

Capitalism and Socialism: A Review of Kornai's *Dynamism, Rivalry, and the Surplus Economy*[†]

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*Understanding the nature of capitalism has been a central theme of economics. The collapse of the Eastern Bloc and the global financial crisis spurred the reemergence of the political economy as a new frontier and the revival of interest in the nature of capitalism. János Kornai's book *Dynamism, Rivalry, and the Surplus Economy: Two Essays on the Nature of Capitalism* fills an important intellectual gap in understanding the dynamic nature of capitalism by comparing it with its mirror image, socialism. To further develop the themes contained in the book, serious challenges are posed theoretically and empirically, as well as in subjects, such as hybrid capitalism. (JEL L32, P12, P14, P16, P26, P31)*

1. Introduction

Understanding the nature of capitalism has been the central theme of economics since the time of Adam Smith. Events such as the collapse of the Eastern Bloc and the global financial crisis spurred the reemergence of the political economy as a new frontier and the revival of interest in the nature of capitalism. János Kornai's new book, *Dynamism, Rivalry, and the Surplus Economy: Two Essays on the Nature of*

Capitalism, published by Oxford University Press in 2013, deserves special attention in this area of study. Kornai is one of the most profound, inspiring, and leading economists in the study of fundamental regularities in capitalism and socialism. The uniqueness of this book is the comparative perspective that reveals the features of capitalism by comparing it with its mirror image, socialism. The rise and fall of the socialist system since the early twentieth century until today, which involves one-third of the world population, are among the largest-scale and most important causes of institutional changes in human history.

From the perspective of mainstream economics, examining the nature of capitalism by understanding socialism can be traced back to the famous theoretical debates of Oskar Lange, Friedrich Hayek, and Ludwig

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von Mises.¹ This debate significantly influenced general-equilibrium theory (Lange 1936, 1942), information and incentive theory (Hayek 1935, 1945, 1948), and mechanism-design theory (Hurwicz 1972; Myerson 2008). Without this debate, mainstream economics would not be as we see it today. However, our understanding of socialist economy and capitalist economy in reality, particularly the link of capitalism with socialism and the rise and fall of socialism, is highly insufficient. Hence, this book fills these major intellectual gaps.

Dynamism, Rivalry, and the Surplus Economy is a concise (but unfinished) version of the author's grand project, *The Capitalist Economy*, which aims to conduct a complete analysis of the capitalist system (Kornai 2011). The book is a counterpart to his classic *The Socialist System* (1992).² This book synthesizes theories, concepts, and observations that the author has developed for decades. Two pairs of concepts highlight the analytical framework for contrasting capitalism to socialism: *shortage economy versus surplus economy* and *soft budget constraint (SBC) versus hard budget constraint (HBC)*. Compared with the distinctive feature of socialism called chronological shortage, which was first pointed out by the author in the 1970s, capitalism is characterized as

chronological surplus, which means excess supply, including excess capacity and excess inventories, and labor unemployment as long-run normalcy, in contrast to the cyclical phenomenon associated with John Maynard Keynes. Kornai views "the surplus economy as one of capitalism's great virtues, albeit one with several detrimental side effects" (Kornai 2013, p. 53).

Various and conflicting socialist concepts and different so-called socialist systems appear in an exceedingly wide political economic and ideological spectrum, from highly equal societies with a dominance of private-property rights and democracy (e.g., Scandinavian regimes), to highly unequal societies with a dominance of state ownership and totalitarian polity (e.g., Stalinist and Maoist regimes). Thus, the meaning of socialism or a socialist system on the front should be defined.

In this book, the term "socialist system," which is used in the same sense as in Kornai's previous publications, is a theoretical concept that summarizes the common attributes of a set of political-economic-social organizations ruled by the Communist Parties, which existed in history or still exist, such as the USSR, the People's Republic of China, and Vietnam. (See *The Socialist System*, pp. 4–11.) As Kornai (1992) stated, a socialist system is a positive concept that is derived from the observation of reality and carries no normative value. A socialist system is essentially characterized by the dominance of state ownership and the rule of the Communist Party in the state. By contrast, capitalism is dominated by private-property rights. According to Kornai, the terms "communism" and "communist system" are nearly synonymous to "socialist system." However, the term "communism" in the parlance of these socialist countries was reserved to the utopia of Marx about the second stage of socialism ("to everybody according to his needs..."). Thus, social welfare states in the

¹Historically, socialism stemmed from the critiques of capitalism (e.g., Robert Owen, Charles Fourier, Pierre-Joseph Proudhon, and Saint-Simon). Most of Karl Marx's major works, including *Capital*, focus on the nature of capitalism and not socialism.

²Kornai's book, *Gondolatok a kapitalizmusról (Thoughts about Capitalism)*, is a longer version of his grand project, *The Capitalist System*. In the preface of the book, he compares his works on socialism with those on capitalism, saying, "I am convinced that the paradigm, the scientific perspective, the question formation, the conceptual framework and the methodology developed and presented in my works are not only capable to describe and analyze the socialist system and post-socialist transition, but also to describe and analyze the working of capitalism. It provides something extra as compared to the paradigms, conceptual systems, and methodologies used by others" Kornai (2011).

West (e.g., Sweden ruled by social democrats for forty years) are not socialist countries but democratic capitalist market economies with sensitivity and responsibility toward social problems. Kornai's operational definition of socialism is consistent with those of Karl Marx (1875), von Mises (1935), Lange (1936), von Hayek (1944), etc.³

2. The Book

Kornai characterized capitalism as surplus economy, which is in contrast to socialism as a shortage economy, more than four decades ago in the book *Anti-Equilibrium*, published in 1971. That book was cited by Kenneth Arrow as an alternative approach to general equilibrium theory in his Nobel lecture (Arrow 1974), and was regarded as "a very influential book" that in France "was one of the books we all read" and "became part of the common knowledge" (Blanchard 1999); and was considered "the most ambitious enterprise of my entire research career" by the author (Kornai 2007). Now, nearly half a century after publishing *Anti-Equilibrium*, the book *Dynamism, Rivalry, and the Surplus Economy* has been produced, which is a concise recapitulation of Kornai's life-long grand research project.

This book consists of two essays. The first essay, "Innovation," studies the dynamic features of the capitalist and socialist systems. The dynamism of capitalism is determined by the interactions between economic systems and technical progress. The discussion

in *Dynamism and Rivalry* on innovation in capitalism presents the building blocks for addressing the subject of the second essay, "Surplus Economy." Figure 1, which is cited from section II.5.4 (i.e., essay 2, section 5.4), provides a simplified overview of the book. The figure illustrates the mechanism that creates chronic surplus in capitalism. However, according to Kornai, surplus intensifies competition and produces more creative destruction. Hence, surplus is both an effect and a cause. For the sake of simplicity, this important direction of causality is not shown in figure 1.

In the figure, private-property rights, market coordination, and entrepreneurship, depicted by blocks 1, 2, and 3, respectively, are the cornerstones of capitalism. Moreover, private-property rights and market coordination determine HBC, which is a hallmark of capitalism (more sophisticated matters beyond this highly stylized description will be discussed in later sections). In turn, HBC codetermines creative destruction and consequences in various aspects, such as innovation, demand, and price.

The supply side (block 4) is mainly discussed in essay 1. All of the other blocks in the figure are discussed in essay 2. The central point of essay 1 is that Schumpeterian creative destruction, coupled with rapid creation and substantially slower destruction, is "one of capitalism's main virtues," and is a fundamental force on the supply side that produces recurrent surplus for goods and services.

The mechanisms that produce recurrent surplus in markets for goods and services in capitalism include oversupply, under-demand, and sticky prices. A major factor determining insufficient demand in the demand side is the resistance of employers to provide employee claims for higher pay because entrepreneurs face HBCs. For downward price stickiness (asymmetric price stickiness), HBCs and asymmetric

³Marx (1875) made it clear that the dominance of state ownership is the basic feature of socialism and it can only be implemented through dictatorship of proletariat; and socialism will supersede capitalism as a transition period to communism. Hayek (1944) argues that socialism implies the dominance of state ownership, and it has to rely on coercive planning, which leads to dictatorship. Mises (1935) and Lange (1936), among many leading economists and scholars, also define socialism in the same way, although their definition does not necessarily include the political aspect.

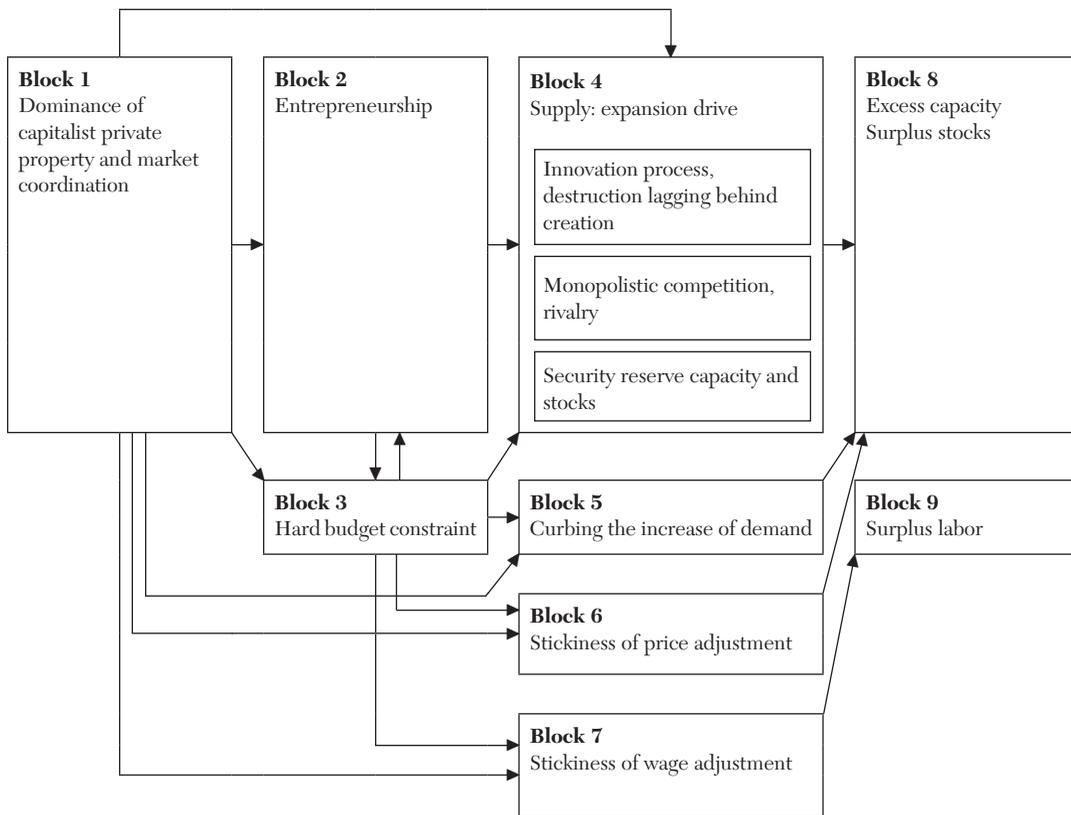


Figure 1. Factors Generating a Surplus Economy

Source: Kornai (2013, p. 120, figure 5.2).

market power between buyers and sellers are important additional reasons to the well-known neo-Keynesian explanations.

Aside from surplus in goods markets and service markets, capitalism also features surplus in labor markets (block 8), in a sharp contrast to chronic labor shortage in a developed socialist economy. Labor surplus in capitalism is caused by structural unemployment created by the Schumpeterian creative destruction process and frictional unemployment because of the mismatching between

employers and employees. Kornai is one of the pioneers who analyzed the mismatching problem in the labor market (Kornai 1971). The additional causes of labor market surplus discussed in the book include Keynesian cyclical unemployment and efficiency wage.

3. *Equilibrium and Methodology*

Kornai emphasizes that capitalism is characterized by a collection of properties (attributes) that are inseparable from each

other or by an integrated “package” and composed of beneficial and harmful properties. The basic package of properties is surplus, which involves the ample supply of goods and services, excess capacities, and under-utilized labor potential or unemployment, associated with active entry and exit (e.g., bankruptcies (HBC)), regardless of the policies adopted.⁴ Thus, Kornai points out that surplus is the norm in a capitalist economy, whereas the Walrasian market-clearing equilibrium⁵ is exceptional. With regard to fictions in the market, Kornai's critique of the Walrasian equilibrium and characterization of capitalism as surplus economy complements the Keynesian critique to the Walrasian equilibrium (Keynes 1936), but from very different perspectives. One of these views is Kornai's emphasis that the Walrasian equilibrium concept is static and misses the fundamental dynamic feature of capitalism. At this point, Kornai shares some views with Schumpeter (1942), but with fundamental differences in the fate of capitalism and socialism. Kornai attempts to replace general equilibrium theory by examining the seller–buyer interaction. However, serious challenges will arise because this analysis involves environments that the economists are playing in (e.g., governance structures). The extent of the economists' knowledge on the rules that the players follow determines the success of the endeavors. In this aspect, a comment of Maskin (2004) in explaining why auction theory is particularly successful among many applied theories is particularly

relevant, “. . . theorists of industrial organization (IO) and other applied fields labor under the constraint that they *do not know the games that the players they study* (e.g., firms or consumers) are actually playing; models are at best approximations of reality. By contrast, *auction theorists typically know the rules that their players follow precisely.*” (Emphasis added.)

In Kornai's view, surplus is not only an outcome but also a cause of the dynamism of capitalism. The central role of surplus in driving the evolution of capitalism is similar to the vital role of shortage in driving Darwinian biological evolution (Kornai 2013, p. 110). In the biological world, shortage (e.g., shortage of food, water, and sunshine) can induce the spread of mutations, facilitating the Darwinian biological evolution process. On the one hand, shortage is created by competition among biological agents, such as plants and animals. On the other hand, biological agents further compete for scarce necessities for their survival under the pressure of shortage, which drives the evolution of species. In capitalism, competition creates surplus, and surplus drives firms and entrepreneurs to compete fiercely for their survival and benefits. This fundamental force drives invention, innovation, creative destruction, and the evolution of capitalism. Incorporating the Schumpeterian creative destruction into political economy and growth models (e.g., Acemoglu et al. 2007; Aghion and Howit 1998) is important. However, capturing the insight into the central feature of capitalism, surplus, and its dynamism in a political-economy model or a growth model remains a challenge.

This book summarizes important commonalities between the economics of surplus and search theory, which studies frictions between sellers and buyers in the process of search and matching, and the consequent unemployment equilibrium. All of these phenomena deviate from the Walrasian

⁴Intellectually, this book is in parallel to Kornai's well-received books published decades ago entitled the *Economics of Shortage* and *The Socialist System*. The basic package of properties of socialism is shortage, and SBC is an essential element of it.

⁵When Kornai used the term “equilibrium” in this book and in *Anti-Equilibrium*, he meant the Walrasian market equilibrium and not the equilibrium concepts used in game theory. In fact, most ideas discussed in this book and in Kornai's other works are consistent with the Nash equilibrium concept.

equilibrium. Kornai's searching and matching models in his analysis of surplus—including unemployment—in capitalism, and shortage in socialism, developed since 1971 (Kornai 1971), which is among the earliest search theories.⁶

The Darwinian evolution analogy described in the book reminds us of how modern evolutionary genetics evolved from synthesizing Darwin's theory of evolution and its apparent counterpart, genetic theory. Indeed, the outcome will be even more fruitful if Kornai's theory of surplus/shortage can be further synthesized with mainstream economics, including game theory, search theory, and general-equilibrium theory.⁷ Intellectually, the road map of Kornai's synthesis is already visible. First, Kornai's analysis is consistent with game theory, including the equilibrium concepts in game theory (e.g., Nash equilibrium). Indeed, regarding demand and supply as strategies of households and firms, in which firms may further include primary, intermediate, and final product producers, Kornai's emphasis on mutual interactions between demand and supply could be captured by the optimal strategies of firms or households at Nash equilibrium.⁸

Second, Kornai's critique may not always be unconciliatory to the Walrasian equilibrium if it is considered an analytical benchmark. This association is somewhat similar to the relationship between new institutional economics or new Keynesian economics and the neoclassical mainstream. The general equilibrium theoretical framework serves as a convenient analytical benchmark

for discerning and understanding surplus (or excess supply) and shortage (or excess demand). Hence, general-equilibrium theory provides a static benchmark for analyzing dynamics. Moreover, it provides the first-best benchmark under ideal but unachievable conditions for analyzing reality. Concretely, this analytical benchmark of general equilibrium can be useful in discussing the concepts and measurements for shortage, surplus, and optimality (or social welfare).

Institutions are an important factor in developing the synthesis between the theory of surplus/shortage and search theory. The major factors that create surplus in capitalism and shortage in socialism are institutions, which determine who (sellers, buyers, and bureaucrats) searches for what, what motivates players to search (for their own direct benefits or for following orders from the above), and how players search (rules and constraints that they have to follow). The searching mechanism in a market with a rule of law differs from that in a top-down bureaucratic hierarchy, for example, a socialist economy where a bureaucratic boss makes decisions. This system also varies from the searching mechanism in a market economy without the rule of law, for example, in many underdeveloped economies. In a capitalist economy, players with private ownership and market coordination (a la Kornai 1992) are motivated by their own interests to search for a match, which often involves resolving adverse selection and moral-hazard problems. The nonexistence of the Schumpeterian creative-destruction process in socialism illustrates this point.

Applying search theory to analyze the creative destruction process is at the initial stage because the process involves institutions. Searching for a match between entrepreneurs/innovators and financiers (e.g., venture capitalists) is a vital factor for successful research and development

⁶Other earliest search theories include Stigler (1961); Phelps et al. (1970); Diamond (1982), etc.

⁷The influential literature followed Dewatripont and Maskin (1995) is an example of the synthesis between SBC theory and game theory.

⁸The equilibrium concept in leading search models is Nash equilibrium or its variations (Diamond and Maskin 1979; Mortensen and Pissarides 1994).

(R&D).⁹ However, not all capitalist economies are equally effective in facilitating this issue. Revolutionary new products and novel business models are mostly created in the few capitalist economies where the institutions (e.g., those with venture capitalists) facilitate such matching processes.

With state ownership and bureaucratic coordination mechanism in socialism, qualitatively different types of searches are involved; solving bureaucrats' information and incentive problems in implementing bureaucratic orders is difficult (à la Hayek 1935, 1988). SBCs, which imply that failed projects may not be abandoned, are one of the major channels that create difficulties in socialism in searching for a match between innovators and finance and solving moral hazard and adverse selection problems in R&D (Qian and Xu 1998).

4. *Basic Properties of Capitalism and Socialism*

An in-depth analysis of socialism, which is a mirror image of capitalism, is significantly helpful for a thorough understanding of capitalism, and vice versa. Von Mises said, "The idea of Socialism is at once grandiose and simple. . . . We may say, in fact, that it is one of the most ambitious creations of the human spirit. . . , so magnificent, so daring, that it has rightly aroused the greatest admiration. If we wish to save the world from barbarism we have to refute Socialism, but we cannot thrust it carelessly aside" (von Mises, quoted by Hayek 1988, p. 6). The earlier classic seminal comparative discussions (e.g., summarized in Hayek 1988; Schumpeter 1942)¹⁰

⁹Closely related to this subject, search theory has been applied to finance (Kiyotaki and Wright 1993), labor markets (Pissarides 2000; Rogerson, Shimer, and Wright 2005), and entrepreneurs (Acemoglu 1995).

¹⁰Schumpeter (1942) was pro-socialism. He argues that the success of capitalism, particularly that which is associated with creative destruction process, will result in the

on this fundamentally important issue are mainly conceptual and based on reasoning. By contrast, Kornai's analysis is based on facts with a unified conceptual framework, which reveals vital mechanisms; these mechanisms comprise the basic difference between the two systems, such as the prevalence of SBCs versus HBCs in socialism and capitalism.

By listing numerous revolutionary new products since 1917 (i.e., since the establishment of first socialist regime), essay 1 documents that almost all of the 111 revolutionary new products were invented or commercialized by the capitalist system. The only exceptional case was invented by the Soviet Union for military purposes.¹¹ "[R]apid innovation and dynamism" is "a deeply rooted system-specific property of capitalism." Moreover, the socialist system's "inability to create great revolutionary new products and its delay in other dimensions of technical progress are . . . a deeply rooted system-specific property of socialism." (p. 3). This inability of socialism is an irony to the communist ideology, Marxism. Marxism asserts that socialism represents superior productive force, implying higher capability in innovation, and will replace capitalism for this reason. Confirming the superiority of socialism in innovation is more than a matter of winning an intellectual debate because it is

eventual disappearance of the social climate necessary for entrepreneurship to exist in advanced capitalism. Thus, capitalism will be replaced by socialism.

¹¹The focus of Kornai's book is innovation in economic productions. Applying Kornai–Dewatripont–Maskin SBC theory, Qian and Xu (1998) explains why socialist economy operates poorly in R&D in general, yet can do well in certain areas, such as in nuclear and air-space technologies. Beyond productions, in creativities in pure sciences and culture, on the one hand the USSR had achievements in certain areas in math, physics, chemistry, music, etc. On the other hand, the communist party made certain research areas taboos (Birstein 2004), e.g. the Lysenkoism against genetics (Soyfer 1994) and ideological and political campaigns against Einstein's relativity theory (Vucinich 2002). China and Eastern Europe followed the USSR on these closely.

TABLE 1
CHARACTERISTICS OF INNOVATION PROCESSES IN CAPITALIST AND SOCIALIST ECONOMIES

	Capitalism	Socialism
A R&D initiatives and decisions	Entrepreneurs/Firms	Government
B Financial reward to successful entrepreneurs	Enormous	Insignificant
C Competition	Tough	Very weak
D Parallel experiments	Extensive	Very limited
E Project financing	Flexible	Rigid

the ideological base for the legitimacy of the socialist regime. Indeed, all socialist leaders put technological catching up as a desperate goal;¹² they all mobilized a higher proportion of resources for this goal but failed. This failure contributes to the eventual collapse of socialism (section I.2.5).

A capitalist system can generate innovation rapidly and a socialist system fails to do so because innovation is driven by entrepreneurs in capitalism and featured by the Schumpeterian creative destruction. By contrast, without private-property rights entrepreneurship is destroyed in socialism. Table 1 highlights the most important factors (section I.2.2) that contribute to the great virtues of capitalism and “the impossibility

of innovative entrepreneurship under socialism” (p. 18).

Factors (A) and (B) in table 1 are determined by the ownership of capitalism and socialism. The nature of property rights in a system determines who makes the decisions on how to use the assets of the firm, including innovation, people deserving rewards from successful renovation and how are they rewarded, etc.

The importance and the meaning of the so-called “financial reward” in factor B should be further elaborated. From the viewpoint of social welfare or long run economic growth, the mechanism of “financial reward” is far beyond incentives or the personal/household consumption of entrepreneurs. This “reward” also implies that resources are reallocated to new technologies at large scales. Only when substantial resources are reallocated would new technologies (e.g., personal computing and Google), new business models (e.g., FedEx, Amazon, and Facebook), and new markets (e.g., online business) grow fast; and consequently, replace obsolete technologies, business models, and markets. Therefore, enormous financial reward is an indispensable part of the Schumpeterian creative destruction process. However, this type of resource reallocation will not occur in an economy in which private ownership is

¹²In “Socialist Systems,” Kornai (1992, pp. 160–61) explains that “rests on a belief that they can catch up with the developed countries quite fast by virtue of the socialist system’s superiority. This belief is a major constituent of the official ideology. The leaders insist on fast growth because it will provide further evidence of that superiority.” Indeed, many speeches by Deng (e.g., 1987) and other Chinese central leaders concerning the central importance of growth echo those of Stalin and Khrushchev. Stalin (1931 [1947, p. 356]) said, “One feature of the history of the old Russia was the continual beatings she suffered ... for her backwardness... We are fifty or one hundred years behind the advanced countries. We must make good this distance in ten years. Either we do it or they crush us.” Khrushchev (1959, pp.76–7) claimed that the socialist system will outcompete the Western world by faster growth and eventually bury them.

insecure and inevitably involves conflicts between winners and losers of the process.

Factors (A), (C), (D), and (E) in table 1 are related to competition and conflicts between winners and losers of the process, which are deeply affected by HBC in capitalism and SBC in socialism. Largely, HBC is a critical factor that creates creative destruction. “[T]he Schumpeterian process of innovation . . . has inevitably two sides: many projects are needed for the few great successes, and at the same time we get too many of them.” (p. 34). The upside of the process is the creation of new outcomes. The downside is destruction that implies the bankruptcy of old firms (HBC) and the “extinction” of old products. This downside is an essential part of the Schumpeterian process and necessary for innovation and market mechanisms. However, only capitalism supports HBC (Kornai, Maskin, and Roland 2003), which provides conditions for investing promising projects and substantially rewarding successful entrepreneurs (p. 15). By contrast, in socialism with SBC, losing firms are protected from going bankrupt and innovation has to be conducted through a bureaucratic planning mechanism. Consequently, investment in R&D is limited to a few projects and the rewards of success are limited (p. 15).¹³

Following Schumpeter, Hayek, etc., Kornai believes that the dynamic features of capitalism and socialism are among the most important subjects in economics. However, he feels frustrated or even “angry” that “most people and even . . . most professional

students of alternative systems” “completely ignored” this “highly visible great virtue of capitalism” (p. 3). Section 14 discusses the lack of understanding within our profession and among the population on the high capacity of capitalism to invent and innovate, which determines the long-term growth, survival, and many other good or bad features of capitalism, compared with socialism or any alternative system.

Debates on socialism versus capitalism are often centered on wealth distribution, which is true in the past and at present. However, focusing on this issue typically results in overlooking the nature of socialism and capitalism. For example, in a book by Thomas Piketty, the distribution question is regarded as “at the Heart of Economic Analysis” (Piketty 2014, p. 15). By contrast, Kornai assumes that the nature of capitalism can be understood only if the system is viewed as a whole, and distribution is derived from the entire system (i.e., it is not the “heart” of economic analysis). This view is consistent with those of many great thinkers, such as Adam Smith, Schumpeter, and Hayek. Notably, although Karl Marx’s *Capital* is hypercritical of capitalism, entrepreneurial innovation is an important admirable feature of capitalism. Moreover, Schumpeter’s idea of “creative destruction” is largely derived from Marx (Schumpeter 1942, part I). Of these fundamental issues, Kornai argues that inequality and surplus are in the inseparable basic package of properties of capitalism, which is created by rapid and dynamic innovation in capitalism (section 6.6). Moreover, when state intervention is called for, knowing the limitations and trade-offs of state intervention is important; and the strongest form of state intervention ever in human history is socialism. Indeed, socialism was established in the name of seeking equality. However, looking at reality, regardless of the nominal socialist goal of achieving equality, the basic package of properties of socialism is shortage at very high social costs (section 6.10). And it

¹³Based on the study of Dewatripont and Maskin (1995), which endogenizes hard and soft budget constraints in capitalism and socialism, respectively, Qian and Xu (1998) and Huang and Xu (1998) discuss innovation in capitalist and socialist economies; and endogenize points (A), (C), (D) and (E) in the two systems, and the predictions of the models are consistent with the facts discussed in sections 1–3. HBC is intimately related to creative destruction. Moreover, Acemoglu et al. (2007) discuss centralization and decentralization within firms in capitalism, with a focus on creative destruction.

is by no means less unequal than capitalism (Kornai 1992, chapter 13). The fundamental reasons are explained by Kornai (1992) and Hayek (1988).

5. *Political Economy of Dynamism*

The “rapid innovation and dynamism” as “a deeply rooted system-specific property of capitalism” and the “inability to create great revolutionary new products and its delay in other dimensions of technical progress” as “a deeply rooted system-specific property of socialism” (p. 3) are determined by the political-economy nature of the two systems. The ever-increasing influence of the information technology (IT) revolution on the global economy suggests that the impact of this revolution on human society or history is comparable to that of the Industrial Revolution. Related to this comparison, Kornai raises a profound question on how revolutionary changes caused by IT and the Internet affect capitalism, democracy, and the future of human society.

Starting a quarter of a century ago, the former Soviet Union and Central–Eastern European economies transformed from socialism to capitalism, or from totalitarianism to democracy. However, in the last decade, some of these countries experienced “U-turns” in their political systems (i.e., deviating from democracy completely or partially) (Kornai, 2015).¹⁴ This book addresses this question. Tables II.4.1 and II.4.2 present the results of surveys conducted in Central–Eastern Europe. The survey results indicate that the majority of respondents in these areas highly appreciate the outcomes of the IT revolution, which have been created in capitalist societies, although most respondents hate capitalism.

¹⁴This phenomenon has spurred considerable global concerns (e.g., Szikra 2014, Wittenberg 2013, and Zakaria 2014).

Why are so many people in deep self-contradiction in these basic issues that affect their welfare? The answer seems partly related to anticapitalism sentiments incited by politicians in these nations and partly related to the information that they receive.¹⁵ Tables 4.3 and 4.4 show that people who use the Internet (i.e., better informed individuals) are more independent and critical, whereas people who do not use the Internet are more likely to be manipulated by the government.

Understanding the extensive effect of the interactions between the IT revolution and socialist versus capitalist institutions on society and long-term economic growth is a daunting challenge to social science. The case of China illustrates this problem. Over the past thirty-five years, the Chinese economy has transformed from a socialist economy to a partial capitalist economy (to be further discussed later), in which the private sector has become the largest sector that has integrated into the global economy. However, the Chinese regime continues to share essential elements with the totalitarian features of the Soviet Union in the political sphere (e.g., descriptions for Soviet Union are in section I.2.5). With regard to the commercial and production aspect, China has the largest online market (e.g., Alibaba), the largest number of Internet users in the world, and is a substantial contributor to the global IT market.¹⁶ However, in the political

¹⁵The lack of education is another reason that Kornai discussed. He found that although significant progress has occurred in the literature related to the nature of capitalist economy in connection to the creation of technological progress (e.g., Aghion and Howitt 1998; Baumol, Litan, and Schramm 2007), the most popular introductory textbooks (e.g., Mankiew 2009) do not cover this important subject.

¹⁶In 2009, China’s export of IT goods/services accounted for 24 percent of the global total value of IT, whereas the world’s second largest exporter, the United States, accounted for less than 10 percent. In terms of value added, China and the United States accounted for 17 percent and 16 percent of the global total VA, respectively (OECD 2014, p. 145). Ironically, highly successful

aspect, the Chinese government controls and censors the information content in the Internet. For Chinese citizens, the essence of the IT revolution connotes a different meaning. Equipped with an Internet police force of millions and high-tech mechanisms (BBC 2013), the Chinese government has implemented “the most elaborate system for Internet content control in the world” (Freedom House 2012). Allegeable offenses include communicating with overseas groups, signing online petitions, calling for reform and an end to corruption, and expressing dissident political or religious views. Particularly, all postings with collective action potentials are censored (King, Pan, and Roberts 2014).¹⁷

Censorship is implemented to manipulate the minds of citizens by preventing and distorting information flow. Consistent with tables II.4.1 and II.4.2 in the book, systematic nationwide surveys in major Chinese cities conducted in the past quarter century indicate that censorship is working in the direction the government intended. Among the policy issues surveyed, such as freedom of speech, income level, consumer prices, social equality, and clean governance, “freedom of speech” is always the most satisfying aspect, with larger margins than the second most satisfying item. In addition, the trends discovered from the surveys indicate that stronger censorship and propaganda induce more citizens to demonstrate satisfaction

with “freedom of speech.” The evidence is strengthened by both cross-sectional and over-time variations, such as (i) a large number of citizens in inland cities reporting satisfaction with “freedom of speech” compared with citizens in coastal cities (coastal city citizens are better informed than those in inland cities), and (ii) more citizens reporting satisfaction with “freedom of speech,” along with strengthened government propaganda and tightened censorship on media or Internet use in recent decades (Tang 2005; Tang and Yu 2015).

The availability of new channels of information opened by new technologies could induce deep socioeconomic effects by removing barriers and the monopoly of information. Moreover, new IT together with economic factors, such as competition in markets, could facilitate more advanced technological changes. However, these changes will not occur automatically. When autocratic rulers control and use new technology to enhance their power, this control will affect the economy and technology within their jurisdictions. These measures will block necessary channels for creative construction.¹⁸ Indeed, the tightened control over the Internet in China, including disrupting Gmail and shutting down VPNs (a technical facility that helps users get around the Great Firewall, which is an essential part of online censoring devices, and controls and monitors the information inflows and outflows throughout China) in 2015, is transforming China's Internet to a domestic intranet. Scientists and engineers complain that this stringent control over the Internet has threatened domestic and foreign legitimate businesses and extensively hampered R&D; particularly, this control has introduced difficulties “for company employees to use collaborative programs” (Jacobs 2015).

businesses (e.g., Baidu, Alibaba, and Tencent) considerably benefited from the censorship of leading international IT services by the Chinese government, such as Google, Twitter, and Facebook. These leading companies are not only the inventors of the IT services that the Chinese companies imitated, but they also maintain their superior R&D capacities compared with their Chinese counterparts that censor them, thus adversely affecting R&D in China.

¹⁷This political science paper is published in *Science*. In addition to the significant contribution of the paper to political science, it also demonstrates the wide concerns shared among scholars in all disciplines on the censorship of the Chinese government over the Internet.

¹⁸Acemoglu and Robinson (2012) discuss some institutions that render creative destruction impossible.

The profound influence of interactions between technology and institutions on long-term development, as discussed in section I.2.5, reveals some general historical regularity. This point can be further elaborated by analyzing the contrasting experiences of the historical information revolution in China and Europe during the Renaissance. The spread of printing technology to Europe from China via the Islamic world to Europe (Tsien 1985) triggered an IT revolution. The resulting wide accessibility to Bibles was essential for the Renaissance and the Protestant Reformation.¹⁹ Arguably, this IT revolution was inseparable from the creation of capitalism, which led to the present-day IT revolution. Ironically, these technologies lacked comparable effects on the economy and society in China, where these technologies originated.²⁰ As discussed in section I.2, the historical and contemporary differences in the outcomes of technological progress in general, particularly the IT revolution in different regimes, suggest that institutions determine long-term technological progress, including IT. Moreover, the effects of the IT revolution on society heavily depend on the institutions of the regime. Understanding this interactive dynamism is a profound challenge in economics, political economics, and political science.

¹⁹The first large-scale, printed, and inexpensive copies of the Bible in the world were made by Johannes Gutenberg (Davies 1996), who improved the Chinese printing technology. Francis Bacon (1561–1626) regarded papermaking and printing as the most important inventions that facilitated the transformation of Europe from the Dark Ages to the modern world (Jones 2003, p. 58).

²⁰The pronounced Needham puzzle reflects this contrast. The question is, why is the technologically more advanced China, at least from the eleventh to the sixteenth centuries, not able to start the Industrial Revolution or even to catch up? (Needham 1986, p. 6).

6. *Capitalism, Socialism, and State Capitalism*

From the theoretical viewpoint, the central pieces of this book are the propositions presented in section II.5.4, which make the predictions of “pure” capitalism and socialism. The first two propositions state that only the capitalist system is capable of continually producing and reproducing a surplus economy that encompasses the entire economy, as well as the mechanisms that generate chronic surplus regardless of policies. The major driving forces that create surplus in capitalism are (i) monopolistic competition, (ii) uncertainty in demand, (iii) creative destruction, and (iv) scale economy (section II.2.2). HBC is a necessary condition for creative destruction.

The second two propositions state that only the socialist system is capable of continually producing and reproducing a shortage economy that encompasses the entire economy, as well as the mechanisms that generate chronic shortage. The emergence of a shortage economy is attributed to SBC and other factors in socialism, such as bureaucratic coordination (Kornai, Maskin, and Roland 2003).

The theoretical predictions of the preceding four propositions are consistent with observations from advanced capitalist economies (closest to pure capitalism) represented by most of the OECD countries that cover nearly one-sixth of the world population, and from classical socialist economies (closest to pure socialism) represented by all socialist and former socialist economies that cover approximately one-third of the world population (e.g., tables II.2.1, II.3.1, II.6.1, II.7.2, and A.1).²¹ Compared with historical and contemporary theories that analyze a wide range of institutions and systems (e.g.,

²¹For a survey on the vast theoretical and empirical literature on shortage economy and SBCs, see Kornai, Maskin, and Roland 2003.

Schumpeter 1942; Lange 1936, 1937; Hayek 1988; North, Wallis, and Weingast 2009; and Acemoglu and Robinson 2012), this idea is one of the most comprehensive unified grand conceptual frameworks that present challenging endeavors for understanding different systems.

One of the major challenges beyond understanding “pure” systems is the hybrid system, which covers most of the economies in the world. China presents an interesting case of such a challenge.²² The pre-reform socialist China was a shortage economy, which is exactly consistent with Kornai's predictions. Since the reform, China transformed into a particular type of hybrid system, that is, state capitalism, similar to that in Vladimir Lenin's New Economic Policy. Indeed Chinese leader Deng Xiaoping made it clear that his reform idea was influenced by Lenin's New Economic Policy.²³ In China's state capitalist economy, the private sector produces more than half of the

national products measured by GDP, and market competition for products and services is fierce. However, in contrast to “pure” capitalism, private property rights are limited and insecure. In most important areas of the economy, the government monopolizes or controls property rights. All the land is state owned.²⁴ Moreover, in commanding heights sectors (a la Lenin's New Economic Policy), including finance, energy, mining, railway, airlines, and communication, state ownership dominates and controls the governance of state-owned firms and prices.²⁵ Together with other government administrative measures, such as merit-based entry permission, the market is largely controlled by the government. State-owned enterprises (SOEs) and local governments have access to cheap loans from state banks, with expected bailouts from the central government in case of insolvency.

Associated with the coexistence of fierce market competition in goods and services, HBC to private sector, and SBC to state sector, the Chinese economy is a super-surplus economy featured by massive over-capacity, which exceeds the over-capacity problem in all leading capitalist economies in the world. Such an extraordinary over-capacity problem is concentrated in the state sector with

²²In addition to intellectual reasons, the sheer size and heterogeneity of the Chinese economy highlight the importance of the case. China's total GDP is substantially larger than the total of all CIS and Central Eastern Europe twenty-six transition economies plus all fifty-seven African economies. Arguably, China as a nation, is the most diverse in the world, such that rich regions are wealthier than Estonia and poor regions are poorer than Gambia (all of these descriptions are based on 2013 IMF data).

²³Deng said in one of his most cited speeches, “What, after all, is socialism? The Soviet Union has been building socialism for so many years and yet is still not quite clear what it is. Perhaps Lenin had a good idea when he adopted the New Economic Policy.” In the same speech, he emphasized that, “By setting things to rights, we mean developing the productive forces while upholding the Four Cardinal Principles.” These Four Cardinal Principles are defined as “keeping to the socialist road, upholding the people's democratic dictatorship, upholding leadership by the Communist Party and upholding Marxism–Leninism and Mao Zedong Thought.” (Deng 1986). Deng's citing of Lenin's New Economic Policy has been intensively used by the Chinese Communist Party (CCP), particularly for legitimizing China's reform from the viewpoint of Marxism–Leninism. Indeed, a Google keyword search “Deng on Lenin's New Economic Policy (Deng Xiaoping guanyu Liening xin-jingji zhengce)” obtains 152,000 results (accessed on Oct. 3, 2015).

²⁴Nominally, China's constitution specifies two types of land ownership, namely, state and collective. The latter covers all agriculture lands. However, the so-called “collective ownership of agricultural land” is restricted to agriculture usage only. For anyone using the collectively owned land for commercial purpose, the land must be nationalized to make it legal. That is, only the state has the ultimate ownership of the “collectively owned” land.

²⁵All of the CEOs of these SOEs are appointed by the Organization Department of the Central Committee of the Chinese Communist Party. Concerning ownership, although nearly all of the largest state owners firms are traded in Chinese stock markets, only one-third of the shares of these firms are tradable, which usually lack voting rights. Prices in the commanding heights sectors are set by agents of the State Council, such as the National Development and Reform Commission and the Central Bank.

SBC.²⁶ The SBC syndrome and the “forced growth” behavior of the SOEs create shortage under the socialist system (Kornai 1992; Kornai, Maskin, and Roland 2003). This phenomenon raises the issue of why SBC under state capitalism is associated with surplus.

The relationship between SBC/HBC and shortage/surplus is a challenging question. Undeniably, SBC is important in the state sector because it exacerbates surplus problems in state capitalist China. However, SBC syndrome alone is neither sufficient nor necessary to produce surplus in state capitalism. The largest difference between socialism and state capitalism is mixed ownership in the economy and market competition.

Kornai’s analytical framework (section II.2.2) is relevant in addressing this challenge. Four major mechanisms create surplus in capitalism, namely, (i) monopolistic competition, (ii) uncertainty in demand, (iii) creative destruction, and (iv) scale economies. Concerning mechanism (i), within the commanding height sectors, SOEs are monopolies or oligopolies that compete fiercely domestically and globally for expanding market shares.²⁷ The creation of

market competition is mostly determined by the large-scale entry of private firms. Under this condition, the regionally decentralized authoritarian governance structure is another institutional factor that drives competition among SOEs in China (Maskin, Qian and Xu 2000; Xu 2011). This measure also determines mechanism (ii), in which nearly all of the final goods markets become the buyers’ markets, where firms compete for uncertain demands of buyers. Among these four mechanisms, mechanism (iii) is the most important. Finally, mechanism (iv), for most products such as cars, mobile phones, steel, and cement, the scales of China’s domestic markets are the largest in the world. China is also the largest exporter in the global market.

In mechanism (iii), creative destruction is not only a mechanism of creating surplus; it also determines the nature of competition, the winner of the competition, eventual consequences of winning and failing, and the path of the long-term evolution of capitalism. In this mechanism, capitalism and state capitalism are drastically different. In contrast to private firms in capitalism, state firms under state capitalism continually produce and expand unwanted and obsolete products because they are protected by SBC (i.e., no “destruction” policy). The monopolistic power and government protection provide SOEs with the privilege of heavily subsidized capital (Lardy 2008). They imitate other innovations at extremely low costs because of favorable technology transfer deals from advanced multinational firms that are supported by the government and the monopolized super-large scale of the market (e.g., high-speed train technology). Thus, SOEs’ domestic and global competitiveness in expansion in state-capitalist China, which fundamentally differs from creative destruction in capitalism, primarily

²⁶According to the official document (State Council Doc No.[2003]103), by the end of 2012 (after which overcapacity in China rapidly worsened further), China’s capacity utilization rates were 72 percent in steel and electrolytic aluminum industries, 75 percent in ships and vessels, and less than 60 percent in wind-power generators (Zhang and Zhang 2013). As a comparison, in leading capitalist economies in the recent three decades, the rate of capacity utilization is approximately 82 percent, with 75.7 percent as the lowest (Italy) and 89.2 percent the highest (New Zealand); this utilization level is fairly stable measured by standard deviation for nearly all of the nations listed (Kornai 2013, table 3.1). For example, according to OECD data, China accounts for roughly 37 percent of the global excess capacity in steel production; between 2012 and 2015, 41 percent of the increased capacity in the global economy were attributed to China’s contribution (*Wall Street Journal*, 16/07/2014, <http://blogs.wsj.com/chinarealtime/2014/07/16/pain-spreads-from-chinas-excess-production/>).

²⁷The CEOs of SOEs are bureaucrats with frequently shifting appointments between SOEs and other government positions. As CEOs, their bureaucratic ranks in the

party-state bureaucracy are linked with the market shares of their firms. They are evaluated by the domestic/global market shares of the firms for which they are responsible.

relied on government support, subsidies, and protection (SBC) instead of creating new technologies or products.²⁸ Moreover, connected with massive excess supply, corporate and local government debts are all accelerating and reaching very high levels by international standards,²⁹ which is another major symptom of SBC.

In socialism, SBC and lack of competition create shortage. Moreover, SBC is a mechanism that hampers competition (Kornai, Maskin, and Roland 2003). Indeed, market competition was weak in the Central and Eastern Europe and Former Soviet Union (CEE–FSU) reformed economies when central planning was replaced by market mechanisms (Kornai 1986). Different from CEE–FSU reforms, the large-scale entry of nonstate firms, particularly private firms, makes market competition the norm in the Chinese economy (Xu 2011). Even SOEs, which are subject to SBC, are driven to fierce market competition and regional competition. When high-powered incentives associated with these competitions are given to the CEOs of SOEs for market share or for profits and when SBC serves as insurance against insolvency, SOEs are induced to take bold risks in competition for market shares. This situation seems to be the force that produces extraordinary surplus. Thus, the coexistence of fierce product market competition and severe SBC could trigger more drastic over-capacity problems.

This phenomenon in which SBC under fierce competition may exacerbate surplus can also be observed in leading capitalist

economies. Examples include the bad loan problems in Japan and the sub-prime mortgage problem in the United States. If the essential mechanism of SBC is the moral-hazard problem created by the removal of bankruptcy threat (broader than bailing out by an ex ante identifiable agent), the sub-prime mortgage scheme in the United States can be regarded as a sophisticated variation of SBC in advanced capitalism. Through securitization, sub-prime mortgage lenders could externalize bankruptcy threats to the market by selling securitized mortgage assets, which transfer substantial bankruptcy risks to tens of millions of anonymous uninformed buyers globally. By removing substantial bankruptcy threats, each individual mortgage lender is encouraged to lend without being concerned with the risks of the assets. In addition, debt-equity swaps led these lenders to believe they were insured, but since everyone was holding everyone else's debt the insurance was useless in the face of systemic risks. This SBC mortgage scheme contributes to the considerable over-supply of mortgage and housing, and substantially degenerates mortgage quality. Consequently, these measures contribute to the global financial crisis.

The relationship between SBC–HBC and surplus is a challenging and exciting research subject. Moreover, why does the joint effect of an SBC segment (public ownership) and an HBC segment (private ownership) induce an overall surplus economy and not to a shortage economy? The answers to these interesting questions require further theoretical and empirical research.

7. *Concluding Remarks: Conceptual Issues and History of Thought*

Since the age of Adam Smith, economics is mostly about capitalism. The rises and falls of socialism are intimately related to the dark sides and triumphs of capitalism. The complexity of states of capitalism lies in the

²⁸Evidence suggests that the most desperate over-capacity sectors are in housing, metal, heavy machines, etc., which are unrelated to new product and innovation.

²⁹In less than six years, China's total debt increased to 76 percent, reaching 229 percent of GDP in 2014, with corporate debt standing at over 150 percent of GDP, which are above the levels of most advanced economies (Hannoun 2014). Most corporate debt in China is in the state sector (Lardy 2008).

roles of capitalist institutions, particularly their dynamics. This book fills an important intellectual gap in understanding the nature of capitalism. The work contains the antecedents of the author's ideas in the work of economists in the past era. The chapters track how the author's propositions and arguments are influenced by other thinkers, including neo-classical theorists, Austrians, Keynesians, post-Keynesians, and Marxists. Although various thinkers mentioned in the book have political and economic views that sharply oppose each other, this book treats these contrasting views within a unified framework.

The book provides general guidance and provokes thoughts for studying capitalism. To further develop the themes contained in the book, serious challenges are posted theoretically and empirically, as well as in subjects, such as hybrid capitalism.

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