

New Economics of Diversity: Comparative Institutional Analysis

By Aoki Masahiko

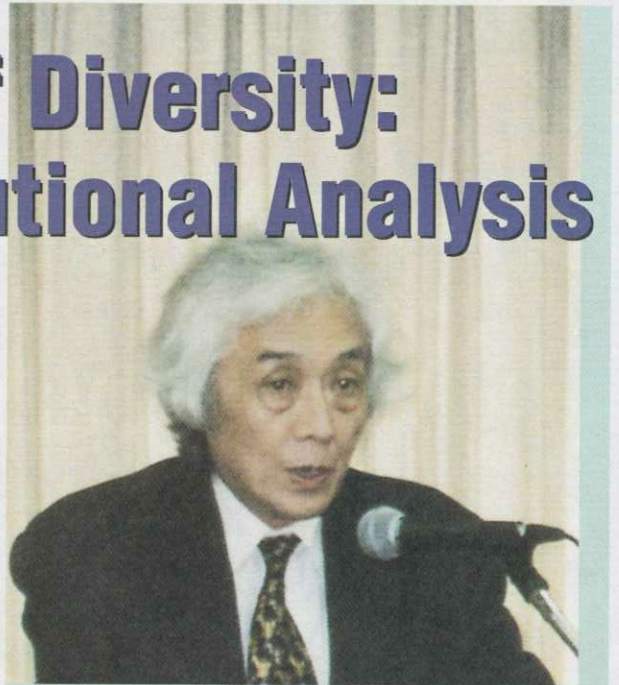
The Department of Economics at Stanford University has enjoyed the reputation of being No.1 in the U.S. for the last several years., along with Harvard and MIT. It is distinct in having offered one unique field, called CIA, for the past seven years to Ph.D. candidates, as well as traditional fields such as macro, mathematical economics, labor economics, international trade, econometrics, and public finance. CIA is not a research-educational field sponsored by the Central Intelligence Agency, but stands for *Comparative Institutional Analysis*. In short, Comparative Institutional Analysis is a new field of economics dealing with the diversity of an economic system as a complex arrangement of institutions. The Stanford CIA program is also unique in its use of the most advanced tools of game theory for analyzing these issues, combined with the use of concrete historical and comparative data. This short essay introduces the basic ideas of this exciting new field of economics and points out its relevance for present-day economic issues.

Possible Research Themes of Comparative Institutional Analysis

As the recent organization of the International Society of New Institutional Economics attests, institutions have become the major focus of economists' attentions. Durkheim, one of the important architects of modern sociology, defined sociology as the "science of institutions" in contrast to economics, which was the "science of markets." However, a strong sense has now emerged among economists that "institutions matter" in understanding various acute political-economic issues of today's world. While comparative studies of economic systems in the

1950s and 60s dealt with comparing the planned economy to the market economy, new types of comparative issues have arisen in the last decade or two out of a recognition of the diversity of institutional arrangements across market-oriented economies. These issues have arisen across developed market economies, as well as in developing market economies, and in economies that have started the transition from a planned system to a market system. However, they are not entirely unrelated to each other, which is precisely the reason for the emergence of Comparative Institutional Analysis. Economists increasingly sense the potentiality of a common framework for analyzing comparative issues arising in different subsets of economies. Let us note some salient issues that may call for such a framework.

(i) Global markets for products and finance increasingly link the developed market economies, but their institutional arrangements of work, trade, and R&D-organizations, employment contracts, industrial relations and collective bargaining institutions, corporate governance structures and financial institutions, government regulations and legal enforcement mechanisms, etc., have remained remarkably diverse. Some economists maintain that different institutional arrangements across those economies are becoming an important source for national (or regional) advantages in industrial competitiveness and international trade, while others submit that institutional



Aoki Masahiko leads the new field of economics called Comparative Institutional Analysis (CIA)

arrangements should be, or are bound to be, made homogenous across economies according to global standards, either because of the need for leveling the playing field or simply as a consequence of global competitive pressure. Why do different institutional arrangements appear to persist across economies? Is this caused only by impediments to free competition from implicit, administrative, or legal barriers to factor mobility, or by "irrational" cultural inertia? Will government regulatory power be forced to retreat as globally integrated financial markets bypass highly regulated economies and consequently weaken their competitiveness? As a result of "the retreat of states" in managing national economies, will industrial and business organizations be more alike across economies?

(ii) It was only within the last decade that the communist states in Eastern Europe suddenly collapsed. In spite of the initial euphoria, however, the transition to a market economy in the former USSR has turned out to be neither trivial nor straightforward. Why hasn't a simple formula of macro stabilization, complete and thorough liberalization of prices and trade, and

the privatization of state-owned enterprises worked? Is it because the formula was right, but the politicians who carried it out were bad? On the other hand, the Chinese transition has been proceeding in an institutional environment without a well-arranged rule of law to constrain the ability of the state to prey on private property rights, massive and immediate privatization of state-owned enterprises, or complete liberalization of trade and prices. Yet China has had the fastest growing economy for the last two decades and has recently succeeded in hardening budgets, while the share of state-owned enterprises in industrial output has been steadily declining from 80 to 30% in two decades. Are different transitional paths constrained by disparate communist legacies? If there are a variety of institutional arrangements in the developed market economies, can transitional economies emulate the best of them as a terminal target state of transition, or should they seek their own model? Has China performed relatively better in terms of its macro growth rate than its East European counterparts simply because of its relatively lagged development stage, or by effective institutional arrangements, intended or unintended?

(iii) The publication of *The East Asian Miracle: Economic Growth and Public Policy* in 1993 by the World Bank signaled a new stage of debate on the role of the state in particular, and that of institutions in general, in the development process. But before the issue has been settled of whether or not state-led growth is the essence of the so-called East Asian model, the financial crisis that hit the region in 1997 has raised another controversy. Does the crisis imply the demise of the "state-led" East Asian model? In order for East Asian economies to sustain growth, would it be better to scrap "state-led" institutional arrangements and quickly adopt the market-oriented Anglo-American model? Or alternatively, is the crisis rather a transitory episode that

appeared at a certain evolutionary stage of the East Asian model? More broadly, should the East Asian model be understood as a coherent complex of institutional arrangements not limited to close government-business relationships, but also including community norms, cooperative work organizations, etc. that has evolved by its own logic? If such a model is distinct from what one observes in other developing economies in Latin America or Africa, why is this so? Is it merely a response to a difference in ecological conditions or in cultural and ideological heritage?

The Use of the Game Theoretic Apparatus and its Implications

I noted above that Comparative Institutional Analysis employs a game-theoretic apparatus for the analysis of various comparative issues. Game theory was originally invented by John von Neumann and Oskar Morgenstern in the mid-1940s as a mathematical theory appropriate for analyzing the social interactions of economic agents in lieu of Newtonian calculus used for analyzing the dynamics of mindless physical objects. It is only in the last two decades or so, however, that it has developed to provide a useful conceptual and analytical framework for analyzing institutions. However, the comparison of the economic process with a game can be dated back as far as Adam Smith, who stated:

"In the great chessboard of human society, every single piece has a principle of motion of its own, altogether different from that which the legislature might choose to impress upon them."

(*Moral Sentiments*, 1775)

In comparing the economic process to a game, economists have regarded an institution as similar to either a player of the game, the rules of the game, or an outcome (equilibrium) of the game. When people casually talk about institutions in daily conversa-

tions, they normally mean (prominent) organizational establishments, such as the government, universities, corporations, foundations, religious organizations, etc. Some economists follow this convention, effectively identifying an institution with a specific player of the game. However, Douglas North, a Nobel Laureate for his contribution to institutional economics, argues for a second view: that institutions should be identified with the rules of the game as distinct from players of the game. There are formal and informal rules of the game. The former can include constitutions, property rights laws, and contracts, while the latter may include conventions, social norms, etc. By definition, the formal rules of the economic game cannot be constructed (changed) by the players of the game while they are playing, but need to be determined prior to playing the game. Who determines the economic rules? It is here that North draws a sharp distinction between the rules of the game and the players (organizations and their political entrepreneurs), who can act as agents of institutional change, i.e., as rule-makers. According to North, the existing rules of the game shape the incentives of the players (organizations) in how to transact and what to innovate, ultimately generating effective demands for new rules in response to changing relative prices. The new rules will then be negotiated and determined in the "political market" that is structured according to political rules. North claims "[i]t is the polity that specifies and enforces the economic rules of the game."

In contrast, Comparative Institutional Analysis identifies institutions as equilibrium outcomes of the economic game, that is, a stationary state of a process of interactions among the agents who play the game repeatedly over time. Thus an institution as an equilibrium outcome of the game is "the product of long term experiences of a society of boundedly rational and retrospective individuals" (Kreps). As such, it may include standards of

economic behavior that have evolved among economic agents, shared beliefs held among them regarding what will be a likely outcome when they deviate from prevailing standards, and the like. There can be a few advantages, as well as important implications, in this approach.



Aoki Masahiko makes the opening remarks at the conference on Spectrum Auctions (one of the market enhancing policy measures derived from CIA) on September 9

(i) *Institutions cannot be changed discretionarily by a policy-legal design.* If one subscribes to the rules-of-the-game view, then one must immediately face the issues of where and how the rules originate, as well as how they are enforced. Institutional origin may need to be found outside the domain of the economy in which the rules are applied: e.g., in the polity outside the economic domain as North emphasizes. But how, then, are the rules of the game in the polity determined? Thus, the problem of infinite regression seems bound to arise. It seems that the right way to solve this problem is to regard an institution as originating as *endogenous* solution of a game—closely connected to Hayek's notion of *cosmos* meaning the spontaneous order—in either the economic, social, or political exchange domain. Behavioral standards or shared beliefs that emerged endogenously may eventually be articulated and codified as explicit rules or laws, to save various disequilibrium costs caused by mistakes, deviations, ignorance, etc. and to improve upon emergent practices in (adaptive or innovative) response to changing environments. However, if such a codification is not consistent with an equilibrium choice by the agents, the formalized rules—or what Hayek called *thesis*, meaning a “made law” or “set’ law”—will not be effectively enforceable or implementable. For example, the Russian government has issued many decrees to define private property rights etc., but if they are not followed by the people, they cannot

be said to define an institution. Rather, private property rights are redefined and enforced by violent private power, that can then be deemed an institution.

(ii) *Various institutions may not exist independently, but may be interdependent with each other.* The equilibrium approach to institutions provides an appropriate framework for analyzing the *interdependencies* of institutions operating within the economy. When businessmen design organizational forms with the purpose of emulating better practices abroad, or when the government designs an organizational plan or drafts a statutory law for the purpose of introducing a so-far non-existent “institution” (such as markets for corporate control in a transitional economy), its implementation in particular economic, political, and social contexts can often have unintended consequences (such as insider control of privatized ex state-owned enterprises). This is analogous to the situation in which a medicine which has been tested in a laboratory may have unpredicted side effects when it is administered to a human being due to the complexity of the living organic system. A major reason for such unintended outcomes could be the absence of “fits” between the designed plans and extant institutions. This suggests the possibility that only institutional

arrangements that are mutually consistent and/or reinforcing may be viable in the economy. We can conceptualize such ideas as embeddedness or institutional complementarities. These intuitively appealing notions can become amenable to rigorous analysis equilibrium notion institutions is applied.

(iii) *There can be a diversity of institutional arrangements.* In game theoretic models, there usually exist multiple equilibria. Thus there can be many institutions in response to the same technological environment rather than a unique efficient equilibrium. Thus the equilibrium approach is able to shed light on the “humanly devised” (North) nature of institutions rather than its ecologically, technologically or culturally driven aspects. If there is only one equilibrium corresponding to the technological specification of the structure of the game, then that equilibrium is little more than a disguised technological condition, but not an institution. For example, often the evolution of the community norms in East Asia is attributed to the climatic and ecological conditions there, which presumably make peasant family farming and collective use of the irrigation system more productive. However, Korea and Japan, which are characterized by similar ecological conditions, had rather divergent institutional paths in terms of village social structures and social norms, which may have had profound and long-lasting impacts on the subsequent differential institutional trajectories of both economies. Usually, a multiplicity of equilibria bothers game theorists, and they have spent much research effort on the so-called “refinement” of equilibrium, namely the refinement of the equilibrium concept to enable game theorists to identify only one equilibrium out of

many possible equilibria. However, we consider that the multiplicity of equilibria of games should not be regarded as bothersome in Comparative Institutional Analysis for the reason described above. We only need to carefully utilize empirical, comparative and historical information to identify important historical, political, and social factors that selected one equilibrium over the others in each economy. Thus Comparative Institutional Analysis ought to integrate game-theoretic analysis with economic history and comparative studies.

(iv) *Not only markets but other institutions matter.* The equilibrium approach to institutions may also clarify the multi-faceted roles of institutions. In the world of incomplete and asymmetric information, an institution may "enable" the bounded-rational agents to economize on the information processing needed for decision-making. Here, an analogy with the price mechanism familiar to economists may be somewhat useful. In the market mechanism, individuals do not need to know every detail of the economic environments in which they make their choices, but only relative prices (Hayek). Leaving aside the problem of the enforcement of contracts and property rights, if there were a complete set of markets, relative prices might be regarded as a sufficient summary of the data needed for the society to achieve the social optimum in the most efficient way. However, in reality markets are not complete and there are many phenomena of market failure. Individual agents therefore need alternative means to gain information useful in making their choices. Various institutions other than markets would then evolve in response to the failure of complete markets to exist.

(v) *Institutional change as punctuated equilibrium.* Just as markets transmit information regarding the economic environment (technologies, tastes and

resource endowments) in the summary form of equilibrium relative prices, so do other institutions in alternative summary forms. Just as there can exist only an incomplete set of markets, the ability of any institution to transmit information regarding the changing environment and the choices of other agents in a summary form is also incomplete. But for individual agents who are bounded in their ability to process information and compute their optimal choices, such incomplete information may be adequate for making reasonably satisfactory choices in a relatively stable environment. However, such adequacy may become subjectively problematic when there is a drastic environmental change and crisis, or when a path of continual change crosses a certain threshold. Individual agents may then perceive that the "taken-for-grantedness" of institutional arrangements may not be tenable and begin to search for a new pattern of choices based on the collection of information, learning, experimentation, and so on. As an aggregate outcome of such individual searching, agents' expectations about the internal and external state of the economy (or its sub-domain) may gradually converge and a new institution may then emerge.

Thus, the actual process of institutional evolution may be characterized more as what biologists Stephen Jay Gould and Niles Eldredge conceptualized as *punctuated equilibrium* rather than the steady, gradual Darwinian selection process. An evolutionary process characterized by punctuated equilibrium is one in which long periods of stasis are broken by short, in geologic time, episodes of rapid speciation. Although biological metaphor and analogies cannot be perfect, nonetheless their concept is highly relevant and appropriate. Once a particular system (institutional or biological) is established, it tends to sustain itself. Change in the system may be more likely to be initiated by a large external shock rather than one

that is slow and gradual. Characteristics selected during one point in time impose constraints on future possibilities (path dependence).

In my opinion, many political economic issues that have recently emerged are symptoms indicating that we are now facing a time of great institutional transformation. For example, the so-called banking crisis in Japan indicates that the expectation that the main banks would rescue/discipline financially distressed client firms cannot be tenable any more. In view of our conceptualization of an institution as an equilibrium, this is indeed indicative of the demise of the main bank system as an institution. The present crisis may then be thought of a transition process in which a new equilibrium is being searched for through trial and error, experiments, learning, etc. From the equilibrium perspective of an institution, one cannot predict what will be, or should be, an alternative institution, because it can only emerge as an outcome of the interplay of millions of economic players rather than an outcome of the design of legislators or bureaucrats, as Adam Smith noted. However, it seems at least certain that the process is path-dependent in that institutional change is constrained by past history, and that a possible outcome is not likely to be a convergence toward the Anglo-American model which has evolved in a particular historical path, although Japan has a lot to learn from it in the process of transition. JTI

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