancy and pension expenditures the SOEs' 'social burden'. Together they constitute the SOEs' 'policy burdens'. As long as these policy burdens exist, the government is responsible for the firms' losses and the soft budget constraint cannot be eliminated (Lin and Tan 1999). There is a consensus in China about the necessity and the way to eliminate the social burdens. Therefore, the remaining issue is how to solve the strategic burden.

approach. The third category of SOEs has limited domestic markets for their products and thus this group of SOEs cannot adopt the 'market for capital' approach. The way for them to solve the viability issue is to make use of their engineering and managerial capacities and to shift their production to labor-intensive products, which have large domestic markets and at the same time are consistent with China's comparative advantages. The most famous example of a firm following this approach is the color TV maker, Changhong. This firm used to produce old-style military radar. After switching to the production of color TVs, the firm has dominated the Chinese market and is very competitive in international markets. Most SOEs have advantages in engineering and managerial personnel. If they are given the opportunity to shift their production lines to labor-intensive products, many of them can become viable. The fourth group consists of nonviable firms that lack engineering capacity and are thus unable to shift their production to new markets. These SOEs should be allowed to go bankrupt.

After the viability problem of the existing firms is solved, whether or not a firm can earn acceptable profits in an open, competitive market becomes the responsibility of the firm's managers. The performance of a firm will depend on the corporate governance, incentive mechanisms, and other factors, as identified in neoclassical economics. The government will no longer be responsible for a firm's performance. Only then can the reform of institutions that are inherited from the traditional central planning system with the functions of subsidizing and protecting SOEs be carried out thoroughly and the transition from a planned economy to a market economy completed.

VI. CONCLUSION

In this paper, I discuss the limitations of the existing neoclassical economic theories, evidenced by the failure of transitional policies designed according to these theories and the adverse effects of the 'Washington Consensus' in handling many economic crises in developing economies. The current framework of neoclassical economics, beginning with Marshall, implicitly assumes that a firm existing in the market is viable, that is, the firm is expected to earn a socially acceptable profit in an open, competitive market as long as the firm is under normal management. With this implicit assumption, the focus of economic research has been on the problems of corporate governance, the competitive environment, the arrangement of property rights and other factors that may obstruct a firm's management. However, many firms in transitional economies and developing countries are not viable because, due to their governments' ambitious development strategies, these firms are in sectors that are inconsistent with their economies' comparative advantages. In an open,

competitive market, these firms, even under normal management, will not be able to earn acceptable profits. To set up these firms and to maintain their continuous operations, the governments in these countries provide these firms with protection and subsidies through price distortions, limitations on market competition, administrative allocation of all kinds of resources, and so on. The results of these interventions are inadequate competition, lack of effective corporate governance, rent seeking, disparities in income distribution, inefficient resource allocation, and, quite possibly, economic crisis. Under the rubric of the existing neoclassical economic theories, when designing policies for economic transition or crisis management, economists and governmental officials are likely to focus on strengthening property rights, improving corporate governance, removing government intervention in resource allocations, and so on, to improve the efficiency of the market. They are not aware of the fact that such market-impeding distortions and interventions in fact are endogenous to the firms' viability problem. When a majority of the firms in an economy are nonviable, the implementation of these reform and transitional policies sometimes lead to an awkward situation of shock without therapy, as in the FSUEE and the lost decades in other developing countries (Easterly 2001, Lin and Liu 2004).

Since many existing firms in socialist centrally planned economies, transitional economies, and developing countries are not viable it is necessary to relax the implicit viability assumption in the neoclassical economics when applying the neoclassical approach to study the problems in those economies. The explicit consideration of the viability problem will enrich the neoclassical economics and help to define the economic functions of governments in developing countries, preventing them from adopting comparative-advantage defying development strategies to set up nonviable firms and enabling them to achieve convergence with developed nations in an expedient manner (Lin 2003).

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SUMMARY

Many transition policies, based on the existing neoclassical economic theories, failed in Eastern Europe, the former Soviet Union, and China. This paper argues that the failure is due to the implicit viability assumption of neoclassical economics. The existing neoclassical economics implicitly assumes that a firm is expected to earn a socially acceptable profit in an open, competitive market as long as the firm has normal management. However, many firms in socialist as well as transitional economies are not viable, that is, they will not be able to earn a socially acceptable profit in an open, competitive market even if they

are under normal management because they are in sectors that are inconsistent with their economies' comparative advantages. Under the viability assumption, neoclassical-based reform policies focus on issues related to property rights, corporate governance, government interventions and other issues that may obstruct a firm's normal management. However, many of these issues are in fact endogenous to the firms' viability problem. Therefore, without resolving the firms' viability problem, such reforms fail to achieve their intended goals. Not only in socialist and transition economies but also in many developing economies there exist many nonviable firms. This paper suggests that the viability assumption in neoclassical economics should be relaxed when analyzing socialist, transition and developing economies.