By institutions I mean formal rules--political and economic--and informal constraints--such as conventions and norms of behavior as well as the characteristics of enforcement of both. To be successful, privatization must take into account this larger framework of institutions. In subsequent sections I examine 1. The efficiency characteristics of long run economic growth; 2. the nature of institutions; 3. the character of institutional change; 4. the institutional requirements of modern economies; 5. the complex problems of establishing efficient markets; and finally 6. the critical assumptions in neo-classical theory that are at issue.

In order to explore the nature of long run economic change it is necessary to think of the issue of economic efficiency in somewhat different terms than is customary in standard economic theory, which examines resource allocation at an instant of time. The key to sustained economic growth is adaptive rather than allocative efficiency. Let me describe adaptive efficiency and then explore the differences between allocative and adaptive efficiency.

Institutions define the incentive structure of a society. Different institutional rules will determine the kinds of economic activity that will be profitable and viable and also shape the adaptive efficiency of firms and other organizations via rules that regulate entry, governance structures, and the flexibility of organizations. In particular rules that encourage the development and utilization of tacit knowledge and therefore creative entrepreneurial talent will be important. Competition, decentralized decision making, and
well specified property rights as well as bankruptcy law are crucial. It is essential to have rules that eliminate not only failed economic organization but also failed political organizations. The structure of rules, therefore, must be not only one that rewards successes but also one that vetoes the survival of maladapted parts of the organizational structure, which means rules for dissolving unsuccessful efforts as well as for promoting successful ones are necessary.

The criteria for realizing allocative efficiency are seldom if ever specified in terms of the institutional framework, but implicitly they assume secure property rights and enforcement of contracts. But just how would the rules be balanced between the security of existing organizations and the encouragement of innovation and displacement--in effect the creative destruction in Schumpeter’s vision? It is not obvious that the ideal rules for current allocation are the ideal rules to encourage the conditions for adaptive efficiency in a world of positive transaction costs. And in terms of the political economy of institutional evolution it is clear that it is in the interest of existing firms, trade unions, farm groups, etc. to try to devise political and economic rules that protect their own current well being. Sclerosis resulting from such effort is the theme of Olson’s The Rise and Decline of Nations (1982), but Olson’s study is devoid of political institutions and therefore contains no analysis of just how this sclerosis comes about. It is essential to understand the nature of institutions and how they change in order to meaningfully explore the dynamics of economic change.1

Institutions are the constraints that human beings impose upon themselves to structure human interaction. They consist of formal rules and informal standards of behavior and of their enforcement characteristics. Formal rules include political (and judicial) rules, economic rules, and contracts. Political rules broadly define the hierarchy of the polity, its basic decision structure, and the explicit characteristics of agenda control. Economic rules define property rights. Contracts contain the provisions specific to a particular agreement in exchange. Given the bargaining strength and interests of the decision making parties the function of the rules is to facilitate exchange, political or economic.

Informal constraints include conventions that evolve as solutions to coordination problems and that all parties are interested in having maintained (such as rules of the road for example); norms of behavior that are recognized standards of conduct; and self imposed codes of conduct such as personal standards of honesty and integrity. Conventions are self enforcing. Norms of behavior are enforced by the second party (the threat of retaliation for contract violation) or by a third party (societal sanctions).

Self imposed codes of conduct, unlike conventions and norms of behavior, do not obviously entail wealth maximizing behavior but rather entail the sacrifice of wealth or income for other values. Their importance in constraining choices is the subject of substantial controversy--for example, see Kalt and Zupan (1984), on modeling voting behavior in the United States Congress. Most of the controversy has missed the crucial

1. The next two sections of this essay summarize analysis developed more fully in the author’s Institutions, Institutional Change, and Economic Performance, (Cambridge: Cambridge University Press, 1990)
reason why self imposed codes of conduct can be and are important. And that is that the formal institutions, frequently deliberately and sometimes accidentally, lower the cost to individuals of such behavior and can make their normative standards embodied in such codes of conduct matter a great deal. Individual votes do not (usually) matter, but in the aggregate they shape the political world of democratic polities and they cost the voter very little; legislators commonly find ways by strategic voting to vote their personal preference rather than those of the electorate (Denzau, Riker, and Shepsle, 1985); and judges with lifetime tenure are deliberately shielded from interest group pressures so that they can make decisions on the basis of their interpretation of the law. In each case the choices that were made may be different than they would be if the individual bore the full cost that resulted from these actions. It is the institutions that deliberately or accidentally create the externalities that alter choices. The lower the cost that we incur for our convictions (ideas, dogmas, prejudices) the more they contribute to outcomes (see Nelson and Silberberg, 1987, for empirical evidence).

As noted above, agreements may be enforced by a third party (societal sanctions or the coercive force of the state), by the second party to the agreement (retaliation), or by self imposed standards of conduct. How effectively agreements are enforced is the single most important determinant of performance. The ability of societies to enforce agreements across time and space is a crucial underpinning of efficient markets. On the surface it would appear to be an easy requirement to fulfill. All one needs is an effective, impartial system of laws and courts for the enforcement of formal rules; the "correct" societal sanctions to enforce norms of behavior; and strong normative standards of behavior of honesty and integrity to undergird self imposed codes of conduct.

Understanding institutional change entails an understanding of the stability characteristics of institutions and of the sources, the agents, and the direction of change.

A basic function of institutions is to provide stability and continuity by dampening the effects of relative price changes. Institutional stability makes possible complex exchange across space and time. Channels of exchange, both political and economic, that make possible credible agreements are necessary conditions for the efficient markets which underlie high income societies. This condition is accomplished by the complex set of constraints that constitute institutions. Among these are formal rules nested in a hierarchy, each level more costly to change than the previous one. In the United States the hierarchy moves from constitutional rules to statute law and common law to individual contracts. Political rules are nested in a hierarchy even at the level of specific bills before Congress. The structure of committees and agenda control assure that the status quo is favored over change.

Informal constraints are even more important anchors of stability. They are extensions, elaborations, and qualifications of rules that "solve" numerous exchange problems not completely covered by formal rules and hence have tenacious survival ability. They allow people to go about the everyday process of making exchanges without the necessity of thinking out exactly at each point and in each instance the terms of exchange. Routines, customs, traditions, and culture are words we use to describe the persistence of informal constraints. It is the complex interaction of rules and informal constraints, together with the way they are enforced, that shapes our daily living and directs us in the
mundane activities that dominate our lives. It is important to stress that these stability features in no way guarantee that the institutions are efficient. Stability is a necessary condition for complex human interaction but it is not a sufficient condition for efficiency.

One major source of institutional change has been fundamental changes in relative prices (see North and Thomas, 1973 for illustration) but another has been changes in preferences. I know of no way to explain the demise of slavery in the nineteenth century in an interest group model. The growing abhorrence on the part of civilized human beings of one person owning another not only spawned the anti-slavery movements but through the institutional mechanism of voting resulted in its elimination. It is not that interest groups did not use the abolitionist movement to further their interests. They did. But the success of the interest groups entailed the ideological support of the voter. The voter paid only the price of going to the polls to express his conviction and the slave owner had no feasible way to bribe or pay off voters to prevent them from expressing their beliefs. Institutions make ideas matter.

The agent of change is the entrepreneur--political or economic. So far I have left organizations and their entrepreneurs out of the analysis and the definition of institutions has focused on the rules of the game rather than the players. Left out has been the purposive activity of human beings to achieve objectives which in turn result in altering constraints. Organizations consist of firms, trade unions, political parties, regulatory agencies, churches, and so forth. Organizations and learning alter outcomes, but how?

More than half a century ago Coase (1937) argued that transaction costs are the basis for the existence of the firm. That is, if information and enforcement were costless, it is hard to envision a significant role for organization. What is it about transaction costs that leads to organization? The answers have ranged from the firm being a form of exploitation (Marglin, 1974), to a response to asset specificity (Williamson, 1975, 1985,) to a response to measurement costs (Barzel, 1982). Whatever the merits of these alternatives (and they are not altogether mutually exclusive), they all focus on the trees but not the forest. Organizations are a response to the institutional structure of societies, and, as they evolve, may alter that institutional structure.

The institutional constraints together with the traditional constraints of economic theory define the potential wealth maximizing opportunities of entrepreneurs (political or economic). If the constraints result in the highest payoffs in the economy being criminal activity, or the payoff to the firm is highest from sabotaging or burning down a competitor, or to a union from engaging in slowdowns and makework, then we can expect that the organization will be shaped to maximize at those margins. On the other hand if the payoffs come from productivity enhancing activities economic growth will result. In either case the entrepreneur and his or her organization will invest in acquiring knowledge and "learning by doing skills" in order to enhance the profitable potential. As the organization evolves to capture the potential returns it will gradually alter the institutional constraints themselves. It will do so either indirectly, via the interaction between maximizing behavior and its effect on gradually eroding or modifying informal constraints; or directly, via investing in altering the formal rules. The relative rate of return on investing within the formal constraints or devoting resources to altering the constraints will reflect the structure of the polity, the payoffs to altering the rules, and the costs of political investment.
But it is not just the efforts of organizations to alter the rules that shapes long run economic performance. It is also the kinds of skills and knowledge that organizations will induce the society to invest in. Investment in formal education, new technologies, pure science has been a derived demand from the perceived payoff to such investment.

Institutional change then is an incremental process in which the short run profitable opportunities cumulatively create the long run path of change. The long run consequences are often unintended for two reasons. First the entrepreneurs are seldom interested in the larger (external to them) consequences but the direction of their investment influences the extent to which there is investment in adding to or disseminating the stock of knowledge, encouraging or discouraging factor mobility, etc. Second, there is frequently a significant difference between intended outcomes and actual outcomes. Outcomes frequently diverge from intentions because of the limited capabilities of the individuals and the complexity of the problems to be solved.

Let me now apply the foregoing analytical framework to the problems of modern economies. A little history is an essential prerequisite.

A fundamental revolution occurred in the second half of the nineteenth century which I have termed the second economic revolution. This revolution was a consequence of a change in the stock of knowledge arising from the development and implementation of scientific disciplines. It resulted in the systematic wedding of science and technology and a basic transformation in the organization and structure of production and distribution (see Chandler, 1977). The overall implications for economies that could take advantage of this technology were increasing returns and consequent high rates of economic growth-characteristics of the western economies for the past century and a half. But taking advantage of this technology entailed a wholesale reorganization of economies to realize that potential. In those western economies that have, at least partially, realized this potential the result has been stresses and strains that have threatened and do threaten their continued adaptive efficiency. For the rest of the world the inability to reorganize has prevented them from realizing this productive potential and produced "underdevelopment" and political instability. It is an extraordinary irony that Karl Marx, who first pointed out the necessity of restructuring societies in order to realize the potential of a new technology, should have been responsible for the creation of economies that have foundered on this precise issue. Let me first examine the micro level characteristics of the organizational requirements before turning to the macro level societal implications.

Realizing the gains from a world of specialization requires occupational and territorial specialization on an unprecedented scale and in consequence the number of exchanges grows exponentially. In order to realize the gains from the productive potential associated with a technology of increasing returns one has to invest enormous resources in transacting. In the United States, for example, the labor force grew from 29 million to 80 million between 1900 and 1970; during that period production workers grew from 10 million to 29 million, while white collar workers (the great majority of whom are engaged in transacting) increased from 5 million to 38 million. The transaction sector (that part of

\[2\]. North, 1981. The first economic revolution was the development of agriculture in the 8th millenium B.C.
transaction costs that goes through the market and therefore can be measured) in the United States in 1970 made up 45 percent of GNP (Wallis and North, 1986).

Let me briefly elaborate some of the measurement and enforcement problems that account for the size of the transaction sector. Necessary to be able to realize the gains of a world of specialization are control over quality in the lengthening production chain and a solution to the problems of increasingly costly principal/agent relationships. Much technology indeed is designed to reduce transaction costs by substituting capital for labor or by reducing the degrees of freedom of the worker in the production process and by automatically measuring the quality of intermediate goods. An underlying problem is that of measuring inputs and outputs so that one can ascertain the contribution of individual factors and the output at successive stages of production. For inputs there is no agreed upon measure of the contribution of an individual input. Equally there is room for conflict over the consequent payment to factors of production. For output, not only is there residual unpriced output, that is waste and pollutants, but also there are complicated costs of specifying the desired properties of the goods and services produced at each stage in the production process.

Another characteristic of this new technology is that firms have large fixed capital investments with a long life and (frequently) low alternative scrap value. As a result the exchange process embodied in contracts has to be extended over long periods of time, which entails uncertainty about prices and costs and the possibility of opportunistic behavior on the part of one of the parties to the exchange. A number of organizational problems emerge from these characteristics associated with this technology.

First, increased resources are necessary to measure the quality of output. Sorting, grading, labeling, trade marks, warranties and licensing are all, albeit costly and imperfect, devices to measure the characteristics of goods and services. Despite the existence of such devices the dissipation of income is evident all around us in the difficulty of measuring the quality of automobile repairs, in evaluating the safety characteristics of products and the quality of medical services, or in measuring educational output.

Second, while team production permits economies of scale to be realized, it does so at the cost of worker alienation and shirking. The "discipline" of the factory is no more than a response to the control problem of shirking in team production. From the perspective of the employer the discipline consists of rules, regulations, incentives, and punishments essential to effective performance. Innovations such as time and motion studies are methods of measuring individual performance. From the viewpoint of the worker they are inhuman devices to foster speedups and exploitation. Since there is no agreed upon measure of output that constitutes contract performance, both are right.

Third, the potential gains from opportunistic behavior increase and lead to strategic behavior both within the firm (labor-employer relations, for example) and in contractual behavior between firms. Everywhere in factor and product markets the gains from withholding services or altering the terms of agreement at strategic points offer large potential gains.

Fourth, the development of large scale hierarchies produces the familiar problems of bureaucracy. The multiplication of rules and regulations inside large organizations to control shirking and principal/agent problems results in rigidities, income dissipation, and the loss of flexibly essential to adaptive efficiency.
Finally there are external effects: the unpriced costs reflected in the modern environmental crisis. The interdependence of a world of specialization and division of labor increases exponentially the imposition of costs on third parties.

The institutional and organizational restructuring necessary to take advantage of this technology are, however, much more fundamental than restructuring economic organization—although that task, the creation of efficient markets, is complicated enough. The entire structure of society must be transformed. This technology and accompanying scale economies entails specialization, minute division of labor, impersonal exchange and urban societies. Uprooted are all the old informal constraints built around the family, personal relationships, and repetitive individual exchanges. Indeed the basic traditional functions of the family: education, employment (the family enterprise), and insurance are either eliminated or severely circumscribed. New formal rules and organizations and an increased role of government replace them.

The contention of Marxists was that these problems were a consequence of capitalism and that the inherent contradictions between the new technology and the consequent organization of capitalism would lead to its demise. The Marxists were wrong that the problems were a consequence of capitalism; they are ubiquitous to any society that attempts to adopt the technology of the second economic revolution. However, as the foregoing paragraphs have attempted to make clear, Marxists were right in viewing the tension arising between the new technology and organization as a fundamental dilemma. These tensions have only partially been resolved in the market economies of the western world. The growth of government, the disintegration of the family, the incentive incompatibility of many modern political and economic hierarchical organizations are all symptoms of the consequent problems besetting western economies.

However, it has been the relative flexibility of the institutions of the western world—both economic and political—that has been the mitigating factor in dealing with these problems. Adaptive efficiency, while far from perfect in the western world, accounts for the degree of success that such institutions have experienced. The basic institutional framework has encouraged the development of political and economic organizations that have replaced (however imperfectly) the traditional functions of the family; mitigated the insecurity associated with a world of specialization; evolved flexible economic organization that has induced low cost transacting; resolved some of the incentive incompatibilities of hierarchies, and encouraged creative entrepreneurial talent; and tackled (again very imperfectly) the external effects that are not only environmental but also social in an urban world.

How does one create an institutional framework that can realize the potential of this technology? It is not just "getting the prices right" at a moment of time (allocative efficiency) that is our objective, but getting them right over time (adaptive efficiency). To accomplish that objective requires much more than transferring assets from public to private hands (important as that task is). It also entails the development of a legal system that will embody the correct incentives (of adaptive efficiency); the creation of effective and impartial enforcement by that legal system; the development of organizations made up of entrepreneurs who will invest in the kind of skills and knowledge essential to sustained productivity increase. It also entails the establishment of a polity that will broadly support...
and enforce the new property rights; will undertake those investments essential to sustained productivity increase that are privately unprofitable because of public goods or free riding attributes; will mitigate the insecurities and uncertainties associated with a competitive, interdependent world.

Now all of that is a tall order and if one looks to the way in which the institutional framework evolved in the "successful" economies as a guide to policy one will be hard put to derive many lessons. The reason is that the framework evolved over a long period of time and much of it was accidental in the sense that it was guided by the short run interests of political and economic entrepreneurs which had long run unanticipated consequences.

There are two fundamentally intractable problems about which we know very little--aligning the informal constraints with the formal rules and creating and maintaining a polity that will support adaptively efficient institutions. Let me take each in turn.

It is not just the formal rules that make for low transaction costs. The costs of measurement and enforcement of the complex contracts essential to a successful economy would be prohibitive in a world populated by individuals with the behavioral assumptions we employ in economics. If individuals maximized at every margin so that they would cheat, lie, steal, or kill their competitor whenever it paid, it is hard to imagine that the costs of transacting would not foreclose modern economies. Equally if individuals have been brought up with norms that eschewed competition, individual initiative, the incentive structure of market economies they will be hard put to adjust when the formal rules change. Informal constraints, unlike formal rules cannot be changed overnight. They evolve slowly. Broadly speaking people must believe in an institutional framework--must consider it "fair"--in order that the informal constraints will be aligned with and reinforce the formal rules (and therefore provide for low cost transacting). The greater the degree of incompatibility between the formal rules and the informal constraints the greater will be the instability of the polity. That brings me to the second problem.

Much of the new political economy has assumed, implicitly or explicitly, that political markets operate like economic markets and that the same efficiency characteristics obtain (see Wittman, 1990, for an explicit argument along these lines). They don't and there is no way that I know of to get them to "behave" like efficient economic markets. Let me put the argument in a Coase framework. When it is costless to transact, the efficient competitive solution of neo-classical economics obtains. It does so because the competitive structure of efficient markets leads the parties to arrive costlessly at the solution that maximizes aggregate income. To the extent that these conditions are approximated in the real world it is because competition is strong enough via arbitrage and efficient information feedback to approximate the Coase zero transaction conditions and the parties can realize the gains from trade inherent in the neo-classical argument. It is difficult and rare to get economic markets with such characteristics. What would it take to get political markets to approximate the zero transaction cost model of efficient economic exchange? The conditions are easily stated. The only legislation or regulation enacted would be that which increased aggregate income and in which the gainers compensated the losers at a transaction cost that is low enough to make it worthwhile. The informational and institutional requirements are:

1. The affected parties would have the information and correct model to know not only what bills affected them but also the amount of gains or losses they would incur.
2. The results would be communicated to their agent (the legislator) who would faithfully vote accordingly.

3. His or her vote would be weighted by the net gains or losses of the constituents and only legislation would be enacted in which the net gains exceeded the net losses by an amount that was more than the transaction cost of compensating the losers.

The institutional structure most favorable to approximating such conditions is a modern democratic polity with universal suffrage. Vote trading, log rolling, and the incentive of an incumbent's opponents to bring his or her deficiencies before constituents and hence reduce agency problems all contribute to better outcomes.

But look at the disincentives built into the system. Rational voter ignorance is not just a buzzword of the public choice literature. Not only could the voter never acquire the information to be vaguely informed about the myriad bills that affect his or her welfare, but there is no way that the constituent (or even the legislator) could ever possess accurate models to weigh the consequences. Agency theory provides abundant, if controversial, evidence of the degree to which legislators act independently of constituent interests. Whereas legislators may trade votes on the basis of the perceived number of votes he or she stands to gain or lose, that is frequently a long way from reflecting the net gains or losses of the constituency. And how often is there an incentive to compensate losers? There is a vast difference between better and efficient outcomes.3

What is different about the new institutional economics approach from the traditional economist's account? After all both accounts use neo-classical price theory. The difference is that the former abandons a crucial assumption of neo-classical theory and incorporates a crucial feature about the characteristics of institutions. Abandoned is instrumental rationality; incorporated is the characteristics of institutions that produce path dependence.

By instrumental rationality we mean that the actors have correct theories by which to interpret the world around them or if they have initially incorrect theories the information feedback that they receive will lead the actor to revise their theories to correct theories. Herbert Simon has accurately summarized the implications of such an assumption as follows:

If we accept values as given and constant, if we postulate an objective description of the world as it really is, and if we assume that the decisionmaker's computational powers are unlimited, then two important consequences follow. First we do not need to distinguish between the real world and the decisionmaker's perception of it: He or she perceives the world as it really is. Second, we can predict the choices that will be made by a rational decisionmaker entirely from our knowledge of the real world and without a knowledge of the decisionmaker's perceptions or modes of calculation (we do, of course, have to know his or her utility function).

If, on the other hand, we accept the proposition that both the knowledge and computational ability of the decisionmaker are severely limited, then we must distinguish between the real world and the actor's perception of it. That is to say, we must construct a theory (and test it empirically) of the processes of decision. Our theory must include not only the reasoning processes but also the processes that generate the actor's subjective representation of the decision problem, his or her frame.

The rational person in neo-classical economics always reaches the decision that is objectively, or substantively, best in terms of the given utility function. The rational person of cognitive psychology goes about making his or her decisions in a way that is procedurally reasonable in the light of the available knowledge and means of computation." (Simon, 1986, ppS210 and S211)

The implications of procedural rationality as opposed to instrumental rationality are far reaching for our understanding of economics and economic history. Institutions are unnecessary in a world of instrumental rationality; ideas and ideologies don't matter; and efficient markets--both economic and political--characterize economies. Procedural rationality on the other hand maintains that the actors have incomplete information and limited mental capacity by which to process that information and in consequence develop regularized patterns of exchange to structure exchange. There is no implication that the consequent institutions are efficient. In such a world ideas and ideologies play a major role in choices and transaction costs result in imperfect markets.

What does it mean to say that institutional matrices are characterized by path dependence? The explanation is derived from the symbiotic relationship between institutions and organizations described in section 3 above. The political and economic organizations have come into existence because of the opportunities created by the institutional and other constraints. The result is a set of reinforcing mechanisms such as network externalities, economies of scope, and complementarities that bias incremental costs and benefits in favor of those that are broadly consistent with the institutional framework and correspondingly make choices that would run counter to the institutional framework unprofitable.

If economies were not characterized by institutions and if instrumental rationality characterized human decision making then the problem of modern economic growth would be reduced to a matter of preferences. Political entrepreneurs not only would know the political and economic policies that would direct them on to an adaptively efficient path, but also could overnight transform the institutional framework to create the proper incentive structure. Because institutions do result in "lock-in" and the actors proceed on the basis of limited information and subjective models as guides to choices, the paths of economies diverge widely and persistent poor performance can continue.

Both of these characteristics of institutions are crucial to policy formation in the restructuring of economies. Procedural rationality because it means that the subjective models of the actors that are responsible for the way they process information shape the way individuals perceive problems and hence shape the choices they make. In this context the ideas, ideologies, dogmas, myths that people believe in matter and the successful restructuring of an economy is going to entail restructuring of people's perceptions.
Path dependence implies that the organizations that evolved as a response to the institutional framework that is being replaced will have tenacious survival ability and will attempt to "sabotage" the institutional transformation taking place. This is particularly true of the government bureaucracies that have carried over from the earlier institutional structure. New organizations (political and economic) must be created and fostered that have a stake in productive efficiency since the long run viability of the new institutional framework will depend on the support of organizations with a stake in adaptive efficiency.

The foregoing analysis implies that successful privatization must take into account the characteristics of institutions and organizations and be complemented by policies that lead to adaptively efficient economies.