CHAPTER 1

Theory of Institutional Economic Engineering in China

My initial intention is to describe, not theorize, about China's economic reform program. However, a proper theoretical framework is necessary in order to understand the issues and problems China faces and, more important, the possible solution to these problems.

It is my deep conviction that China will have a prosperous future as long as it chooses innovative strategies, such as market-driven reforms in the financial sector, rather than conventional wisdom as part of its economic development program.

For many years, my focus has been on economic development and China's financial and debt capital markets. In the course of my study, I have come to these conclusions:

- China will sustain relatively high rate of growth in the long term because of investment sustained by a higher savings rate, cheap labor, the evolution of its institutional framework, its ability to innovate, and so on. There will be economic fluctuations because of structural issues relating to China's financial and industrial framework.
- Governmental improvements to management and encouragement of financial innovation and evolution of institutions can help minimize the fluctuations. The debt capital market is located right at the center of the financial system. Equally important is integrating the debt capital market into the financial market. A sound legal framework, well-defined corporate governance, deregulation, the evolution of institutions, increased financial awareness, and technological progress are solutions to the debt capital market problems that China faces today.
- The crucial factor is education, education, and, again, education. The first education stands for the knowledge-based education, such as the study of economics, technology, and the like. The second type

> of education is competition- or innovation-based education—mainly management science, which will help raise our competitive advantages. The third is incentive-driven, institution-based education, which will help to ensure the continued development of education. Therefore, education that fosters the creation of ideas generally and sharpens our competitive edge should be high on China's list of priorities.

I base these observations on my study of the key issues in the financial and bond markets in China, and am motivated by two fundamental questions: (1) why has mainstream economics failed to explain the phenomenon of China's financial and bond markets? and (2) why are constraints, which neoinstitutionalists[1] perceived as inherent in institutions, not a solution to China's debt capital market development? I was also inspired by recent developments in economic theory, such as information economics, game theory, and neoinstitutionalist economics,[2] which shed light on how to interpret and identify the issues in financial markets, especially the bond market in China. This exploration motivated me to develop a new theoretical framework.

First I will give a brief introduction of the institutional economic engineering (IEEN) theory. For a theory to be precise and sound, it has to be consistent with a philosophical proposition. Here I review briefly the methodological debates on economic theories and discuss the mission of all sciences: seeking for truth. Truth can be divided into relative truth and absolute truth. Absolute truth contains all relative truth insofar as conditionality and applicability are concerned. Sciences have different tranches, and the more basic sciences contain more specific and concrete science. Therefore, economics has to be built on sociological propositions, which focus on the human exchange, the principal category of sociology. By the same token, financial science is based on economic science; the theory of the debt capital market is based on financial theory.

From absolute-relative truth framework, we move along two different lines: conditionality and applicability. As basic science is less conditional than concrete science, we specify the sciences orderly in terms of conditionality and indicating the more basic science contains the more concrete science.

Institutions first can be viewed as people's social relationships; the movement of institutions is based on an interaction between incentives and constraints. Within the IEEN framework, a rhombus paradigm is used to explain the process of institution formation. IEEN aims to achieve economic development through social, socioeconomic, and economic exchange in an endogenously driven, evolutionary process. The economic exchange is accomplished mainly through markets whereas social and socioeconomic

exchanges basically are achieved through means other than markets. IEEN is distinct from other theories because of its emphasis on the internal nature of driving forces behind the evolution of institutions.

Based on rhombus theory, we make a distinction between the primary exchange and the secondary exchange. The primary exchange is a mandate, or a derivative, from the secondary exchange to save exogenous transaction costs. The secondary exchange functions to reduce endogenous transaction costs. The primary political exchange deals with the relationship between the public and other actors; the secondary political exchange deals with the relationship among parties. The primary administrative exchange deals with the relationship between government and government agencies; the secondary administrative exchange deals with the relationship among the government agencies.

Similarly, the primary economic exchange deals with the relationship between government and market participants; the secondary economic exchange deals with the relationship among market participants. The primary financial exchange covers the relationship between government financial authority and financial market participants whereas secondary financial exchange covers the relationship between financial market participants. The primary bond exchange deals with the relationship between the government and bond market participants; the secondary bond exchange deals with the relationship among bond market participants. In this book, we focus on the primary and secondary economic exchange, the financial exchange, and bond exchange.

In recognition of IEEN as an applied economic science, we posit three fundamental factors underlying the path-dependent nature of institutions. This trilogy—the base-value-path (BVP) framework—is useful for creating this new methodology for the analysis of economic, financial, and capital market issues in China. Here we redefine the function of government in the economy. In light of the evolutionary nature of institutions, it is suggested that the government's role should be limited to facilitating the reduction of transaction costs, for example, by defining property rights, creating the legal framework in which markets operate, promoting innovative ideas, supporting education, and pursuing market-based macroeconomic policies.

Therefore, it is crucial that we first define what we mean by the financial system and then review current theory on the subject. Problems with the theory will be explored later. We begin by putting economic, financial, and capital market issues in a new perspective. With respect to financial markets, the new view suggests that transaction costs can be economized by institutional and technological progress. Later, in the summary of the primary market and secondary market development, I highlight the importance of institutional progress to the bond market development. There has

to be an incentive to each party so that institutional progresses can be made. Parties have to reduce transaction costs to achieve a win-win arrangement. Technological progress only helps to reduce the transaction costs so that institutional progress is possible via exchange. (Please see "The Nature of Finance and the Financial Structure.")

We begin with a brief overview of financial theory, especially those that China has in common with many of the "less developed countries" (LDC; a United Nations designation). At the same time, we must remember that financial theory does have a number of drawbacks.

We then focus on the path to financial reform. Here we emphasize the importance of the initial condition of financial markets and the factors on which the government and market participants judge the condition, goal, and path the reform program takes. We also redefine the goal of financial market reform and provide several key checkpoints along the road toward achieving the goal of financial market reform. (See "A New Methodology for the Analysis of Financial Issues.")

We next examine how institutional and technological progress drive economic growth. Here we emphasize that, more often than not, the institutional revolution may not necessarily be accompanied by technological revolution. In fact, they alternate to reflect the transaction costs, or transformation cost, of the revolution. Whichever is less expensive comes first. Similarly, financial revolution precludes economic growth, and vice versa. Finally, the interaction between incentives and constraints works to make economic movement gradual. (See "The Role of the Government in the Economy.")

INSTITUTIONAL ECONOMIC ENGINEERING

The new theory on which the book is based is built on the achievements of neoclassical economic theory, especially the A-D framework, game theory, and information theory as well as the achievements of neoinstitutionalists. We will approach the new theory along three different lines.

To Douglass North, institution is the rules of game; to Masahiko Aoki, institution is the finale of game play, or an equilibrium state. In the IEED framework, both rules of game and game play are elements of institution. However, rules of game and game play are not interdependent; rather they are closely related and unified in one complex institutional arrangement. Both rules of the game and game play are engendered via exchanges. As a game-playing process, the secondary exchange, a principal exchange, will come up with an equilibrium state (the institution in Aoki's framework). The participants of the game, or exchange, are the game players or

exchange participants. In most case, the rules of game are worked out by the participants or game players, and they are engendered by the secondary exchange. But the rules are likely to favor of the party who has more comparative advantages. This legitimizes the primary exchange, the exchange between the rule maker and the participants of secondary exchange. In the modern economy, primary exchange implies the exchange between government and market participants. It is reasonable to suppose that rules are not exogenously made but endogenously made via exchange. Viewed in this light, it is fair to say that the IEEN framework fundamentally deviates from the basic framework of neoinstitutionlists.

Let us look at the issues from a different perspective, in which institutions and institutional arrangements are the focus. On the face of it, institutional issues (or transaction costs) involve only information asymmetry and the enforcement of contracts and laws, but, in fact, they go far beyond this narrow definition. Institutions comprise the entire social structure (social arrangement); that is when social activities (game playing) are in equilibrium. Different pillars—internal driving forces—underlie the evolution of institutions. Internal force drives the movement of institutions while external force lays out the conditions for that movement.

Institution and technological progress can reduce transaction costs, as neoinstitutionalists point out. Therefore, the only role that the government can play is to create the conditions in which institution building and technological progress can be made. Thus, it is necessary to distinguish between government policies that reduce transaction costs and those that would increase them. This distinction can serve as a criterion by which to judge government policy. However, within the current segmented and inconsistent theoretical framework, how to address financial issues remains problematic.

Here we regard the institution as the core factor behind this economic issue and redefine it based on the new theory. The driver of evolutionary development of institutions is interpreted as an interaction between incentives and constraints.

Then we conceptualize institutions as an internal force driving the interaction between incentives and constraints. The implication is that the nature of the interaction between incentives and constraints reveals the essence of incentive structure, something that is only implied in the Douglass North's seminal work, *Institution, Institutional Change, and Economic Performance*. According to North, "Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction. In consequence they structure incentives in human exchange, whether political, social, or economic. Institutional

change shapes the way societies evolve through time and hence is the key to understanding historical change."[3]

In addition, we want to prove that institutional progress in any society is a win-win solution. People enter a transaction with knowledge as well as certain advantages and disadvantages. The incentive of each party to a transaction is to realize the advantages and eliminate the disadvantages. This is accomplished through an exchange in much the same way as comparative advantage is negotiated in trade agreements between two countries.

It is my hope that by redefining the meaning of institution and providing an understanding of the drivers of institutional evolution, IEEN theory can provide the groundwork of the institutional architecture. My other goal is to establish the link between, or among, the different analyses of institutional development in order to make the theoretical framework more consistent and coherent.

We also highlight the importance of competitive advantages and the necessity to reduce endogenous transaction costs, but this in no way implies that comparative advantages are not important or not as important as competitive advantages. In fact, efforts are usually made either to reduce the exogenous transaction cost to sharpen the comparative advantage or to reduce the endogenous transaction cost to sharpen the competitive advantages. The one that is less painful to achieve will be used first. Note, however, that sometimes the reduction of endogenous transaction costs is achieved by the reduction of exogenous transaction costs. Comparative advantages are transferable to competitive advantage, and vice versa; the same is true of exogenous transaction costs.

By recognizing the homogenous nature of human behavior and the ubiquity of exchange, it is possible to blur the dividing line between economics and sociology and rebuild the economic groundwork so that public selection theory, game theory, information theory, and all other schools of economic theory would be a consistent part of the economic system. The common ground of such a system has yet to be established. Institutional economic engineering is an attempt to do just that.

What Is Institutional Economic Engineering?

We define institutional economic engineering as a socioeconomic science for the designing of institutions.

Nowadays financial engineering is believed, especially in China's financial sector, to be at the top of economic theory. Although the idea of introducing engineering into social economics is stimulating, the purpose of institutional economic engineering is not to pander to fashion; rather it is to extend the thinking behind the design of financial products to the design

of an institutional arrangement. This philosophy fundamentally affects economic theory and has long been debated among the different economic schools, insofar as the methodology of economics is concerned.

Nowadays, it is recognized that "falsifiability" is a necessary test of any theory. Eugene Kelly puts it this way:

> *A theory, on a standard account of science, must meet at least three requirements. First, it must contain some general statements that describe relationships among phenomena or mechanisms within phenomena, in terms of which an event or a series of events can be explained. These general statements account for the known facts. Second, the account must lead us to expect as yet unobserved phenomena. It must suggest new avenues for future research. Third, it must be falsifiable, that is, it must be possible to state some observable conditions, which, if they were met, would force the alteration or abandonment of the theory. In short, the theory must explain something about the world, must suggest new ways of exploring phenomena, and must tell us what it would be like for its explanations to be wrong.*[4]

Absolute-Relative Truth Framework

However, this definition still leaves some confusion. To clarify, it is necessary to define the truth, theory and knowledge in a new framework, so that the Institutional Economic Engineering could encompass all academic contributions so far.

Max Weber's last words were: "The true is the truth."[5] I don't know what Weber implied at the moment, but I believe truth has no conditions. In existentialism, this is called "being of itself."[6]

Something unquestionably true is called *absolute* truth, or gospel; something conditionally true is called *relative* truth. Absolute truth is universally and eternally applicable; relative truth is applicable only under certain circumstances. Both absolute truth and relative truth exist in the real world, but only relative truth is observable. Absolute truth encompasses relative truth; therefore, countless relative truths are components of absolute truth. Relative truth can approach being an absolute truth but can never equal the absolute truth.

It is worthless to argue whether the conditions and assumptions of a relative truth are true or false. The condition or assumption may not be reasonable, realistic, practical, or likely to happen in a certain period of time or under certain circumstances. But this only implies that it has lower applicability at the moment; it in no way means that it is not truth,

or a relative truth. Relative truth is also subject to "falsifiability" when conditions or assumptions are changed.

However, it is important to note that truth can vary in its ability to withstand time, universality, and applicability. The more durable, comprehensive, or extensive it is, the closer it comes to being an absolute truth. Therefore, the basic natural sciences, such as mathematics, physics, and chemistry, may contain within them the social sciences, such as sociology, philosophy, law, and economics. Similarly, within the social sciences, sociology contains economics.

The more a theory approaches absolute truth, the more likely it is to achieve its completeness and integrity. Therefore, it is reasonable to suppose that what is wrong with the approach taken by neoclassical economics is not its comprehensive use of mathematics but its lack of a base in sociology, philosophy, and law, which are necessary links in economic theory. The lack of these links makes the theory incomplete.

In short, neoclassical economics offers a very narrow explanation of a very large problem or set of problems for an institution. For this reason IEEN is more precise and comprehensive in its analysis.

Figure 1.1 illustrates the relationship between absolute truth and relative truth and demonstrates why the truth is falsifiable as experience and practice increase. The horizontal axis stands for the absolute truth, and the curves represent relative truths. The lower level of curve represents the more widely applicable truth, which contains the more relative level of truth. Below the curve, each point is truth, but above the curve, each point is false. As more research is done, the theory may be found to be false.

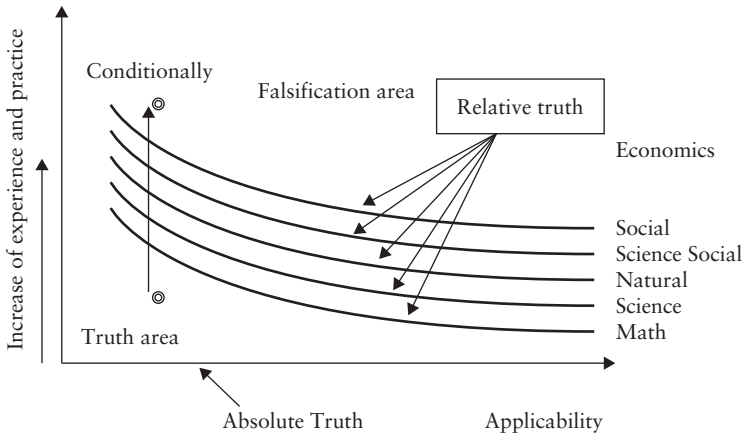

FIGURE 1.1 Relationship between Absolute Truth and Relative Truth

The vertical axis represents conditionality, which demonstrates that all relative truths are conditional. However, conditionality includes three different categories: (1) conditions related to time and space; (2) conditions related to value and culture that people attach to reality; and (3) conditions related to ad hoc objectives. Max Weber shed light on the meaning of sciences when he argued that "science in itself is neutral."[7] Elsewhere he stated, "While the meanings that people attach to various phenomena play no role in the natural sciences, they are absolutely crucial to the social sciences, including economics." Like most economists, Weber regarded scarcity as central to the constitution of economic phenomena, but he also emphasized that what ultimately mattered is the meaning that people attach to reality.[8] The truth is something that the theory is intended to reveal and to make applicable; knowledge is created from both theory and practice. The sources of knowledge are:

- Our own experiences and from learning by doing
- Others' experiences; what we hear and what we observe
- Books and education
- Induction and deduction from above-mentioned sources of knowledge

Knowledge may be divided into three categories: descriptive knowledge, judgmental knowledge, and knowledge of resolutions.

Economics is by nature a social science and an applied science. The IEEN framework contemplates to bridge the gap between math and economics, so that it can provide the knowledge of resolution. In IEEN theory, the extensively used math of neoclassical economic theory can be justified by the containment principle.

So far we know that natural sciences are used in four different areas:

1. *Deduction*. Math is a useful instrument for syllogistic deduction. In mathematics, a logical statement involves three propositions: the major premise, a minor premise, and a conclusion. The conclusion is necessarily true if the premises are true.
2. *Simulation*. Simulation is creating a parallel situation that is comparable to something found in the real world. For example, the random walk in finance theory is comparable to the movement of chemical molecules.
3. *Technological progress*. As functions become more automated, costs tend to be reduced by increases in productivity. For example, the introduction of computers led to a reduction in transaction costs.
4. *Environment*. Changes in the physical environment may affect cost positively or negatively. Scarcity of resources would reduce competition and diminish the rate of return.

As more dominant science (the law of which has more extensive coverage) contains less dominant science (the law of which has less extensive coverage), natural science contains social science, economics contains finance theory, and finance theory contains the theory of debt capital market. But social science has its own laws. Mark Gertler and Andrew Rose wrote: "Insofar as scientists are aware, air molecules have no incentive to deceive observers as to their natural properties. Unfortunately, life is not so straightforward in the world of banking, nor for that matter, in much of economics."[9]

Sociological Base of Economics

Social engineering has to do with sociology because it involves human behavior. It also reaches into the domain of game theory, information theory, and financial engineering in that it attempts to design an institutional arrangement that will lead to the realization of comparative advantage. Since advantage can be realized through exchange, as long as the transaction costs can be minimized, a new institution can be built, and since the law of institutional evolution is identifiable, designing institutions and institutional arrangement is possible. In line with the formulation of international trade theory by Adam Smith and David Ricardo, and analogous to principles of international trade theory, institutions based on comparative advantage can achieve mutually beneficial solutions; in other words, they can achieve a win-win outcome.

According to IEEN, institutions (finance is one form of institution) are essential to the economy. Other factors, such as government, organizations, and legal systems, can all be addressed by institutional arrangements, and are secondary when compared with institutions per se. These systems are endogenously created by institutions and nevertheless play an important role in the evolution of institutions.

IEEN theory combines mainstream economics, such as information economics and game theory, with social economics. Social economics was originated by Max Weber. Influenced by both old histology and new histology, Weber established the foundation of economic sociology. "What basically motivated Weber to pursue economic sociology was a realization, shared by many economists and sociologists today, that it is absolutely imperative to take the social dimension into account when one analyzes economic phenomena."[10]

Integration of Sociology into Economic, Financial, and Bond Market–Related Theory Each of us has some relationship with others in the society. There are person-to-person relationships, person-to-group relationships,

and group-to-group relationships. The person-to-person relationship is composed of two categories: direct contact and indirect contact. Weber first differentiates the social relationship. According to Weber, personal action in a society can be driven by economic motivation, material motivation, and sociological motivation; accordingly these actions can be classified as economic action, economic social action, and social action.[11] As institutions develop, economic social action—the economic action that is oriented to the behavior of others—becomes the predominant form of social relationship. This, according to Weber, is the subject of economic sociology. The parties to the economic social action are driven by material interests, habit, and emotions.[12] This classification, though heuristic, is subject to debate.

According to institutional economic engineering theory, people can have direct relationships and indirect relationships. In a direct relationship—whether it is a social or economic action, whether it is competitive or cooperative—the parties reach an equilibrium state through exchange. In a competitive relationship, the parties reduce endogenous transaction costs to achieve the exchange of comparative advantages. In an indirect relationship, there is no exchange.

In addition, there are group-to-group relationships and person-to-group relationships. People in a group are basically in cooperative relationships, but sometimes they also have a competitive relationship (e.g., competition for promotion in a bureaucratic system). Group-to-group relationships, like person-to-person relationships, include direct and indirect relationships. In direct relationships, the exchange occurs between groups; in indirect relationships, exchange does not happen.

The person-to-group relationship, while similar to the person-to-person relationship and the group-to-group relationship as far as direct and indirect relationships are concerned, may occur with a person either inside or outside the group. The former can be seen in individual-to-government relationships, the latter can be seen in worker-to-company relationship. When they are in a direct relationship, exchange can occur. This concept was first articulated by Robert Putnam in his analysis of social capital and how societies revolve around this informal system.[13]

Social relationships are constantly changing. Direct relationships can become indirect relationships, and vice versa.

Sociology and Economics Sociology is about people-to-people relationships while technology is about the human-to-nature relationship. Human relationships can be maintained through exchanges. It is not what is to be exchanged that divides society into different categories, but the nature of the interaction between the incentive structure and constraint structure that separates one society from another.

The exchange of comparative advantage, the equilibrium reached through game play, and the competitive struggle for existence through the removal of internal transaction costs are essentially part of the same process and realized simultaneously. Marx referred this process in a narrow sense as class struggle. Weber used the notion of struggle to describe competition, indicating the role that struggle (*Kampf*) plays in the economy.[14]

Incentive has been conceptualized as the opposite of constraint. It contains the assumption of the rational or somewhat rational human behavior to reconcile neoclassical and neoinstitutional economics. Incentive can be motivated by both utilitarianism and value-based judgments.

Institutions may be optimal or suboptimal. By what yardstick are we to judge their worth? According to North, there are two different kinds of government: violated and predatory. Modern theory has revealed that this is due to principal agent issue, which incentive theory addresses. Our view is that the principal agent issue is due to incomplete primary exchanges; we discuss this further later on.

Essence of Human Relationships: The Exchange Broadly speaking, all human social behavior, such as making choices, selecting one thing over another, and decision making, are by their nature exchanges or transactions. A transaction is the act of possessing something by paying something for it. Simply put, to produce a material product is one thing, but to obtain it if one has not produced it is quite another.

A transaction in an economic sense is called a trade or an exchange. To realize a transaction, one has to sharpen one's comparative and competitive advantages by paying an exogenous as well as an endogenous transaction cost. In terms of the realization of a transaction, competitive advantage is more crucial than comparative advantage.

There are times—ranging from mundane theft by individuals or groups of people to extraordinary actions such as war between tribes or nations—when people get something for nothing. In reality, however, these actions are not cost-free; there is a transaction cost. For example, throughout history, endless blood has been shed in wars and battles; the aggressors obtain the land, material goods, natural resources, and other things, and they pay with the lives of their soldiers as well as the cost of the goods and services needed to conduct the war. The defenders, too, pay with the loss of life and cost of logistical material. These then are the transaction costs. The cost of materiel is the exogenous transaction cost, whereas the cost of training soldiers and commanders for reconnaissance and fighting the war are endogenous transaction costs.

During times of peace, economic activities tend to be confined to the exchange of goods for goods or goods for money transactions because the

exogenous and endogenous transaction costs of trade is less and, therefore, preferable to war. There is a corollary in game theory, the "prisoner's dilemma," where participants tend to choose cooperation because there are more winners than losers. However, for a number of reasons, including lack of information, participants do not always choose cooperation.

In the field of economics, the same principle applies: How something is possessed through trade is more important than how it is produced. In other words, the terms of trade between two people or two nations are more important than the production of trade.

Here the inclusion of human behavior would remedy the deficiency of neoinstitutionalist theory with respect to choices that lead to a transaction or exchange in economic activities.

Incentives and Constraints: The Dialectic of Institutions

The Dialectic of Institutions An institution is a union of opposites: incentives and constraints. It is an equilibrium state created from the interaction between the two. North noticed this dichotomy as it affected an institution's stability and changeability, saying: "The major role of institutions in a society is to reduce uncertainty by establishing a stable (but not necessarily efficient) structure to human interaction. But the stability of institutions in no way gainsays the fact that they are changing."[15]

North also gives a representational definition: "Institutions provide the basic structure by which human beings throughout history have created order and attempted to reduce uncertainty in exchange. Together with the technology employed, they determine transaction and transformation costs and hence the profitability and feasibility of engaging in economic activity."[16] Still, to North, institutions represent only constraint.[17]

However, it is important to note that if institutions evolve, it is hard to imagine that any prime mover outside the institution drives them; instead, they are driven by an internal force: the institution's sinew. Without incentives, institutions will not move forward; similarly, without constraints, institutions will not move either. It is reasonable to suppose that it is the contradictory movement, or interplay, between the incentive structure and the constraint structure that drives the institutional movement.

Greif defined an institution as a system of social factors—such as rules, beliefs, norms, and organizations—that "guide, enable, and constrain the actions of individuals."[18] To Greif, as it to North, an institution is a kind of constraint, having nothing to do with incentives. Although the word "enable" may appear to be an "incentive structure," that is not how Greif means it. Moreover, he confuses institution with organization. North argues that institution is different from organization. Institutions impose

constraints on human behavior. However, an organization is a group of people functioning within an institutional framework, created, in North's words, to take advantage of the opportunities provided.[19]

According to Rodrik: "Institutions that provide dependable property rights, manage conflict, maintain law and order, and align economic incentives with social costs and benefits are the foundation of long-term growth.... State institutions are not the only ones that matter. Social arrangements can have equally important and lasting consequences.... Modest changes in institutional arrangements...can produce large growth payoffs... [but] the required changes can be highly specific to the context."[20] Although Rodrik does not regard institutions as an interaction between incentives and constraints, he nevertheless touches on both, albeit separately. Schotter defined "institution" as "a regularity in social behavior that is agreed to by all members of society, specifies behavior in specific recurrent situations, and is either self-policed or police by some external authority."[21] To him, an institution is not only a game, but also a rule of the game. Calvert, like Masahiko Aoki, perceives of an institution as a state of equilibrium.[22]

About the interactive nature of the two elements, incentive and constraint, within institutions, Coase says:

> *If rights to perform certain actions can be bought and sold, they will tend to be acquired by those for whom they are most valuable for either production or enjoyment. In this process, rights will be acquired, subdivided, and combined to allow those actions to be carried out which bring about that outcome which has the greatest value on the market. Exercise of the rights by one person inevitably denies opportunities for production or enjoyment by others, for whom the price of acquiring the rights would be too high. Of course, in the process of acquisition, subdivision, and combination, the increase in the value of the outcome which a new constellation of rights allows has to be matched against the costs of carrying out the transactions needed to achieve that new constellation, and such a rearrangement of rights will only be undertaken if the cost of the transactions needed to achieve it is less than the increase in value which such a rearrangement makes possible.*[23]

A property right is the right of one party but the constraint of the other. The protection of innovation and invention is the incentive for one group of people but a constraint on another group of people who use the innovation and invention without paying anything.

Why do institutions move from one arrangement to another? To apply Marxist philosophical theory (i.e., dialectical materialism), an institution is

a union of opposites. Depending on the circumstances, they provide both incentives and constraints. Incentives are the positive factor in the union of opposites. When constraints encumber incentives, tension emerges between them. In the end, constraints change in response to changed incentives. Thus, their relationship is in equilibrium when constraints are consistent with incentives and in disequilibrium when constraints no longer cater to incentives. At this point, a new equilibrium needs to be established, which, when it happens, constitutes institutional change.

A union of opposites has three outstanding characteristics:

1. Incentive and constraint are interdependent; in other words, the existence of one is the precondition of the other. There is no incentive without constraint, and vice versa.
2. Incentives become constraints and constraints become incentives as conditions change. As one party's incentive is his or her counterpart's constraint, one party's constraint is his or her counterpart's incentive.
3. Incentives are positive and inconstant; constraints are relatively passive and stable.

IEEN would serve as a new theoretical instrument to explain institutional change. It is different from information theory in that social engineers believe that equilibrium in information theory is not readily achievable, as a transaction cost always exists. From IEEN's point of view, equilibrium occurs when the unity of opposites is in place; transformation takes place when there is disequilibrium. Information theory would provide mathematical proof for the condition of the equilibrium and transformation from incentive to constraints and vice versa; IEEN focuses on the behavior of human beings or organizations, applying the logic of game theory to show how institutions evolved in the midst of contradictory movement between incentives and constraints.

IEEN differentiates itself from neoinstitutional theory, which posits transaction cost as the key to explaining institutional evolution and focuses only on the constraints side of institutions. Evolutionary economists put great emphasis on innovative idea generation but fail to show that institutional change can be evolutionary and revolutionary, gradual and radical. A win-win outcome can be achieved when the movement is evolutionary; a win-loss outcome, or interest redistribution, occurs when institutional movement is revolutionary.

It is important to note that incentives and constraints can change individually, concurrently, and sequentially.

How Incentives and Constraints Work Incentives occurs when the participants in a transaction can benefit from the exchange of their comparative

advantages, and there is a way both parties can realize these advantages by the exchange of a material or social commodity (which represents their comparative advantages) to achieve a win-win solution. Here, the social commodity is defined as a social relationship, which is exchangeable in the formation of institutions. Exchange here has a broad meaning; it is not necessarily confined to commodity exchange. In a broad sense, choice is, by its nature, an exchange; for example, when a person selects one thing, he or she gives up another.

Constraints are related to both external and internal transaction costs. The external transaction cost is the price paid to increase one's advantage. Internal transaction costs are those incurred in the process of competing: for example, negotiation cost, lost opportunity cost in the process of achieving equilibrium, and the cost incurred in seeking opportunities and finding counterparts, including the cost for information. Reducing endogenous transaction costs will create more value added.

Incentive is an active factor compared with constraint. The changing nature of incentive is North's central argument: ''incentives have varied immensely over time and still do.''[24] The key is that the constraint apparatus should go hand in hand with the incentive apparatus. The interaction between them drives institutional change.

Marx was the first to reveal the dialectical nature of institutional change. To him, the contradictory movement between productive force and productive relationships drives the social change that brings about institutional revolution. Productive force is more active than productive relationships. However, the productive force cannot replace the incentive apparatus, nor is the productive relationship a proxy for the constraint apparatus. It is difficult to calculate the change in productive force, in terms of total capital or total output, or to what extent the productive relationship can contain the productive force. However, the incentive structure can be established based on the incentive theory.[25] Incentive theory is based on the principle of optimization, equilibrium, lack of arbitrage, and game theory; it reveals the true nature of the principal-agent relationship[26]

Neoclassical economists construct their models without considering transaction costs. Neoinstitutitionlists developed a concept of transaction cost and indicate that as long as transaction cost can be removed, equilibrium can be reached (this is the Coase theorem).[27] According to game theory, the endogenous transaction cost is paid to achieve the equilibrium. What IEEN contributes is the idea that comparative advantage can be realized through exchange to achieve a win-win outcome in which both parties have an incentive to reduce transaction costs; as a result, institutions can evolve. When comparative advantage is realized through exchange, the two parties reach the game theory equilibrium where the constraint structure can better

contain incentive structure. This process is better illustrated using rhombus theory.

Rhombus Theory and the Formation of Institutions

Rhombus theory, which is based on an IEEN framework, is concerned with the formation of institutions. At the outset, institutions are in a state of equilibrium because of the interaction between incentives and constraints. The incentives and constraints reach equilibrium as the institution achieves its comparative advantage. The process has two stages: The first stage has to do with transforming the institution's assets into comparative advantages. This can be done only under certain conditions, and the price paid for this transformation is an exogenous transaction cost. Because of this cost, incentives and constraints may also change, together or individually. If the incentive structure changes while constraints remain unchanged, there is conflict between them. In the end, either constraint relaxes or both incentives and constraints move forward in a coordinated fashion.

The second stage has to do with the transition from comparative advantage to competitive advantage, a result of the successful exchange of advantages with a counterpart. In this case, the cost incurred is an endogenous transaction cost. Figure 1.2 illustrates the process.

The formation of an institution can now be seen from two different dimensions. The establishment of a financial system (or "financial structure") is a process of institution building. It is also an interaction between incentives and constraints. Participants in a financial system have the incentive when opportunities come to change their status quo as well as constraints. The interaction between incentive and constraint is also reflected in the games played by the parties. In the end, a state of equilibrium can be achieved. This equilibrium marks the formation of a new institution or a new institutional arrangement. During the interaction between incentive and constraint, transaction costs can be reduced.

Thus, there are two categories of transaction costs. The first, the exogenous transaction cost, has to do with the cost of improving the institution's assets or alleviating constraints by, for example, circumventing laws and regulations, legally evading taxes, or avoiding other legal constraints. The second, the endogenous transaction cost, is the cost incurred in realizing the institution's comparative advantages, such as the cost of the negotiating with a counterpart, information cost, or the cost of uncovering opportunities.

Understanding this two-stage process helps us define the role of government. It is reasonable to presume that the government's role is to reduce exogenous rather than endogenous transaction costs. Laws and regulations should be limited to such things as defining the property rights, establishing the legal framework, setting rules, and encouraging innovative ideas.

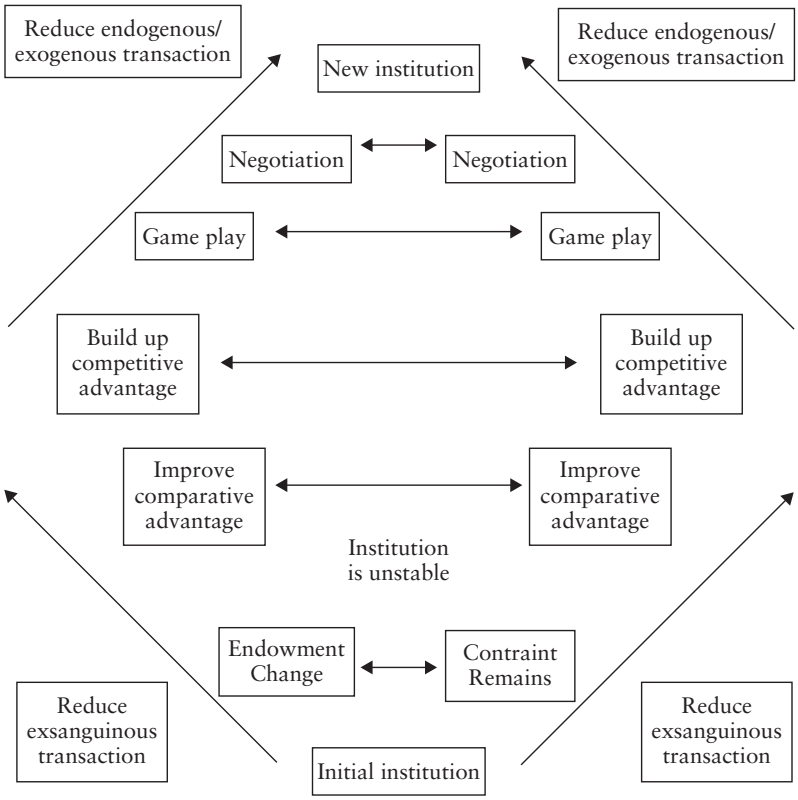

FIGURE 1.2 Rhombus-shape Graph Illustrating the Process from Initial to New Institution

These are the rules of game; anything that goes beyond that will be counterproductive. In fact, the legal framework should help to reduce rather than increase transaction costs; therefore, at times deregulation will help to reduce exogenous transaction costs and thereby expedite the process of institutional movement.

The participants themselves (the game players) can deal with endogenous transaction costs without government intervention. It is important to bear in mind that the formation of institutions is game play. Laws and regulations are the rules of game. In most cases, government is not player but a referee. The players themselves determine who wins the game; that is, it is the players who determine which institution to form.

Endogenous transaction costs are more rewarding than exogenous transaction costs, which are harder to reduce because they are riskier,

more uncertain, and require more work. Due to the nature of endogenous transaction costs, innovative ideas are essential to the realization of exchange. In the second stage of the institution formation process, achieving comparative advantage, reducing endogenous transaction costs and game play are essentially the same. They both reveal the nature of institutional movement from a different perspective.

A good example of the game play process is table tennis. The players' degree of skill is their comparative advantages. The exogenous transaction cost is the cost of training to qualify for the game. The cost incurred by the players to learn the playing strategy and to pay their coaches is the endogenous transaction cost.

The wisdom to win the game is the competitive advantage. Professional players know well that winning mainly depends on their competitive advantage rather than comparative advantage, as the skill of qualified players is more or less at the same level. Rhombus theory reveals how institutions move from one state to another. It exposes the nature of institutions, which is essentially revolutionary. When the market can play a role, there is little role for the government to play.

Assets, Comparative Advantages, Competitive Advantages, Competitive Capability, and Idea Generation Assets are the conditions under which participants are going to form a new social arrangement. Since institutions evolve because of the interaction between incentive and constraint, this process is based on the assets, what each party brings to the new arrangement.

Depending on the institution, these assets may vary. For individuals, assets include social endowments, such as family background, parents' social status, and so on, as well as natural endowments, such as gender, health, and the like. For a firm or a country, assets are the condition for competition. Joseph R. D'Cruz in his lecture on international competitiveness distinguished between basic and advanced factors and generalized and specialized factors. Basic factors include natural resources and unskilled labor; advanced factors include human capital and infrastructure. Generalized factors include capital pool, infrastructure, public facilities, and public products while specialized factors are principally industry specific.[28] (See Figure 1.2, which illustrates the real structure.)

The rhombus theory provides a clue to the right role that government on one hand and the organization and individuals on the other can play. For the economic system as a whole, the government's role is related to reducing exogenous transaction costs, which occur mainly in the first stage of the dynamic process; the role of organizations and individuals is related to reducing endogenous transaction costs, which occur in the second stage of the dynamic process. (Both are reflected in Figure 1.2.)

Rhombus theory also helps us understand the two basic exchanges in the economic area. The first stage represents the primary economic exchange, which is the exchange between government and market participants. The second stage represents the secondary economic exchange, where market participants exchange their assets and comparative advantages. This is how we traditionally perceive the market. Transactions in the primary economic exchange are not public exchanges; they are made through an implicit market; the secondary economic exchange is accomplished through an explicit market.[29]

There are different schools of economic thought about competitiveness: Environmentalists believe structural features determine a country's or firm's competitiveness while reconstructionalists favor endogenously determined competitiveness. The IEEN framework is an endogenous model and therefore is consistent with the reconstructionalist view.

The steps toward the creation of an institution can be seen as the transaction cost chain, a dynamic process of serial institutional arrangements to reduce transaction costs. A number of transaction costs need to be addressed to compare the neoclassic Arrow-Debreu framework with the behavior of the person who engages in institution formation. For example, to realize an exchange or a transaction, we need to create a market if it does not exist. To do this, we need an organization or a firm that is in a position to build up the market. To motivate the organization or the firm, we need to set up an incentive structure. To set up an efficient incentive structure, we first need to learn how to set one up. It is important to note that transaction costs connect to each other to form a chain.

Idea Generation: The Essence of Competition Without incentives and innovative ideas, progress in the evolution of institutions would not be possible. Institutional equilibrium results from three types of games: lose-win games, zero-sum games, and win-win games. Only win-win games can help the social system progress. A person, a country, or an organization can achieve its goals through institutional arrangements, which, in many cases, are win-win games, and result in cooperation between the parties.

A successful win-win game relies on innovative ideas, which are different from normal thinking based on conventional wisdom. Four different ways of thinking can result in the creation of innovative ideas. The first is what is called ''exchanging shoes'' thinking. Using this mode of thinking, one party sees the issue from the perspective of the other (i.e., a competitor or an enemy).

The second way of thinking is ''shift dimension'' thinking (i.e., seeing an issue from a different perspective). The third way of thinking is ''blue

sky'' thinking. Blue-sky thinkers seek alternative ways to address a problem. The fourth way is ''shift order thinking.'' For example, Premier Wen Jiabao said that any small figure multiplied by 1.3 billion becomes a big number; any large figure divided by 1.3 billion becomes a very small number.

There is a Chinese saying that if you want to see a panoramic view, stand at a higher level. Mathematically, shifting thinking from the first order of magnitude to the second order of magnitude gives a broader perspective. Thus, shifting order enhances imagination.

It is useful to distinguish innovation from invention. Invention is predominantly a product-focused idea while innovation is primarily an institution-focused idea.

How do new ideas influence the government? ''Ideas and ideology shape the subjective mental constructs that individuals use to interpret the world around them, and make choices.''[30] Government's key role is its economic policy; the quality of that policy is determined by its new ideas.

Competitive Competence According to the IEEN theory, competitive competence is crucial to the economy, and requires innovative institutional arrangements and the deepening of the market, among other things. As the most sophisticated marketplace, the soundness of financial market represents the competitive edge of a country, and the capital market sits at the top of the financial market. Given the sophistication of capital market, it is impossible to build a sound debt capital market without well-developed institutional arrangements, such as institutional investors and financial intermediaries, and technological processes, which change the comparative advantages and make the formation of a new institutional arrangement possible.

IEEN can help us trace the trajectory of social and economic development and point the way to future development. Through exchange, each person, organization, institution, and country can realize its comparative advantage, and all related costs are internal transaction costs. These endogenous transaction costs can be reduced in four ways:

1. *Make comparative advantage readily exchangeable.* Commercialization is a way to turn products into tradable goods, or commodities. The first step is to set up a market, a place for concentrated exchange, such as a supermarket. This substantially reduces transaction costs. The second is to standardize in order to meet a specific need, which makes it easy for the seller and buyer to make decisions. Most of our daily necessities are made this way. The third is to diversify goods and services to meet the different needs of consumers. A supermarket is an example of this.

The fourth step is to agglomerate the marketplaces. Shopping malls and streets of small boutiques reflect this idea.

2. *Develop industries that help reduce transaction costs*. These include the entire tertiary sector, where every industry's purpose is to reduce transaction costs, as well as specialized industries, such as communications, transportation, logistics, commerce, service, and finance, that make the tertiary sector more efficient.
3. *Internalize, liberalize, and innovate*. The three traits—internalization, liberalization, and innovation—characterize contemporary government policy and legal systems. Internalization implies the efforts to incorporate outside ideas and practices and thereby better define the property rights.[31] Deregulation is a way to liberalize the economy and give it more incentive and vitality. Innovation is the government policy to encourage new ideas and creative ideas. These ideas are not limited to technological progress; they also include those things that lead to the evolution of institutions. China has come a long way toward realizing this important point and reaching its goal of becoming an innovative country.[32]
4. *Translate technological progress into an exchangeable commodity*. This can be done by combining functions, finding practical applications for these advances, accelerating the process, and encouraging innovation through incentives. For example, technical research is combined with the production process. Research and development is part of the business function, which, in turn, fosters the invention of practical ways to use the new technology. In the area of technological progress, government should encourage innovation through favorable tax treatment, subsidies, and other incentives. The final impact and cost on society is not always directly reflected in the supply and demand curves. Society receives other benefits from research and development that are not always properly reflected in the gross domestic product of an economy.

It is important to note that exogenous transaction costs and endogenous transaction costs are mutually transferable, and the ability to reduce internal transaction costs is a competitive advantage. As the economy develops, knowledge-intensive industries (the fourth-level industries)—education, management science, consulting, law, accounting, and others—that can help reduce endogenous transaction costs become the leading industries.

As endogenous transaction costs come down, comparative advantages become exchangeable and a win-win outcome can be achieved. As a result, the economy develops, and social wealth is increased.

Ideology versus Reality

The basic elements of institutions—government, individuals, organizations, leaders, and technology—are all strongly influenced by ideas (see Figure 1.3).

The controversy over ideology and reality (i.e., what actually happens in the "real" world), and which one determines the other, has been the subject of debate throughout human history. Marx argued that reality determines ideology. At the same time, he recognized the inherent conflict between ideology and the reality. Weber, however, focused on the role of ideology although he also emphasized that reality influenced ideology. This egg-chicken argument is still undecided, yet at its heart, we will doubtless discover the essence of the revolution of new ideas. The confusion stems from conventional thinking on the subject, as Figures 1.4 and 1.5 illustrate.

Both egg and chicken change as they interact. Heraclitus's famous remark that "you cannot step into the same river twice, for the water (or the river) is constantly new"[33] illuminates this view.

Similarly, the relationship between ideology and reality is conventionally conceived as a one-to-one relationship, as shown in Figure 1.6, when, in

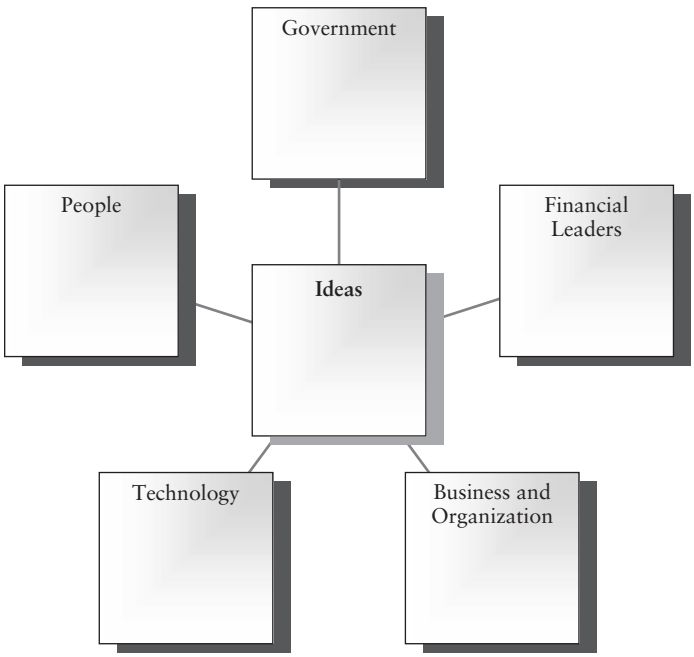

FIGURE 1.3 Basic Elements of Institutions Influenced by Ideas

FIGURE 1.4 Simple Model: Egg-Chicken Argument

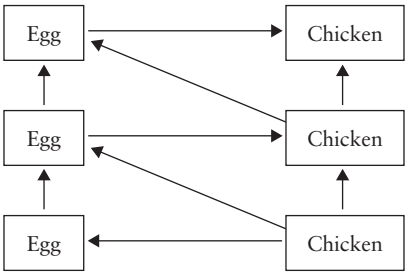

FIGURE 1.5 Standard Model: Egg-Chicken Argument

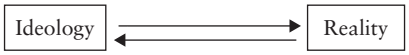

FIGURE 1.6 Simple Model: Ideology-Reality Argument

fact, the relationship between ideology and reality is nothing like that. Both ideology and reality have their own history, and it is in the dynamic movement between them that ideology and reality interact (see Figure 1.7).

If we assume that the relationship between egg and chicken, reality and ideology, is evolutionary, then reality will reflect changes in ideology. This implies that ideology itself is revolutionary. Changes in ideology go hand in hand with changes in reality. Similarly, the interaction between incentives and constraints drives institutional movements. This reality is naturally reflected in the evolution of new ideas.[34]

Economic and financial theory works in the same way. For example, John Maynard Keynes's theory (Keynesian economics)[35] that proposes the need for government intervention follows the constraint requirement ideology, and classical and neoclassical theory, which posit a free economy, follow the incentives requirement ideology. It is reasonable to suppose that reality, which features the movement of institutions driven by the interaction between incentives and constraints, is consistent with the history of the ideology, which is characterized by the interaction between the

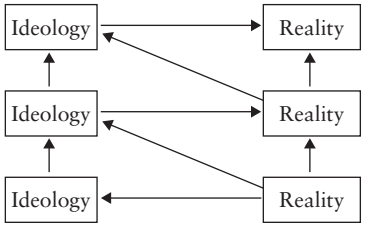

FIGURE 1.7 Standard Model: Ideology-Reality Argument

incentive requirement ideology and the constraint requirement ideology. Here the implication is that the endless debate over which comes first, egg or chicken, ideology or reality, is meaningless and can never be conclusive. What matters are the innovative ideas rooted in the evolution of new ideas.

Reducing Transaction Costs

The efforts to reduce transaction costs are made primarily through technological progress. However, transaction costs can be reduced in three ways in addition to advances in technology: exchange, abstain, and hedging.

Exchange The cost paid for access to information is a transaction cost. Due to information asymmetry, each party has advantages in its access to information access relating to the good or service it wishes to trade through exchange. Transaction costs caused by information asymmetry can be reduced through the exchange of information between the parties. As the owner of information has comparative advantages, the exchange of information would reduce the transaction cost and thereby benefit both parties.

Abstain Transaction cost can be also reduced by avoiding certain transactions. A good example is the vertical or horizontal integration of corporations, which can eliminate transactions with suppliers or competitors and thereby save the transaction costs.

Hedging Hedging also is a way to offset transaction costs. When one category of transaction cost is negatively correlated with another category of transaction cost, the two categories can offset one another. As one increases, the other decreases. Hedging, a sophisticated tool, is extensively used in the financial sector, such as in the futures markets. It creates stability in the proper functioning of the mature capital market. For example, if a

company wins a contract for equipment that requires rare metals which fluctuate in price, the company may adopt a hedging strategy with rare metals supplier to lock in the price today for materials that will be delivered in the future. This hedging provides not only stability but reduces transaction costs for both supplier and customer.

In attempting to reduce any transaction cost, the benefits and losses must always be compared. In certain circumstances, equilibrium can be reached through actions based on game theory that will benefit both parties.

In reality, the Nash equilibrium theory is based on the constraint incentives of both parties.[36]

Transaction costs can also be reduced as a result, or in the process, of abating other transaction costs, creating in effect a chain of transaction costs. The principal-agent relationship, which is created by exchange and realized through transaction, is designed to help the principal more efficiently abate transaction costs. In this case, incentive theory[37] creates equilibrium conditions for the principal-agent relationship, just as game theory does for the exchange parties.

It is important to note that game theory and incentive theory can work only in certain circumstances—only when the transaction cost is zero. Where there are diverse and multidimensional transactions costs, their dynamic nature makes it difficult to achieve competitive advantage and realize the transaction. Thus, innovative ideas reflected in the evolution of institutions are closely related to finding new ways to abate transaction costs.

PRIMARY EXCHANGE AND SECONDARY EXCHANGE

Many works have touched on issues associated with the primary exchange and the secondary exchange. Some have great insight into this fundamental public choice issue and shed light to the primary–secondary-exchange framework. Buchanan, for example, distinguished constitutional and post-constitutional choice, indicating their different institutional functions.

> *Public choice analysis, which has as one of its central elements, the critical distinction between constitutional and post constitutional choice, strongly implies that reform or improvement in political outcomes or results is to be sought through possible changes in the set of constraints within which political decisions are made. . . and not in changes in day to day policy that temporary politicians may somehow be persuaded to follow.*[38]

Coase recognized the complexity of the relationship between legal system and economic system, saying: ''The interrelationships between the

economic system and the legal system are extremely complex, and many of the effects of changes in the law on the working of the economic system (the very stuff of economic policy) are still hidden from us."[39] Specifically, Buchanan and his associates have paid much attention to the economic constitutions, for example, fiscal constitutions, which is close to one of the element of the primary financial exchange.

However, public choice theory failed to position its arguments in a consistent framework. This is because the theory is not grounded in the nature of the person-to-person relationship, which, to our way of thinking, is the exchange through which people are able to come up with a win-win outcome driven by incentive apparatuses. In addition, public choice also failed to make all factors in political exchange to be explained (endogenously) within its theoretical framework. Institutional movement comprises two stages: reduce exogenous transaction costs and reduce endogenous transaction costs.

Ideally, the IEEN will address the problems that underlie public choice theory: lack of consistency and endogeneity via its framework focuses on human exchanges.

Foundation of Primary and Secondary Exchange

Market is the place where market participants exchange their advantages and endowments. These advantages are transformed or embodied as products in commodity market, or as power in political market. Here the exchanges are made between or among market participants.

Economists perceive imperfect market from different perspective. Neoclassical economists list a number of reasons for the imperfection of market. For example, to a neoinstitutionalist, exchange is a game play (Aoki) or rule of game (North). From IEEN perspective, the market is complete when rule play is based on rule of game. When there is only game play, we say the market is confined to secondary exchange; when there are both game play and rule of game, the primary exchange, we say the institution is complete. Therefore it is reasonable to suppose that the imperfect market is due to incompletion of institution, or lack of primary exchange.

However, most institutions and institutional arrangements are incomplete. When there is no primary exchange, contracts tend to favor the party who has a comparative advantage or endowments. Without rules of the game, game play can also reach equilibrium. In such circumstance, the equilibrium is reached through *private ordering*.[40] This is different from when there is a rule of game engendered by primary exchange. According to Dixit:

Observable information can be the basis for contracts that are enforced by extralegal or private methods, because the two parties can know fully well whether a breach has occurred. Such extralegal methods of enforcement come in two broad types. One is enforcement by insiders, third parties with specialized knowledge that enables them to verify information that consider general courts of law cannot; arbitrators in industry associations are the most prominent enforcers of this kind. The second is based on a relationship or ongoing interaction between the parties; a breakup of this relationship constitutes the punishment that may deter one of the parties from breaching. This covers many possibilities. The same two parties may meet repeatedly; the two may not have a direct repeated interaction with each other, but each may interact with others in a group or network that transmits information about any breach to all members and collectively sanctions the miscreant, using ostracism in business interactions or social relationship or both.[41]

The social and economic activities are driven both endogenously and exogenously within an institutional framework. The rhombus theory is a way to understand the two basic exchanges in the economic area. The first stage represents the primary economic exchange (PEE), which is the exchange between government and market participants. The second stage represents the secondary economic exchange (SEE), where markets participants exchange their assets and comparative advantages. This is what we consider the market in the usual sense. Transactions in the PEE are not public exchanges; they are made through the implicit market. The SEE is accomplished through the explicit market.[42]

In the same way, in the political system, there is political exchange (PE), which can be divided into primary political exchange (PPE), the exchange between public and political parties, and secondary political exchange (SPE), the exchange among political parties. Analogously, between political exchange and economic exchange there is administrative exchange (AE), which contains the primary administrative exchange and secondary administrative exchange. The political system and government are important to the primary exchange; however, it is important not to lose sight of intermediate linkages, such administrative exchange, economic exchange, financial exchange, when attempting to explain the capital market, especially the bond market.

In principle, the PPE determines the PEE. However, the people's political will is passed on through a chain of primary and secondary exchanges. Compared with economic exchange, political exchange is more complicated

than economic exchange. "The problem of the distribution of power is a more difficult one than the problem of the distribution of wealth."[43]

The lower layer of the primary exchange is the derivative of secondary exchange at a higher layer. The lower layer of exchange will improve the function of the primary exchange at a higher layer. For example, the primary financial exchange is the derivative of the secondary economic exchange; however, the primary financial and secondary financial exchange will help to improve the function of primary economic exchange.

Primary and secondary exchange at a higher layer influence primary and secondary exchange at a lower layer. However, the more orderly and efficient social structure is that the primary exchange only governs the secondary exchange, and it is the secondary exchange that governs lower layer primary exchange. Secondary exchange cannot proceed efficiently and sustain without the primary exchange.

There are two important distinctions with respect to the primary–secondary-exchange framework: primary exchange versus primary exchange and primary exchange versus secondary exchange. It is meaningless to argue which of the primary exchanges came first. For example, is it economic exchange or political exchange? As we mentioned earlier, this is an egg-chicken problem. One thing is certain: They are interacting. But the way one acts to the other may be different. For example, the PEE may act on political exchange via the SEE. The changed economic status will require changed of political status, and give rise to a political exchange. However, the political exchange does not exert direct influence on the PEE, but rather works through the primary and secondary administrative exchange.

Long ago, economists and sociologists noticed that public choice deviated from individual choice and tried to find the answer.[44] "Can it [public choice] introduce into the public discussion upsetting or surprising perspectives on political phenomena of the kind that economics has done so successfully for economic phenomena?"[45]

Surely public choice has not yet done as well as economics in this respect. From the point of view of IEEN, this may be due to a number of reasons: first, economic exchanges are getting more and more quantifiable as a result of commoditization, specialization, and standardization processes of the SEE. Second, the PPE, SPE/PAE, SAE transactions are not fully realized due to monopolistic nature of one party (Williamson referred as "assets specificity"[46]). For example, PPE confined to a certain group of people due to indirect voting. Third, there are transaction costs for the exchanges. For example, group-to-group exchange and group member–to–group exchange all have transaction costs, such as information costs, learning and education costs, and others.

PPE is achieved through the political marketplace. Public choice economists have been studying this marketplace for many years.

It is important to note that the economic policy is not determined by the government but by SAE, as was indicated by Rupert Pennant-Rea: "The charge of being unrealistic comes so easily and so often to the lips of policymakers that the rest of us ought to be instantly suspicious. In many areas of public policy, proposal for innovation and reform are judged by the standards of perfection. If they fall short, then they are marginalized."[47]

PPE is a place of exchange where basic law, such as constitutions and political system is determined. SPE is a place where parties struggle in the parliament. PPE/SPE is also referred as political market. PAE is where the administrative system or government structure is determined. The SAE is the interdepartmental exchange. However, in the real world, this sequence of exchanges is not necessarily applied. In some countries, PAE is the same as PPE and PPE directly governs of SAE, the parliament, government, and judiciary system. Then the PPE directly influences the SPE and the SAE. In many cases the government has more power than parliament; this is because government is in a better position to influence the PPE. As Rowley noted, "Although Parliament technically is supreme in a system in which there is no formal separation of power, much of the power is actually wielded by external agencies located in the executive branch are loosely labeled the government."[48]

To summarize, in a modern political system there are in principle two levels of rule of game: PPE and PEE vis-à-vis one level of game play, SEE. The PPE governs SPE and PAE. SPE formulates constitutions and political system. Legislature and judiciary system is relatively stable vis-à-vis administration which is more changeable; this legitimized the PAE to govern the administration, the government. The SAE is governed by PAE and has external function and internal function, which in turn govern the SEE (see Figure 1.8).

For the SEE to work, there have to be both a PAE and a SAE. The PAE represents the exchange between political groups, which governs the arrangement of cabinet. The SAE stands for the exchange between government agencies, or cabinet members. The SAE has been mostly neglected by neoclassical and public choice economists. "Different agencies have their own agenda; the transactions costs of negotiating between the different agencies are high and many externalities are no longer internalised."[49] As "bureaucrats do not benefit personally from cost reductions, there are only weak incentives to reduce costs."[50] The agent problems came as a result of the fact that the government makes decisions based on the consensus opinion of different government agencies, therefore principal-agent paradigm does not follow. For example, often the agency division chiefs make decisions.

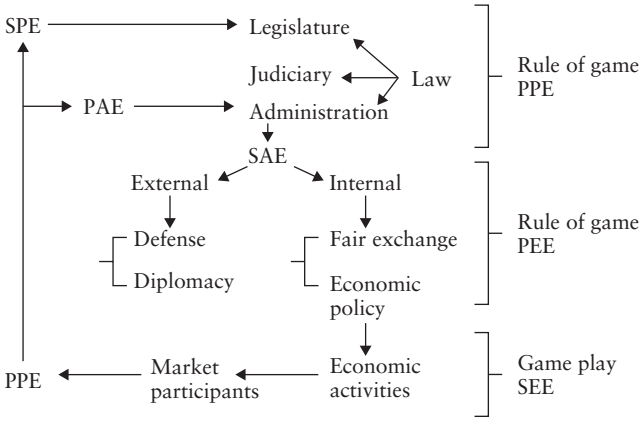

FIGURE 1.8 The Work Flow of Primary and Secondary Exchange

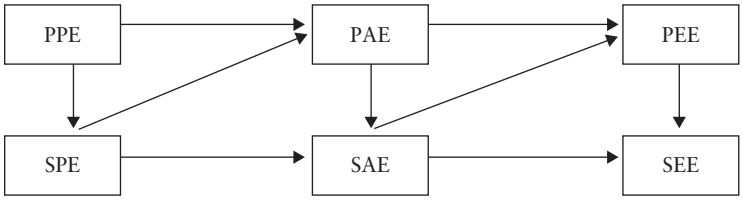

FIGURE 1.9 Relationship of Different Exchanges with Respect to Institution Formulations

This upside-down principal-agent (P-A) issue necessitates the research of PAE and SAE framework.

In summary, institutions can be built both exogenously via primary exchange and endogenously via secondary exchange. Social progress can be made and social activities are more efficient if every layer of exchange is functional and the transfer of social function from primary exchange to secondary exchange is efficient and orderly. This process can be better illustrated by Figure 1.9. If a society is based on a sound institutional framework, the function of governs shall pass on via the order of PPE-SPE-PAE-SAE-PEE-SEE whereas public delegation shall pass on the other way round, that is, SEE-PEE-SAE-PAE-SPE-PPE.

The primary and secondary exchange can be also visualized from group actions perspective. A group action underlies two different exchanges: group-to-group exchange and the exchange among group members. The former is a primary exchange while the latter is the secondary exchange.

Function of the Primary Exchange

As was indicated earlier in this chapter, the exchanges that underlie human relationships are the drivers of institutional movement. The institution is, in the language of neoinstitutionalists, a game. While North defines institution as the rule of game, Aoki defines institution as game play (or equilibrium of game play to be more precise) from the IEEN's point of view. These two definitions are not mutually exclusive, but complementary. IEEN defines the rule of game as PE, and the game play as SE. Both are functional component of institution with PE as a reducer of exogenous transaction costs and SE as a reducer of endogenous transaction costs.

This new view will help to explain the arguments on this important subject. The yardstick to judge the PE is whether it brings about an effective rule of game and equality. Rupert compared the United Kingdom and the United States and concluded that the rule-based institution is superior to discretion-based institutions. "An emphasis on transparency in policy matters, and on rules rather than discretion, would certainly curb the power of sectional interests in the political marketplace, and require them to seek economic advantage in the commercial market instead."[51]

However, in SPE (i.e., the political market are not characterized by market clearing equilibrium), as was indicated by Charles K. Rowley, "although the political markets are viewed as competitive, the prices at which individuals agree to transact are not modeled as universally market-clearing, nor are they assumed necessarily to reflect full information even though all individuals are assumed to engage in optimal search in political markets."[52] As SPE is by governed by PPE, therefore, the better organized PPE is in place, the more efficient SPE is going to be.

Equality Function in Primary Exchange Is Conducive to Economic Performance

Insofar as equality is concerned, people's social relationships are established and maintained via the exchange of their comparative advantages. Equality is required first to ensure a win-win outcome as opposed to a win-lose or lose-lose outcome.

In most cases the exchange ends up with a win-win outcome; however, how much the disadvantageous party can win also matters. If the win is too much in favor of one side, the incentive from the other side is very limited and the likelihood of the exchange becomes slim. Therefore, equality is positive to economic efficiency if it gives the disadvantageous party more incentive to participate in the exchange. In this sense, equality is not a moral requirement but an economic requirement, as it can mitigate the disparity between those who enjoy so few comparative advantages that they do not

have an incentive to compete and those who have far more comparative advantages. Therefore, equality can help to establish sound institutions or, in the language of IEEN, achieve a win-win outcome. This can help to explain why evidences indicate that less income disparity would lead to better economic performance.

A graphical representation of this idea is shown in Figure 1.10. The points on iso-curve 1and 2 is the possible combination of advantages of party A and B. The initial point *a* in iso-curve 1, reflects the initial distribution of advantages between party A and B represented by vertical axis and horizontal axis. The PEE can equalize the advantage between A and B, this can be achieved by the movement from initial point *a* along the curve to point *c*, which is the intersection between radial 1 and iso-cure 1. The radial that partitions the panel at 45 degrees represents the equal distribution of advantage. The equalization of advantages will give disadvantageous party B more incentive; as a result of this, an exchange is more likely to realize and a win-win outcome can be achieved represented by point *b* in iso-curve 2.

There are two options to realizing social progress in an institutional movement. To make a win-win outcome:, move from the initial point *a* to point *d* in the higher indifference curve, or move from initial point *a* to point *c*, along the same curve. The win-win outcome is not always achievable, although it is preferable. The win-lose outcome is conducive to the exchange insofar as it can boost the incentive to one party without much disincentive to the other. Under such circumstances, although the optimal point is located between initial point *a* and the intersection point *c* in a

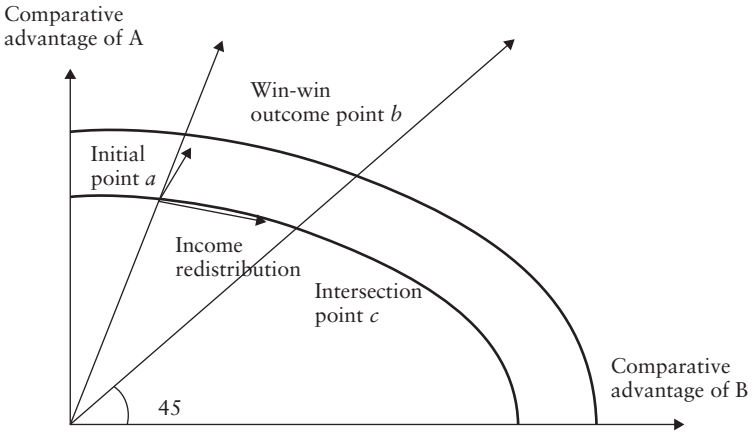

FIGURE 1.10 Graphical Representation of Income Redistribution and Win-Win Outcome

win-lose framework (i.e., along the lower indifference curve), whether the optimal point can be reached or not depends on the primary exchange. Because the exchange always has transaction costs, the optimal point is rarely achieved in practice.

Therefore, neither egalitarianism nor absolute liberalism is preferable from the perspective of IEEN, which judges economic policy based on how conducive it is to the incentive system.

A society is stable if it is configured with ranked classes, such as nobility, middle class and third estate—where the middle class dominates as its incentive is to become nobility, while the third estate has incentive to become middle class. This new framework helps explain why the hierarchy defined above is conducive to economic performance and social stability.

Evolutionary versus Revolutionary

Evolution takes place in both institutional movement and technological progress. However, insofar as institutional movement is concerned, revolution takes place only in primary exchanges as opposed to the secondary exchange. When exchanges come up with a win-lose outcome, revolution take place, whereas when a win-win outcome is reached, evolution would take place with respect to the primary exchange. In other words, primary exchange can have either a win-win aftermath and result in evolution or a win-lose aftermath and result in revolution.

The revolutionary change in the primary exchange will fundamentally change the rules and equality requirements whereby secondary exchange can be carried out. It is reasonable to suppose that a revolutionary institutional change that marked social progress would improve the secondary exchange. If the consequences of revolution in the primary exchange turn out to be the opposite, it is still a win-win exchange due to, for example, externality, then the revolution cannot lead to social progress. Therefore, revolution does not (as it is usually believed) bring about more advanced society insofar as the role of revolution to the social progress is concerned.

Issues Peculiar to the Primary Exchanges in China

The PAE in China is more independent from the PPE. The party system goes across administrative system, there is some overlapping governance. For example, in each state-owned enterprise (SOE) and local provinces, party and administrative body have overlapping jurisdiction. As the SAE has been more discretion based than rule based for a long time, it is more biased toward the National Development Reform Commission. This has a number

of implications for debt capital market development. In the PEE, it is easy to understand that a more discretion-based than rule-based PEE would in favor of government agencies as they would thus possess more power so that it is possible for them to seek rent to compensate the underpaid wages. As low wages and salary could attract only less sophisticated people, the management would become increasingly less effective and hence less efficient. Therefore, in the early time of reform, less efficient PEE slowed down the financial market reform process.

What the PEE ends up with is also attributable to which of the pressure group is stronger. This helps explain why only issuers, listed companies, or banks and not investors and depositors have been concerned. Obviously, this is due to the influence the former has as a *pressure group*.[53] Agencies also tend to protect SOEs rather than investors, which is why the stock market collapsed.

The outcome of PAE is a strong central bank and a weak Ministry of Finance in power in early 1990s. The two agencies made many compromises in bond market reform; for example, the interbank bond market (IBBM) became the main bond marketplace due to the influence of market participants. The outcome of PAE was the rising of a strong National Development and Reform Commission (NDRC), which is in a position to work out corporate bond policies.

There are a number of issues and problems insofar as primary exchange is concerned. For example, regarding rule versus discretion, agencies are always in favor of discretion; regulations tend to be biased toward constraint, not incentives. In addition, policy orientation is always biased to SOEs because SOEs have more bargaining power. That the bond market can be developed at the initiative is due to the fact that the Ministry of Finance can establish a market on its own. Later, the market-based reform suspension is because within the primary financial exchange framework, the central bank (the People's Bank of China) has become more powerful than the Ministry.

Relationships between Exchanges

Insofar as economic exchange is concerned, financial exchange is a derivative of economic exchange, and bond exchange is a derivative of financial exchange. It is clear, both from history and from logic, that economic exchange came first followed by financial exchange; similarly, financial exchange came first followed by bond exchange. How did the derivative exchange come about? The derivative exchange may come from the secondary exchange at higher levels. When a new, but less cost-effective

commodity emerges in the market, a new primary exchange comes into being to help economize the exogenous transaction costs. Likewise, the derivative exchange may come from the primary exchange at higher levels, when institution building is more costly in terms of reducing transaction costs.

The financial exchange derived from the primary economic exchange when the money circulation was seen as an important area to create value added and there was a strong requirement to promote related exchange through reducing transaction cost. In the same way, the bond exchange came from the secondary financial exchange.

The features of primary bond market and secondary bond market can be also seen in the relationship between the primary and the secondary exchange.

PRIMARY ECONOMIC EXCHANGE AND ANATOMY OF ECONOMIES IN TRANSITION

According to conventional wisdom, the perfect market economy implies that everything is exchanged through the market. However, economists have finally discovered that this is not true. Neoclassical economists assume it's an imperfect market. The market here is confined to what we referred to as secondary economic exchange (SEE). As mentioned earlier in the chapter, the distinction between PEE and SEE is derived primarily from the rhombus theory.

Consistent with the distinction between the stage of reduction of exogenous and endogenous transaction costs in the formulation of a new institutions, the PEE concentrates on issues related to the government in its capacity to reduce exogenous transaction costs in the economy, while the SEE concentrates on the issues related to the market participants in their capacity to reduce endogenous transaction costs in the economy in question. However, the PEE is not necessarily realized through the market.

Primary Economic Exchange

The mission of PEE is to establish a condition for the SEE, which is the market exchange for allocation of resources. The objectives of PEE are to ensure the equality (i.e., fair exchange) to realized institutional arrangement for incentive structure (for example, the defining of property right, a proper legal framework, or the enforcement system). In addition, the PEE is also designed to improve macroefficiency, such as infrastructure, specialization, and cluster efficiency.

The process of PEE in a market economy can be considered from two different perspectives:

1. PEE functions to reduce exogenous transaction costs vis-à-vis the function of SEE, which is to reduce endogenous transaction costs.
2. PEE is driven by the interaction between government or government agencies, and market participants. However, PEE works only when the performance of government employees is evaluated based on the P-A principle. In other words, if government employees improve their service, the benefit is reflected in their wages and salaries, which are set based on game theoretical logic.

As was indicated, the administrative system should be the agent of the congress. Their principal-agent relationship should be built on the incentive theoretical framework; that is, should comply with the two basic requirements: participation constraint, and compatibility constraint.[54] The relationship between congress and administration should help to prevent moral hazard and adverse selection.[55]

The relationship between government and its administrative or bureaucratic system is essentially a principal and agent relationship. With the development of principal-gent (P-A) theory,[56] the essence of this relationship has been revealed. According to P-A theory, the principal has to pay the information costs in exchange for the agent's trustworthy efforts—no cheating, moral hazards, or adverse selection. Although the theory actually discusses the conditions for the equilibrium, in our view, what it revealed is essentially applicable to the exchange between government and its administrative or bureaucratic system.

However, in China, these two conditions have not been fully met yet. The exchange between principal and agent may be made with some implied income from the business sector, "power in exchange for money" can be seen from time to time. This is referred to as rents seeking, illegally abusing power for personal interest. The status quo is obviously counterproductive to the development of a transparent PEE.

The SAE also affects the PEE. For example, most laws and regulations related to economic issues are legislated by government agencies. Agencies shall get consensus view via exchange (here the exchange may be dialogue, or power struggle) before an economic law or regulation is made. However, there is no direct influence from market participants to SAE. Market participants wield influence via a chains of exchange, PPE-SPE-PAE-SAE, to the PEE.

In the primary exchange, government has to pay the transaction cost in exchange for an intended incentive system, such as contract responsibility system policies to farmers, bonus and welfare system to workers, retain profit to SOEs, and sharing tax systems between central government and local government in 1980s. These preferential and decentralization policies

were made at the expense of the state budget (transaction cost). It reduced central government revenue in the short run, but would pay off in the long run to the state budget. Normally government has to raise employee wages and salaries in exchange for their power to seek for rents.

Here the government is a decisive element. Marx and Engels have pointed out the government may lead in a right or a wrong direction. North also differentiates the good and bad actions of government. The behavior of government depends on the ways in which institutions are formulated: an exchange ended up with a win-win outcome and an exchange with win-lose outcome. The yardstick to measure the PEE is, in principle, whether the exchanges result in win-win outcome in the SEE. However, it is in no way means that a win-lose outcome is never necessary. Under circumstances of income disparity, a win-lose ending in favor of the poor would, as an income redistribution, help to establish equality and thereby improve incentives of the SEE.

The function of the PEE is to build up the institutional framework for the markets. As in the PEE, the institutions are exogenously arranged other than endogenously formulated. It is important to ensure that all participants in the SEE only have defined property rights, and within an institutional framework. The PEE, which is equivalent to the exogenously arranged institutions, should guarantee the fair exchange of endowments and comparative advantages of persons and organizations. As indicated, the PEE in the economy is the exchange between government and market participants. For the property right, the government has to ensure the externality is internalized, and therefore it has to pay the transaction costs, i.e., the costs related to define the property right.

The importance of PEE has been proved by historical experience. The goverance of the economy is driven by PEE, on one hand, and SEE on the other. It is recognized that the transition to the market economy in the West has been going through for almost two centuries, and the process was full of political, social, and economic exchange.

Primary Political Exchange

IEEN overlaps in many areas with political science and public choice-theory.

Unlike public choice, IEEN contains the neoclassical theoretical framework rather than based on it. IEEN covers the political science, but to IEEN, political arena as human exchange is functioning to reduce transaction cost of property right, rule of exchange, and enforcement type. The primary exchange is derived from SEE; the administrative exchange (AE) is derived

from PEE. However, as AE is group to group exchange, and its function shall be carried out through collective action rather than personal action, the SAE shall help to pursue its function in a democratic way. The PAE, derived from SAE, was to set the rule and engage in the enforcement of the rule. Similarly, AE necessitates the need for a political exchange (PE), the exchange between political institutions.

For public choice, there is no distinction between PPE and PAE. There is no explanation of what the social function of PPE is. Public choice does not reveal the essence of social relationships, which is the exchange between people.

Much of the PPE has been explained by public choice theory. "It does not represent some huge mistake on the part of experts or politicians but can be explained as the result of rational self-interested behavior on the part of citizens in their various capacities as legislators, voter, bureaucrats, and so forth."[57]

The nature of the transaction cost may transfer from exogenous to endogenous and vice versa. For example, when attention is focused on group-to-group exchange, transaction costs incurred in the exchange within a group is exogenous while those incurred in the exchange among different groups are endogenous, as the objective is to achieve win-win outcome between groups. Alternatively, if the objective is to secure a win-win outcome within the group, the transaction costs between groups is exogenous while the transaction costs to achieve exchanges within the group would be endogenous.

Administrative exchange exists for three reasons:

1. Group action needs to be balanced.
2. Group consensus-based decision making is essentially rule based.
3. The need to have administrative exchange depends on whether exogenous transaction costs are in excess of the administrative costs. However, the efficiency of SAE would help to economize the endogenous transaction cost for the work out of agency regulations and government policies.

To reinforce administration, government tends to add more agencies and departments. As a result, decisions would be made based on a consensus among different agencies. The hierarchy tends to stifle the reform program. As reform per se is a public good, like other public goods, it has externality; therefore, government stuffs have no incentive initiate reform programs. Therefore, often policy initiatives come from grassroots units rather than from government agencies.

Macroeconomic Policy

As indicated, the PEE functions to establish rules for the SEE and to guarantee fair exchange. The macroeconomic policy as a product of PEE is derived from equality principle specified in PEE. When government derived its function for printing money, it has to ensure the money printed provided equal to the money demanded. The consequence of the oversupply of money is inflation, and inflation would give rise to income redistributions. Therefore, it comes as no surprise that monetary function is for equality.

The fiscal policy is also focused on equality. Tax cuts and rebates are good examples. The progressive tax rate is designed specifically for income redistribution. The government only provides public goods when it increases expenditures, which is used as a substitute for market failure. It is therefore reasonable to assume that all macroeconomic policies are functional for equality. The government often pursues fiscal policy to stimulate economic development. However, for fiscal policy to work, the exchange rate has to be fixed; this means currencies are not tradable. For a market economy, this is not the case.

Transition

In the transitional economy, the institutional movements have two different stages: the exogenous development stage (similar to the PEE) and the endogenous development stage (similar to the SEE). At the first stage, before the market has been established, the institutional arrangement is carried out through the administrative or bureaucratic system. This function is carried out via PAE and SAE. The purposes of this stage are to transform government allocation of resources to market allocation of resources and establish a sound legal framework and enforcement system.

At the same time, competitiveness and fairness in the market, or SEE, have to be ensured so that the endowment and comparative advantage of market participants can be adjusted so that each market participant has an incentive to participate in the market activities through tax policy. As a rule setter, the government should never be a game player; therefore, it is necessary to restrict the ability of government employees to engage in business. To this end, government has to build up a sound institutional infrastructure, such as defining property rights, setting laws and regulations, establishing an enforcement system, and creating market participants.

Economists tend to take government economic policies as exogenous variables; however, in our view, they are endogenously determined via PEE (i.e., through the exchange of comparative advantage between government and the business sector). There are many exchanges between these parties,

such as the exchange between government and its bureaucratic administrative system and between the administrative system and business sector. It is important to note that PEE may be accomplished through the market or through other modes of exchange, such as dialogue.

Here the transition of economy means the directory of compulsory plan transfer to the fiscal and monetary policies, the constraint-oriented institution-building transfer to incentive-based institution building and macroefficiency transfers to microefficiency.

Many economies in transition have a sound SEE (market system), whether it was created by a colonial regime or evolved on its own, but do not have a sound PEE. As a result, income disparity becomes a problem due to the lack of an equality policy in the PEE.

In comparison with former socialist countries, which are good at equality in PEE but not good at SEE, many economies in Africa have good market system but an unequal distribution of income. Therefore, each country must follow a different path to achieve its economic development objectives.

Socialist countries need to improve their incentive-based institutional arrangements and macroallocation of resources in their PEE framework. Other emerging economies need to improve the equality in their income distribution.

The success of China's economic reform lies in the artful arrangement of the sequence of reform programs. For example, China maintains macroefficiency to make the majority of people feel comfortable and happy. It may also boost financial revenue, so that the government can assist the poor regions through transfer payments. At the first stage of economic reform, the compulsory plan is not abundant but reinforced. At the same time institution development is underway. Gradually, the incentive system is established.

In many transitioning economies, the PEE results in an interest redistribution, or win-lose outcome, although SEE are almost in place. Obviously, this triggers social instability and prevents SEE development and eventually hinders economic growth. PEE is driven by political exchange. In a top-down political system, the winners and losers are often chosen by bureaucratic and politicians exogenously rather than via markets endogenously.

When the former Soviet Union collapsed and Russia embarked on an economic transition, the PEE for this process did not formulate. Instead, it made this transition through an erroneously implemented policy economist Jefffrey Sachs called "shock therapy." In hindsight, it became clear that without PEE, the Russian economy would face recession for many years.

To realize a smooth transition to PEE, government must consider social stability and economic viability. Social stability has to be ensured through

equal competition. Equality is an important factor underpinning the smooth transition to the market economy. There are two categories of equalities: equality prior to the SEE and equality in the aftermath of the SEE exchange. The ex ante equality should ensure that only given, as opposed to derived, endowments and comparative advantages are legally guaranteed. To achieve this, government has to restrict the abuse of power by the administrative system, such as corruption and seeking rent, and restrict the opportunities to take advantage, such as smuggling. The ex post equality should be achieved by the government's tax policy. Progressive tax rates would help to ensure the equality and reduce the income disparity. These two aspects have to go hand in hand to make the transition smooth.

Therefore, the government has to balance economic efficiency with equality and balance the way financial resources are allocated through administrative means vis-à-vis through the market.

The gradualism (as opposed to radicalism) that China has followed so far in its market-oriented reform program is essentially a win-win arrangement in the PEE. The government's unique economic power, stable policy, win-win arrangement, macroeconomic allocation efficiency, and juste-milieu (middle-of-the-road) culture remain the key factors that contribute to successful economic reform in China.

The achievements are evident as far as market developments are concerned. In 2004, 96 percent of commodities were subject to market demand and supply. The factor market has developed as well; the labor market is basically in place. Finally, a number of developments have been made in the capital market; it is driven by increasing the number of market and international participants (as opposed to government participants) with concomitant reform being implemented at the same time.

However, in this stage, market efficiency has yet to be accomplished; therefore, economic growth has to be maintained through so called macroallocation efficiency: infrastructure, cluster, and specialization efficiency. It is through macroallocation efficiency that China balances the social stability vis-à-vis market development.

For the market infrastructure, after many years' efforts, China has established a legal framework that is compatible with the development of the advanced market economy. Most recently, the draft bankruptcy law has been adopted. Since reform and opening up, building up the legal system has been the main focus. In the early stage of reform, more rules were drafted and enacted; later on, enforcement has been emphasized. A civil servants act was promulgated to regulate the conduct of government employees.

The formal rules, as the mainstay of the legal system and as part of constraint structure, have to be modified from time to time to cater to the

changing incentive systems. This is not only due to the fact that formal rules tend to be more restrictive at the beginning, but also due to the changing nature of incentive structure. As the market system gradually takes shape, the call for deregulation is increasing.

In addition, to formulate the market system, diversified ownership has to be established to make transactions possible and active. This is a problem that any planned economy has to face. Direct privatization has been proven unsuccessful as it gives rise to income redistribution and triggers social disability. China followed a gradual process for the diversification of ownership. The first stage is to provide sufficient room for the private ownership to survive; then implement privatization of SOEs; and finally, encourage the private sector to thrive. This step-by-step process will help to secure a smooth transition without many social repercussions.

The PEE has four basic aspects: instructions for economic actions, institution developments, allocation of resources, and transaction through the market.

The economies differ in the PEE. Market economies differ from transition economies in four ways. (See Table 1.1.)

The four components of primary exchange are reenforceable and complementary, rather than substitutes for one another. There were tendencies when institutions have not been put in places, in the absence of PEE, curtail administrative control would trigger market chaos. However, it is tempting but wrong to say that administrative control should be resumed. On the contrary, institutional movement should be accelerated. On many occasions in China, administrative control over economic activities resumed in the aftermath of economic overheating. These actions should be avoided as administrative control only serves to hinder the proper development of a mature market.

TABLE 1.1 Differences in Primary Exchange between the Economy in Transition and the Market Economy

Economy	Instruction	Institution	Allocation	Transaction
Economy in transition	Directory or compulsory planning	Constraint oriented	Macro-efficiency	Government procurement, government spending
Market economy	Fiscal and monetary policy; Tax and interest policies	Incentive oriented	Micro-efficiency	Government procurement, government spending

From a historical perspective, the PE moves toward a more institution-centered framework. In the market economy—for example, in the United States—administrative functions have gradually been replaced by the rule-based institutional framework.

Although both PEE and SEE are path dependent, the PEE determines the SEE insofar as its capability to reduce the exogenous transaction costs are concerned.

Primary Financial Exchange

Analogous to the PEE, the task of the primary financial exchange (PFE) is related to the establishment of financial market, the secondary financial exchange (SFE). (See Table 1.2.)

In the planned economy, there were more administrative means, as opposed to economic means, insofar as central government's instruction is concerned. Credit plans were extensively used rather than the financial market with respect to the allocation of resources. Financial markets were regulated rigorously at early stage of financial market reform. Analogous to the primary economic exchange/secondary economic exchange, primary financial exchange should go hand in hand with secondary financial exchange.

This view is not followed properly in China in the early stage of financial market reform. Evidence from financial markets indicates that administrative action was frequently resumed in later 1990s. It is noted the more administrative measures that were retained, the great amount of power bureaucrats possess. As a result reform process slowed down.

For financial market reform to proceed smoothly, incentives from both market participants and government agencies have to be ensured. North makes this argument when he states that rules of the game are changed only

TABLE 1.2 Differences in Primary Exchange between the Planned Economy and the Market Economy

Economy	Instruction	Institution	Allocation	Transaction
Planned economy	Directory or re-loan facility, or credit ceilings	Constraint oriented	Credit plan across region or across industries	
Market economy	Monetary policy Government credit enhancement	Incentive oriented	Financial market	OMO

when the benefits to the player are evident and any positive effect of the new rule change to society is of secondary importance.[58]

The PFE is determined by the PEE. As a financial system is essentially an institutional arrangement, and the weak point of the PEE is the institutional development, the financial market reform at early stage is relatively slow. However, as we will see in the bond market reform, it provides a successful example of reform through institutional building to boost the lending to the real sector.

Primary Bond Market

Analogous to PEE and PFE, primary bond exchange (PBE) as a governance of secondary bond exchange aims to provide conditions for a successful secondary bond market. The PBE is realized through both market and non-market approaches. The market approach is through so-called primary bond market, which is the direct exchange between the government and market participants. The non-market approach is related to the dictates and instructions from government agencies on bond market, institution building, and allocation of resources by government agencies. (See Table 1.3.)

Interactions between Exchanges

The PEE and the PFE influence the PBE. In turn, the PBE determines the secondary bond exchange (SBE, the bond market). Figure 1.11 illustrates the relationship between PEE, PFE, and PBE on one hand, and the relationship between SEE, SFE, and SBE, on the other; and also the relationship between the PE and the SE.

In summary, the primary exchange is not confined only to the market. As Figure 1.11 shows, it comprises four different aspects; we call it the instruction-institution-allocation-transaction quadrinomial paradigm. It covers all the function and attributes of primary exchanges and includes the

TABLE 1.3 Differences in the Primary Bond Exchange between China prior to Reform and in the Market Economy

Era	Instruction	Institution	Allocation	Transaction
China prior to the reform	Patriotic propaganda	Constraint oriented	Administrative allocation	Over-the-counter sale to individuals
Market economy	Issuance schedule	Incentive oriented	Primary dealer system	Primary bond market

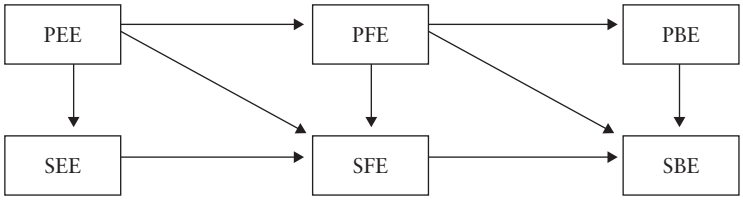

FIGURE 1.11 Relationships of Primary and Secondary Exchange

PEE, PFE, and PBE. It is important to observe the anatomy of the exchanges so that the question of why reform was successful in some economies and not in others can be understood. The microscopic view of exchange helps to reveal the reasonable sequence of reform in a given condition of the economy in question prior or to the reform. It postulates that there is a division of function between PE and SE. PE should be confined to defining property rights, rules of game setting, and incentive promotion. Some functions are transitory and fade gradually. For example, government-directed participation in the market gave way to market-based and rule-based primary exchange.

The PE helps to build up institutions exogenously, whereas the SE builds up institutions endogenously. However, the SE cannot substitute for the PE as the latter can help to define property rights and set up the rules of game for the SE. It seem to be fair to suppose that the PE only engages in defining property rights and setting the rules of the game while leaving all other things to the SE. However, if the PE can help to set up incentive apparatuses or promote the interaction of the incentive and constraint structure, institution development would be accelerated.

Note that in the PEE, a win-win institutional arrangement is evolutionary and path dependent, and a win-lose institutional arrangement is revolutionary. Obviously, revolutionary change may take place when cumulative evolutionary change is strong enough to make a fundamental change. However, evolutionary change would have fewer social repercussions than revolutionary changes. Therefore, it is preferable to have evolution rather than revolution as far as institution development is concerned.

Another tendency is for resources allocation and transaction in primary exchange to become more rule or institution based. For example, open market operation (OMO) by the central bank become more rule based and transparent in the United States[59] (see the quiet evolution). The questions here are why the primary exchange may result in both market-based instruments (such as primary bond market) and non-market-based instruments (such as administrative placement in selling government bonds), and why China took administrative measures to control the economy when economy was overheating. The answer is that if an economy is

transforming from planed economy, it is transaction cost-effective to use non-market-based instrument first before the market-based instrument can be utilized.

We believe the weakness of the primary economic exchange in China is related to the defining of property rights. In addition, it is recognized that for a long time more rules have been designed from the constraint perspective rather than from incentive perspective. It is important to confine the primary exchange to the property right defining, make rules of game and design incentive mechanism for secondary exchange.

The virtue of China's PEE is its allocation of resources. This allocation of resources is mostly conducted through government administration as opposed to the market, and, it is important to note, allocation of resources in the PEE creates macroeconomic efficiency.

The primary bond exchange is, as it turns out to be, successful in China as it helps to set up the incentive structure. Here, the incentive structure refers to the policies to attract institution to participate in bond market. Later, we will see, primary dealer status and reasonable return give great incentive to the institutional investors and financial intermediaries in bond market. On contrary, the administrative allocation took great effort of government, yet, proved to be unsuccessful.

The change of technology and productive force would change the comparative advantage and competitive advantage as well as the incentive structure and thereby alter the outcome of exchange, but technology does not directly change the institution.

Win-Win–Based Incentive and Equality-Based Incentive

Although people or groups can benefit from a win-win type of exchange, if their comparative advantage is insignificant, they do not have the incentive to realize their comparative advantages. They may wish to seek more equalized comparative advantages. For example, they can join in a group that can help them to lobby in parliament. Their choice depends on the comparison of transaction cost between prior equalization exchange and post equalization exchange.

APPLICABILITY OF TRUTH AND THE BVP TRILOGY

The absolute-relative truth framework can be also viewed along the line of applicability wherefrom we induce the base-value-path paradigm, or BVP paradigm. Base, value, and path are the three overlapping components required for the evolution of institutions (see Figure 1.12). Each leg contains three elements.

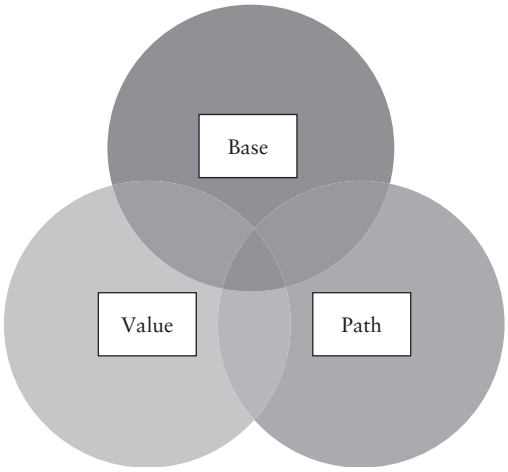

FIGURE 1.12 Base, Value, and Path Trilogy

Base: The Initial Condition

The base is the starting point for the creation of an institutional movement. For a person, the base is personal endowments, both natural and social. For a country, the base is the natural, social, and economic conditions on which the economy grows or reform is initiated. The base of a financial system is the status quo at the time reform was initiated. The base serves as a precondition for financial system development or reform, including China's reform program.

As Gerard Caprio Jr., Izak Atiyas, and James A. Hanson put it, "Initial conditions in finance—the portfolios of banks, their 'information capital,' their human capital, and their internal incentive system—play a key role in determining the success of reform efforts, and implicitly offer a blueprint for the design of reform programs."[60]

The base is the history. As North concluded, "History matters; it matters not because we can learn from the past, but because the present and future are connected to the past by the continuity of a society's institutions. Today and tomorrow's choices are shaped by the past. And the past can only be made intelligible as a story of institutional revolution."[61]

The base is composed of three parts: (1) natural and social endowments, (2) social environment, and (3) social relationships. The social environment includes the legal and social system; the social relationship contains all the social connections and network.

By saying that base matters, we are saying that history matters or that institutions are path dependent. Thus, if we copy a model from outside

China, we need to take into account China-specific issues as well as the preconditions that the model requires in order to function.

Value: The Guide to Human Behavior

Value is based on culture and tradition, and is used to determine objectives and make judgments about the way to achieve those objectives (what actions and behaviors are appropriate).

In one way or another, philosophy, which is the search for a better way of life, is also close to our notion of value. According to Eugene Kelly, ''Our minds are fallible, and prone to error. We often jump to conclusions without having examined the evidence, for example. We have all accepted many ideas as true that have turned out instead to be false, or confused, or we find ourselves unable to give an adequate account of them.''[62]

The behavior of human beings is primarily a conditioned reflex against actions that cause irritation or pain. Ideas are important to guide human behavior, but fostering a culture of creativity and receptiveness to innovation can take as much time as developing the ideas themselves.

The conditioned reflexes of adults may differ from those of infants, who rely on instinct; an adult's response depends on many factors, including past experience, tradition, culture, and values. Adults normally follow rules, but what rules they follow depends on their standards, or values. The rules may be based on self-interest, utility, or moral standards or idealism. Figure 1.13 is a graphical representation of how this operates.

Rationality originates in ''reinforcement,'' which is thought to stimulate the idea that it is probable that an event will repeat itself. As to the outcome of reinforcement, there are several explanations. Herrnstein[63] argues that it is the result of a matching law. This idea has drawn academic attention but fails to explain what motivates selection in animals.

Optimization theory, as developed by Rachlin, Green, and Battalio,[64] attempts to interpret how individuals make choices based on matching law. Herrnstein and Vaughan[65] apply optimization theory to the behavior of the individual.

It is essential to define the terms ''rationality'' and ''irrationality'' properly. The dividing line between rationality and irrationality is whether people have a so-called consistent preference and whether their motivation is driven by ''maximum utility.'' Individuals have rational thinking only if they can understand the information and the uncertainty of their external environment. If their behavior relies only on the supernatural perception and external stimulus, they are irrational. Behavioral economists believe social cognition is subjective probability and that it is the crucial variable of human behavior. Given the importance of social cognition on decision making, the

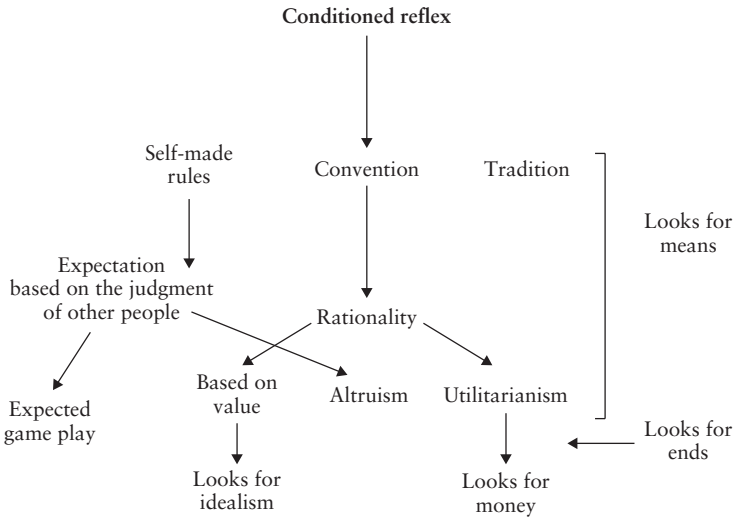

FIGURE 1.13 Conditioned Reflex: Human Behavior

value function eventually replaced traditional utility as the value yardstick for decision making. However, once a spontaneous irrational reaction is combined with optimization, confusion between rationality and irrationality arises.

In mainstream economics, rational selection theory is related to individuals' "maximum utility" behavior; a person operating at that level is thought to be a "rational person." However, behavioral economics focuses on physical reactions and the process of action regardless of its utility.

Behavioral economics, which is based on positivism and zoological experimental theory, is a natural science of animal and human behavior. For example, Kahneman and Tversky[66] predict that in reaction to the stimulus of external reinforcement, individuals will respond, depending on their experience, differently. Their reactions may be either rational or irrational.

It becomes widespread belief among many different economic schools that human behavior is based on bounded rationality, i.e., human rational thinking only constrained by their ability to access information. To reconcile the discoveries of different economic schools, it is logical to assume that rationality and irrationality interrelate; that a human being's choice is an exchange within his or her mind. (See Figure 1.14.)

Simon divides rationality into material rationalism and process rationalism. Material rationalism examines the rational person from an instrumental perspective. It reflects the values of Benthamism and utilitarianism.

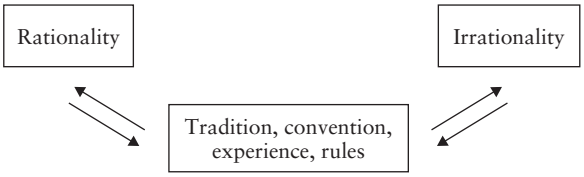

FIGURE 1.14 Interrelationship of Rationality and Irrationality

The rational expectation of neoclassical economic theory follows this tradition. Von Neumann and Morgenstern[67] established this utility theory based on expectation, and later, Arrow and Debreu[68] added it to their equilibrium analysis framework. Prospect theory concludes that when the return is certain, human beings are risk averse; when loss is certain, they are risk friendly.

Homo Economics and Public Choice

The human exchange covers the exchange of any material (for example, commodities) or nonmaterial endowments and comparative advantages (such as political power), as well as the exchange inside human mind, i.e., human choice. Human choice, in a sense, is an exchange as well. When people make choices, they forgo one thing in exchange for another. The "transaction costs" of this type of exchange is the energy expended in making the decision. People make mistakes not because they are irrational, but because they have incurred transaction costs in the choice.

The theory of human choice and public choice has been around for 100 years. The prevailing view on the homo economics (human beings are economic animals), whether rational or irrational, is that it focuses on the driving force of human behavior.

Rationality means three things: It is interest driven, actions are based on logical thinking, and decisions are cost effective. By "decisions are cost effective," we mean that people make the choice that would cost less energy. In our view, when people make comparisons, calculation is a kind exchange within human being as opposed to the person-to-person exchange, the intra-human exchange need to consume energy as well, therefore is a kind of transaction costs.

"'Public Choice' is the name given to an approach to the analysis of the behavior of policymakers, especially economic policymakers, and the context in which those policy choices are made."[69] In our view, public choice is made through personal choice. Public choice is also made via the exchange between persons and groups and among group members.

The three parts of value are tradition, culture, and level of cognition. The meaning of each component is self-evident. Culture and tradition shape the path that we follow. How this path is determined requires several value-based social choices. Experience provides a conduit through which the base influences value and innovative ideas.

The initial condition of the financial system and the initial ideology regarding financial and debt issues are essential to the reform. For example, China's mentality at the outset of reform was the outcome of a multilevel process of social exchanges that had attached a strong sense of debt phobia. In other words, at that time China regarded debt as evil and feared it, especially national debt.

Path: The Road to Action

The path is the approach to achieving the objectives; it can also be seen as a strategy.

Like base and value, path includes three components: goal, methodology, and means, which, in turn, are determined by base and value. For example, one's standards determine one's goal, which may be based on ends or means. Value influences the methodology, which may be structurally based or reconstructionally based (i.e., the methodology may depend on comparative or competitive advantage). The means is affected by whether it is government or institution based.

These three components constitute the dimensions of the evolution of institutions. It is evident that this BVP approach is different from the state-structure-performance (SSP) approach, as the former is process based while the latter is end based. It is important to note that for BVP, the end is the starting point of the next institutional arrangement, in the end of prior institutional arrangement, the new base is formulated; for SSP, the goal in the path will counteract the base and value; there is no endogenous and dynamic movement.

Impact on the Reform Movement

One of the fatal drawbacks of institutionalism is its lack of theoretical soundness and consistency. Although it recognizes that transaction cost is not limited to commodity exchange and is a component of political and social exchange, it does not extend the exchange and transaction cost to the social behavior of individuals, although their social behavior essentially encompasses all choices and decisions and therefore comes with opportunity as well as lost opportunity costs. Extending exchanges to include the social behavior of individuals has important implications on the pioneering work of North and other neoinstitutionalists.

As international trade theory demonstrates, comparative advantages can be realized through trade to achieve a win-win outcome. Since everything can be traded, even social and natural advantages can be realized through exchange. The significance is that institutional movements are endogenously determined and therefore are evolutionary.

Comparative advantages are realized through the competitive process designed to reduce endogenous transaction cost (whereas, as we have seen, the effort to improve comparative advantages is to reduce exogenous transaction costs). The reduction of endogenous transaction costs is far more important than reducing exogenous transaction costs, which helps explain why competitive advantages are far more important. Reducing endogenous transaction costs demands more innovative ideas, which provide the foundation for consistent, up-to-date thinking, such as blue-sky theory.

The interaction between incentives and constraints drives the evolution of institutions, which progresses through the realization of comparative advantages. The main driver of the evolution of institutions is the incentive apparatus. This process can be graphically manifested as a rhombus shape, so this theory is dubbed rhombus theory.

Based on this theory, the interrelationship and interaction of all the endogenous factors can be illustrated as a triangular relationship, which provides the philosophical base for the methodology by which the goals can be achieved.

Goals are important to those who are motivated. There are value-based and calculus-based people. Value-based people have preferences, whereas calculus-based people have goals. It is noted that the calculus-based people are more readily motivated by incentive apparatus than value-based people.

Base is the precondition for financial market reform. Gerard Caprio Jr. indicated the importance of preconditions when financial reform commenced.[70] Some people believe that present-day China's financial market was started from scratch. This is not true. China had a financial system, even before reform, although it was characterized by financial repression, which is why the 1980s bond offerings were mainly accomplished through administrative placements.

The recent controversy over the privatization of the big four state-owned commercial banks—Industrial and Commercial Bank of China, China Construction Bank, Bank of China, and Agricultural Bank of China—triggered much debate about the path of financial market reform in China, especially banking-sector reform. The essence of that debate is this question: Should China transplant a model from outside and graft it onto China's base, or should China remold itself and replace its own model through an evolutionary process?

There are many examples of what happens when a country attempts to copy foreign models directly. In those that were successful, the key is that the constraint structure of the domestic institutional and legal frameworks must cater to the incentive structure of the foreign models. It is therefore advisable to accelerate the improvement of the domestic country's legal framework, giving more room for the institution to maneuver, and thereby permitting the whole system to evolve and the new institutional framework to be established.

Government therefore needs to set priorities for the whole program. In our view, the sequence of reform should be first to liberalize the legal framework, which should then be followed by institutional evolution. Less legal control by government facilitates the establishment of the incentive structure, making it easier to apply foreign models.

It is useful, therefore, to identify the differences between the financial system in a market economy and in developing countries and what the issues in developed countries are, because even after China becomes a market economy, we will still face a number of issues. Part of this analysis is to differentiate between the problems specific to underdeveloped countries and those specific to China.

The other category is issues that are specific to China, for example, the fact that the government controls the interest rate and can therefore manipulate the financial market. China first has to deal with China-specific issues (which, in our view, are deeply rooted in China's institutional framework), but with an eye on the specific issues in developed countries. Due to differences in the initial conditions in China and developed countries, China should not slavishly follow the models of developed countries but draw lessons from their experiences. For example, for many years, the U.S. banking industry was prohibited from entering the brokerage business, but this is no longer the case in the U.S., and China can learn from this experience but not follow in the U.S.'s footsteps.

China's financial market cannot be fully understood without recognizing several issues that underlie its current institutional framework.

REPRESSION OF FINANCIAL INSTITUTIONS AND ECONOMIC DEVELOPMENT

The financial market movement has much to do with China's industrial policy and economic growth strategy. Recent literature indicates that China's industrial development has been accompanied by so-called financial repression.[71] Financial repression occurs in the early stage of economic development. The British philosopher John Stuart Mill, writing in the nineteenth century, noted: ''Policymakers have viewed the financial sector as

irrelevant, except in times of crises, and hence have tried to repress finance and use it for the convenience of government.''[72] Financial repression has been seen in some newly emerged newly industrialized countries as well and is well established in the economic literature.

The rationale behind a policy characterized by financial repression is that in order to accelerate economic development, the government directly controls and allocates all resources in order to pursue industrialization. The financial market is the only source of financial resources. Therefore, to channel money to the industrial sector, the government has to maintain a relatively low interest rate to make investment money affordable. Banks act only as money providers. A capital market becomes a major conduit of financing only when it has been proved to be able to provide a convenient source of money.

For a policy of financial repression to function, financial resources made possible by huge individual savings are needed. Savings are easier to allocate when there are fewer financial instruments available. The affordability of state-owned enterprises provides a base price for interest rates. As their rates of return tend to be very low, the interest rate should be kept low as well.

Administrative System Accountability for Mobilizing Financial Resources

The nature of subordination of the financial sector to the industrial sector is the main characteristic of the economic structure in developing countries. This nature is dubbed by economists as financial repression. When industrialization policy is pursued under circumstance of underdeveloped financial system, the financial sector is only a money provider for the country's industrialization program.

Therefore, make the financial resources cheaper and expediency is government's priority, so low interest rates, fewer financial instruments, and an underdeveloped capital market are always byproducts of the financial repression. These features all helped to shape China's economic policy landscape prior to reform of the financial structure.

Although the 1990s showed signs of a ''financial revolution,'' the practice of repressing institutional development remains unchanged to this day.

Impact of the Ideology of Material Production on Financial Reform

In Marxist theory, output is material production; services are not included as output. Based on this theory, the economic achievements are material goods, such as the concrete buildings, factories, and machinery, all of which are state assets. The erosion of state assets means the machines are rusty.

The pricing of the assets is not based on the discounted value of future cash flow; rather it is based on the book value, or reproduction value. In this macroeconomy, the manager always runs the economy through the National Planning Commission (NPC, the former National Development and Reform Commission) rather than through the Ministry of Finance or PBOC. This ideology, which easily gives rise to a pro-planning economy management format, is deeply rooted in the thinking of many who have been managing China's economy since the reform. Banks are regarded as money providers or essentially glorified cashiers; the capital market is considered the place to finance government or corporate deficits; and the stock market is a place recoup the losses of SOEs. When bonds, for example, were introduced, they were used only to finance government deficits rather than as market instruments.

CHINA'S FINANCIAL MARKET TODAY

Today's market structure grows out of the policy to separate the China's banking system from the stock market.

The second half of the 1990s was marked by a financial contraction. In order to control the overheated stock market, the central government decided to cut the link between the banking system and stock market to isolate them from one another (as had been done in the United States). In 1997, the central government issued a circular requiring all the banks to withdraw from the stock exchange.

As the banks still held government bonds, they had to trade among themselves, which gave rise to interbank trading of bond securities. Subsequently, the PBOC set up the interbank bond market.

Today there are two marketplaces: the stock exchange, which trades government bonds and corporate bonds, and the IBBM, where government bond and financial debentures are traded.

Because it is administratively easier for regulators to supervise individual financial sectors than a more integrated financial market, it is tempting but wrong to say that this institutional arrangement is productive.

Primary Economic Exchange

Historical Perspective: Technology, Population, and the Growth of Institutions

China's economy after reform has fluctuated substantially, constrained not by capital and labor but by demand, resources, and, more than anything else, institutional constraints. Institutions can alleviate both consumption and resources constraints.[73] The internal driver is the interaction between incentives and constraints.

However, there also are interactions between institutions and technology and between institutions and the population. Economic historians Rondo Cameron and Larry Neal noticed that population growth is in principle subject to the logistic curve (see Figure 1.15), an S shape curve, which reflects the three stages of population change: growing slowly, growing rapidly, and stagnating.

> *The modern economic system has taken its shape in the west since medieval time and the process took many centuries.*
>
> *During the eleventh, twelfth, and thirteenth centuries, European civilization expanded from the heartland of feudalism between the Loire and Rhine rivers to the British Isles, the Iberian peninsula, Sicily, and southern Italy, into central and eastern Europe, and even to Palestine and eastern Mediterranean temporarily during the Crusades. In each locale, the institutions of feudalism were adapted to local conditions and customs, creating a variety of economic systems. In the late fifteenth and sixteenth centuries maritime exploration, discovery, and conquest took Europeans to Africa, the Indian Ocean, and the Western Hemisphere.... By the seventeenth century, however, the variety of institutional arrangements in Europe created some pockets of prosperity in the midst of overall decline; for example, cities grew rapidly in the Low Countries and northern Italy.*[74]

The fourteenth century and the first half of the seventeenth century witnessed a slowdown in population growth, which led to stagnation in per capita income. This, in turn, stimulated the incentive for technological and institutional progress. In the nineteenth century, the institutional arrangement in Europe had undergone profound changes.

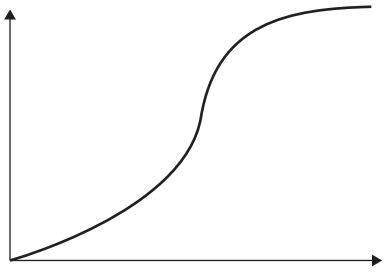

FIGURE 1.15 Logistic Curve of Population Growth

Therefore, it is reasonable to suppose that the evolution of institutions and the growth of population are the driver of economic development. Having said this, we should note that there are correlations between population growth and economic development. As was pointed out by Cameron and Neal, "The hypothesis of economic growth accompanying the growth of population is strongly supported by the unquestioned evidence of both physical and economic expansion of European civilization during each of the accelerating phases of population growth."[75] The corollary is clear: Logic and history demonstrate that it is technological and institutional progress that facilitates economic growth, thereby stimulating population growth.

Thus, when institutional transaction cost is greater than technological transformation cost, there is a strong incentive to improve technological progress. Conversely, as medieval history illustrates, when technological transformation cost is greater than institutional transaction cost, there is a strong incentive to drive institutional progress.

Industrialization led to capitalist institutions. In this process technological progress reduced institutional transaction cost, thereby promoting institutional progress. In the case of China's bond market reform, institutional progress reduced technological transformation cost, thereby promoting technological progress.

History also shows that when an institution is evolving, technology advances rapidly; when technology is progressing, institutions evolve or revolve rapidly. As Richard Sylla explained, "Past and current differences in development around the world can be explained by historical differences in the spread of modern financial systems, which serve to facilitate the acquisition and application of both nonhuman and human capital, new production techniques and mass schooling."[76]

Public Awareness and Understanding of the Government's Role Heritage, custom, and path are three interrelated factors that affect the public's perception of institutional change.

Heritage includes comparative advantage, competitive advantage, and competitive competence. Competitive competence has more weight than competitive advantage, and competitive advantage has greater weight than comparative advantage. Heritage is the foundation for incentives that can be achieved.

Custom includes values, conventions, and rules as well as rational thinking. It is the reference by which people judge actions and make choices.

Path is the process by which comparative advantage can be realized. It includes the efforts made to convert comparative advantages into competitive advantages. A successful person always has competitive competence

(vision and insight) and the ability to find and seize opportunities; he or she must also have perseverance and persistence.

Competitive competence derives from idea generation, in particular the generation of innovative ideas. In Chapter 3, we will see how the public's lack of awareness of the market in China led to its failure in 1993.

Innovative ideas also influence the thinking of government officials, organizations, and even the nation. As Robert Merton points out, the development of finance theory plays an important role in the financial market development.[77]

In China's case, the public's lack of cognition of financial markets dragged down financial market development. The old planned economic development theory hindered their way of thinking about market development and stifled innovative ideas. The lack of financial knowledge combined with the self-interest of agencies diminished their vision, passion, and courage. It is therefore no accident that reform initiatives were suspended several times as a result of Asian financial crises. Indeed, liberalization or deregulation shall, as a change of constraint apparatus, go hand in hand with the change of incentive apparatus. Therefore, unilateral liberalization would not work. As Gertler and Rose put it: "Liberalization alone is not a panacea."[78]

Role of Government Agencies Most people assume that government agencies will behave as people do, but this perception has been challenged. First, principal-agent theory and incentive theory view the relationship between government and government agencies as a principal-agent relationship. Government is the principal while government agencies are agents. When there is information asymmetry between them, government agencies do not act as the government would like. In addition, if the payoff to the agencies does not satisfy the incentive theory, or if the constraints are not compatible with the incentives, then the incentive apparatus will not work. As indicated before, when this happens, government agencies tend to seek "rent" in compensation. This happened in China, especially in the 1990s, when most government employees were underpaid.

Public choice theory perceives public service, especially reform programs, as public goods, which have externalities. Due to free-ride problems, government employees are unwilling to initiate reform programs.

Although governments at various levels in China have increasingly come to recognize that many activities can be carried out more efficiently and with greater cost effectiveness by the private sector, there is little sign that the government will walk away from financial involvement and suspend direct intervention in the financial market. Therefore, relatively little attention has been paid to institution building and encouragement of innovation in this area.

China's government has paid more attention to the formal rules of organizations and little attention to the informal rules. Intervention turns out to be counterproductive. Informal rules and personal relationships work as constraints on incentives.

These characteristics of China's financial system have great implications for its bond market. First, the corporate bond market is small vis-à-vis the government bond market due to the government's preference to raise capital to finance its economic development program rather than to use the financial sector as an institution to promote the program. Second, banks are the main investors in capital market instruments, especially bonds.

In China, as elsewhere, government agencies try to protect their own interests. This affects the function of economic and financial development as well, which has great implications for agency. We discuss this topic further in Chapter 3.

Collective Actions

Introduction to Collective Actions My argument is that people in the group or organization do not necessarily share the same interests. The historic work on this subject is, of course, by Mancur Olson. Olson argues simply that collective action is very difficult to achieve because interests among individuals are so varied. Often individuals or groups choose not to act because they know that someone else will on their behalf. This dilemma is called the ''free-rider'' effect. Only when individuals and groups value the achievement of a certain goal more than the value they place on their own time does successful collection action ensue.[79]

All human exchanges are, in our view, subject to the law of rhombus theory, where institutions are perceived as an equilibrium state by which comparative advantages are realized. That is to say, when people enter into kind of relationship with other people, they are in a state of exchange. Essentially, when the new member enters a group, a relationship is established. This relationship is maintained via person-to-group exchange, which follows the same logic is followed as the person-to-person relationship where exchange between persons takes place. What is exchanged between one person and another group member, or the group as a whole, is not confined to the material commodities but their natural and social endowments and the comparative advantages that arise from them.

This exchange is reflected in the fact that new members pay membership fees and make effort to contribute to the group, and get their share of the benefits when group efforts turn out to be a success. Although human beings as individuals have different comparative advantages, they can nevertheless end up with a win-win outcome based on the same principle as of trade

theory. During person to group relationship, as a result of exchange of comparative advantages, both the new member and the rest of group end up with a win-win result. This institutional arrangement gives rise to social progress if there is no negative externality incurred to the people outside of the group.

However, there are other kind social arrangements regarding the person to group relationship which end with a win-lose or lose-lose outcome where the person leaves the group. Therefore, it is reasonably to assume that collective action is also made within an institutional framework and the way to set up a person-to-group relationship is essentially the same as to set up a person-to-person relationship under different circumstances.

What differs is that collective action may have more additive effects than individual efforts, for three reasons. First, collective actions are guided by the collective wisdom, which is far more sophisticated than individual wisdom. Second, the people in group can enjoy the cluster effect and create a kind of synergy. When people live and work together, they have easier access to information and thereby they save transaction costs. As they have common concerns, they discuss and share views more frequently and thereby save transaction costs. Third, members enjoy community facilities, which is free of charge. Therefore, the group has more power to help new members to achieve their goal, which the individual may not be able to achieve on his or her own.

However, there are a number of disadvantages when people are in groups or organizations. As has been explained by many economists, groups or organizations have an externality problem. Internalizing the externality (i.e., eliminating the effect of externality) would incur transaction cost. In addition, big groups or organizations incur more management costs. Supervisory costs occur as well. Therefore, the bigger the group or organization, the larger the transaction costs would be. Individuals should do cost-benefit analyses and compare the cost and benefit when they are in the group with when they are outside the group.

All human relationships have the same characteristics. People do not share common interests insofar as collective action is concerned; they share common concern. However, in the case of a person-to-person relationship, people may have different concerns. Under such circumstances, people address others' concern, and the benefits are shared between them.

Role of the Organization Who is the main player in institutional building? To North it is the institution. If an institution were formed outside of an existing institution, it would mean that institutions are not built from within. Further, it would mean that the institution is not evolutionary. It is important to note that institutions are indeed endogenously built and evolutionary, which means that all the participants are in a position to shape the institutions.

Remember, based on rhombus theory, institutions are formulated at the second stage of the rhombus framework (refer back to Figure 1.2), where the participants, or game players, are trying to achieve their goals by reducing the endogenous transaction cost. Because the participants have an incentive to reach an agreement so that all parties can benefit, institutions can move on automatically. Organizations and financial institutions can help to build new institutions and make institutional arrangements. By doing so, transaction costs can be reduced, issues and disputes can be addressed, and solutions can be framed. As time goes by, a new system is established. It is now clear that organizations, if they are the game players, have incentives to foster innovative ideas to build up institutions. If they are not the players, they are generally not in a position to build up institutions. The exception is associations and arbitrage institutions that play a role similar to that of government; that is, they set the rules of games and supervise the enforcement of those rules.

It is suggested, therefore, that the government's role be restricted only to those areas where the government can assist organizations and institutions to function (e.g., by encouraging innovation and reducing the obstacles for the institutions to innovate and by creating the legal framework needed to reduce transaction costs). Here the role of government is not clear-cut. Many emphasize the legal environment for financial reform, but the legal environment—North's formal rules—provide constraints and is antithetical to the general trend toward deregulation.

In China, for instance, most laws tend to constrain financial activities, especially innovative ones. In my view, the legal system should foster financial innovation, defining property rights rather than prohibiting them. This view is supported by Gertler and Rose, who assert that government policies must be selective.

Relying on self-regulatory organizations to regulate the market has proven to be one of the most successful institutional arrangements.

Primary Financial Exchange

Although it is commonly recognized that finance is the linchpin of a modern economy, as Deng Xiaoping stated in 1990, in China, little that is convincing has been said about why it is important to the economy. Is it important because it provides financial resources? Alternatively, is it important because it is the engine of economic growth? According to Ronald Coase's theory, if property rights are well defined, there is no transaction cost.[80] In that case, resources will move automatically to those places where they can be used most efficiently, and the economy can grow to its full potential. Put another way, if an economy cannot achieve its maximum potential, it is due either

to ill-defined property rights or the existence of some transaction cost. It follows that the financial market can be an engine of the economy only if it is efficient. However, an efficient market is not a given. In China's case, the idea of the firm (or company) is a new development, as is the idea of a market. Therefore, it is logical, then, that the law is the last frontier in which development and reforms should take place, thus reducing but not removing transaction costs in China.

As indicated, the function of primary financial exchange is to achieve more efficient secondary financial exchange by means of reduction of exogenous transition costs. The secondary financial exchange can be better performed within the Arrow-Debreu (A-D) framework. However, without an efficient primary financial exchange, the A-D framework would not be in place.

Finance Theory: An Overview

Puzzle of the Arrow-Debreu Framework Before we get into the details of the new theoretical framework, let us briefly review mainstream financial theory, which is based on the A-D paradigm. The A-D framework has been challenged recently by many different schools of economics; however, it offers a perfect starting point and frame of reference through which to detect the difference between the theory and reality.

Let us suppose we are in an A-D universe. There are no transaction costs, there is a perfect competition, information is freely available, and the financial market performs flawlessly and without friction. Because of the absence of informational friction, individuals can make credible commitments to honor their agreements and contracting parties are able to make credible promises, which implies that everyone could lend and borrow freely at a risk-corrected rate of interest.

Under this assumption, savers are able to search over the entire world capital market for the best possible risk-corrected returns. In an A-D framework, with perfect markets, the financial system washes a considerable quantity of risk out of the economy. What is left is the systematic risk. Borrowers and lenders are able to make fully contingent arrangements to ensure against unanticipated short-term needs for funds, and there is no need for government participation in the market. Institutions here are unimportant since there are no transaction costs.

Once you enter the real world, however, incentive problems arise because of limited information and lack of sufficient enforcement. However, transaction costs can bridge the gap between theory and practice.

Defects of Finance Theory In an A-D universe, with no transaction costs, there is no credit risk, no market risk, no liquidity problems, no government

role, and no need for contracts or institutions. However, this ideal universe does not exist. Even in the United States, the nation whose financial system is considered the most advanced in the world, the market is not perfect.

Mainstream finance theory has several pitfalls. Mainstream financial theorists regard finance as a money machine or a consumption plan. Institutions play no part in this theory. Institution is the missing link in their theoretical framework. Conversely, neoinstitutionalists fail to point out the interplay between incentives and constraints, which drives the evolution of institutions. Although traditional economic theory has focused on transaction cost issues and provided great insight into the role of institutions and their evolution, it is segmented and internally inconsistent, and therefore vulnerable to theoretical criticism.

Nature of Finance and the Financial Structure

How to Redefine the Financial System The financial market is not as complicated as many people think. Still, the nature of finance has been much debated among the various schools of economic theory. Early economists viewed money as a machine. As John Stuart Mill put it, "Money. . .is a machine for doing quickly and commodiously what would be done, though less quickly and commodiously, without it; and like many other kinds of machinery, it exerts a distinct and independent influence of its own only when it gets out of order."[81] Finance, too, is a machine.

Money can function as a machine only in an institutional framework. Marx reiterated that credit as a way to use money can work as a lever, to accumulate money to achieve economies of scale. According to mainstream economics, finance is a consumption plan. The main contribution of mainstream financial theory is the A-D and Modigliani-Miller[82] methodology for pricing financial instruments.

A new development in finance theory is the recognition of finance as an evolutionary institution and institutional arrangement. As was indicated by Charles P. Kindleberger, author of *A Financial History of Western Europe*, "One can easily exaggerate the importance of finance, both when it is skilfully conducted and when it is not, but the suggestion that it usually falls into line and accommodates real forces—discoveries, inventions, population change, and the like—stretches belief."[83]

North believed that institutions were created to reduce the uncertainty. Ross Levine[84] studied the relationship between finance and economic growth and concluded that a financial system is created to reduce transaction costs *and* uncertainty, or in his words, to ease exchange. Finance enables savings to transfer into investment more efficiently than barter, for example. However, Levine does not examine the motivation for reducing transaction costs or what the incentives are for the individual or organization.

Greenwood and Smith[85] set up a model based on the relationship among exchange, specialization, and innovation. Like me, they believe that financial systems are created to reduce transaction costs.

> *More specialization requires more transactions. Since each transaction is costly, financial arrangements that lower transaction costs will facilitate greater specialization. In this way, markets that promote exchange encourage productivity gains. There may also be feedback from these productivity gains to financial market development. [Therefore] economic development can spur the development of financial markets.*[86,87]

Neoinstitutionalism has made great contributions in uncovering the essence of finance. However, the work so far leaves open the question of how to distinguish financial institutions from other institutional arrangements. If finance is defined only as an institutional arrangement, how do we differentiate finance from other institutional arrangements? Institutional arrangements and reduced transaction costs are not unique to finance; they have existed throughout the history of human beings, while finance only emerged in the eighteenth century.

However, these questions can be better clarified via primary–secondary-exchange framework. Financial exchange is derived from economic exchange. When economic exchange becomes more sophisticated along the line of commoditization and securitization, new financial products are derived, such as bonds, the commoditized and securitized loan; futures, the commoditized and securitized forward contract; share the commoditized and securitized equity. When the new financial products come into being and become exchangeable, new markets—such as capital market and derivative market—emerged. Finance differentiates itself from other economic activities by sophistication of exchange, which is characterized by commoditization and securitization.

Institutional Economic Engineering and a Redefinition of the Nature of Finance After its creation in the so-called financial revolution, China's financial sector, along with the functions that enable it, has developed along evolutionary lines. In this way, the institutional framework of a financial system has been created. For example, to stabilize the financial system, a new function—speculation—emerges, because its counterparts—hedgers—need to minimize their risk. As a result, another group of people become speculative specialists. Here again, the incentive of speculation encounters the constraints of hedgers. The specialist function is necessary because the efforts of specialists move the market from disequilibrium to equilibrium.

A financial system is comprised of many such interrelated functions, which, in turn, constitute sociological chains. A missing link in one chain can give rise to a socioecological problem, just as it does in natural ecology.

As the IEEN theory demonstrates, the function of institutions is not just constraint; rather, it is incentive. IEEN highlights the crucial role of the incentive structure and the interplay between incentive and constraint. Finance should contain these elements:

- The ability to transfer money and reduce transaction costs
- An incentive structure with cost benefit consideration
- An institutional arrangement with win-win outcome
- The opportunity to get value added via exchange

With this in mind, we define finance as an institutional arrangement designed to achieve the most augmented value added through an incentive structure to reduce endogenous transaction costs.

Evolutionary Development of Financial Systems Nowadays the financial sector, which is an outgrowth of the economic system, is located at the end of the value chain. Historically, financial systems around the world become evolutionary after revolution. After the financial sector experiences a period of development, it changes its focus from facilitating money flow to the financial market, which includes the money, equity, bond, and derivative markets, and finally to knowledge-based services, such as consulting.

Throughout history, whoever possessed competitive advantage and competitive competence controlled the direction of economic and institutional movement. Institutional movement can be both revolutionary and evolutionary. Both types of movement are driven by the interaction between incentive structures and constraint structures: When incentives change and constraints remain unchanged, revolution will occur. When both the incentive structure and constraint structure change, or change their form (e.g., when there are more informal rules than formal rules), evolution takes place. As indicated, the changing incentive structure requires the new constraint structure to adapt, and vice versa. The relaxation of the regulatory framework, among other things, stimulates the incentive for financial innovation. "The stimulus for financial innovations is strong, arising from the interaction of a changing regulatory environment, expanding technology, volatile markets, shifting current-account balances, and growing competition among financial institutions."[88]

Financial markets are formed mainly to reduce risk and uncertainty, which incur transaction costs. Transaction costs in a financial system are both exogenous and endogenous. Endogenous costs include, among

others, those that arise from fraud, opportunism, moral hazard, adverse selection, and the like, which occur in the process of making a transaction. Because of the change in the value of money over time, both exogenous and endogenous transaction costs change. As the value of money changes constantly, exogenous transaction costs may increase or decrease, changing comparative advantages and the incentive structure. In turn, the constraint structure must change to cater to the new incentive structure. As a result, the institution evolves. Thus, the financial market is always in a state of disequilibrium.

One of the important functions of any financial market is reducing risk and uncertainty. By institution formation, risk can be neutralized, hedged, or diversified, which means it first has to be priced so that a transaction can occur. The price of an asset is adversely related to its risk, or uncertainty. As North says, "The greater the uncertainty of the buyer, the lower the value of the asset."[89] Neoclassical finance theory contributes a great deal to financial asset pricing, thereby facilitating the development of the derivative, stock, and commodities markets.

The development of an institutional framework is, as we said earlier, one of the underlying elements of the financial structure. Financial institutions played an important role in this respect. However, this development is not driven by government; rather it is a spontaneous process. In China, financial institutions mushroomed in the early 1990s. This was primarily a natural process; there was no government intervention.

The modern financial system, as we have seen, benefited from technological progress, the development of financial theory, and the institutional revolution. As Merton has indicated, "Those financial innovations came about in part because of a wide array of new security designs, in part because of the advances in computer and telecommunications technology and in part because of important advances in the theory of finance."[90] Rapid advances in computer technology facilitate the electronic transmission system, simplifying the book-entry form of securities trading. The development of China's bond market has also benefited from this technological progress. For example, China used paper bond securities for only about 12 years, while Europe used paper securities for over 100 years.

As finance is an institutional arrangement and institutional change is evolutionary, financial systems are evolutionary as well. This implies that financial movement is endogenously driven. "Financial system is endogenous after all, and they change over time. Required is an understanding of what determines the relative efficiency of a country's financial system, and how this efficiency may evolve."[91]

It is desirable to establish a financial system by creating an institution rather than an administrative system.

Incentive Structure and the "Value Chain" To build a sound financial system, an institution must achieve a certain level, which, as indicated, is driven by the interaction between the incentive and the constraint structure. The incentive is the opportunity to obtain added value, which is the result of a win-win outcome through the exchange of comparative advantages. Similarly, the incentive structure is engineered by the constraint structure to realize a comparative advantage of the person or organization in its pursuit of added value.

Throughout history, economic scale has played a very important role in the efficiency of an economy. "A production activity displays increasing returns to scale if an expansion in the scale lowers the unit costs of operation. Equivalently, a proportionate increase in the variable inputs of production leads to a greater-than-proportionate increase in the output from the activity."[92] This is also true of specialization, by which I mean the division of labor. There are two types of specialization: horizontal division of labor, which facilitates the creation of different types of products, and vertical division of labor, which facilitates the production and marketing functions.

History has witnessed the transition of economies from agricultural to manufacturing and, ultimately, to the specialized manufacturing process, where the division of labor reduces transaction costs. As a result, tertiary industries, such as communications, transportation, logistics, commerce, and finance, have emerged. These sectors all serve to reduce exogenous transaction costs.

It is important to note that the sole purpose of industries such as commerce, finance, consulting, and other management sectors is the reduction of transaction costs, and therefore these should be classified in a new sector, the fourth-level industries. It is therefore reasonable to assume that these sectors or products, which augment (increase) value added, represent *the direction of productive force*. They offer greater payoff and less cost. The result, therefore, is that the technological progress they contribute reduces transformation costs, while institutional evolution works to reduce the transaction costs and augment value added. If we further divide transaction costs into exogenous and endogenous ones, we recognize that the former can be reduced by both technological progress and institutional evolution, whereas endogenous transaction costs can be scaled down only by the evolution of institutions.

Thus, it is at the end of the value-added chain that greater value added is cultivated. The initial sectors are full of competition. However, as the opportunity to cultivate new area of value added is revealed demand tends to be high, and the production cost, or transaction cost, tend to be lower.

As the area develops, technological progress and institutional evolution, both of which rely on innovation, work to augment value added.

The economic sector is divided into three sectors:

1. *Value-augmenting industries*. Industries that increase value added, mainly manufacturing
2. *Transformation-cost-reduction industries*. The industries that reduce the material costs, mainly tertiary industries
3. *Transaction-cost-reduction industries*. Finance information industries, education, consulting

All three can create value added. The third group, in which finance is the leading industry, is created to reduce exogenous transaction and endogenous transaction costs.

How Financial Structure Is Determined Based on the IEEN framework, the force driving a financial system is no longer only government. Rather, there are five different forces: government, institutions, new ideas, technological progress, and financial leaders. (See Figure 1.16.)

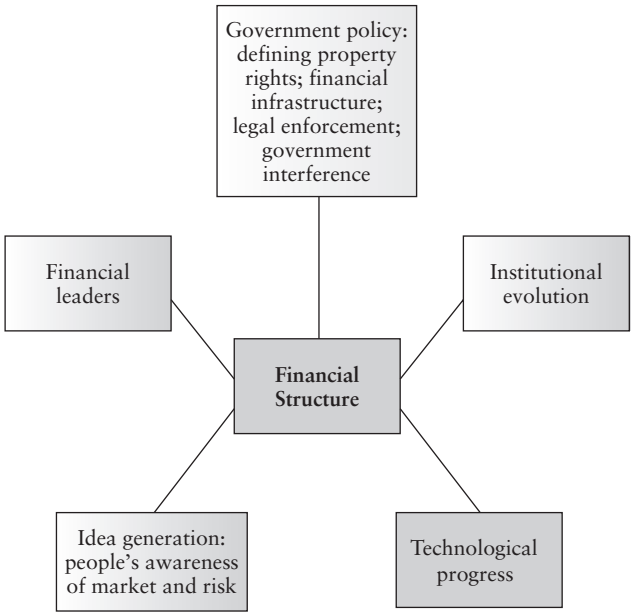

FIGURE 1.16 Determinants of Financial Structure

Financial infrastructure includes accounting, auditing, and related functions. The role of the other factors is self-evident. It is important to be cognizant of financial leaders and their role in financial market development. As Richard Sylla, an economic historian, has stated, "Financial leaders can matter a lot. Such leaders know and understand what I have called the key institutional components of good financial systems; how these components function, interact, and reinforce each other in financial networks; and how they serve the needs of governments and the economy."[93] Sylla offers a number of examples of successful financial leaders including Alexander Hamilton, in the eighteenth-century United States, and Masayoshi Matsukata, the Japanese finance minister during the 1890s. In each of these periods of reform, the government undertook serious measures to make the marketplace driven by market forces. This condition led to increasing economic strength for these countries, and eventually they became worldwide economic powerhouses.

In summary, the financial system in China has much in common with that of most less-developed countries, but, of course, there are many China-specific issues as well. Its ingrained administrative system and obsolete way of thinking, which had its origins in a planned economy, are two examples that work to alienate China from a market economy. However, it is important not to lose sight of those things from which China benefits. For instance, local governments in China have a lot of power to allocate resources, which saves a great deal in transaction costs. In addition, the generations who grew up guided by a philosophy of altruism have now become the managers of the economy.

NEW METHODOLOGY FOR THE ANALYSIS OF FINANCIAL ISSUES

Using the base-value-path paradigm, we will define the financial issues facing China and examine their solutions from three different perspectives. To guide our exploration, we can identify three questions:

1. Viewed from the base dimension, what is the condition on which China's current financial system is located? As "initial conditions matter a great deal in determining the impact of economic reforms on a given system,"[94] as demonstrated by the BVP paradigm, the answer to this questions provides the base on which the financial system will develop.
2. Based on the value dimension, what kind financial system is China going to establish, a market-based system or a bank-based system?
3. Based on the path dimension, how can China achieve its goal of setting up a modern financial system?

Effect of Overlapping Jurisdictions and Division of Labor

This separation of the banking business from the stock market and insurance industry tripled the number of agencies needed to supervise the financial industry: the China Securities Regulatory Commission oversees the stock market, the China Banking Regulatory Commission supervises the banking sector, and the China Insurance Regulatory Commission monitors the insurance industry.

On the face of it, the division of labor is clear-cut, and concentration in one sector would seem to make supervision more efficient. While this may appear to be a positive step, in practice, its efficiency is hardly proven. Most of the banks in the world are in a consolidation phase—the abolition of Glass-Steagall Act (which forbids banks to engage in both banking business and securities business) in the United States reflects this worldwide tendency—financial services are in the forefront of most bank organizations, and bond markets are interrelated with the bank lending market, the stock market, and the insurance industry. Based on the experience of other countries, it would seem that the separation of banking from other parts of financial market is counterproductive to China's financial market reform and innovations.

Drivers of Bond Market Reform and Financial Innovation

China's institutional framework, characterized by an administrative hierarchy, an economic system derived from a planned economy, and underdeveloped financial markets, is the major factor influencing its bond market development. Still, why did the central government prefer administrative placement of bonds for so long, and why did it return to a regulated coupon rate after the auction method had been successfully introduced and managed? The answers lie in the current regulatory system.

Bureaucratic government agencies are another factor contributing to the slow response to reform. Ideas for changing the status quo originated either from the grassroots units or from agencies of the central government, and, when the ideas come from the bottom up, they tend to be ignored.

China's contemporary financial market is very much influenced by ideology and institutions that had their origins in the planned economy. The conventional wisdom about financial market reform is that the agencies in charge of the financial industry are advised or educated by international experts or domestic think tanks on how to put into practice the latest ideas or programs, and, therefore, these agencies are going to carry out the reform program. In fact, this has rarely happened in China.

We can gain some insight into the reason for this from the recently developed public selection theory and institutional theory, which highlight the importance of the interest of the agency itself. Recent research on public selection by James Buchanan[95] has provided great insight into the behavior of organizations.

According to the theory, agencies are interest groups that are playing games in the political market. Reform is a kind of public good. Like other public goods, it has so-called externalities: The reformers would take the risk, reduce their power, and potentially be blamed for failure by others from their own group; conversely, those who enjoy the benefits are freeloaders. As a result, the theory says, agencies have little incentive to push ahead the reform program.

Setting Goals for China's Financial System

There are two categories of goals: the repression of financial institutions and financial restructuring. The observation that a market-based financial system is superior to one that is administratively based is hardly controversial; however, the proposition that a bank-based or capital market–based financial system is superior is among the most debated subjects. By applying IEEN theory, which evaluates institutions according to their incentive structures and transaction costs (the system with the higher-level incentive structure and lower transaction cost is superior) as a yardstick, it is easier to evaluate the institutions. (See Table 1.4.)

Looking at Table 1.4, we can see that a capital market based on a financial system is superior to a bank-based financial system, because it has

TABLE 1.4 Capital Market-Based versus Bank-Based Financial Systems

Goals	Methods	Means	Features of Financial Market	Incentive Structure	Category of Transaction Cost
Repression of financial institutions	Intervention	Administrative		Lower	More exogenous
Financial restructuring	Evolution	Market based	Bank based	Middle	More exogenous, less endogenous
			Capital-market based	Higher	More endogenous

a higher-level incentive system. This is consistent with the experience of other countries. As Ross Levine correctly noted:

> *For over a century, economists and policy makers have debated the relative merits of bank-based versus market-based financial systems. Recent research, however, argues that classifying countries as bank-based or market based is not a very fruitful way to distinguish financial systems. The results indicate that although overall financial development is robustly linked with economic growth, there is no support for either the bank-based or market-based view.*[96]

The yardstick by which the financial system is judged is how convenient it is to the exchange of comparative advantages, or whether it reduces endogenous transaction costs or promotes transactions.

Sylla outlines the key institutional components of a modern financial system: "They are: sound public finances and public debt management; stable monetary and payments arrangements; sound banking system (more, generally, institutional lenders); an effective central bank; good securities market for debt, equity, and money-market instruments; and sound insurance companies (more generally, institutional investors)."[97]

Judged by these criteria, a modern financial system should focus on the discovery of a new dimension of value creation. In other words, financial systems should be creative and innovative; there is no fixed model.

From the IEEN perspective, the financial system should include both primary and secondary financial exchanges. A primary financial exchange is an exchange between government agencies and market players. It may use either a market (e.g., open market, which is an exchange between monetary authority and market player) or non-market approach (e.g., the state budget, legislation, and enforcement, which are exchanges between legislative and supervisory bodies and market participants). These exchanges are conducted through dialogue, which helps to maintain a balance between stable policies and market development or, in the language of IEEN, help achieve equilibrium between the incentive and constraint structures.

The secondary financial exchange is market exchange; market participants, financial institutions, and individuals conduct transactions to achieve market exchange. It can function only if the markets are in place and all the market rules are public and enforceable, which is the task of the primary financial exchange. Therefore, a primary financial exchange is the precondition for a secondary financial exchange.

As an economy in transition, China's primary financial exchange must also balance economic efficiency (both macroefficiency and microefficiency) and equality (e.g., fairness and transparency).

Path toward Financial Restructuring

The importance of the financial market, specifically the bond market, in economic growth is universally recognized, but how the financial system should function is widely debated. One view is that the financial system can contribute to the efficiency of the transformation from savings to investment. "The financial system contributes to growth and development by mobilizing saving and then efficiently allocating this savings across investment projects."[98] Another school favors institutions, and argues that a pure market does not exist, even in the United States, and, therefore, the A-D paradigm does not work. In the real world, A-D cannot work unless the institutions are in place.

There are two ways to achieve goals once they've been established: institutionally or administratively. The principal difference between the two is the incentive and constraint structure. As institutions and institutional arrangements are a result of an evolutionary process that resulted in a win-win outcome, the incentive structure must conform to the principles of participation and incentive compatibility. However, the administrative system is organized artificially, using promotion and job security as its incentive structure. As a result, in China, government employees generally are underpaid.

An economy in transition, such as China's, should take advantage of the government's ability to allocate resources to achieve macroefficiency to maintain growth momentum so that everyone can benefit from the reform. This can also help alleviate the tension between different interest groups. However, the government should not revert to the administrative approach to allocate financial resources, which would be counterproductive to market efficiency. It should limit its function to reducing exogenous transaction costs, and as soon as the market is in place, the government should leave that area.

Since an institutional system is superior to an administrative one in many ways, it would seem that government would be as small as possible, yet in China the size of government is growing rather than shrinking. Hierarchical bureaucratic systems tend to expand. The more one relies on administrative measures, the more one needs to increase the size of government. The more one needs to increase the number of organizations, the more one needs to coordinate the relationships among institutions. It is also true that the more government organizations there are, the more the government intervenes in business activities, which leads to higher transaction costs because of red tape and other inefficiencies.

Although an administrative system is not an efficient method in the overall scheme, it is easier (i.e., more cost effective to the administration itself) to operate. Therefore, it is still widely used as an instrument to achieve

economic goals, although most of the arguments favoring an administrative system are losing strength in China. Institution formation, while the more advanced method, is in some respects more difficult to carry out (actually, it is easier as long as the participants in the institution have incentives to achieve win-win outcome), and it needs a more sophisticated government legal framework, more room for the innovative ideas, and more educated people.

However, what kinds of institutions should be established and how they would work is hotly debated as well. There are two types of institutional arrangements: administratively arranged and organizationally arranged institutions. To facilitate institution formation, the government must set up an appropriate legal environment and understand what goals, methods, and means must be pursued in order to achieve a desired institutional arrangement.

There are two different policy orientations a government can adopt vis-à-vis the formation of institutions: containment and engagement. A policy of containment includes more regulations so that the development of financial markets can be well controlled. A policy of engagement means that some guidelines are given, then the financial market is left to develop on its own (i.e., by evolution). We recommend that China follow a policy of engagement.

There is also discussion on rule-based versus power-based management. Rule-based management is predicated on set rules; power-based management is predicated on power. It is recognized that China's macroeconomic efficiency has benefited from its management based on administrative power, but it is also recognized that this is only transitional.

Another argument is the reliability-based versus validity-based system. Martin expressed the dichotomy: "Validity and reliability anchor down opposite ends of a spectrum that defines how systems are conceived and solutions are framed."[99] In his view, "reliability drives the exclusion of variables and judgment-free measurement, while validity drives the inclusion of variables and judgmental measurement."[100] In this sense, management is an art rather than a science (engineering). Overall, we favor a view that balances both a reliability-oriented approach and a validity-oriented approach.

In summary, the primary financial exchange is far more complicated than the secondary financial exchange. As North put it, "The institutions necessary to accomplish economic exchange vary in their complexity, from those that solve simple exchange problems to ones that extend across space and time and numerous individuals. The degree of complexity in economic exchange is a function of the level of contracts necessary to undertake exchange in economies of various degrees of specialization."[101] Here we use

the term "primary financial exchange versus secondary financial exchange" as a proxy for North's economic exchange versus simple exchange. Due to the path-dependent nature of institutional evolution, and given the initial condition of China's planned economy, we believe China must focus its reform efforts on the primary financial exchange in order to accomplish its goals in the financial sector.

Deregulation and Liberalization versus Regulation and Enforcement

IEEN explains that deregulation is a policy used by government to stimulate incentives to produce financial innovation and pursued in the process of financial market reform. The key to designing an incentive apparatus is innovative ideas or, in the language of evolutionary economics, idea generation. This means that the evolution of institutions cannot been explained solely by constraints, as North indicated.

How the Financial Sector Evolves

Base of the Financial Sector It is important to note that the "base" has a natural inclination to evolve in a certain direction. In the financial field, the base is a given, but it cannot be taken for granted. As Caprio indicates:

> *An appreciation of the various initial conditions in banking and their importance to the evolution of this sector suggests a strategy for reform that differs from the usual choice of pursuing either real or financial sector reform first. Instead, it would appear sensible to begin with those elements—often dubbed institution building—that are crucial for the development of banking and other financial institutions and without which higher profile reforms, such as interest-rate deregulation or bank privatization will possibly lead to a loss of financial stability.*[102]

The institutional framework of the financial sector, which we call the financial structure, determines the functions of the financial system. We can see the financial structure from two different perspectives:

In the first, the hierarchical structure is viewed vertically, illustrating the layers of financial deepening. This allows us to see the functions performed at different levels of institutional hierarchy (see Table 1.5).

In the second, the functions of financial activities and the layers of financial deepening are viewed vertically, demonstrating the functions of different institutions (see Table 1.6).

TABLE 1.5 Functions at Different Levels of Institutional Hierarchy

	Credit	Bond Market	Stock Market	Derivatives Market	Securitization
Government	Supervision	Supervision	Supervision	Supervision	Supervision
Intermediary	Loans	Underwriting	IPO	Swaps, options, futures	
Infrastructure	Legal, technical support	Legal, technical support	Legal, technical support	Legal, technical support	Legal, technical support

TABLE 1.6 Functions of Different Institutions

	Credit	Bond Market	Stock Market	Derivatives Market
Issuer	Business firms	Government, corporate	Corporate	
Intermediary	Banks	Underwriters		Risk takers
Investor	Depositors	Bond investor		

Institutions evolve out of function; thereafter, the interaction of all of the members of a society or participants in a financial system shape institutions.

The choice of methodology is determined by tradition, culture, and understanding of the value trinity. Obviously, the more highly educated the participants are, the higher the methodology.

Institution Formation in the Financial Sector One might imagine that there would be little to argue about the role of government in economic growth, yet this is fertile ground for debate among economic analysts. Gertler and Rose have specified policies that are positive to economic growth, which include providing for and enforcing the legal framework:

> *The most direct way a government can contribute to this process is by offering an efficient judicial/regulatory system, one that facilitates the enforcement of private contracts and punishes fraud effectively. There is also a role for some kind of public safety net to guard against a disruptive liquidity crisis, as we have discussed. But this objective must be balanced against the efficiency costs of providing public insurance.*[103]

However, judged by the transaction cost standard, the policies should also include those that facilitate defining property rights and encouraging financial innovation—that is, policies that facilitate institution building and support economic growth.

Government's Role in the Economy So far we have focused on institution formation, but this in no way implies that government is not important. The role of government in the economy is hardly controversial. Experience elsewhere in the world provides examples of governments' attempts to improve their management function, mainly by reducing direct participation in economic activities. Strictly speaking, government is not a player in the economy but a property right definer, rule maker, and enforcer. "Third-party enforcement means the development of the state as a coercive force able to monitor property rights and enforce contracts effectively."[104]

> *Adam Smith wrote in Wealth of Nations: It is not from the benevolence of the butcher, the brewer or the baker that we expect our dinner, but from their regard to their own self interest. . . .[Every individual] intends only his own security, only his own gain. Moreover, he is led by an invisible hand to promote an end, which was no part of his intention. By pursuing his own interest, he frequently promotes that of society more effectually than when he really intends to promote it.*[105]

However, the invisible hand can only be applied to a limited extent. When resources are not subject to the market, and when price is artificially distorted, the invisible hand does not work.

> *According to Coase: In the medieval period in England, fairs and markets were organized by individuals under a franchise from the King. They not only provided the physical facilities for the fair or market but also were also responsible for security (important in such unsettled times with relatively weak government) and administered a court for settling disputes (the court of pie powder). Fairs and markets have continued to be provided in modern times. . . . Of course, their relative importance has tended to diminish. . . . With the government providing security and with a more developed legal system, proprietors of the old markets no longer had to assume a responsibility for providing security or to undertake legal functions, although some courts of firepower survived late into the nineteenth century.*[106]

The true function of government is to set up the market to help reduce transaction costs. In many countries, some of the functions of government have been outsourced to the private sector, which also reduces the strain on government budgets and heightens understanding and cooperation between the public and private sectors.

Public-private partnerships (PPPs) are one way to shift part of the government's burden to the private sector. In the last decade, projects such as the construction and operation of hospitals in the United Kingdom, construction and operation of federal prisons in the United States, and the construction and operation of Highway 407 in Ontario, Canada, are all examples of successful PPPs.

In each case, the respective governments were responsible for establishing the criteria, regulations, and guidelines under which these entities would operate, while the private sector operated the facilities. For example, the U.K. government set standards for private-sector hospital management, which included delivery of meals on time, prompt response to telephone queries, and high-quality medical care.

In every country, government provides the framework in which all businesses conduct their affairs: the legislation and regulations related to weights and measurement, unfair competition, foreign ownership, telecommunications, e-commerce standards, safety and labeling requirements, patent protection, recycling, taxation, financial reporting, land use, and environmental requirements, among many others.

Government should encourage the development of self-regulatory institutions, or associations, as they tend to have closer relationships with both government and the business sector and are more efficient than government operating directly. Thus, business associations and proprietary lobbyists represent various sectors (as well as subsectors), such as banking, manufacturing, insurance, forestry, and retailing.

Laws and regulations governing business and the financial sector should be monitored periodically with an eye toward deregulation, in order to minimize constraints and provide more incentives to the financial market.

Still, government should not adopt a completely hands-off policy. As Douglas C. North says:

> *Authorities now have come to recognize the need to nurture regional markets and to build necessary infrastructure. Some experts argue that markets should evolve spontaneously, without official intervention. Indeed, the Euro-Market developed without the endorsement of authorities; rather, it developed as a means to circumvent regulations that restricted market transactions. However, it is important to recognize that infrastructure was already in place.*[107]

TABLE 1.7 Evolutionary Characteristics of Institutions

Evolution of Institutions	Competitive Competence	Market Movement	Economic Efficiency	Organizational Structure	Technological Progress
Informal rules	Idea generation	Commodity market	Division of labor	Private firm	Labor
Formal rules		Financial market	Specialization	Partnership	Invention of steam engine
	Knowledge of management	Derivatives market	Economies of scale	Corporation	Electronics
Culture	Brand-based competitive edge	Function-based operators			
	Core technology	Safety-based operators		Banks	Information
				Financial institutions	
	Knowledge of competition			M&A	

As illustrated in Table 1.7, economic development is predicated on three dimensions: informal rules, formal rules, and culture. Government's role varies depending on the situation. In areas such as agriculture, mining, and energy exploitation, governments can legislate to ensure their effective use, protect the environment, and so on.

The government's role vis-à-vis technological progress is in such things as patent and copyright law. In terms of organizations, its role is to provide corporate laws that will promote small and medium enterprises; with respect to the division of labor, the government's role is to levy value-added tax; and insofar as market building is concerned, the government's role is to set up the market infrastructure, incentive apparatus, and, most important, rules.

Industrialization-Based Policy versus Finance-Driven Policy The classical economists did not overlook the issues of economic growth. As North pointed out:

> *Output is determined by the stock of capital, both physical and human, and we can increase the stock of capital in the neoclassical*

> *world by investing at whatever margins have the highest rate of return, there is no fixed factor. We can overcome resource scarcities by investing in new technologies and we can overcome any other scarcity by investing in new knowledge to overcome that potentially fixed factors.*[108]

According to North, Marx was the first economist to highlight the role of institutions: "to the extent that these models convincingly related institution to incentive to choices to outcomes they are consistent with the argument of this study."[109]

As indicated, finance-driven policy is superior to the industrialization-based policy, which has always been accompanied by financial repression. The two different policy orientations are compared in Table 1.8.

What distinguishes an industrialization-based policy from a finance-driven policy is the way in which the whole economy is managed. Thus far, China has pursued an industrialization-based policy.

A finance-driven policy focuses on interest or exchange rates, through which the government pursues its macroeconomic policy. However, more than anything else, a finance-driven policy focuses on building institutions because without institutions in place, the interest rate policy cannot be carried out. Here the way institution creation is pursued is crucial, and the government's focus should be on setting up the regulatory framework and leaving the institutions to evolve on their own until everything has been put into place.

TABLE 1.8 Industrialization-Based Policy versus Finance-Driven Policy

	Industrialization-based Policy	Finance-driven Policy
Political orientation	Supports SOEs	Supports SMEs
Supervision orientation	Protects SOEs	Protects investors
Attitude toward failing companies	Bailouts	Bankruptcies
Attitude toward competition	Division of labor, against competition, discourages new entry	Encourages competition and new entries
Attitude toward consumption	Levies withholding tax	Increases disposable income
Policy instrument orientation	Fiscal policy	Monetary policy
Industrialization	Manufacturing	Third-level industries

SUMMARY OF IEEN

In summary, the IEEN is based on five important pillars (i.e., the arguments draw on five lines of thoughts), which related to each other:

1. The exchange underlies human relationships. Human beings keep their relationships, whether person to person, person to group, or group to group, via the exchange of their endowments and comparative advantages.
2. The exchange of comparative advantages can come up with a win-win finale or a win-lose aftermath. The outcome may run counter with their initial desires.

   The win-win type of game theoretical equilibrium or institutional arrangement is evolutionary, while the win-lose type of game theoretical equilibrium is revolutionary. If an institutional arrangement can reach a win-win outcome without triggering externality (the impact to other people), it is possible to lead to social progress. The win-lose outcome may have three different social consequences: a revolution that leads to social progress, income redistribution, and disfranchisement that leads to social regression.
3. Institutions underlying human relationships are dynamic and driven by the interaction between incentives and constraints.
4. Institutions are both the game per se and the rules of game. Institutional progress is achieved via the efforts to save the transaction costs, exogenous and endogenous. Setting the rules of game would help to reduce exogenous transaction costs, while game play would win by saving endogenous transaction costs.
5. A society is structured by primary exchange and secondary exchange to save exogenous transaction costs and endogenous transaction costs, respectively. The PE is a mandate by SE (i.e., the PE is derived from a mandate from the SE). That is to say, rules internally created, from secondary exchange, are internal rules; or from primary exchange, are external rules.

Without referring to the PE and SE, it is difficult to define social progress and regression. Insofar as the SEE is concerned, the win-win outcome marks progress, whereas the win-lose and lose-lose outcomes mark backsliding. However, the same is not necessarily true for political exchange, where the win-lose exchange may be a revolution that marks a social progress.

It is important to note that the more exchanges are carried out in the secondary exchange, the more benefits are engendered to the public. However, for the exchange to happen, property rights have to be defined

first. In addition, these exchanges have to follow certain rules to ensure fair competition, and the rules have to be enforced effectively. This legitimizes the PE as a superstructure of the SE. There are two important points:

First, the rules here are also endogenously engendered. This is obviously contrary to the North's view that institutions are rules that are exogenously made. The primary exchange is also an exchange and therefore also has to follow rules, which necessities the higher level of primary exchange whereby rule for the exchange can be engendered. In this book, the administrative exchange is the superstructure of economic exchange and the political exchange is the superstructure of administrative exchange.

The exchanges, rather than those through economic market, are carried out through the so-called internal market, or political market. It is recognized there are many internal markets. The internal market, in our view, includes administers to bureaucratic, the exchange among agencies and the exchange between central and local government.

Unlike the United States and the United Kingdom, the tax bureau is at the same ministerial level in China. Therefore, the tax policy is formulated via the exchange between the Ministry of Finance and the National Tax Bureau. As in the United Kingdom, local governments are only agents of the central government; therefore, there are exchanges between central government and local governments.

Most exchanges in the political market are not related to commodities, but to power, promotion, and other incalculable or invisible benefits.

Much of the literature on political science and public choice relates to the government administrative system. However, these subjects are discussed in isolation; most fail to specify the role of the secondary administrative exchange, and therefore lack theoretical consistency.

Essentially, there are many exchanges in a hierarchical structure to facilitate the diminution of exogenous transaction costs. In classical and neoclassical economics, government is mainly an economic unit and a black box. But in the IEEN framework, it is one party of the exchange or game play through which government policies and economic rules are engendered.

If the discrepancy of endowed comparative advantages between each party engaged in an exchange are largish, then the incentive to participate in the exchange for the less advantageous party is slim. This is because, even based on the fair exchange, the win or benefit is far more weighted toward the party who has more comparative advantage. This requires the PE to pursue the principle of equality. This view, which highlights the consistency of equality and efficiency, supported by the evidences that discovered in China and elsewhere, runs contrary to the prevailing neoclassical equality-efficiency trade-off.

Unlike many contemporary economic theories, to which the different views of neoclassical and neoinstitutionalist are hard to reconcile, within the IEEN framework, achievements in economics, sociology, and mathematics get along in harmony.

All the social and economic issues can be ascribed, in one way or the other, to what I called incomplete primary exchange. Therefore, the mission of the IEEN framework is to remedy the incomplete PE. Although the external PE cannot make the best enforceable rules, the primary or secondary internal exchange, can fill the gap.

In this book, the bond market is not seen from market perspective but from an institutional perspective. It is intended to link the bond market to the economic and social fundamentals (i.e., to the institutional arrangement). Many missing links are presented. Although the theory of IEEN seems to trace back to the principal social and economic issues, it is my hope that it can generate discussions of contemporary China's economic issues. In essence, here the bond market is symbolic of China's economic reform and is the epitome of modern social and economic development in China.

The function of the PE, internal and external, is to spawn formal and informal rules. As the internal PE is created by the participants of the SE, it can achieve a higher level of equilibrium between incentives and constraints and therefore is more economically efficient. This theoretical discovery has important implications for understanding the role of institutions on economic growth, finance and capital market issues, among others.

Laws and rules can be introduced, but exchanges can never be introduced from the outside. By the same token, tradition and culture heritage can never be introduced.

Up-to-date ideas and technological progresses contribute to the institutional evolution and revolution insofar as it economizes transaction cost, both exogenous and endogenous. Although there is no clear division line, in general, innovative ideas save endogenous transaction costs whereas technological progress saves exogenous transaction costs.

There are five categories of constraints:

1. Laws and regulations, formal rules
2. Religions and philosophy
3. Convention
4. Contracts
5. Norms

North has categorized these constraints as informal rules and formal rules. To North, laws are formal rules, and all the rest are informal rules. However, he did not say how formal and informal rules are engendered.[110]

In the IEEN framework, rules, both formal and informal, are created via primary and secondary exchange, internal and external. The internal exchange spawns informal rules except religions, which are created by external exchange, while the external exchange spawns formal rules. "Internal" and "external" are relative terms. To the bond exchange, financial exchange is external. And to the SE, the PE is external. Internal exchange is between or among parties and participants who are engaged in a transaction. Exchanges, primary and secondary, are the genuine engine of institutional change.

We must not get carried away and imagine that development of institutions in China was always on the same scale as seen elsewhere. It is noted that only formal rules and religions can be introduced from outside; informal rules cannot be enacted in a China-specific environment as they are created directly from exchange, and exchange per se cannot be introduced.

Knowledge is a comparative advantage, whereas innovative ideas are a competitive advantage. One of the important conclusions in this regard is that foreign models or practices cannot be transplanted directly to the domestic environment, but they can learned as an idea to those who are the participants of primary exchanges.

Although the IEEN is intended to explain the driving force of debt capital market development in China, its theoretical framework is applicable to any social economic issues, not just debt capital ones.