

k

THE PROCESS OF ECONOMIC CHANGE

by

Douglas C. North, Washington University, St. Louis

We know a good deal about what makes for successful development. We know very little about how to get there—that would entail understanding the process of economic change. I shall first briefly deal with the sources of successful growth and then I shall be in a position to explore the process.

I

Let me begin by discussing three fundamental determinants of economic growth which must be incorporated into a framework to explore the process of change. They are the basic economic determinants, the institutional framework, and the cultural heritage of a society.

THE ECONOMIC DETERMINANTS

Economic growth is a result of either an increase in factor inputs and/or an increase in the efficiency of the factor inputs typically measured in terms of total factor productivity. Historically both have played important roles in economic growth. A recent International Economic Association meeting in Tokyo exploring the basis of the success of the East Asian economies provided a number of papers that summarized the current state of knowledge on economic growth. Yujiro Hayami in an introductory essay entitled "Toward an East Asian Model of Economic Development" asserted that the former, an increase in factor inputs, had weighed

heavily in the case of the NTEs and associated it with technological borrowing. The Marx pattern of capital accumulation is, in his view, typical of borrowing technological knowledge and indeed characterized earlier U.S. development in contrast to the Kuznets growth pattern with heavier weight on total factor productivity growth (although it should be noted that there are some complex measurement issues in separating the two out). Thus the early pattern of developing economies is characterized by increasing returns from the coordination externalities resulting from capital accumulation but as development progresses these externalities are exhausted, constant returns set in and further growth is realized from technical progress. Investment in human capital, education and R&D become critical for continuing development. The new growth economics has formalized some of the findings although much of that literature has been descriptively made in the economic growth, economic history and the growth accounting literature for some time. But there remains a big puzzle. Why are countries poor if we understand the forces that make for economic growth. What is missing in the new growth economics literature is the incentive structure of the society, a critical weakness to that body of theory since it is the incentive structure that has been the basic determinant of an economy investing in the human and physical capital that determines sustained economic growth.

THE INSTITUTIONAL DETERMINANTS

The incentives are a function of the institutional structure of that society. Institutions are the rules of the game of a society composed of the formal rules (constitutions, statute and common law, regulations) the informal constraints (norms, conventions and internally devised codes of conduct) and the enforcement characteristics of each. Together they define the way the game is played. A number of recent empirical studies have made clear the importance of the

institutional matrix, most recently Knack and Keefer(1995) and Easterly and Levine(1996). Dani Rodrik, in a paper at the same IEA conference entitled "Total Factor Productivity Growth Controversies, Institutions, and Economic Performance" , combines these indices with three additional indicators; income, education, and ethno-linguistic fragmentation.¹ "The results are sensible, indicating that institutional quality increases with income and education and decreases with ethno-linguistic fragmentation" (p. 19). Initial high income inequality and substantial ethno-linguistic divisions make social fragmentation more likely thereby making it more difficult to establish and maintain high quality public institutions.

What kind of institutional framework will produce efficient markets? This issue has generated much more heat than light: it is about the role of the market versus the role of positive government direction in the growth process. In part the issue is a phony one generated by ideologues on both sides who do not appear to have actually tried to create or even understand the interstices of efficient markets. There is an important issue in creating the basic property right structure and in the creation of the rule of law but beyond that there appears to be a lot of confusion on just what it takes to create efficient markets both across industries and factor markets and to create and maintain such efficient markets over time. Put bluntly there is no such thing as *laissez faire*—that means anarchy somewhat akin to what we have been observing in Russia. Efficient markets are structured by institutions to have low transaction costs and to provide incentives for the players to compete through price and quality competition. This entails in addition to the general rules embodied in the separation of the polity and the economy and the rule of law, institutions to produce such results which vary with the technology, organizational

¹ However ethno-linguistic diversity is much more powerful as an explanation in Africa than elsewhere, although even here there are exceptions—Somalia for example. Moreover the issue is the insecurity of property rights

imperatives, and the characteristics of the polity. They are different for different industries at a moment of time and change with changes in the above characteristics over time. The point is effectively made in the Hellman, Murdock, Stiglitz paper on financial markets (also at the same IEA conference) which concludes "...we show how a simple set of policies-namely deposit rate controls and restrictions on entry into banking-create franchise value that induce banks to refrain from moral hazard" (p.27).² They term this, borrowing from an earlier paper by Aoki et al, the market enhancing view. Market enhancing, to use their term, can take many forms from indirect rule making as in the above illustration to direct government intervention (although they would confine the term to indirect rule-making). It would depend on the characteristics of the polity and governmental bureaucracy. With economies bent on "catching up" by borrowing technology and organizational knowledge there is ample opportunity to accelerate the process by deliberately attempting to structure markets to achieve such results. That doesn't imply that such deliberate leap-frogging tactics always work. We have ample evidence of failures and Anne Kreuger at the same IEA conference documents such an instance in the Korean shift to develop heavy and chemical industries in the 1970's. But it does mean that efficient factor and product markets entail institutional structures, and that maintaining that efficiency through time entails ongoing modifications of that structure—particularly with rapid technological change. What we only very imperfectly understand is how to create polities and their bureaucracies to engage in market enhancing activity rather than simply enhancing their Swiss bank accounts.

CULTURAL HERITAGE

typically combined with rising land values which induces the ethno-linguistic divisions to produce instability. Where property rights are secure (as in the United States) it is not clear that this variable is important.

² However this type of intervention (and indeed most such interventions to make a market work well) are not typically neutral with respect to their welfare implications.

The last point brings us to cultural characteristics. They matter as anyone who has been concerned with the enormous variation in entrepreneurial skills and transaction costs in different societies knows. The striking contrast in the social capabilities of people in different societies as reflected in attitudes towards economic opportunities, the performance of polities, social distinctions and the priority given to economic attainment, educational investment and occupational choice are but a few of the structural characteristics that are influenced by different cultural backgrounds. Cultural beliefs, in short, are a basic determinant of institutional structure. But what are the origins of cultural beliefs?

Weber's Protestant ethic emphasized the religious origins of such values. Hayami (In the aforementioned paper) stresses the importance of moral codes in business transactions in Japan, "...it was an admixture of Confucianism, Buddhism and Shintoism, but in substance it taught the same morals that Adam Smith considered to be the basis of the wealth of nations—frugality, industry, honesty and fidelity. Clearly this ideology was an important support for commercial and industrial development in the late Tokugawa period, as it suppressed moral hazards and reduced the costs of market transactions" (p 16).

Jean-Philippe Platteau and Yujiro Hayami (in a paper at the same conference) emphasize the contrast between redistributive norms in African tribal communities in contrast to the reciprocal norms in Asian village communities and ascribes the differences to different degrees of settlement density and consequent property rights in agriculture. "Culturally, people whose living is based on settled agriculture are the believers of 'great religions' eg., Buddhism in Thailand, Islam in Indonesia, Christianity in the Philippines, Buddhism and Confucianism in China, Korea and Japan" (p. 32). The implications of their analysis is that the religions are derivative from the basic demographic conditions rather than the independent variable initiating the resultant norms. I

think Platteau and Hayami have an important point in their emphasis on population density and land use patterns as of importance in the African/Asian contrast. It is reasonable to conclude that the origins of some norms, including those embedded in religious beliefs may have had their ultimate source in basic features of primitive agriculture with diverse climatic, soil, and product characteristics imposing organizational imperatives on the players.

The most convincing study of the way divergent cultural heritages can produce divergent belief systems that help shape long run economic performance is Avner Greif's study (1994) of the contrasting organization of trade of Maghribi traders with their foundation in the Muslim culture and Genoese traders with their foundation in the medieval Latin world. The traders from the Islamic world developed in-group social communications networks to enforce collective action which, while effective in relatively small homogeneous ethnic groups, do not lend themselves to the impersonal exchange that arises from the growing size of markets and diverse ethnic traders. In contrast the Genoese developed bilateral enforcement mechanisms which entailed the creation of formal legal and political organizations for monitoring and enforcing agreements—an institutional/organizational path that permitted and led to more complex trade and exchange. Greif suggests the generality of these different belief structures for the Latin and Muslim worlds and then makes the connection between such belief structures in the European scene and the development of the economic institutions and organizations.

But if we accept that there were different behavioral beliefs in different societies and that they induced different forms of institutions and organizations, what produced the beliefs? Whatever the ultimate sources (briefly discussed above) the major immediate candidate is religions since they were the dominant organized belief structures of the pre-modern world. The vast literature dealing with the effect of religious dogma on economic activity is, however, inconclusive since it is possible to pick out specific aspects of almost any religion that are antithetical to economic growth. Some of these are the Islamic opposition to insurance markets and the Christian opposition to interest payments.

The proper focus, however, should not be on specific norms but on the learning process by which a particular belief structure—in this case religion—evolves. The learning process is a function of 1) the way in which a given belief structure filters the information derived from experiences and 2) the different experiences that confront individuals in different societies at different times. Thus one can argue that the Christian religious framework of the Middle Ages provided an hospitable filter for learning that led to adaptations congenial to economic growth; or alternatively that the specific geographic/economic/institutional context of the medieval western world described in section III provided the unique experiences responsible for the resultant adaptations. In fact it was a combination of the two that produced the adaptations in the belief structure that were conducive to economic growth and political/civil freedoms. The belief structure embodied in Christian dogma was, despite some notorious contrary illustrations, amenable to evolving in directions that made it hospitable to economic growth. Both Ernst Benz (1966) and Lynn White (1978) maintain that Christian belief gradually evolved the view that nature should serve mankind and that therefore the universe could and should be controlled for economic purposes. Such an attitude is an essential precondition for technological progress. But it was particularly the unique institutional conditions of parts of medieval/early modern Europe that provided the sort of experiences that served as the catalyst to precipitate such perceptions. From this perspective Weber's protestant ethic is a part of the story of this adaptation but is "downstream" from the originating sources.

II

Before exploring the underlying sources of economic change let me briefly delineate five propositions that, I believe, characterize institutional change. They involve the interaction between institutions and organizations. Institutions are the rules of the game—both formal rules 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.

Now to the five propositions:

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 propositions 2 through 5

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 pay-offs 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 pay-off 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 pay-offs, 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.

The foregoing description of institutional change provides the essential clues to examine the underlying process. There are three parts to the process of economic change: the "reality" of an economy, the perceptions humans in a society possess about that reality, and given the beliefs that they possess the structure they impose to reduce uncertainty and control that economy. The process of change results from a continuous change in that reality which results in changing the perceptions which in turn induce the players to modify or alter the structure which in turn leads to changes in that reality—an ongoing process. Let us explore each of these parts to see just how this process works.

1. THE REALITY OF AN ECONOMIC SYSTEM

We have innumerable statistics on demographic, income, technological, and institutional features of an economy but what we need to know is the interplay between parts of the economy that shape economic performance. The complex forces at work can be reduced to

three fundamental determinants. They are the demographic features of an economy; the stock of knowledge possessed by the members of the society; and the institutional framework.

The demographic features consist of the quantity and quality of human beings—including fertility, mortality, embodied human capital, occupational distribution characteristics.

The stock of knowledge determines the human command over nature which sets the upper bound to possible human well-being—including scientific knowledge and its dissemination, the belief system(s) of the members of the society.

The institutional framework provides the incentive structure of the society—the rules of the game which will determine the interplay between the parts of the political, economic, and social structure of the system.

2. BELIEF SYSTEMS

Understanding the "reality" of a society is theorizing in the face of Knightian uncertainty (or to use the modern term, ambiguity).³ But we do construct in our minds explanations of the operations of political/economic systems. These belief systems typically are both positive and normative models of political/economic systems. Some are overall organized belief systems such as communism, some are partial such as various "free market" beliefs. Because we know so little about "reality" these belief systems are AT BEST very imperfect understandings of "reality".

³ There are important issues here with respect to whether the search/adoption is over a fixed menu of possibilities which are all accessible from the start to all agents versus an open ended dynamics where the discovery of genuine novelties is always possible. In the former case the agent can attach probabilities to the parts of the menu and the basic paradigm is the Bayesian model. It is the latter, however that characterizes most of the evolving belief systems in a world of continuous change.

3. SCAFFOLDS

Based on the beliefs held by political and economic entrepreneurs in a position to influence the choices that shape a political/economic system they erect an elaborate structure of institutions designed to be consistent with normative objectives. The scaffolds consist not only of the political structure that specifies the way the society aggregates political choices, the property rights structure that defines the formal incentives in the system, but also the informal constraints of norms, conventions, and internally held beliefs. Much of what is interpreted as rational behavior in social science models is in fact institutional constraints that define and constrain the choice set. This institutional framework has evolved over many generations, reflecting, as Hayek reminds us, of 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 different they will differ with each society. Path dependence is a consequence of the particular scaffolding of each society.

THE DYNAMICS OF THE PROCESS

The perceptions of political and economic entrepreneurs change reflecting ubiquitous competition amongst organizations with changes in relative prices, other new information leading such entrepreneurs, given their beliefs and the constraints imposed by the existing scaffold (not to mention the standard economic constraints) to modify or alter institutions to improve their competitive positions. The result is to alter the "REALITY" of the economic system which in turn will lead to altered perceptions and BELIEFS of the system which in turn will lead to further INSTITUTIONAL change in an endless process of societal change. The stronger the competition the more rapid the change.

The way learning occurs is at the heart of the process and we know all too little about that subject in spite of impressive recent advances in cognitive science. Learning entails developing a structure by which to make sense out 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. The architecture can be thought of as generating an event space which gets used 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. 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 goal. 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 may lead to modifications: in short learning.

The world is too complex for a single individual to learn directly how it all works. Each individual's mental models are derived from experiences -- experiences that are specific to that individual and accordingly, give him/her, to some degree, unique perceptions of the world. The mental models would tend to diverge for this reason if there were not ongoing communication with other individuals with a similar cultural background. The cultural heritage—the socio-cultural linguistic background -- provides a means of reducing the divergence in the mental models that people in a society have and for the intergenerational transfer of unifying perceptions. This cultural learning not only provides a means of internal communication but also provides shared explanations for phenomena outside the immediate experiences of the members of the society in

the form of belief systems to explain the larger world around us. The ubiquitous existence of "beyond rationality" beliefs in all organized belief systems suggests that it may be a superior survival trait to possess some explanation rather than no explanation for phenomena beyond our scientific reach. Such belief systems, both religious and secular, provide explanations in the face of uncertainty and ambiguity and are the source of decision making.

What analogies and insights about this process can we derive from evolutionary biology? Are the essential conditions of Darwinian evolution -- variation, continuity, and natural selection--paralleled in institutional change? Yes there are parallels; but how close are they and do the "processes" work in the same way? Institutional change is largely Lamarckian, and the change is for the most part intentional and as noted above created to enhance the (largely) short run competitive positions of entrepreneurs. How comparable is the learning embodied in intentional choice to the selection mechanisms in evolutionary theory? The latter are not informed by beliefs about the eventual consequences; the former, erroneous though it may be, is driven by perceptions of downstream consequences.

HOW WE GET IT WRONG

We may write economic history as a great success story of the enormous increase in material well-being. 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. But we also do get it right; at least right enough to have produced the immense increase in material well-being of the modern western World. Let us see first how we get it wrong. There are three sources of error:

1. We don't have a correct understanding of "reality"

2. The belief system is wrong -- communism for example

3. Even when we have the first two (more or less) right the policies available are very blunt instruments. We can only change the formal rules (and imperfectly the enforcement characteristics) but it is the admixture of formal rules, informal constraints (norms, conventions and beliefs) and the way they are enforced that determines the institutional consequences.

We get it right (in addition to chance and luck -- not to be underestimated in history) when we have reality approximately right, the belief system captures the essence of that reality, and the institutions structure the game accordingly (that is the formal rules which are accompanied by complementary informal norms). When does that occur? When the present and immediate future looks much like the past and the learning process has updated the understanding of the belief system accordingly (see footnote 3 above). When the rapidity of adjustment has increased faster than the rate of change of the fundamentals.

III

IMPLICATIONS

1. While there are common denominators to what one wants to achieve:

- a. There is a wide variety of patterns of change—TVEs in China for example fit none of our preconceptions on successful development. Growth is occurring in spite of:

1. no secure private property rights

2. no immediate and complete liberalization.

3. no rule of law.

4 no democracy.

The complex informal organization that has evolved is only understandable as a path dependent phenomenon.

b. Even when we have it right for one economy it will not necessarily be right for another and even when we have it right today we do not necessarily have it right tomorrow.

c. Our lack of theories of political economy, decision making under uncertainty (ambiguity), and human learning are severe limitations to understanding the process.

2. There are clearly windows of opportunity when institutional reform is far more possible than other times such as :

a. when the dominant organizations which undergird the existing institutional framework have been weakened.

b. When the "legitimacy" of the belief system of the existing institutional matrix has been undermined.

c. when the existing dominant organizations perceive it to be in their interest to redirect their objectives towards productivity raising activities.

3. Path dependence means that effective reform policies entail having an intimate understanding of the historical development of the belief system and scaffolding of the economy.

4. Time is intimately involved with the process of human learning but there is no guarantee that past experiences are going to equip us to solve new problems—indeed the movement from personal to impersonal exchange and from "command" economy to market economy entail basic restructuring of belief systems and scaffolds of such fundamental proportions that it may be beyond the adjustment capacity of the existing society.

5. The institutional/organizational structure that has been responsible for the rapid growth of developing economies will over time tend to create organizational interest group pressures through the polity that may effectively thwart the ongoing institutional adjustments necessary for continued expansion. The contemporary "indigestion" in the European Union (France and Germany in particular) and in Japan clearly has at its source inflexibility induced by interest group pressures .

6. Adaptive efficiency which has characterizes the United States economy over more than two centuries has entailed the gradual evolution of strong informal norms undergirding the political and economic institutions which were a long time in evolving. It may not be possible to create such norms in a short period of time.