

1. Institutions and the Performance of Economies Over Time

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1. INTRODUCTION

The discipline of economics is made up of a static body of theory that explores the efficiency of resource allocation at an instant of time and under the restrictive assumptions of frictionless markets. Recent research has explored the nature of the frictions by incorporating institutions, transaction costs, and political economy into economic analysis thereby providing the theory with a bridge to the real world of real economies. But the first constraint of static analysis severely hinders our ability to analyze and improve the performance of economies in a world of continuous change. And, in fact, the employment of static theory as a source of policy recommendation in a setting of dynamic change is a prescription for the policies producing unanticipated and undesirable results. In this essay I intend to provide an approach to the study of the process of economic change. There is still much that we do not understand about the process but this essay provides an analytical framework that does, I believe, highlight the problems that must be confronted in order to understand and improve economic performance. I first describe the intentional nature of human interaction in a world of pervasive uncertainty (2) before going on to describe the process of economic change (3). I conclude with drawing some implications from this approach to the process of change which highlight the lacunae in our understanding of this process (4).

2. INTERACTIONS IN A WORLD OF UNCERTAINTY

¹In contrast to standard theory that draws its inspiration from physics, modeling the process of change must derive its inspiration from evolutionary biology but in contrast to Darwinian theory in which the selection mechanisms are not informed by beliefs about the eventual consequences, human evolution is guided by the perceptions of the players in which choices—decisions—are made in the light of these perceptions with the intent of producing outcomes downstream that will reduce the uncertainty of the organizations—political, economic, and social—in

¹This section is drawn from my essay "Five Propositions about Institutional Change", in Knight, J. and Sened, I., *Exploring Social Institutions*, Michigan: The University Press, 1995.

pursuit of their goals. Institutional change, therefore, is a deliberate process shaped by the perceptions of the actors about the consequences of their actions. The immediate vehicle by which the actors attempt to shape their environment is by altering the institutional framework in order to improve their (and their organizations') competitive position. Let me state five propositions that describe this process:

1. The continuous interaction between institutions and organizations in the economic setting of scarcity and hence competition is the key to institutional change.
2. Competition forces organizations continually to invest in new skills and knowledge to survive. The kind of skills and knowledge individuals and their organizations acquire will shape evolving perceptions about opportunities and hence choices that will incrementally alter institutions.
3. The institutional framework provides the incentive structure that dictates the kinds of skills and knowledge perceived to have the maximum payoff.
4. Perceptions are derived from the mental constructs of the players.
5. The economies of scope, complementarities, and network externalities of an institutional matrix make institutional change overwhelmingly incremental and path dependent.

Let Me Expand on These Propositions

1. Institutions are the rules of the game—both formal rules, informal norms and their enforcement characteristics. Together they define the way the game is played. Organizations are the players. They are made up of groups of individuals held together by some common objectives. Economic organizations are firms, trade unions, cooperatives, etc.; political organizations are political parties, legislatures, regulatory bodies; educational organizations are universities, schools, vocational training centers. The immediate objective of organizations may be profit maximizing (for firms) or improving reelection prospects (for political parties); but the ultimate objective is survival because all organizations live in a world of scarcity and hence competition.
2. New or altered opportunities may be perceived to be a result of exogenous changes in the external environment which alter relative prices to organizations, or a consequence of endogenous competition among the organizations of the polity and the economy. In either case the ubiquity of competition in the overall economic setting of scarcity induces entrepreneurs and the members of their organizations to invest in skills and knowledge. Whether through learning by doing on the job or the acquisition of formal knowledge, improving the efficiency of the organization relative to that of rivals is the key to survival.

While idle curiosity surely is an innate source of acquiring knowledge among human beings, the rate of accumulating knowledge is clearly tied to the pay-offs. Secure monopolies, be they organizations in the polity or in the economy, simply do not have to improve to survive. But firms, political parties, or even institutions of higher learning faced with rival organizations must

strive to improve their efficiency. When competition is muted (for whatever reasons) organizations will have less incentive to invest in new knowledge and in consequence will not induce rapid institutional change. Stable institutional structures will be the result. Vigorous organizational competition will accelerate the process of institutional change.

3. There is no implication in proposition 2 of evolutionary progress or economic growth—only of change. The institutional matrix defines the opportunity set, be it one that makes income redistribution the highest pay-off in an economy or one that provides the highest payoffs to productive activity. While every economy provides a mixed set of incentives for both types of activity, the relative weights (as between redistributive and productive incentives) are crucial factors in the performance of economies. The organizations that come into existence will reflect the payoff structure. More than that, the direction of their investment in skills and knowledge will equally reflect the underlying incentive structure. If the highest rate of return in an economy comes from piracy we can expect that the organizations will invest in skills and knowledge that will make them better pirates. Similarly if there are high returns to productive activities we will expect organizations to devote resources to investing in skill and knowledge that will increase productivity (the new growth economics literature can become relevant at this point).

The immediate investment of economic organizations in vocational and on the job training obviously will depend on the perceived benefits; but an even more fundamental influence on the future of the economy is the extent to which societies will invest in formal education, schooling, the dissemination of knowledge, and both applied and pure research which will mirror the perceptions of the entrepreneurs of political and economic organizations.

4. The key to the choices that individuals make is their perceptions about the payoffs, which are a function of the way the mind interprets the information it receives. The mental constructs individuals form to explain and interpret the world around them are partly a result of the genetic evolution of the mind, partly of their cultural heritage, partly a result of the local everyday problems, they confront and must solve, and, partly a result of non-local learning. The mix among these sources in interpreting one's environment obviously varies as between for example a Papuan tribesman on the one hand and an economist in the United States on the other (although there is no implication that the latter's perceptions are independent of his or her cultural heritage).

The implication of the foregoing paragraph is that individuals from different backgrounds will interpret the same evidence differently; they may, in consequence, make different choices. If the information feedback of the consequences of choices were complete then individuals with the same utility function would gradually correct their perceptions and over time converge to a common equilibrium; but as Frank Hahn has succinctly put it, "There is a continuum of theories that agents can hold and act upon without ever encountering events which lead them to change their theories." (Hahn, 1987, p. 324). The result is that multiple equilibria are possible due to different choices by agents with identical tastes.

5. The viability, profitability, and indeed survival of the organizations of a society typically depend on the existing institutional matrix. That institutional structure has brought them into existence; and their complex web of interdependent contracts and other relationships has been constructed on it. Two implications follow. Institutional change is typically incremental and is path dependent.

This institutional change is occurring in a world of pervasive uncertainty or ambiguity which by definition is one in which one cannot derive a probability distribution of possible outcomes—such as is possible with decision making in the face of risk (in the Knightian definitions). This uncertainty persists because the “human landscape” in which humans are interacting is continually undergoing change—change induced in part by non-human action (for example changes in climate, natural disasters) but primarily by the human actors themselves.

Humans attempt to reduce that uncertainty (or convert it into risk) by learning. The cumulative learning of a society embodied in language, beliefs, myths, ways of doing things—in short the culture of a society—not only determines societal performance at a moment of time but through the way in which it constrains the choices of the players contributes to the nature of the process through time. Humans scaffold both the mental models they possess—belief systems—and the external environment—institutions. The focus of our attention, therefore, must be on human learning, on what is learned and how it is shared among the members of a society, on the incremental process by which the beliefs and preferences change through time, and on the way in which they shape the performance of economies through time.

We can describe that performance by innumerable statistics on its demographic, economic, technological, and institutional features; but what we really need to know is what is the interplay between all these features that makes it work. The foundations of the interplay are three: the demography, which describes the quantity and quality of human beings; the stock of knowledge that the society possesses, which determines the human command over nature; and the institutional framework that determines the rules of the game. The demographic characteristics include not only the fertility, mortality, and migration characteristics and the labor force composition, but also the stock of human capital (derived from the stock of knowledge). The stock of knowledge includes not only the scientific knowledge that a society possesses, its distribution in the society, and its application to solving problems of scarcity, but also the beliefs that the society holds that influence the choices made. That stock of knowledge determines the potential upper bound of the well-being of the society. The institutional framework determines the incentive structure of the society. It is the interplay between these three that shapes the features of the economy. We know very little about this interaction, although we do have some limited hypotheses about parts of the interaction. Self-conscious modeling of this interaction at a moment of time, much less over time, has not been part of the agenda of economists, development economists, or economic historians.

But with this background we are now ready to explore the process of economic change.

3. PROCESS OF ECONOMIC CHANGE

A bare-bones description of that process is straightforward. The “reality” of a political-economic system is never known to anyone, but humans do construct elaborate beliefs about the nature of that “reality”—beliefs that are both a positive model of the way the system works and a normative model of how it should work. The belief system may be broadly held within the society, reflecting a consensus of beliefs; or widely disparate beliefs may be held, reflecting fundamental divisions in perception about the society. The dominant beliefs—those of political and economic entrepreneurs in a position to make policies—produce over time an elaborate structure of institutions—both formal rules and informal norms—that determines economic/political performance. The resultant institutional matrix imposes severe constraints on the choice set of entrepreneurs when they seek to introduce new or modified institutions in order to improve their economic or political positions. The resultant path dependence typically makes change incremental. But change is continually occurring (although the rate will depend on the degree of competition among organizations and their entrepreneurs) as entrepreneurs enact policies to improve their competitive position—policies that result in alterations of the institutional matrix described in the previous section. The result is revised perceptions of reality, and in new efforts by entrepreneurs to improve their position. The process of change is never ending. Change can also come from non-human induced changes in the human landscape, such as natural disasters; but overwhelmingly it is humans themselves who are incrementally altering the human landscape, as even the most cursory overview of human history will attest.

It is one thing to be able to provide a summary description of the process of economic change; it is something else to provide sufficient content to this description to give us an understanding of this process. What do we mean by reality? How do beliefs get formed? How do they change? What is the relationship between beliefs and institutions?

I have nothing to add to the age old question of philosophers—what is reality? But I do have a direct pragmatic interest in just what it is that we are trying to model in our theories, beliefs, and ideologies. The pragmatic concern is with the degree to which our beliefs coincide with “reality”. To the extent that they do then there is some prospect that the policies we enact will produce the intended result. The model is always a very imperfect reflection of how the economy really works. In some cases the defects are fatal, as in the case of the communist economies that disintegrated in 1989.

Beliefs and the way they evolve are at the heart of understanding the process of change. For the most part economists, with a few important exceptions like Hayek, have ignored the role of ideas in making choices. While the rationality assumption has served economists well for a limited range of issues in

micro-theory, it has devastating limitations in dealing with the process of economic change. The way we perceive the world and construct our explanations about that world requires that we delve into how the mind and brain work—the subject matter of cognitive science. We are some distance from a theory of learning that would account for how the mind works but we can at least outline the nature of the process.

The first level of learning entails developing a structure by which to make sense of the varied signals received by the senses. The initial architecture of the structure is genetic, but its subsequent development is a result of the experiences of the individual. This architecture can be thought of as generating an event space which gets us to interpret the data provided by the world. The experiences can be classified into two kinds—those from the physical environment and those from the socio-cultural linguistic environment (Hutchins and Hazlehurst, 1992). The event space structure consists of categories—classifications that gradually evolve from earliest childhood on in order to organize our perceptions and keep track of our memory of analytic results and experiences. Building on these categories, we form mental models to explain and interpret the environment, typically in ways relevant to some goals (Holland et al., p. 22). Both the categories and the mental models will evolve to reflect the feedback derived from new experiences—feedback that may strengthen and confirm our initial categories and models or that may lead to modifications. Thus, the event space may be continually redefined with experience, including contact with others' ideas.

Learning which preserves the categories and concepts intact but provides changed ideas about details and the applicability of the existing knowledge is the second level of learning. Together, learning within a given set of concepts and learning which changes the structure of concepts and mental models suggest an approach to the dynamics of learning.

The belief systems that evolve from learning induce political and economic entrepreneurs in a position to make choices that shape micro and macro economic performance to erect an elaborate structure of rules, norms, conventions and beliefs embodied in constitutions, property rights, and informal constraints; these in turn shape economic performance. This “scaffolding” not only constrains the choice set at a moment of time but is the source of path dependence. Thus when political or economic entrepreneurs seek to alter some aspect of economic performance they make choices that are constrained not only by the standard constraints of technology and income but also by this scaffolding. The process of institutional change described above is intended to alter performance in a particular direction. The aggregate of such institutional changes is continually altering the way the economy works. In turn that leads to gradual alterations of the models we devise in a never ending process of economic change.

Throughout history humans have typically gotten it (at least partly) wrong in 1) their understanding of the way the economy works, 2) the synthetic frameworks they construct, or 3) the policies they enact (at best blunt instruments to serve their purposes) which produce unanticipated consequences. We may

write economic history as a great success story of the enormous increase in material well-being which has reflected the secular growth in the stock of knowledge. But it is also a vast panorama of decisions that have produced death, famine, starvation, defeat in warfare, economic decline and stagnation, and indeed the total disappearance of civilizations. And even the decisions made in the success stories have typically been an admixture of luck intermingled with shrewd judgments and unanticipated outcomes. Take American economic history. From the earliest attempts at settlement, through the colonial era, to the perceptions leading to the revolutionary war the colonists had it, at best, half right. The Constitution, surely a classic of shrewd judgment, was aided by chance (the events of the 1780s), luck (the boycott of the Convention by the anti-federalists), and unanticipated decisions (the development of the independent judiciary and the Marshall court).

I wish to emphasize the limits to our understanding because there is a certain amount of hubris evident in the annual surveys by the World Bank and in the writing of orthodox economists who think that now we have it right. But it is important that we understand that even if we did have it right for one economy it would not necessarily be right for another economy and even if we have it right today it would not necessarily be right tomorrow. I am not suggesting that we haven't learned a good deal about determinants of economic performance. We have; but the implications of my brief survey of the sequence of steps from our understanding of an economy, to the scaffold we erect, to the policies we then enact to alter economic performance are that there are innumerable junctures where we can and do get it wrong. Crucial junctures, critical to the issues of improving the performance of economies, have resulted from the way scaffolds have evolved and policies were formed as well as the way time has affected the formation of beliefs.

Scaffolds include the political structure that specifies how we develop and aggregate political choices, the property rights structure that defines the formal incentives in the economy, and the informal constraints of norms, conventions and internally held beliefs. They have evolved over many generations, reflecting, as Hayek has reminded us (1960), the trial and error process which has sorted out those behavioral patterns that have worked from those that have failed. Because the experience of every society has been unique, they will differ for each economy. They constrain the choice set not only because the organizations of that economy have been built on the foundations of that institutional structure and therefore their survival depends on its continuance but also, and perhaps more fundamentally, because the belief system that is a complementary part of that scaffolding tends to change very slowly. This scaffolding is what makes path dependence so important. When the scaffolding crumbles, as it did in eastern Europe in 1989, the problems of constructing a new framework have exposed our limited understanding of the process of change.

Equally crucial are the policies that we enact to alter the performance of an economy. Even when we have a “correct” understanding of the economy and the (more or less) “correct” theory about its operation, the policies at our disposal

are very blunt instruments. They consist of alterations in the formal rules only, when in fact the performance of an economy is an admixture of the formal rules; the informal norms, and their enforcement characteristics. Changing only the formal rules will produce the desired results only when the informal norms that are complementary to that rule change and enforcement is either perfect or at least consistent with the expectations of those altering the rules.

Finally, time is important because it is the dimension in which human learning occurs and there is no implication in the foregoing brief description of the process of learning that suggests that we get it right. Indeed throughout history we have gotten it wrong far more often than we have gotten it right. The rise and fall of communism in the twentieth century is only a recent illustration. It is probably correct that if "reality" stayed constant the feedback from the policies we enacted would gradually lead us to get it right, but change and therefore persistent uncertainty is our lot which guarantees that we will continue to get it wrong at least part of the time.

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4. IMPLICATIONS AND LACUNAE

The implications of the foregoing brief outline of the process of economic change are straightforward. If our objective is to improve the long run performance of economies we are in possession of the essential characteristics of successful economies. The best single predictor of the growth of an economy remains its investment rate. The new growth economics literature highlights some of the specific features of successful development. What is glaringly missing from this literature is the incentive structure to realize these objectives. But we do know a good deal about the institutional foundations of successful development. A number of recent empirical studies have made clear the importance of the institutional matrix (see Knack and Keefer, 1995 for a good summary). That matrix broadly comprises the incentive structure which will determine the quantity and quality of investment. What is still missing is how to get there. The key is the way path dependence will constrain the process of institutional and economic change.

The implication of the foregoing analysis is that path dependence can and will produce a wide variety of patterns of development depending on the cultural heritage and specific historical experience of the economy. Indeed the success of TVEs (township and village enterprises—a form of organization that is neither a firm nor a cooperative) in China does not fit our preconceptions about successful institutional/organizational structures and has been a sobering reminder of how much we still have to learn about the process. A description of that process in China from the enactment of the household responsibility system traces a unique path which has produced (so far) rapid economic growth (although even that success is tempered by growing problems of TVEs). I would hope that this paper puts to rest for good any simplistic general nostras such as "big bang" or "shock therapy" theories to magically overcome lack of development.

If path dependence can help us to understand the variety of development patterns, it also speaks forcefully to the constraints that the scaffolds erected in an economy impose on institutional change. The historically derived constraints are supported not only by the existing organizations that oppose change but also by the belief system that has evolved to produce those constraints. The rate and direction of change will be determined by the "strength" of the existing organizations and belief system.

The demise of communism in Eastern Europe in 1989 reflected a collapse of the existing belief system and consequent weakening of the supporting organizations. Policy makers were confronted not only by the problems of restructuring an entire society but also by the blunt instrument that is inherent in policy changes that can only alter the formal rules but cannot alter the accompanying norms and even have had only limited success in inducing enforcement of policies. The relative success of policy measures—such as the auctioning of state assets and the reestablishment of a legal system—in the Czech Republic compared to Russia resulted from the heritage of informal norms that made for the relatively harmonious establishment of the new rules (although even here the system for shifting assets from public to private hands in the Czech Republic produced some adverse and unanticipated downstream consequences).

One of the shortcomings of research is the lack of attention paid to the polity and the problem of aggregating choices through the political system. We simply have no good models of politics in third world, transition, or other economies. The interface between economics and politics is still in a primitive state in our theories but its development is essential if we are to implement policies consistent with intentions.

5. CONCLUSION

Let me conclude by talking again about time. If you accept the crude schematic outline of the process of change I laid out in section 3 above, it is clear that change is an ongoing continuous affair and that typically our institutional prescriptions reflect the learning from past experience. But there is no guarantee that the past experiences are going to equip us to solve new problems. Indeed an historic dilemma of fundamental importance has been the difficulties of economies shifting from a political economy based on personal exchange to one based on impersonal exchange. An equally wrenching change can be the movement from a "command" economy to a market economy. In both cases the necessity to restructure institutions—both economic and political—has been a major obstacle to development; it still is the major obstacle for third world and transition economies. The belief system that has evolved as a result of the cumulative past experiences of a society has not equipped the members to confront and solve the new problems.

We are just beginning systematically to explore the process of economic change. Our laboratory is not only our history but, particularly, what we are

learning in the ongoing efforts to improve the performance of third world and transition economies. We have made some progress but we still have a long way to go.

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2. The Institutional Structure of Production¹

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In my long life I have known some great economists, but I have never counted myself among their number nor walked in their company. I have made no innovations in high theory. My contribution to economics has been to urge the inclusion in our analysis of features of the economic system so obvious that, like the postman in G. K. Chesterton's Father Brown tale, "The Invisible Man," they have tended to be overlooked. Nonetheless, once included in the analysis, they will, as I believe, bring about a complete change in the structure of economic theory, at least in what is called price theory or microeconomics. What I have done is to show the importance for the working of the economic system of what may be termed the institutional structure of production. In this lecture I shall explain why, in my view, these features of the economic system were ignored and why their recognition will lead to a change in the way we analyze the working of the economic system and in the way we think about economic policy, changes which are already beginning to occur. I will also speak about the empirical work that needs to be done if this transformation in our approach is to increase our understanding. In speaking about this transformation, I do not wish to suggest that it is the result of my work alone. Oliver Williamson, Harold Demsetz, and Steven Cheung, among others, have made outstanding contributions to the subject, and without their work and that of many others, I doubt whether the significance of my writings would have been recognized. While it has been a great advantage of the creation of the Prize in Economic Sciences in Memory of Alfred Nobel that, by drawing attention to the significance of particular fields of economics, it encourages further research in them, the highlighting of the work of a few scholars, or, in my case, one scholar, tends to obscure the importance of the contributions of other able scholars whose researches have been crucial to the development of the field.

I will be speaking of that part of economics which has come to be called industrial organization, but to understand its present state, it is necessary to say something about the development of economics in general. During the two centuries since the publication of *The Wealth of Nations*, the main activity of economists, it seems to me, has been to fill the gaps in Adam Smith's system, to correct his errors, and to make his analysis vastly more exact. A principal theme

¹This paper is published with minor changes made by Ronald Coase, with the kind permission of the Nobel Foundation, 1991.