Development Strategy, Viability and Challenges of Development in Lagging Regions*

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Abstract

After World War II, many LDCs adopted various measures to industrialize their economies. However, except for a small number of economies in East Asia, the gaps between LDCs and DCs have enlarged. How to catch up with the DCs is still a daunting challenge after the development pursuits of several generations in many LDCs. Recent studies find that the poor development performance in LDCs is largely attributable to their problems in institutions, including all kinds of market distortions and government interventions. Following the policy advice, capsulized in Washington consensus, LDCs both in the socialist and non-socialist groups started to reform their institutions in the early 1980s. However, the growth performance of most LDCs has deteriorated further. The LDCs faces another challenge of how to achieve dynamic development by successfully reforming their economies.

In this paper, we argue that the poor growth performance of LDCs after World War II can be largely explained by their adoption of an inappropriate development strategy. Motivated by nation building, most LDCs, including the socialist countries, adopted a comparative advantage defying (CAD) strategy to accelerate the growth of firms in capital-intensive, advanced sectors. Those firms were nonviable in open, competitive markets because of the violation of their economies’ comparative advantages. As such, the governments in LDCs adopted a series of distortions in input and output markets to subsidize/protect the nonviable firms, resulting in rent seeking, soft-budget constraint, macroeconomic instability, and income disparities. Economic stagnation or even sudden collapse becomes unavoidable, prompting the LDCs, voluntarily or involuntarily, to start reforming their economies. The Washington consensus from the international development agencies advises the LDCs to carry out a package of reforms, including price liberalization, privatization, and eliminations of other distortions. However, without addressing the firms’ viability issue first and unable or unwilling to allow all the nonviable firms bankrupt simultaneously, the government still needs to protect/subsidize those firms through various disguised means of distortions and protections. Therefore, not only the reforms toward a well-functioning market economy cannot be completed but also economic disruptions may erupt in the reform process.
In the paper, we also argue that LDCs should follow a comparative advantage-following (CAF) strategy so that their firms would be viable, economies competitive, and the sustained upgrading of their endowment structures as well as industrial structures possible. We also discuss the government’s appropriate roles in the CAF strategy and the way to complete the transition smoothly from an economy with the CAD strategy to an economy with CAF strategy.
I. Introduction

After the industrial revolution in the mid 18th century, countries in the world are divided into two groups: the developed countries (DCs) and the less developed countries (LDCs). The DCs are all industrialized and LDCs rely mostly on the primary industries, including agriculture and natural resources, for their livings. Many LDCs were colonized by DCs before gaining independence after the World War II. As a nation’s power, status in the world, and welfare indicators of its people are closely related to the degree of its industrialization, how to industrialize the poor nations and catch up with DCs has interested not only political leaders but also many intellectuals in the LDCs since the 19th century (Gerschenkron 1962, Lal 1985). After World War II, many governments in the LDCs adopted various policy measures to industrialize their economies. The per capita GDP, measured in comparable prices, has increased in almost all nations. However, as shown in figure 1, the gaps of per capita income between the developed regions and lagging behind regions widened substantially. Only a small number of economies in East Asia have actually narrowed the gap and converged to the level of per capita income with DCs. How to catch up with the DCs is still a daunting challenge after the development pursues of several generations in many LDCs.

**Figure 1: GDP per Capita, 1950-1992 (56 countries)**

(In 1900 Geary-Khamis Dollars)

The rapid increase of wealth and national power in the DCs after the industrial revolution is rooted in their speedy upgrading of industries and technologies. Therefore, the early attempt in LDCs had focused primarily on how to develop/adopt the dominant industries/technologies of DCs. Recent studies find that the poor development performance in LDCs is largely attributable to their problems in institutions, including all kinds of market distortions, government interventions, macro instability, unfairness in income distributions, colonial heritages, and so forth (Shleifer et al., 1998; Rodrick, 1998, 2001; Acemoglu et al., 2001a, 2001b, 2002a, 2002b; Djankov et al., 2003). To improve the economic performance, institutional reforms in fact have started in many LDCs, including the (former) socialist countries, since the late 1970s. Many of those reforms have followed a package of policy advice based on neoclassical economics and is capsulized in the Washington Consensus. Surprisingly, with the various reform attempts and the improvements in many factors that are considered determinants of growth, the growth performance of many LDCs has deteriorated further. Easterly (2001, p. 2) shows that “in 1980-98, median per capita income growth in developing countries was 0.0 percent, as compared to 2.5 percent in 1960-79”. The stagnation represents a disappointing outcome to the movement towards the “Washington Consensus” by developing countries (Krugman 1995). The LDCs faces another challenge of how to achieve dynamic development by successfully reforming their economies.

In this paper, we will try to answer the following questions: Why did most LDCs with their several decades’ or even a century’s industrialization drives fail to catch up DCs? Why did the institutional reforms based on “Washington Consensus” not only failed to stimulate economics growth in most LDCs but also caused various crises in many LDCs? What are the lessons from the few cases of successful convergence in the East Asian economies for the LDCs? How can LDCs achieve dynamic economic growth and complete institutional reforms successfully simultaneously?

The core of our arguments to the above questions is as follows: The failure of most LDCs to converge with DCs can be largely explained by their government’s inappropriate development strategies. With the attempt to close the gap of their industrial structures to those of DCs, most governments in LDCs pursued a capital-intensive heavy industries oriented development strategy after World War II. However, the optimal industrial structure of an economy is endogenously determined by the economy’s endowment structure. The LDC government’s development strategy caused the firms in the government priority industries to become nonviable in open, competitive markets. Consequently, the LDC government introduces a series of
distortions in its international trade, financial sector, labor market, and so on in order to support/protect the non-viable firms. Through those distortions it is possible to mobilize resources administratively to establish capital-intensive industries in a capital-scarce LDC. The country will have an investment-led growth initially. However, the economy becomes very inefficient due to misallocation of resources, rampant rent seeking, macro instability, suppression of private initiatives and incentives and so forth. When the domestic resources deplete and further resource mobilization from international sources exhausts, the economy stagnates. Consequently, convergence fails to occur. Moreover, the various distortions and interventions arising from the LDC government’s development strategy enlarge the income disparity domestically and debt burden internationally, and often lead to social conflicts and financial crises, causing the sudden collapse of the economy.

The government’s development policy should target the upgrading of endowment structure instead of the industrial structure because once the endowment structure is upgraded the industrial structure will be upgraded endogenously. The upgrading of the endowment structure means faster accumulation of capital, both physical and human, than the growth of labor and natural resources in the economy. Capital accumulation depends on the economic surplus (or alternatively the profits) and the saving propensity in the economy. If an LDC develops its industries along the line of its comparative advantages, its economy will be most competitive and have the largest possible economic surplus and the highest savings propensities and will achieve the highest possible upgrading of its endowment structure. Therefore, the LDC government should adopt a strategy to facilitate the firms’ choices of industry/technology according to the economy’s comparative advantages. A firm’s choice of industry/technology depends on the relative prices of capital, labor, and natural resources in the economy. Only if the price structure of the economy can reflect the relative abundances of capital, labor, and natural resources will the firm in the economy choose its industry/technology according to the comparative advantages of the economy. The price structure will reflect the relative abundance of each factor only if the prices are determined in competitive markets. Therefore, the LDC government's primary functions for economic development are to eliminate various obstacles and to create conditions for well functioning markets. Such are the ideal roles of government as envisioned in the neo-classical economics. If an LDC government follows such a strategy, the economy will be dynamic, stable, efficient, and have a fair income distribution.

Most LDCs followed an inappropriate development strategy, attempting to close up
the gap of their industrial structures with those of DCs without first narrowing the gap of their endowment structures with those of the DCs. The LDCs’ reforms mostly follow policy advice based on the vision of efficient institutions as stipulated in the neoclassical economics. Such reform attempts often led to unexpectedly poor, or even dreadful results. We argue that the failure is due to the limitation of neoclassical economics as a map for policy reforms in LDCs. The existing neoclassical economics is built upon an implicit assumption that firms exist in the market are viable, that is they are expected to earn acceptable profits without any external subsidies or protections. Such an assumption is appropriate for the economies of DCs, where the neoclassical economics is developed. However, due to the government’s inappropriate development strategy, many firms in LDCs are not viable in open, competitive markets and their survivals rely on the government’s protection/subsidies through various forms of distortions and interventions. The Washington consensus, based on the neoclassical economics, advises LDCs engaging in reforms to eliminate the distortions and interventions immediately so as to create well-functioning open, competitive markets. However, without addressing the firms’ viability issue first and unable or unwilling to allow all the nonviable firms bankrupt simultaneously, the government still needs to protect/subsidize those firms through various disguised means of distortions and protections. Therefore, not only the reforms toward a well-functioning market economy cannot be completed but also economic disruptions may erupt in the reform process. The paper suggests consider the viability issue formerly in designing reform/transition policies in the developing and transition economies.

The paper is organized as follows: Following the introduction, Section II discusses the impacts of an LDC government’s development strategy on the viability of firms, the economic institutions, and the economic and social consequence. Section III explores the different experiences of economic transition and shows why policy advice capsulized in the Washington Consensus fails to achieve its goals. Some concluding remarks are included in Section IV.

II. Development Strategy, Viability, and Institutions in LDCs

II.1 Nation Building, Viability Problem and the Interventions

Why LDCs cannot catch up with DCs have been an interesting and puzzling phenomenon to economists. According to the seminal work by Robert Solow (1956)
and others, neoclassical growth theory with its assumption of the same given technology to DCs and LDCs has suggested that LDCs would grow faster than DCs and that the gap in per capita income between DCs and LDCs would narrow due to the diminishing returns to capital in DCs. However, empirical evidence shows that while the convergence occurred within the different states in the United States and among the DCs (Barro and Sala-I-Martin 1986), most LDCs failed to achieve this (Pearson, et al. 1994).

Unsatisfied with the neoclassical growth theory’s inability to explain the continuous growth of DCs and the failure of most LDCs’ to converge with DCs, Romer (1986) and Lucas (1988) pioneered a new growth theory. Their theory treats technological innovation as endogenously determined by the accumulation of human capital, research and development (R&D), learning by doing and so on. This new growth theory is insightful for explaining the continuous growth of DCs, which use the most advanced technologies. However, the new growth theory cannot satisfactorily explain the extraordinary growth and convergence of the newly industrialized economies (NIEs) in Asia, which includes South Korea, Taiwan, Hong Kong, Singapore and recently China, during the last three decades of the twentieth century (Pack 1994; Grossman and Helpman 1994). During the catching up process, these NIEs’ investments in R&D, human capital, and learning by doing were much lower than those of DCs.

Prompted by the above failures of neoclassical and new growth theories, the economists change their attention to the institutional analysis of economic development in recent years. Many economists now believe that the LDCs failed to catch up DCs because of bad institutions due to the government’s interventions and regulations, including the widespread corruption, weak protection to the investors, and a high degree of social conflicts (Shleifer et al., 1998; Rodrick, 1998; Acemoglu et al., 2001a, 2001b, 2002a, 2002b; Djankov et al., 2003). As Rodrick(2003, p7) stated, “institutions have received increasing attention in the growth literature as it has become clear that property rights, appropriate regulatory structure, quality and independence of the judiciary, and bureaucratic capacity could not be taken for granted in many settings and that they were of utmost important to initiating and sustaining economic growth.” For example, the legal origin (La Porta et al., 1998, 1999) and the institutional inheritance (Acemoglu et al., 2001a, b) have been emphasized.
Generally speaking, the government is the most important institution in any economy. Its economic policies shape the macro incentive structure that firms in the economy face. Both policy reformers and researchers have tried to understand how government intervention and regulation occurs and how and whether it can be subsequently sustained (Rodrik 1996). The classical theory for the role of government (Pigou, 1938) has been called the helping hand view. An alternative strand of the grabbing-hand view (Shleifer and Vishny 1998) holds that the government interventions are pursued for the benefits of politicians and bureaucrats. Politicians use regulation to favor friendly firms and other political constituencies, and thereby obtain campaign contributions and votes. In addition, “an important reason why many of these permits and regulations exist is probably to give officials the power to deny them and to collect bribes in return for providing the permits.” (Shleifer and Vishny 1993, p. 601). A recent paper presented by Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2002) provided an empirical test on the theories of grabbing hand. Say, the barrier for business entry might be due to corruption of governors.

Suppose that the government regulations in LDCs could be related to the grabbing hand of government, or political elites, the unsolved question in the literature is how to understand the evolution of institutional structure under the government’s interventions. In LDCs, the institutional structure shaped by the government’s interventions is so complicated. We wonder what the incentive is for political leaders to design such complicated system, because the increase of costs of expropriations and political control due to the complexity of institutions would outweigh the gain of grabbing. Corruptions induced by the special interest groups might not be a good answer for this question either, because the benefited groups are often taxed or suppressed alongside with the protections/subsidies. Moreover, many interventions do not have obvious beneficiary groups.

In the paper we attempt to propose an alternative hypothesis for governments’ interventions and regulations in LDCs. Many early generations of political leaders in socialist and non-socialist LDCs, such as Nehru in India, Nasser in Egypt, Sukarno in Indonesia, Mao Zedong in China, and Ho Chi Minh in Vietnam, were elites taking part in the independent movements or revolutions for the purpose of nation building. We would argue that the institutions laid down by the early generations of political leaders were endogenously shaped by the conflicts between their ambitious drives of industrialization/modernization and the economic realities of their nations. The key to understand the cause of many interventions/regulations by the LDC governments is the viability issue of firms in the government’s industrialization drives.
To explain the evolution of inefficient institutions in LDCs, Lin (2003) defines the term **viability** with respect to the expected profit of a firm in an open, free, and competitive market. If, without any external subsidies or protections, a normally managed firm is expected to earn a socially acceptable profit in a free, open, and competitive market, the firm is called viable. If a firm is not viable, that is, the firm even with normal management is not expected to earn a socially acceptable profit, no one will have the incentives to invest in this firm or to maintain its operation unless the firm has government’s subsidies or protections.

The viability of a firm is related to whether the sector in which the firm operates, the products it produces, and the technology it uses in production are consistent with the comparative advantages determined by the factor endowment structure, namely the relative abundances of labor, capital, and nature resources in that particular economy (Lin 2003). Theoretically, the structure of industry and technology in an economy is endogenously determined by the economy’s comparative advantages or alternatively, its endowment structure. Most LDCs are characterized by relative abundance of labor and scarcity of capital. Therefore, in a free, open, and competitive market, the firms in LDCs will enter relatively labor-intensive industries and adopt relatively labor-intensive technologies in their production. However, inspired by the dream of nation building, the political leaders, economists and social elite in LDCs often aimed to develop advanced technologies and industries similar to those of the most developed countries within the shortest periods of time as the objective of their development drives. They equated industrialization, especially heavy industrialization, with modernization and pushed their countries to develop capital-intensive heavy industries and adopt the most advanced technologies in their production as quickly as possible. The firms in the LDC government’s priority sectors are not viable in open, competitive markets because the violation of their economies’ comparative advantages. Therefore, the LDC government has to subsidize and protect these firms through various interventional measures.

From the above perspective, the root of interventions in an LDC is not the grabbing

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2 To keep the technology structure fit for endowment structure can be summarized as the idea of appropriate technology that was first introduced in neoclassic trade theory by Atkinson and Stiglitz (1969), who formalized “localized learning by doing.” A similar argument in development economics was made by Schumacher (1973). The study of appropriate technology has been recently revived by Diwan and Rodrick (1991), Basu and Weil (1998), and Acemoglu and Zilibotti (1999). But the appropriate technology argument does not answer the questions about what the relationship is between the choice of technology structure and institutional structure, and what the appropriate role of LDC government is in the process of economic growth. See Lin (2003) for further discussion.
hands of government officials or the manipulations of interest group but the dream of nation building of political elites. From this perspective, the political target should be separated from the corruption view of grabbing-hand approach or the “Leviathan” approach.

II.2 Comparative Advantage-defying Strategy and Interventions in LDCs

To facilitate our discussions, we will broadly define the government’s approaches toward economic development in LDCs into two mutually exclusive strategies: (i) the comparative advantage-defying (CAD) strategy, which attempts to encourage firms to ignore the existing comparative advantages of the economy in their entry/choice of industry/technology; and (ii) the comparative advantage-following (CAF) strategy, which attempts to facilitate the firms’ entry/choice of industry/technology according to the economy’s existing comparative advantages. If the government adopts a CAD strategy, firms in the priority industries will be nonviable. If the government adopts the CAF strategy, firms existed in the market will be viable. Of course, no countries in the world have followed either strategy consistently and without amendments. However, some countries have followed a strategy close enough to be a model of that strategy.

We argue that many distortions in LDCs are rooted in viability issue arising from the government’s adoption a CAD strategy. Let’s retrospect to an early period in last century. Not only the political elites in LDCs were motivated by the dream of nation building after gaining the struggle for their nations’ political independence from colonial rules, the development economists at that time also encouraged LDC governments to adopt interventional policies to pursue an “inward-looking” heavy-industry-oriented or an import-substitution strategy that directly aimed to close the industry/technology gap with DCs (Chenery, 1961; Warr, 1994). These economists were strongly influenced by the Soviet Union’s initial success in nation building, by the pessimism about the export of primary products formed during the Great Depression, by the lack of confidence on markets, and by the neoclassic growth theory (Rosenstein-Rodan, 1943; Prebisch, 1959). Many governments in the LDCs adopted various policy measures to industrialize their economies since the 1950s. As such many firms in LDCs were not viable in open, competitive markets and required

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3 The CAD strategy includes the heavy-industry-oriented development strategy in the socialist countries and in developing countries, such as India, and the secondary import-substitution strategy in many Latin America and African countries.

4 Certainly there are other ways of classifying the development strategy, for example, Griffin (1999) classifies development strategies into six different alternatives: monetarism, open economy, industrialization, green revolution, redistribution, and socialist strategy.
subsidies/ protections from their governments for survivals.

How large the subsidy/protection is required for a nonviable firm’s survival depends on how far away the promoted industry/technology is from the economy’s comparative advantages. If the distance is small and the number of firm involved is limited, the government can rely on direct fiscal transfer to subsidize the firm. However, this distance is often very large, the number of firms numerous, and the government’s taxation capacity very weak. Therefore, the LDC government often turns toward implicit measures of subsidies through price distortions, limitations on market competition, directly administrative allocation of resources, and so on. As a matter of fact, the traditional planning systems existed before economic transitions in the socialist economies were typical institutional arrangements for supporting and protecting the non-viable heavy industrial firms.5

In a capital-scarce LDC, the development of capital-intensive industries promoted by the CAD strategy must overcome numerous difficulties. The project in general requires long gestation, importation of key equipments and technologies, and dauntingly large investments. However, a poor agrarian economy has three characteristics: (1) Economic surplus is small, resulting in a scarcity of capital. If market determines interest rates, those rates will be extremely high. (2) The export is a small component of the GDP, resulting in a shortage of foreign exchanges. If the market determines exchange rates, the prices of foreign exchanges will be high. (3) The limited amount of economic surplus in the agrarian economy is widely dispersed in the countryside, making the mobilization of surplus for investments in lumpy projects difficult. The characteristics of the projects in capital-intensive industries are in direct conflicts with the above three characteristics of poor agrarian economy In effect, the governments in socialist countries faced the similar challenges of how to mobilize resources for subsidizing the nonviable firms in the government’s development strategy (Lin, Cai, and Li 1994, 1996).

For making investment in long gestation project feasible, the LDC governments invariably resort to artificially depresses interest rates; for ensuring low costs of equipments importations, the governments also invariably resort to overvalue domestic currency; and for mobilizing enough resources for lumpy projects, the governments often resort to price scissors by permitting firms in priority industries monopolistic rights in product markets and giving them access to various inputs with depressed prices. The distortions of the above price signals necessarily lead to shortages of funds, foreign

5 Like other LDCs, Russia and China were capital-scarce, backward, agricultural economies after their socialist revolutions. Russia in 1929, under the leadership of Stalin, and China in 1953, under the leadership of Mao Zedong, started to pursue a heavy-industry oriented development strategy, a form of CAD strategy (Lin, Cai, and Li 1994).
exchanges, and various kinds of inputs. To ensure that these scarce resources are allocated to firms in priority sectors, the governments have no other choices but use administrative measures to allocate directly investment funds, foreign exchanges, and so on according to the priorities in the CAD strategy. In addition, to make sure that firms in the priority sectors will use the above artificially mobilized resources to invest in projects according to the government development strategy, the government needs to regulate the firms’ investments, or even nationalizes the firms so that the state can have a direct control of the use of economic surplus.

In short, there are three integrated components in the government’s regulation framework if a LDC government adopts a CAD strategy: (1) a distorted macro-policy environment which featured artificially suppressed interest rates, over-valued exchange rates and other price interventions; (2) an administrative allocation of credits, foreign exchanges, and other materials with suppressed prices; and (3) a regulation of private investments or sometimes direct state-ownership of the firms for controlling the firms’ investments. We argue that this trinity system is endogenous to the fact that the firms in the priority sectors of CAD strategy are not viable in an open, free, competitive market.

Theoretically, the government that adopts a CAD strategy will only be responsible for giving a subsidy/protection to compensate for the loss arising from the viability problem. However, due to information asymmetry, the government cannot exactly know how large the subsidies would be enough. Moreover, due to the incentive incompatibility, the firms will have incentives to use its viability problem as an excuse and use resources to lobby the government officials not only for more ex ante policy favors, such as access to low-interest loans, tax reductions, tariff protection, and legal monopolies but also for ex post, ad hoc administrative assistances, such as more preferential loans or tax arrears. The economy will be full of rent-seeking activities and corruptions. Because the firms can use the viability problem as an excuse to bargain for more government support and because it is hard for the government to shun such responsibility, the firm’s budget constraints become soft (Lin and Tan 1999). When the soft budget constraint exists, the firm will not have pressure to improve productivity and the efficiency will be low.

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6 The loss from rent seeking is estimated to be much larger than the loss from misallocation (Kruger 1974).
7 The soft budget constraint is a term coined by Kornai (1986) to explain the problem in the socialist countries. According to him, the soft budget constraint arises from the paternalistic nature of the socialist government toward the state-owned firm. His argument cannot explain why the soft budget constraint exists in non-socialist economies and why the soft budget constraint still exists 10 years after privatization in Russia and Eastern European transitional economies (World Bank 2002). Dewatripont and Maskin (1995) argue that the soft budget constraint arises from the bank’s imperfect information on investment project and the time inconsistent problem of the project. However, this argument cannot explain the prevalence and persistence of soft budget constraint phenomenon in LDCs.
Moreover, with the subsidies/protections and soft budget constraints for the firms in the priority sectors, the investments in those sectors become a privilege. The political leaders in a non-socialist LDC may select their own close friends or political supporters to invest in those priority sectors, resulting in the phenomenon of crony capitalism.

2.3 Comparative Advantage-following Strategy, the Market System and the Role of Government in LDCs

From the concept of viability, the objective of national economic development in an LDC should be set as the upgrading of the economy’s endowment structure and the LDC government should adopt a CAF strategy. If the government does not intervene the firms’ choices of industry/technology, the existing firms in the economy will be viable because no one will invest in or maintain a nonviable firm. Since the viability of a firm is determined by the consistency between its industry/technology choice and the characteristics of the economy’s endowment structure, the distribution of all viable firms in the economy, or alternatively, the industry/technology structure of the economy is endogenously determined by the endowment structure of the economy. In a relatively capital-scarce, labor-abundant LDC, its industry/technology structure will be relatively labor intensive, and in a relatively capital-abundant, labor-scarce DC, its industry/technology structure will be relatively capital intensive. As an economy’s industry/technology structure is endogenously determined by its endowment structure, if an LDC wants to catch up DCs in its industry/technology structure, it needs to narrow the gap in its factor endowment structure with DCs first. With the upgrading of endowment structure in the economy, firms in an open and competitive market will upgrade their industrial and technological levels accordingly in order to ensure their viability in the markets.8

The endowment of land (and natural resources) in a country is given, the upgrading of endowment structure means an increase in the amount of capital to each laborer. Capital comes from the accumulation of economic surplus. To quicken the upgrading of endowment structure, a maximum economic surplus should be produced at each period, and a large proportion of this surplus should be saved from capital accumulation.

If an LDC government adopts a CAF strategy, the government will maintain well-functioning markets and the economy is expected have the fastest upgrading of

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8 Suppose a firm is viable in period 1, it will become nonviable in period 2 if the economy’s endowment structure upgrades and the firm does not upgrade its technology/industry accordingly.
its endowment structure. This is due to the following reasons: Firms only concerned with product prices and production costs, but not with the structure of factor endowments in the economy. They will enter the industry and choose the technology of production according to the nature of endowment structure only if the relative factor prices reflect correctly the relative factor abundances, which can be achieved only if the product and factor markets are competitive. Therefore, when the government in an LDC adopts a CAF strategy, its primary role is to remove all possible obstacles for the function of free, open, and competitive product and factor markets. With the market competition and with no excuse for government protection and subsidy, the firms needs to continuously refine their divisions of labor, capture the economies of scale, finding new market opportunities and so on in order to improve their profitability. Since with the CAF strategy, all existing firms are in sectors that the economy has comparative-advantages, and the competitive pressure will induce the firms to improve management, marketing and therefore the whole economy is expected to be competitive and the economy’s products will have largest possible market share in domestic and international markets. As a result, the economy is expected to have the largest possible surplus/profit. Meanwhile, the capital in the economy will have the highest possible rate of return when the capital is allocated competitively through market and in sectors that the economy has comparative advantages. Therefore, the incentives to save in the economy will also be the highest. Moreover, the government will not distort the prices of factors and products, nor will the government use administrative powers to create legal monopolies. There will be no scope for wasteful rent-seeking activities. Therefore, the upgrading of the endowment structure will be fast and sustainable under the CAF strategy, compared to the case under the CAD strategy.

The upgrading of the endowment structure in an economy will provide the basis for the upgrading of industry/technology structure in the economy (Basu and Weil, 1998). The industry/technology will be new to the firms in an LDC and could be borrowed from DCs. The learning costs will be smaller under the CAF strategy than under the CAD strategy because the distance between the new industry/technology and the old industry/technology is smaller under the former strategy than under the latter strategy (Barro and Sala-i-Martin 1997). Moreover, the patent protections for many of the targeted technologies under the CAF strategy may have already expired. Even if it is still under patent protection, the license fee will be lower with the CAF strategy than with the CAD strategy because the targeted technology for the CAF strategy is older

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9 In competitive market, the profitability of a viable firm depends on the quality of its management. With normal management, a viable firm is expected to earn a normal profit. However, if its management is poor, in a competitive market, the firm will incur losses.
than the CAD strategy *ceteris paribus*. In some cases, the firms under the CAD strategy will not be able to obtain the technology from DCs and will need to “reinvent the wheel” and invest in costly and risky R&D of technology by themselves. Therefore, the acquisition costs of the technology will be lower under the CAF strategy than under the CAD strategy. 10

In the above discussions, we assume that the information about the product markets, industries, and production technologies is freely available to the firms in the economy. Therefore, when the factor endowment structure of the economy is upgraded, the firms can upgrade their products/technologies or smoothly upgrade from a less capital-intensive industry to a relatively more capital-intensive industry. However, such information may not be available. Therefore, it is necessary to invest resources to search for, collect, and analyze the industry, product, and technology information. If a firm carries out the activities on its own, it will keep the information private, and other firms will be required to make the same investment to obtain the information. There will be repetition in the information investments. However, the information has a public goods aspect. After the information has been gathered and processed, the cost of information dissemination is close to zero. Therefore, the government can collect the information about the new industries, markets, and technology, and make it available in the form of an industrial policy to all firms.

The upgrading of technology and industry in an economy often requires coordination of different firms and sectors in the economy. For example, the human capital or skill requirements of new industries/technologies may be different from that used with older industries/technologies. A firm may not be able to internalize the supply of the new requirements and will need to rely on outside sources. Therefore, the success of a firm’s industry/technology upgrade also depends on the existence of an outside supply of new human capital. In addition to human capital, the firms that are upgrading may also require new financial institutions, trading arrangements, marketing, and distribution facilities, and so on. Therefore, the government may also use industrial policy to

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10 There are two ways for technology innovation: invention or borrowing. The technologies used in DCs are in the technology frontier. Therefore, DCs are required to do R&D by themselves as argued by the endogenous growth theorists. The technologies used in LDCs are most likely old, matured ones, and inside the technology frontiers. Especially, if DCs also have comparative advantages on industries that a LDC has, the technologies used in the DCs should be newer than those used by the LDCs. Under this situation, the LDCs could have a choice between invention and borrowing from DCs for technology innovation. Borrowing technology from DCs should most likely be less expensive than invention for firms in the LDC. However, if no other more developed countries has comparative advantages on an industry that the LDC has, the LDC’s firms in this industry will be required to do R&D by themselves in order to obtain new technologies.
coordinate between firms in different industries and sectors for the upgrade of industry/technology in the economy.

The upgrading of industry/technology is an innovation, and it is risky by nature. Even with the information and coordination provided by the government’s industry policy, a firm’s attempt to upgrade its industry/technology may fail due to the upgrade being too ambitious, the new market being too small, the coordination being simply inadequate, and so forth. The failure will indicate to other firms that the targets of the industrial policy are not appropriate, and, therefore, they can avoid that failure by not following the policy. That is, the first firm pays the cost of failure and produces valuable information for other firms. If the first firm succeeds, the success will also provide externalities to other firms, prompting these firms to engaging in similar upgrades. These subsequent upgrades will also dissipate the possible rents that the first firm may enjoy, so there is an asymmetry between the costs of failure and the gains of success that the first firm may have. To compensate for the externality and the asymmetry between the possible costs and gains, the government may provide some forms of subsidy, such as tax incentives or loan guarantees, to the firms that initially follow the government’s industrial policy.

Therefore, under the CAF strategy, the government could adopt a market-friendly industrial policy to overcome the problems of information, coordination, and externalities in the process of industry/technology upgrading as the World Bank study of East Asian Miracle suggests (World Bank 1993). However, it is worthwhile to note that there is a fundamental difference between the industrial policy of the CAF strategy and that of the CAD strategy. The promoted industry/technology in the CAF strategy is consistent with the comparative advantage determined by changes in the economy’s factor endowments, whereas the priority industry/technology that the CAD strategy attempts to promote is not consistent with the economy’s comparative advantages. Therefore, the firms in the CAF strategy should be viable, and a small, limited-time subsidy should be enough to compensate for the information externality. By contrast, firms following a CAD strategy are not viable, and their survival depends on large, continuous policy favors/support from the government.  

The dynamic comparative advantage is an often-used argument for the government’s industrial policy and supports to the firms (Redding 1999). However, in our framework it can be clearly seen the argument is valid only if the government’s support is limited to overcoming information and coordination costs and the pioneering firms’ externality to other firms. The promoted industry is based on the upgrading of endowment structure and is consistent with the comparative advantages of the economy. Therefore, the firms in the new industry should be viable. If not so, the firms will collapse one the governments supports are removed. Another often-cited argument for government’s intervention is the concept of big push. Most big push attempts by the LDCs in the 1950s and 1960s failed. However, there is a renewed interest in the idea after the influential articles by Murphy, Shleifer, and...
A comparison of the successes and failures of industrial policies on automobile production in Japan, Korea, India, and China is a good illustration of the differences between the CAF and CAD industrial policies. The automobile industry is a typical capital-intensive heavy industry. The development of an automobile industry is the national aspiration of almost every LDC. Japan adopted an industrial policy to promote its automobile industry in the mid 1960s and achieved great success. Japan’s experience is often cited as a supporting argument by advocates of an industrial policy for heavy industries in developing countries. Korea instituted an industrial policy for automobile production in the mid 1970s. Korea has also achieved a limited degree of success in automobile production. The automobile industries in China and India started in the 1950s, and the industry in both countries has required continuous protections from the government since that time. What can explain why a similar industrial policy can yield success in one instance and failure in another? This will be clear once we compare the per capita income of these countries with the per capita income of the United States at the time when they initiated their policies (see Table 1).

<table>
<thead>
<tr>
<th>Year</th>
<th>US</th>
<th>Japan</th>
<th>Korea</th>
<th>India</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td>1955</td>
<td>10,970</td>
<td>2,695</td>
<td>1,197</td>
<td>665</td>
<td>818</td>
</tr>
<tr>
<td>1965</td>
<td>14,017</td>
<td>5,771</td>
<td>1,578</td>
<td>785</td>
<td>945</td>
</tr>
<tr>
<td>1975</td>
<td>16,060</td>
<td>10,973</td>
<td>3,475</td>
<td>900</td>
<td>1250</td>
</tr>
</tbody>
</table>


Table 1 reports the levels of per capita income, measured in 1990’s purchasing power parities, in US, Japan, Korea, India and China, estimated by Maddison (1995). Per capita income is a good proxy for the relative abundances of capital and labor in an economy. Capital is abundant and wage rates are high in a high-income country. In a low-income country, the opposite holds true. Table 1 indicates that when Japan initiated its automobile production policy in the mid 1960s, its per capita income was more than 40

Vishny (1989a, b). Their papers show that a government’s coordination and support are required for setting up a key industry and that the demand spillovers from the key industry to other industries will enhance economic growth. However, for the “big push” strategy to be successful the pushed industry must be consistent with the comparative advantage, which is determined by the relative factor endowment of the economy, and the firms in the pushed industry must be viable after the push. Deviation from comparative advantage in the pushed industries and the consequent lack of viability of the chosen firms are the reasons why so many big-push attempts by the LDCs in the 1950s and 1960s failed.
percent of that in the United States. The automobile industry was not the most advanced, capital-intensive industry at that time nor was Japan a capital-scarce economy. The Ministry of International Trade and Industry (MITI) only gave support to Nissan and Toyota. However, more than ten firms, ignoring MITI’s prompting to not enter the industry, also started automobile production and were successful, even though they did not receive any support from MITI. The above evidence indicates that the Japanese automobile firms were viable in 1960s, and MITI’s promotion of automobile industry in the 1960s was a CAF strategy. When Korea initiated its automobile industry development policy in the 1970s, its per capita income was only about 20 percent of that of the United States and about 30 percent of that of Japan. This may explain why the Korean government needed to give its automobile firms much greater and longer support than the Japanese government did their firms. Even despite the support, two of the three automobile firms in Korea recently fell into bankruptcy. When China and India initiated their automobile industry development policies in the 1950s, their per capita incomes were less than 10 percent of that of the United States. The automobile firms in China and in India were not viable at all. Even until today, their survival still depends on heavy government protections.12

2.3 Development Strategy as a Unified Framework for Understanding Development

Many other theories have also attempted to explain an LDC’s success or failure in achieving sustained economic development. The CAF/CAD strategy framework provides a unified explanation. This framework gives us a better understanding to what extent those theories are relevant for LDCs’ development. This framework may provide an answer to the puzzle raised by Easterly (2001). Many of the “determinants” of growth in effect are endogenous to the viability problem arising from government’s development strategy. Without changing the viability problem, the improvement in those determinants will not produce the expected results.

(i) Human Capital

The role of human capital in the process of development has received much attention

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12 The Bismarck’s “Blood and Iron” policy is another example often used mistakenly to support the CAD strategy in a LDC. In fact, the GDP per capita in Germany was about 60% of that of UK when Bismarck pursued that policy in 1860s (Maddison 1995, pp. 194-6). Moreover, the steel and machinery industries at that time had already been relatively matured industries. Therefore, Bismarck policy could be considered as an example of CAF strategy for overcoming the big-push coordination problem for a viable industry instead of an example of CAD strategy for a nonviable industry.
in development literature in recent years. Recent empirical works that attempt to explain cross-country income differences have included human capital as an explanatory variable in the production function and have found that human capital has a positive effect on economic growth (Mankiw, Romer, and Weil 1992; Caselli and Lefort, 1996; Klenow and Rodriguez, 1997; Barro, 1997).

What is the role of human capital accumulation in the development strategy of an LDC? If an LDC adopts a CAF strategy, the upgrading of its factor endowments will be very fast, and, consequently, the upgrading of its industry/technology will also be very fast. The upgrading of technology/industry is an innovation by nature, even though the process is an imitation of an existing industry/technology from more advanced countries. The managers/workers will face and will need to handle uncertainty in skills, production, marketing and so on in the upgrading process. The managers/workers also need to make many adaptations of the borrowed technologies to fit them to local conditions. Increasing the manager/worker’s human capital will increase their ability to handle these kinds of uncertainties and to carry out necessary adaptations (Schultz 1975). When a developing country Narrows its industry/technology gap with DCs, it will move from mature industries/technologies closer to newer, less mature, and more uncertain industries/technologies and will also need to invest more in highly uncertain R&D as explained in footnote 10. The requirement for human capital increases with economic development, because human capital becomes increasingly complementary to physical capital in the new, frontier industries/technologies and R&D activities. Because of the complementary relationship between physical capital and human capital, it is necessary to accumulate human capital along with the accumulation of physical capital in the convergence process.

If an LDC adopts a CAD strategy, it will require highly educated scientists/technicians in the priorities sectors so the government needs to make correspondent investment in high education. The primary and secondary education in the country will be biased against for two reasons: First, given total resources in the country, there will be a crowding effect of investments in priority sectors on the total

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13 In recent years, a variety of papers have argued that different technologies may display different degrees of skill-labor or unskill-labor bias (Katz and Murphy 1992; Berman and Griliches, 1994; Caselli, 1999; Acemoglu, 1998). This idea of skill complementarity has been employed to explain the increase in wage inequality in the 1980s and 1990s in the United States.
investment in education; and second, the high education will receive disproportional resources, leaving few resources for primary/secondary education. Many micro studies have shown that primary/secondary educations have higher returns to investment than that of high education. Therefore, if a LDC government adopts a CAD strategy, the return to the nation’s total education investment will be low.

Overall, human capital is not a substitute for physical capital in most production processes. An over-accumulation of human capital will lead to waste, especially in the high education because the labor with high education is mobile internationally. After World War II, many scientists and engineers migrated to the U.S. from India, Latin America and other developing countries, but they made little direct contributions to the economic growth of their mother countries. These scientists and engineers are not to be blamed, however, because the low factor endowment structures in their mother countries made it impossible for many of them to find suitable positions that could efficiently utilize their human capital at home.

(ii) Openness in International Trade
A number of empirical studies show that more open countries exhibit stronger convergence tendencies than do closed countries (Harberger 1985; Dollar 1992; Warr 1994; Ben-David 1993; Sachs and Warner 1995; Harrison 1996; Michaely 1997; Romer 1999). International trade is expected to facilitate technology diffusion among countries. Lee (1995) finds that countries importing more capital goods tend to grow faster, which means that new technologies may be embodied in the capital goods. However, Rodríguez and Rodrik (2000) suggest “methodological problems with the empirical strategies employed in this literature leave the results open to diverse interpretations.” The role of trade policies is unclear in the existing literature. If the importation of equipment facilitates technology transfer, should the government adopt measures to promote it or is it best to pursue trade liberalization in the sense of lower tariffs and non-tariff barriers to trade?

In our framework, a country adopting a CAF strategy will rely on importation of products for which it does not have a comparative advantage and exporting products for which it has comparative advantages. For this country, openness is endogenously determined by the country’s factor endowment structure instead of an exogenously
determined policy for imports and exports. If the government in an LDC adopts the CAD strategy and attempts to substitute the importation of capital-intensive manufactured goods by domestic production, not only will the country’s import trade be reduced but its export trade will also be suppressed. The latter consequence results from the inevitable transfer of resources away from the industries for which the economy has comparative advantages to the priority sectors of the CAD strategy. Also, exchange rates may be overvalued to facilitate the importation of technology/equipment for priority industries, effectively hampering export opportunities. The experiences in socialist economies, India, and many Latin American countries exemplify this case. The growth performance of these countries is miserable compared with economies that have more closely followed the CAF strategy. The government in an LDC may adopt the CAD strategy and, at the same time, encourage its firms in the priority capital-intensive industries to export. In this case, exports will be unprofitable even though the firms may have a high ratio of exports to foreign markets and may achieve fast technology improvements. The firms’ survival relies on the protection of domestic markets, preferential loans from banks, and other policy supports. The country will have poor external accounts, accumulate foreign debt, and be easily affected by external shocks. It may be better for an LDC to adopt a CAD strategy that encourages exports rather than a CAD strategy that encourages import substitution. However, the overall economic performance of an economy that adopts the export-promotion strategy will be poorer than an economy that adopts the CAF strategy. Therefore, it is not true that more exports in a country necessarily lead to higher GDP growth.

(iii) Financial Deepening
Since the pioneering works by Shaw (1969) and Mckinnon (1973), many researchers have argued that there exists causality between financial deepening and economic growth in an economy. The indicator that is often used to measure financial

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14 I met a senior manager of Hyundai Automobile Company in the United States in the early 1990s. He told me that Hyundai was still losing money after more than 10 years of successful exportation of cars to the US market.

15 Taiwan and Korea are good examples for comparison. Taiwan has followed the CAF strategy consistently, whereas Korea has often attempted to switch from the CAF strategy to the CAD strategy. The GDP growth rate, income distribution, macro stability, and other development indicators in Taiwan are better than those of Korea.

16 In the development literature, the export promotion and the import substitution are often used as the classification of development strategies. There are some similarities between this classification and the CAF/CAD classification. For any country its level of export will be higher under a CAF strategy than that under a CAD strategy. However, the level of trade in any economy is endogenously determined by the economy’s endowment structure. It is inappropriate to use an endogenous variable as a policy target or instrument.
deepening is either M2/GDP or the total amount of credits from financial intermediaries to private sector divided by GDP. The empirical findings have supported the above hypothesis (Levine 1997; Rajan and Zingales 1998).

However, the degree of financial deepening in an LDC is, to a large extent, endogenous to a government’s development strategy. Under the CAD strategy, the carriers of a government’s development strategy are the large-sized firms. To support the financial needs of nonviable large-sized firms, the government often nationalizes the firms and uses direct fiscal appropriation, skipping financial intermediation, to support these firms. Such was the case in the former socialist planned economies and continues to be the case in India and many other LDCs. Even if the government relies on private firms to carry on the CAD strategy, the financial needs of large-sized firms will be large and can only be met by a heavily regulated oligopolistic banking system, and interest rates will consequently be suppressed. In either case, the financial system in the country will be underdeveloped. However, the most competitive and dynamic firms in LDCs are the labor-intensive small- and medium-sized firms. They are discriminated against and often denied access to financial services by large banks. The financial system is, thus, very inefficient. Moreover, the firms in the priority sectors that receive preferential access to bank loans are not viable and may not be able to repay loans. The banks often accumulate large amounts of bad debts from the large-sized firms in the priority sectors, causing eruptions of financial crises. A precondition for financial deepening in an LDC is, therefore, a change in the government’s development orientation from a CAD strategy to a CAF strategy.

(iv) Macroeconomic/financial Crisis
A bulk of empirical studies shows that volatility in the macro economy could hamper long-run growth (Barro and Sala-I-Martin 1997). In the literature on financial crisis and growth collapse, there were two major explanations: The first one, based on the historical evidence in Latin America, tries to attribute the crisis to weak macroeconomic condition, such as the fiscal deficit, and so on (Calvo 2002; Mendoza 2002a, 2002b). The other emphasized the fundamental weakness of financial system, including weak links with international financial markets and underdeveloped domestic financial markets (Caballero 2000). In our view both explanations are
related to the CAD strategy. If the government in an LDC adopts the CAD strategy, firms in priority industries will not be viable and will rely on preferential loans, trade barriers, and other policy supports for their survival. Because existing comparative advantages are not utilized, the economy as a whole will not be competitive, no dynamic changes in the economy's comparative advantage can be sustained, and the economic performance of the economy will be poor. The economy will have a weak financial sector and poor external accounts as argued in items (ii) and (iii) above. Fiscal deficits, debt burdens, and financial fragility will accumulate and macroeconomic stability will become unsustainable. A country that follows the CAF strategy will have better external accounts and healthier financial and fiscal systems. The country will be better equipped to resist external shocks and will have a much better record of macroeconomic stability.17

(v) Income Distribution

The relationship between income distribution and economic development is one of the oldest subjects in development economics. Kuznets (1955) proposed an inverted-U hypothesis, suggesting that inequality tends to widen during the initial stages of economic development with a reversal of this tendency in the later stages. There is mixed evidence for this hypothesis. A number of cross-sectional studies support this hypothesis (Paukert 1973; Cline 1975; Chenery and Syrquin 1975; Ahluwalia 1976). However, the study of 43 episodes in 19 countries by Fields (1991) finds that there is no tendency for poorer countries to yield increased rather than decreased inequality or for richer countries to yield decreased rather than increased income inequality. A case study on Taiwan by Fei, Ranis, and Kuo (1979), however, shows that the Taiwanese economy achieved growth with equity. We propose that the adoption of the CAF strategy in an LDC will alleviate income inequality whereas the adoption of the CAD strategy will aggravate income inequality (Lin and Liu 2003). The most important asset that the poor have in an LDC is their own labor. The CAF strategy will result in sustained economic growth through the development of more labor-intensive industries, creating more job opportunities for the poor, increasing wage rates, and allowing the poor to have a increasingly large share of benefits from growth. On the contrary, the CAD strategy, by facilitating the development of more capital-intensive industries, will reduce job opportunities for the poor and suppress wage rates of the working poor. If it is in a socialist planning economy, the income distribution may appear to be equal

17 In the recent East Asian financial crisis, Taiwan, Hong Kong, Singapore, and Malaysia were affected slightly whereas Korea, Indonesia, and Thailand were hard hit. One reason for the different performances among these two groups of economies is the difference in their development strategies. The first group followed the CAF strategy closely whereas the latter group leaned toward the CAD strategy (Lin 2000).
because of the government’s artificial control of wages. In a market economy, the rich, who invest in the government’s priority sectors, will be subsidized while the poor have to pay for the subsidies. Therefore, the income distribution would be outrageously unequal. Moreover, growth will not be sustainable under the CAD strategy, and when the economy breaks down, the poor will suffer the worst hardship, as evidenced by the recent East Asian financial crisis (Stiglitz 1998).

(vi) Social Conflicts and Political Instability

In addition to the financial crisis, another plausible reason for a sudden collapse in LDCs is serious social conflicts and political instability (Rodrick 1988; Caselli and Coleman 2002). Financial crisis can trigger the conflicts, as observed in Argentina and Indonesia. The social conflicts can also generate from other causes, such as corruption, rent seeking, unemployment, income disparity, and so on. As argued, the CAF strategy will result in a dynamic and sustainable growth, provide more jobs, and have a favorable income distribution, therefore, countries adopting the CAF strategy are expected to avoid or mitigate the social conflicts. On the contrary, countries adopting the CAD strategy are likely to be obsessed with financial crisis, corruptions, unemployment, inequality, and interest group conflicts. Therefore, we propose that the CAD strategy is a root for the social conflicts and political instability.

III. Viability, Washington Consensus, and Strategy of Economic Reform/Transition

The CAF strategy dominates the CAD strategy in all aspects of economic development in the long run. Empirical evidence shows the difference in development strategy is an important determinant of an LDC’s success or failure of convergence (Lin 2003). However, the CAD strategy with its resulting government interventions is good at mobilizing scarce resources initially for investing on a few clear, well-defined priority sectors (Ericson 1991). The countries that adopt the CAD strategy can also enjoy a period of investment-led growth so long as it is possible to mobilize resources administratively for investing in the priority sectors from domestic or international sources. Therefore, because of the lack of knowledge about the long-term consequences of CAD strategy, the aspiration for quick nation building, or the concerns for immediate performance during their tenures in offices, the CAD strategy was attractive to political leaders in LDCs and had been adopted by almost all governments in LDCs after the World War II. However, once the resources from domestic and international sources depleted, the economy stagnated and the inherited
problems of the CAD strategy started to appear. The economy would encounter all kinds of difficulties, and voluntarily or involuntarily economic reforms have become a unavoidable choice in LDCs, socialist and non-socialist alike, since the late 1970s (Krueger 1992).

The reforms in most LDCs followed the advice capsulized in the Washington Consensus, which calls for strengthening fiscal discipline, increasing public investments to improve income distribution (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 transitional economies in Formal Soviet Union and Eastern Europe (FSUEE hereafter) is a version of Washington Consensus (Kolodko 2001). From the neoclassical economics viewpoints, all those recommendations are considered essential for markets to function efficiently. However, except for China, Vietnam and a few other countries, the growth performance in the transition period is miserable.

The disappointing performance of transition in the FSUEE is especially striking. When the transition started in FSUEE in the late 1980s and early 1990s, most economists were optimistic about their expected outcomes due to the fact that these countries reformed their economies according to the fundamental principles of neo-classical economics. Ten years have elapsed since the transition started. However, contrary to the early optimism, the countries that implemented the shock therapy experienced rampant inflations, output collapsing, sharp widening of inequality and worsening of other social indicators (World Bank 2002; Blejer and Skreb 2001; and Roland 200). The cumulative output declines were much more serious in all countries in Commonwealth of Independent States and in most countries in Central and Southern Europe and the Baltics than the decline in the United States during the Great Depression (World Bank 2002). In FSUEE, Poland scored the best with only 18 percent GDP decline in the first two years, followed by quick recovery, and its real GDP in 2000 increased to 144% of the level in 1990. However, Poland did not fully follow the advice of shock therapy. Prices in Poland were liberalized, but most of its

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18 How long the CAD strategy can be sustained in a country depends on how rich natural resource per capita in the country (Ranis and Syed 1992). In addition, the length may also depend on the size of population in a country. In the early 1950s, East Asian economies, such as Korea, Taiwan and Singapore, also followed the CAD strategy. However, due to their poor natural endowments and small population sizes, their economies encountered immediately huge fiscal deficits, high inflations, and external imbalances. Therefore, they were forced to give up the CAD strategy. Due to their governments’ inability to subsidize the non-viable firms, the CAF became de facto strategy. This may explain the successful development experiences of these economies.
large SOEs were not privatized (World Bank, 1996; Dabrowski, 2001).

Not only the performance of transition to market economy in FSUEE disappointing, in other LDCs, as noted by Krugman (1995) “the real economic performance of countries that had recently adopted Washington consensus policies… was distinctly disappointing.” The poor performance is especially puzzling because, as the study of Easterly (2001) shows, variables that are considered important in the growth regressions, such as policies like financial depth and real overvaluation, and initial conditions like health, education, fertility, and infrastructure generally improved compared the situation before the transition/reform in 1960-79. Easterly speculates that worldwide factors like the increase in world interest rates, the increased debt burden of developing countries, the growth slowdown in the industrial world, and skill-biased technological change to contribute to the LDCs’ stagnation in the lost decades of 1980s and 1990s.

However, Easterly’s hypothesis is not consistent with China’s remarkable annual GDP growth rate of 9.6% in 1980-2000 and Vietnam’s 6.5% in 1958-2000. We would argue that the many distortions and government regulations in LDCs, which are considered detrimental to economic performance from the viewpoint of neoclassical economics and are recommended to be eliminated or to be liberalized by the Washington consensus, are in fact endogenous to the viability problem of firms in the priority sectors of the CAD strategy previously adopted by the governments in LDCs. Without appropriately addressing the viability problems of firms in the priority sectors first, eliminating or liberalizing those endogenous distortions or regulations may result in changing the institutions from the second best to the third best, causing the economic performance to deteriorate after the reform/transition.

Economists are trained in the existing framework of neoclassical economics. As Lin (2002) argues, the existing neoclassical economics, like theoretical frameworks in any other disciplines, is built on several explicit and implicit assumptions. One of the implicit assumptions is that a firm existed in a market is viable, that is, a firm in the market is expected to earn a socially acceptable profit if it is normally managed. With this implicit assumption, the existing neoclassical economics theories focus on issues of corporate governance, incentive mechanisms, government interventions, and property rights arrangement that may impede a firm’s normal management and affect a firm’s performance. Those issues of corporate governance, government interventions, and so on did show up in LDCs. Therefore, it is not surprising that Washington consensus becomes a consensus among economists trained in the neoclassical tradition (Summers, 1994, p. 252-3).
The neoclassical economics has been developed in DCs and try mainly to explain the economic phenomena in DCs. It is reasonable to assume that firms in DCs are viable, since, except for a few minor sectors, governments in DCs rarely give subsidies and other types of supports to firms. If a firm is not viable, that is, if the firm has normal management but is not expected to earn an acceptable profit, no one will have incentives to set up the firm or to maintain the operation of the firm in DCs. Therefore, it is appropriate to take the viability of firms as an implicit assumption for studying economic problems in DCs. However, in transitional economies and developing countries, many firms are not viable due to their governments’ adoption of CAD strategy before the reforms.

The market institutions, capsulized in Washington consensus, in effect are desirable for the long-term development of LDCs. However, the unsolved problem is how to solve the viability issues of firms during the transition processes. As argued, many distortions and regulations in the LDCs are in fact endogenous to the viability problems of firms in the CAD strategy’s priority sectors. If all the distortions and regulations are removed, the viability problems of firms in the priority sectors will turn from implicit to explicit. Those firms will bankrupt if they do not receive any subsidy or protection. If the number of nonviable firms and the number of workers they employed are both small, the nonviable firms are politically weak, and the political consensus for giving up the CAD strategy is strong, the reform according to Washington consensus can succeed. The elimination of regulations and distortions may cause the few firms to bankrupt but the viable firms in the previously depressed sectors may grow rapidly after the liberalization and overcompensate for the losses of outputs and employments from the bankruptcy of the nonviable firms.\footnote{Bolivia is such a case for Washington consensus. It was a small economy with only 5.6 million populations in 1980. The number of nonviable firms that government could support was small. Therefore, the shock therapy recommended by Jeffrey Sachs could be successful.} However, in most LDCs the successful conditions for successful implementation of Washington consensus do not exist. For example, if the number of nonviable firms and the number of workers employed are large, the forceful implementation of Washington consensus will lead to a large scale of unemployment, resulting in social and political instability and economic collapse instead of recovery, such as what happens in Indonesia. To prevent the dreadful consequence, after the implementation of reforms based on Washington consensus, the government often find other ways to subsidize or protect the nonviable firms, resulting in a half way reforms and a worse economic performance that the pre-reform situation. The failure of shock therapy in FSUEE is such an example and deserves further analysis.

The resource allocation was poor, the incentive was repressed, and the prices were
regulated before the transition in the FSUEE. The political consensus for transition to a market economy was strong when the transition started. The shock therapy call for the implementation of three reforms simultaneously, the price liberalization, the privatization, and the fiscal discipline to maintain macro stability. The three reforms are logically consistent from the basic principles of neoclassical economics. Without price liberalization market cannot play the role of efficient resources allocation, without privatization incentives will not be right, and without macro stability price signals will cease to guide resource allocation. However, many state-owned enterprises are large and nonviable as they are the product of the Stalinist heavy-industry oriented development strategy. They cannot survive in an open, competitive market with subsidies or protections from the government. If faithfully implemented, the shock therapy will inevitably lead to large-scale bankruptcy. Such consequence is not acceptable either because the government still thinks those firms to be strategically important for national defense or modernization or because the government is fearful of a large scale of unemployment prompting social and political instability. Consequently, the government has to subsidize continuously the nonviable firms through various disguised forms (World Bank 2002, pp. 53-5). After the privatization, the incentives for a firm to ask for subsidies will increase as the manager can now benefit from the subsidies legally and directly. However, the government’s ability to collect taxes reduces after the implementation of shock therapy. Therefore, it becomes hard to maintain macro stability. So, when a large number of firms in an economy are non-viable, the implementation of reforms and transition based on Washington consensus often bring about severe pains to society, leading sometimes to an awkward situation of shock without therapy.

Most LDCs are bestowed with a large number of nonviable firms, set up under the previous CAD strategy, when they start the reforms, voluntarily or involuntarily. The direct implementation of many policy reforms based on the existing neoclassical economics, which implicit assumes that firms are viable, may not be appropriate. There is a need to find a way to revive the economic dynamism while solving the viability issues of firms in the priority sectors and allow the economy to move toward the Washington consensus smoothly. China is probably the only country that has achieved dynamic economic growth and has not experienced transition recession among all LDCs engaging in the reforms of their economies since 1980. China’s experience may provide useful lessons for other economies in the transition processes or about to start their transitions.

China started the transition in 1979. Unlike the big bang approach in FSUEE, China
adopted a piecemeal, gradual approach in its transition process. At the beginning of reforms, the Chinese government gave partial autonomy to managers of SOEs and farmers to improve their incentives but the government still provided protections and supports to nonviable SOEs in the traditional sectors to buffer them from the threat of bankruptcy. This incentive improvement resulted in productivity increase in both agriculture and industrial sectors (Lin 1992; World Bank 1992). At the same time, the government relaxed its strict control of entries to sectors that were consistent with China’s comparative advantages and were depressed under the previous CAD strategy, resulting in the rapid growth of labor-intensive, small and medium-sized non-state-owned firms, such as township and village enterprises, joint-ventured firms and private enterprises. The dynamic growth, arising from the improvements of incentives and resource allocations from the above reforms, provided the government more resources to protect the nonviable SOEs and to subsidize losers in the transition process. Therefore, China’s gradual approach maintains social and economic stability, achieve relatively high growth, and make the transition to be Pareto or Kaldor improvements (Lin, Cai and Li 1994, 1996).

However, China’s final success in its transition to a market economy also depends on its solutions to the viability problem for enterprises in the traditional sectors. Otherwise the government needs to continue its interventions into markets in order to protect/subsidize the nonviable firms and the inevitable problems of such actions will ensue. For example, along with the rapid economic growth in China’s transition, the share of non-performing loans looms large and the corruption is widespread. These problems have their roots on the viability problem of SOEs. After 1983, the approach adopted by Chinese government to support SOEs changed from direct fiscal appropriation to the offering of low interest-rate loans from state-owned commercial banks. Currently, over 70% of the bank loans are lent to SOEs, but due to their poor performance, many SOEs were unable to repay the loans. Therefore, the banks accumulate large amounts of non-performing loans. To support SOEs, the government also limits market entry to certain sectors so that SOEs can enjoy monopolistic rents. Many SOEs (and non-SOEs) seek rents from the government to acquire more low-interest loans or licenses for market entry to those regulated sectors, thus adding fuel to the widespread of corruption.

How to make the existing nonviable firms in the previous CAD strategy’s priority sectors viable? This is crucial to the completion of transition to a market economy in

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20 The growth in FSUEE after the shock therapy also came from the entry of small and medium size enterprises.
21 It is worthwhile to note that Poland and Vietnam, two other countries which have remarkable growth after the transition, have not privatized their SOEs either.
China as well as in many other LDCs. In the case of China, we suggest four solutions according to the output categories of SOEs in our previous works (Lin, Cai, and Li 1998): the first category is mainly the defense-related enterprises whose operations, intensive in both capital and technology, run against China’s comparative advantage, but without which national security cannot be ensured. For this group, it is necessary to support them through direct fiscal appropriation and the government should directly monitor their production and operation. It is reasonable to expect the number of firms in this category to be few. The second group also requires intensive capital and technological inputs, but their outputs have large domestic market and are not sensitive in terms of national defense. For this type of SOEs, the government can adopt a “market for capital” approach to allow them to get access to capital from international sources and overcome the limitations of domestic endowment structure on enterprise’s viability. There are two ways in this approach: one is to encourage domestic enterprises to go public in international capital markets; the second is to set up joint ventures with foreign companies. The third category of SOEs is the ones located in capital-intensive sectors, but with a limited domestic market for their outputs. The “market for capital” approach is not feasible for this group. The way to solve the viability problem of this group of firms is to make use of their engineer capacity 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 fourth group consists of non-viable enterprises that lack engineer capacity and is unable to shift their production to new markets. For this group of SOEs, the bankruptcy is the only option. However, the number of firms in this category should be small. As long as the economy can maintain dynamic growth, the economy should be able to create enough jobs to absorb workers released from the bankrupted firms and enough resources to compensate for losers in the transition process.22

After the problems of viability are solved, whether or not a SOE can earn acceptable profit in competitive market becomes the manager’s own responsibility. The government will no longer need to find ways to intervene in the markets in order to protect or subsidize the firms. Only then can the reform advocated by the Washington consensus be carried out successfully. However, whether the government will follow

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22 Besides the viability problem, China’s SOEs have an additional problem of social burdens, which appear after the transition started. Before the reforms, many investments were made in heavy industries but the jobs created from those investments were limited. The Chinese government was responsible for urban employment and assigned redundant workers to SOEs to solve the employment issue. The wages were so low and were only enough for workers to cover their current consumption. Before the reform, all enterprise revenues were submitted to the government, and wages, pensions and other expenditures were appropriated from the state budget. Following the reforms, the responsibilities of wages and pensions are transferred to SOEs, becoming SOEs’ extra social burdens. Therefore, to solve the problem of SOEs, it is also necessary to find solutions to eliminate the social burdens.
the policy advice capsulized in Washington consensus wholeheartedly also depends on whether the government has the wisdom and determination to give up the CAD strategy and replaced it with a CAF strategy. 23

V. Concluding Remarks

Most LDCs in the world are confronting with two challenges: how to close their development gaps with the DCs and how to complete their transition from the existing highly regulated/distorted system a well functioning market system. A continuous upgrading of technology/industry is essential for the sustained growth of an economy. Potentially an LDC can benefit from the gap of its existing level of technology/industry with those of DCs and achieve the convergence of development to DCs. However, most LDCs, socialist and non-socialist alike, did not realize that the technology/industry structure in an economy was endogenously determined by the economy’s endowment structure and adopted a CAD strategy to accelerate the growth of certain industries which were not consistent with their economy’s comparative advantages. Firms in those industries were not viable in open, competitive markets and required government subsidies and protections. For achieving the government’s CAD strategy, the economy became highly regulated and distorted. The economy might achieve a period of investment-led growth. However, once further mobilizations of resources from domestic and international sources depleted, the investment-led growth would come to a sudden halt. The government regulations and distortions also led to the fragility in the fiscal and financial systems, inwardness of the economy, rampant rent seeking, widening income disparities, and so on. Social and political conflicts would arise once the economy stagnated, causing the collapse of the economic and sometime also the political systems. Economic reform is an unavoidable choice for a LDC that adopted the CAD strategy previously.

In the reforms, the existing neoclassical economics may provide a useful vision for the desirable final destination of the institutional changes. However, the usefulness of policy advice from the neoclassical economics for implementation of the reforms is limited. This is because theories of neoclassical economics implicitly assume that firms exist are viable. However, firms in the priority sectors of the previous CAD strategy are not viable in open, competitive markets and many regulations and distortions are in fact endogenous to the needs of protecting/subsidizing the nonviable

23 The traditional heavy industries may not be attractive to LDCs any more. However, in many societies the possession for heavy industries is replaced by the information, biotechnology, and other high-tech industries. If an LDC government wants to accelerate the growth of these new industries in its economy, firms in these industries will not be viable and required government subsidies and protections as the case in the traditional CAD strategy. The institutional reforms toward a well-functioning market economy cannot be completed successfully.
firms. Therefore, unless in a very small economy where few firms were nonviable, the immediate removal of all regulations and distortions as advised by the neoclassical economics and capsulized in Washington consensus, would be infeasible. The fear of simultaneous bankruptcy of large number of firms and the resulting social unrest would force the government to find other disguised ways to subsidize/protect the nonviable firms. The resulting “shock without therapy” may provide an answer to the puzzle identified by Easterly (2001).

In the long run, the CAF strategy will dominate the CAD strategy in every aspect of development. For the purpose of closing their development gaps with DCs, the LDCs should replace their formal CAD strategy with the CAF strategy. However, to achieve a smooth transition, the government cannot ignore the viability issues of many existing firms in the economy. From the successful experience of China, Vietnam, and Poland, it may be advisable for a government to commit to subsidize/protect the nonviable firms explicitly before the government finds a workable solution for the issue. Meanwhile, any economy that adopted the CAD strategy must have sectors that are consistent with the economy’s comparative advantages and were depressed previously. In general these sectors are labor intensive, use matured technologies, require small amount of capital inputs, and have a large unsatisfied domestic demands. The government should immediately remove its previously regulation and liberalize the entries to these sectors from the non-state enterprises. In fact, the dynamic growth in China, Vietnam, Poland, and other transitional economies all come mainly from the entries of the small and medium size, labor-intensive enterprises. By this way, the economy can achieve sustained, dynamic growth in its transition process. However, the completion of transition to a market economy depends on finding a final solution to the viability problem of firms in the priority sectors of CAD strategy. The problem can be solved either by allowing foreign capital to invest in the firms, allowing the firms to shift their productions to sectors consistent with the economy’s comparative advantages, or letting the firms to go bankrupt. East society may have to find its own ways to implement the above recommendation. However, the government’s commitment to replace the old CAD strategy with a new CAF strategy would be essential.
References:


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