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Working Paper

Competitions of Socio-Economic Institutions: In Search of the Winners

IUI Working Paper, No. 422

Provided in Cooperation with:

Research Institute of Industrial Economics (IFN), Stockholm

Suggested Citation: Pelikan, Pavel (1994) : Competitions of Socio-Economic Institutions: In Search of the Winners, IUI Working Paper, No. 422, The Research Institute of Industrial Economics (IUI), Stockholm

This Version is available at:

<https://hdl.handle.net/10419/94715>

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Industriens Utredningsinstitut

THE INDUSTRIAL INSTITUTE FOR ECONOMIC AND SOCIAL RESEARCH

No. 422, 1994

COMPETITIONS OF SOCIO-ECONOMIC INSTITUTIONS: IN SEARCH OF THE WINNERS

by

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Paper presented at the 1994 Friedrich A. Hayek Symposium, June 1–4,
Freiburg im Breisgau/Bleibach, Germany.

August 1994

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Summary: The paper draws a broad picture of social evolution, to identify and interrelate different types of institutions and their competitions. It pursues three main objectives. The first is to help the study of institutions to increase its conceptual precision. The paper provides familiar terms with operational definitions and exposes a logically consistent view in which institutions, in the sense of institutional rules, are the selection units of social evolution. Their study is divided into institutional statics, investigating both static and dynamic effects of given institutions, and institutional dynamics, examining how institutions themselves change and evolve.

The second objective concerns institutional statics. Assuming that in their competitions some institutions will win and other lose, the paper inquires into properties of potential winners. It finds out that one necessary property is to contain economic institutions which provide for a certain type of capitalist market economy.

The third objective is to explore implications of institutional dynamics. They are found to include reasons why political democracy is evolutionarily superior to dictatorship and cultural reformism to conservatism. Moreover, the paper argues that deliberate policy is an important means to decreasing expected losses from future social evolution, and that theoretical knowledge produced by the study of social evolution will play an increasingly important role in this evolution.

Acknowledgments: I thank Nicolai Foss, Lüder Gerken, Douglass North, and Viktor Vanberg for valuable comments on earlier drafts. The remaining errors and conclusions are mine.

Introduction

This paper consists of three parts, each with an objective of its own. The first part is to suggest a simple conceptual model of the role of institutions in social systems, to provide the present discussion with a clear conceptual framework, and perhaps also contribute to increasing the precision of the study of institutions in general. While the study of institutions is certainly more difficult to provide with a precise conceptual basis than quantitative studies of resource-allocation, much improvement is still possible.

Part 2, assuming that in their competitions some institutions will win and other lose, is to inquire into properties of potential winners. As I will argue that such winners can also be seen as potential institutional equilibria, to which social evolution, if not prematurely interrupted, might converge, properties of the winners will thus also be properties of such equilibria. But the paper is only to inquire into such properties without aspiring to find them. Although some features of the winners will roughly be indicated, I wish above all to discuss the inquiry as such, argue that it can be made fruitful, and point out the great social value of the knowledge that it can produce.

To avoid misunderstanding, two more points should be emphasized. First, institutional equilibria are of a substantially higher order than the resource-allocation equilibria studied by standard economics. As will be explained more carefully below, to admit that the institutions of a society might stabilize is far from saying that such a society would petrify. Extensive social learning, restructuring, and adapting may keep going on in a society with stable institutional rules -- provided that they are what will be defined as 'adaptively efficient' -- much like extensive learning, restructuring, and adapting may keep going on in a brain with a stable set of genes. Second, to search for properties of institutional equilibria is not to try to predict the actual course of future social evolution. Such equilibria can only be used as orientation points in the space of alternative institutional forms, where the actual trajectories of social evolution can be mapped. Not even with the best knowledge of these equilibria could we predict how the trajectories will actually continue and where they will lead.

The concern for the actual outcomes of social evolution motivates the objective of Part 3. While Part 2 investigates effects of given institutions, and is thus about institutional statics, Part 3 is about institutional dynamics. Its central questions are, what are the forces that drive institutional change, and how can they be influenced by

(1990), who seems to doubt that poor societies could ever break the dependence on their unfavorable initial paths. Without exaggerating the optimism, however, it only implies that production and dissemination of relevant knowledge can make such a break somewhat less unlikely, and thus increase the hope, be it only slightly, that even such societies will reach some favorable outcomes -- or at least avoid the most disastrous ones.

But this criticism of Hayek and North is not aimed at the important contribution they both made to the production of relevant knowledge, only at their omission to endogenize the knowledge they produced into the social evolution they studied. It is an important part of the third objective to indicate how this omission could be corrected.

1 THE ROLE OF INSTITUTIONS IN SOCIAL SYSTEMS

1.1 Systems, structures, and institutions

In ordinary language and sometimes also in theoretical discussions, the term 'institution' can mean two very different things: a lasting organization (e.g., a central bank, a ministry, an old firm), or a rule constraining choices (e.g., a law, a cultural norm). In agreement with most of modern institutional economists, it is only in the second meaning that this term will be employed here. In this meaning, 'institutions' correspond to what Hayek calls 'abstract rules of conduct' and can conveniently be visualized as the rules of a game.

Each organized social system (organization) -- be it a nation-state, a national economy, a firm or an agency -- can be seen to have a set of institutions of its own. They may be in part written and formally enforced, such as codified laws, and in part unwritten and informally sanctioned, such as cultural norms.

A social system involves a collection of agents, who are organized, and/or organize themselves, into a certain (organizational) structure. Each agent assumes a certain role, characterized by a certain choice set and connected by certain channels -- e.g., through a market or a hierarchy -- to other roles, assumed by other agents. In this definition, 'structure' seems to roughly correspond to what Hayek calls 'order'. It contains not only abstract rules, but also agents that act and interact under the guidance (constraints) of the rules. It can be visualized as the operating and performing 'body' of

the system.

To illustrate the difference between institutions and structures, let me consider a national economy. Examples of its institutions are property rights, corporate law, antitrust law, and constitutional constraints on government economic activities. Examples of what constitutes its structure are established firms, existing markets, and actual government agencies.

Within a structure, agents' choices may be about exchanges (transactions) along existing channels with agents in established roles -- in other words, about actions which make an actual structure operate. But the choices may also concern modification of the channels and/or the roles and/or the assignment of agents to roles -- in other words, about actions by which the structure is organized and reorganized.

In superposition to other constraints -- such as physical and economic ones -- institutions constrain both kinds of choices. In other words, within the sets of physically and economically feasible actions which the agents might choose, given their inherent ('untamed') behavioral characteristics, institutions restrict their choices to certain permissible subsets. In this way, institutions influence (govern, regulate) both the operating and the organizing of the structure. If the structure is visualized as the system's 'body', institutions can be visualized as the system's 'genes' (Pelikan 1988, 1992). To be sure, institutions are part of the structure, much like genes are part of the body. For institutions to be effective, they must indeed be internalized in each of the agents concerned. But from the point of view of system dynamics, this is a very special part: transcending individual agents, institutions may remain constant, while providing for and regulating changes of the structure -- much like constant genes provide for and regulate the development of the body.

More precisely, system dynamics consists of three types of processes: (i) exchanges (transactions) of information and resources within an established structure, (ii) changes (evolution) of the structure under prevailing institutions; and (iii) changes (evolution) of the institutions.

For the study of institutions, it is the difference between (i) and (ii) on the one hand, and (iii) on the other hand that is essential. While in (i) and (ii), institutions are seen to remain stable while regulating changes of other variables, in (iii) they are subject to changes themselves. In other words, (i) and (ii) belong to what may be termed

institutional statics, whereas (iii) belongs to institutional dynamics.

In institutional statics, which will be the perspective of Part 2, the state of a system that changes over time thus consists of two main parts: (a) the state of the structure (the system's actual 'body'), which changes relatively slowly, and (b) the information and resources exchanged or stored within this structure, which change somewhat faster. Some of this information and/or resources may come from other systems; this is what constitutes the system's input. And some of the information and/or resources can go to other systems, which is what constitutes the system's output.

It is convenient and for most of institutional economics fully sufficient to think of discrete time consisting of a series of periods, in which the state of a system changes through a corresponding series of transformations. The system's state and input at the beginning of a period is transformed into the state (including output) at the end of the period. The system's institutions can then be seen as the transformation function that governs this process.

The fact that the transformations of stocks and flows of resources also strongly depend on the actual state of the structure, which is being transformed at a slower pace, makes the role of institutions somewhat more complex than this summary description implies. But it will be easier to discuss this complexity in the specific context of economic institutions (Section 1.4), the only context in which it will interest us here.

1.2 A biological lesson

The formal correspondence between the couple 'institutions-structure' and the couple 'genes-body' is instructive. It allows us to follow the old recommendation by Marshall and learn a lesson from biology, and more precisely from the relatively recent view that a body ('phenotype') is an *expression* of its genes ('genotype'). Emphatically, this does not mean that the genes alone determine the body. Much of the organizing of the body consists of spontaneous chemical reactions of atoms and molecules, possibly under a strong influence of environmental factors. But the genes are crucial in constraining the vast tree of all the chemically and physically possible reactions into a relatively narrow path that leads to the forming of a certain organism, and not others. The first lesson is that in a formally similar way, also the structure of a social system can be viewed as an expression of its institutions -- provided that we replace the view of spontaneous chemical

reactions of atoms and molecules by the view of spontaneous associating and (self-)organizing of human beings.

This reverses the usual perspective. An egg is no longer a chicken's way of making another chicken, but, as Samuel Butler put it more than a century ago, a chicken is an egg's way of making another egg. In biology, as exposed by Dawkins (1976, 1982), this reversed perspective substantially improves our understanding of natural selection. The key is to see the units of selection to be genes, and not individual organisms or groups of organisms. The organisms that certain genes have helped to organize are only carriers of these genes and testing grounds of the genes' abilities. In fact, as Dawkins shows in his discussion of 'extended phenotypes', the testing grounds may include several more levels -- such as artifacts and societies -- where genes also express themselves, be it only at arm's length, and need to succeed.

The lesson can be summarized as follows. In the reversed perspective, it is not organizations materialized by certain structures, but their institutional rules that are basic. It is these rules that are the units of selection in social evolution, whereas all the operating and interacting structures -- be they tribes, firms, or nation-states -- are only carriers and testing grounds of the institutional rules which shape them and govern their functioning. The main outcome of social evolution, and the memory of the information produced, is thus a pool of institutional rules, and not specific groups or societies -- much like the main outcome of biological evolution are genetic pools, and not specific organisms or groups of organisms.

Biology, however, has its specific features, which set limits to what we can usefully learn from it. One of them is replicating, in the sense of producing series of generations of offsprings. Replicating is a clever trick by which nature increases the speed and the scope of its experimenting with genes, under the biochemical constraint that each organism is tied to a basically constant set of genes. Trying different sets of genes therefore requires new organisms, and usually also death of old ones. Thus, contrary to what some evolutionary economists do, we should not try to find at any price an exact social analogue to biological replicating. Social and economic systems have other possibilities and constraints. New institutional rules can often be tried within an existing system, while some systems -- such as national economies -- can hardly die and never start from zero again.

That new institutions can be tried within an existing organization qualifies the proposition that structures are expressions of institutions. This remains true only in the long run. In the short run, newly tried institutions cannot help inheriting the structure from their predecessors. While within an inherited structure, choices of individual agents can be reoriented quite rapidly, it takes a much longer time before the structure itself becomes a reasonable expression of the new institutions -- e.g., before the inherited firms and markets are replaced by reasonably developed new ones.¹

But this qualification does not change the basic view of institutions as the units of selection in social evolution. In this view, it is basically through competitions of institutions that this evolution proceeds. For students of social evolution, this Symposium could not indeed choose a more central topic.

1.3 A simple model of a sovereign social system

In general, social systems may form hierarchies. The member-agents of a social system are often systems of their own, made of smaller member-agents, while the entire system may be a member-agent of a larger system. A hierarchy of systems then implies hierarchies of structures and institutions. An example is a large firm that is a member-agent of a national economy. While both have institutions of their own, the firm's internal institutions must comply with the constraints of the national economic institutions (e.g., corporate law and labor law).

In most of the present discussion, however, it will be possible to avoid the problems of such hierarchies by focusing on social systems that can be qualified as sovereign -- in other words, that are not formally parts of larger social systems and thus subject to institutions of a higher level. Typical examples of such systems are modern nation-states and ancient tribes.

A fruitful way of depicting such a system is to divide it into three relatively separate systems: economic, political, and cultural (in the broad anthropological meaning of this term). This division is of course highly stylized and corresponds more to the conventional division of labor in the social sciences than to hard empirical facts. The three systems have in common a population of individuals, who play the roles of economic agents, political agents, and a cultural agents at the same time. It is through individual brains that the three systems are most importantly interrelated.

Let me briefly consider the systems one after the other, to note what in their states will be of importance for the present discussion. I see the economic system to require most attention. This is not because I happen to be an economist, but because the performance of this system turns out to play a privileged role in determining the fate of all types of institutions. We need to pay attention to both its structure and its output, and moreover distinguish the supply structure, consisting of producers, from the demand structure, consisting of final consumers. We also need to note which of these agents have been implanted there by government. As will become clear below, much of the relevant knowledge about winning institutions is precisely about the economic role that they can allow, or must require, a politically selected government to assume.

The output of the economic system is important in two ways. It is, by definition, what provides all the private and public goods and services that the members of the society need for their physical survival and mental well-being, and also for their participation in the working of the political and the cultural systems. In addition, the experience with the economic system is an important source of information for both individual and social learning.

In the political and the cultural systems, we only need to consider a few aspects of their states. In the political system, there are only two of them: (i) codified law, which is the source of written and formally enforced institutional rules, and (ii) specific government, including government selected economic agents -- such as policy-making and/or planning agencies, agencies for procurement of public goods, and the principals of government owned firms -- to assume the economic roles that government is institutionally allowed or required to play.

In the state of the cultural system, we need to consider three aspects: (i) cultural norms (custom), that provide unwritten and informally sanctioned institutional rules, (ii) preferences in the broadest meaning of this term, including tastes, interests, and values, and (iii) beliefs, including beliefs about the states and the behaviors of both nature and society. Preferences and beliefs are the main determinants of individual behavior in all three systems. Preferences determine the objectives pursued and the types of incentives to which individuals effectively respond. Beliefs -- based in different proportions on religions, ideologies, and scientific (refutable) knowledge -- determine the mental models that individuals use to predict future states of nature and society, including consequences

of their own actions.²

There is yet another important determinant of individual behavior that social scientists should be particularly careful not to forget, as it lies outside all social systems. This is the genetic pool of homo sapiens (sapiens) that determines the cognitive and learning capacities of this species and their likely distribution in any human population. It is thanks to these capacities that cultural norms, preferences, and beliefs can socially evolve and be individually learnt. But this also means that this evolution and learning can take place only to the extent for which these capacities allow. In other words, although the space within which social evolution can trace its trajectories is undoubtedly vast, it is nevertheless genetically limited.³ The existence of such limits can now be deduced, and the old fuzzy view of human mind as a 'tabula rasa' thus refuted, purely formally, from the basic logic of information processing systems: the more complex such a system is and the more learning capacities it is to have, the more information it must be given in the beginning (e.g., in the form of sophisticated learning programs). Only the specific contents of such limits is a matter of empirical inquiry.

1.4 The role of institutions

The division of a society into the three systems implies division of its institutional rules into three corresponding subsets -- economic institutions, political institutions and cultural institutions. Each system has institutions of its own which govern the transformations of its state over time. Property rights exemplify economic institutions, election procedures exemplify political institutions, and constraints on allowing new ideas and knowledge to modify preferences and beliefs exemplify cultural institutions. It is because each of kind of institutions is seen to take part in a competition of its own that the title of this paper employs 'competitions' in plural.

In the political and the cultural systems, where we do not pay attention to structures, the role of institutions is easy to describe. The political institutions govern the transformation of actual law and government into future law and government. The input that also influences the outcome includes actual preferences and beliefs, supplied by the cultural system. Analogically, the cultural institutions govern the transformation of actual norms, preferences, and beliefs, into future norms, preferences, and beliefs. The input that also influences the outcome includes the new knowledge learnt from

experience with the economic and the political systems.

To illustrate, let me very roughly classify the forms of political and cultural institutions by choosing two broad families for each. For political institutions, let me choose 'democracy' and 'dictatorship'. As the usual meaning of these terms imply, democracy allows the preferences and beliefs of a majority to have more influence on future law and government than dictatorship, under which actual government also determines much of future law and government, while other inputs are largely ignored.

For cultural institutions, let me choose 'conservatism' and 'reformism'. Conservatism has the usual meaning of defending status quo norms, preferences, and beliefs, against both noise and new knowledge. As the term for what is in the present sense its opposite is not obvious, I choose 'reformism' to refer to such cultural institutions that ascribe a high weight to the input of new ideas and knowledge, and thus allow for an extensive learning process by which norms, preferences, and beliefs may be modified.

In the context of political and cultural systems, it is particularly important to carefully distinguish between the state of a system and its institutions. What may cause confusion is that the two partly overlap. In both these systems, institutions not only govern the transformations of states, but are moreover part of the states. Codified law is produced as part of the state of the political system, but subsequently becomes an output that is divided among all three systems, including the political system itself, to form the written and formally enforced part of their respective institutions. Similarly, cultural norms are produced as part of the state of the cultural system, but subsequently are also divided among all three systems, including the cultural system itself, to form the unwritten and informally sanctioned part of the institutions.

But confusion is easy to avoid. The state of a system and the rules that govern its transformation can clearly be distinguished from each other, without excluding that a part of the state may become a part of the rules.⁴ The point to keep in mind is that for any system, only those rules that participate in governing the transformation of its own state belong to its institutions. For example, property rights, although produced in part as cultural norms and in part as codified law, belong only to economic institutions. And among all the norms produced by the cultural system, it is only the ones which decide how the cultural system's own state is allowed to change that belong to cultural

institutions.

In the state of the economic system, as noted, we need to distinguish between the relatively slowly changing structure and the more rapidly changing stocks and flows of resources, including the effective output. This complicates the role of economic institutions (cf. Section 1.1). They govern the transformations of both, but there is a subtlety that is important to understand. The actual state of the structure -- e.g., the actually existing markets and the incumbent firms with their actual physical and human capital -- is obviously a strong constraint on how the output can change over short periods of time. In the short run, the influence of the structure is indeed much stronger than the influence of the institutions. This also explains why non-evolutionary economics, limited to such a short run, has neglected institutions and spent all its efforts on analyzing resource-allocation within constant structures. For the competition of institutions, however, it is the long run that decides. There, economic institutions have a strong and growing influence on how the structure itself evolves, to make it eventually become, in the sense of Section 1.2, an expression of themselves. Economic institutions thus also have a strong influence on the output, but most of this influence is indirect and delayed, consisting of their cumulative past influence on the evolution of the structure.

It is Schumpeter who has the great merit of pointing out that the influence of institutions on the evolution of structures is more important than their influence on current resource-allocation.⁵ True, he omitted to explicitly mention institutions, he carefully examined this evolution only under the institutions of standard capitalism, and he entirely missed why industrial structures are bound to evolve toward inefficiency under socialism. But this does not diminish his great merit of pointing out the crucial problem. Once this is properly addressed by means of comparative institutional analysis, his omissions and errors become easy to correct.⁶

The closer attention to the economic system will often require to classify the forms of economic institutions into finer categories than just two broad families. The rough distinction between capitalism and socialism is now most often insufficient. For economic performance, institutional details often matter; today, as will be argued in a moment, the relevant question is no longer whether capitalism, but which capitalism.

2 WHICH INSTITUTIONS MAY WIN?

2.1 Conditions that winning institutions must meet

To discuss competitions of institutions, it is convenient to conceive of a space of institutional alternatives, where each alternative -- a particular combination of economic, political, and cultural institutions -- corresponds to a certain point. This space can be subject to two inquiries: about properties of its points or regions (institutional statics), and about trajectories that social evolution can trace there by moving from one point to another (institutional dynamics).

An important task for institutional statics is to identify two kinds of regions: those that may contain potential winners and those that contain only definite losers.

The notion of 'potential winner' calls for clarification. A potential winner means a potential institutional equilibrium -- a point which social evolution, if it arrived there, would not have to leave. But the real world keeps changing and social systems must keep adapting to it. This may give the impression that also institutions must keep changing. If this were the case, potential winners could not exist.

To be sure, as Part 3 will consider in more detail, institutions may and do change. But it is important to understand that they need not always do so. To adapt to a changing world, a system needs above all to adapt its structure -- this is, to recall, its functioning and performing 'body'. For example, new technologies and/or changes in relative prices may require new firms to enter and old firms to substantially reorganize or exit.

For institutions, two strategies are possible: (a) each time a new structure is necessary, find such new institutions that their expression will just be this structure; (b) find once for all such institutions that provide for the formation of a self-adapting structure -- that is, structure that can keep adapting, under the same institutions, to a sufficiently wide range of possible states of the world.

In biological evolution, both strategies have been successful: the use of (a) is illustrated by insects, and the use of (b) by mammals, with humans using its most advanced form. This is worth emphasis, for many social scientists seem to forget that all the wonderful flexibility and learning abilities of our brains, which make us more 'intelligent' than dogs and chimpanzees, are due to special information encoded in our

genes, which themselves are not flexible at all, but rigidly stable, and fortunately so.

In social evolution, in contrast, strategy (a) is at a clear disadvantage. If a structural change is necessary, many institutional alternatives must usually be tried before the one that provides just for that change can be found. Insects can cope with this disadvantage because of their enormous populations and high rates of replication. Perhaps strategy (a) may partly work in the competition of firms. An advanced economy typically contains many thousands of firms, of which some may indeed be of the insect type: they can be rigidly adapted to certain markets and technologies, and, if these change, be replaced by other firms, not less rigidly adapted to the new markets and technologies. But for nation-states, which on this planet are less than two hundred, which cannot simply disappear and be replaced by new ones, and which cannot keep changing their institutions without high risks and costs, strategy (a) is clearly unsuitable.

This is why in social evolution, strategy (b) is of prime importance, and therefore also, why some institutions may remain stable, even when the rest of the world keeps changing. The question only is, which institutions.

The first condition that such institutions must meet is to be 'adaptively efficient' - that is, to effectively provide for sufficient flexibility and adaptability of the structure over the range of the states that the world may happen to assume.⁷

Note that in this definition, adaptive efficiency is a property of institutions, as opposed to the usual allocative efficiency, which is a property of structures. To be adaptively efficient, institutions must provide for such evolution of the structure that this remains reasonably efficient -- or at least not more inefficient than its competitors -- over the required range of states of the world.

But efficiency cannot suffice. The notion of efficiency, be it allocative or adaptive, must always be related to some objectives (values, preferences, objective functions). Standard economics allows them to be whatever consumers may wish ('consumer sovereignty'). But evolutionary analysis cannot be as liberal. It cannot help observing that the expected lifetime of social systems depends not only on their efficiency in the pursuit of given objectives, but also on what these objectives are -- e.g., on their long-term ecological consequences and on their impact on physical and mental health of the population. Hence institutions, to be potential winners, must also be able to induce the members of the society to choose objectives that do not destroy the basis on which

continuing existence of the institutions depends. Let me call such objective 'wise' and denote this condition as 'wisdom condition'.

If we again divide social institutions into economic, political, and cultural ones, the efficiency condition can be identified as imposed on economic institutions, and the wisdom condition on the cultural ones. Moreover, additional necessary conditions appear, consisting of the requirements that the three kinds of institutions impose on each other.

Many social scientists (perhaps with the exception of economists) observed indeed that cultural, political, and economic aspects of a society strongly condition each other. Cultural relativists even believed that the success of a society only depends on mutual adaptation of these aspects. It may therefore be useful to emphasize that the efficiency and wisdom conditions introduce severe absolute criteria, for which many mutually adapted institutions end up by being rejected.

2.2 The efficiency condition and economic institutions

The next question is, what do all these necessary conditions imply in terms of specific institutional properties. Without aspiring to find a detailed answer, I only wish to indicate some of its elements, and by doing so, also to indicate how a more thorough inquiry may be conducted and what social value the knowledge found may have.

The efficiency condition is a fruitful beginning. But as non-economists, and in particular historians, may not be convinced about its importance, the following comment is in order. In the past, relatively primitive institutions causing much inefficiency could indeed allow both small tribes and large empires to maintain their existence for millennia. This may seem to imply that efficiency is not very important and that return to such institutions may also be an alternative for the future. The reason why this is not so is that institutional innovations and growing populations keep increasing the competitive pressures upon all societies. This keeps lowering the tolerance to inefficiency. Less and less of it suffices to eliminate the institutions that caused it.

What properties efficient economic institutions must have was until recently an entirely open issue. To be sure, very much thanks to Hayek, arguments claiming that it must provide above all for spontaneous formation and functioning of competitive markets and avoid all kinds of socialist planning have been known for a long time. But until the

spectacular collapse of real socialism by the end of the 80's, they were not given more weight among theoretical economists than the arguments claiming that socialist planning can be made efficient. While the weight of Hayek's pro-market arguments is now clearly increasing, they nevertheless do not seem able to settle the entire issue only by themselves. Their refutation of socialist planning is certainly powerful, but efficient market socialism of a new kind -- using real markets, and not the refuted imitation of markets à la Oscar Lange -- can still be claimed possible.⁸

In several of my papers (Pelikan 1987, 1988, 1992, 1993), I elaborated a slightly different argument, which I believe brings the issue closer to a definitive conclusion. It is based on two theoretical novelties: (i) comparative institutional analysis of the schumpeterian dynamics of industrial structures ('creative destruction'), which Schumpeter carefully studied only for capitalism and Hayek mostly neglected; (ii) recognition of economic competence as a scarce resource, whose allocation is intimately linked to this dynamics.

These novelties made it possible to produce a particularly strong argument in favor of a certain type of capitalist market institutions, which can be summarized as follows. To meet the requirements of the (adaptive) efficiency condition, economic institutions must provide not only for the formation and protection of reasonably competitive markets, including markets for capital and labor, but also require private and tradeable ownership of firms, and strongly limit the rights of government to intervene in the organization and management of supply. This argument thus refutes not only socialism with a central agency engaged in planning or market-imitating, but also all forms of socialism using real markets; it moreover exposes important constraints on government policies in mixed economies -- e.g., shows the inefficiency of government ownership of firms and of selective industrial policies.

There is, however, one important difference from the usual pro-market arguments. The case for capitalist markets is strengthened only within the system of supply, whereas some mildly paternalistic and redistributive policies are shown necessary within the system of final demand (Pelikan 1993). The case for such policies, which is based on the (adaptive) efficiency condition, with no reference to social (distributive) justice, becomes even stronger when also the wisdom condition is considered.

Although this difference may appear to weaken the case for capitalist markets, the

true result is that this case is made more robust. The reason has to do with the requirements that may be imposed on economic institutions by the cultural system. Hayek (1976) is certainly right that *if* people valued only the justice of rules, and not that of outcomes, *then* capitalist market institutions would be easy to implement and maintain. But what people value is part of the state of their cultural system, which is not easy to influence. There seems to be many cultures where what Hayek calls the 'atavism' of distributional justice is still going strong.⁹ While it may be possible -- as part of the transformation of the cultural system -- to conduct educational campaigns trying to convince people to stop valuing distributional justice, the success is uncertain and may take long time to obtain. To show, as my argument does, that a certain type of capitalist market institutions provides for superior organization of production, regardless of the values concerning final consumption, makes such institutions more universally acceptable.

Although hierarchies of institutions are here left aside, a brief note about the competition of internal institutions of firms is instructive. The superiority of capitalist market institutions on the supply side is indeed largely due to their superiority in providing for this competition (Pelikan 1989, 1993). Be the national economic institutions non-market or only non-capitalist, this competition will necessarily be distorted, and the quality of the winning firms will be worsened. To limit the entry to government-owned and/or employee-owned firms, or to allow policies to support unpromising firms (which policy-makers are unlikely to distinguish from promising ones) is bound to result in grossly inefficient production structures -- as all the economies where some of this was allowed to take place amply illustrate. If organizationally or technologically inferior firms are allowed to dominate the supply structure, their dominance can only be temporary, for they must eventually cause the demise of the national economic institutions that made it possible.

To conclude this argument, let me emphasize an important qualification. Not all forms of capitalist market institutions are claimed able to win. That some of them may lead to deep economic and/or social crises, and thus end up among the losers, is fully admitted. The argument only claims that all potential winners must have economic institutions of this type -- but not that all economic institutions of this type are potential winners. As I argued elsewhere (Pelikan 1993), institutional details matter and to identify a winning form of such institutions may be a difficult task for institutional design.

And as will be discussed below, to make social evolution actually reach and stick to such a form may be a difficult task for public policy.

2.3 Implications for the cultural and the political systems

From the economic system, there is a clear trail to the cultural and the political ones. Economic institutions, to be able to meet the efficiency conditions, impose specific requirements on both of them. Moreover, as noted, they must be adapted to each other and to themselves, and the cultural system must meet the wisdom condition.

What this implies for the cultural system can be summarized as follows. The wisdom condition directly concerns preferences. For example, to recall, they should not favor final consumption that undermines the physical or psychical health of the population, neglects education, or destroys natural environment.

The economic system imposes three kinds of requirements. First, if its institutions are to be of a capitalist market type that can meet the efficiency condition, the cultural norms must provide all the necessary unwritten rules that such institutions may need. This includes, for example, a minimum respect for property rights, contracts, promises, and business ethics in general.¹⁰ Second, the preferences must provide for sufficient propensities to save, take risks, invest, and take initiative ('entrepreneurship'), to make all the efficient markets and firms, for which such institutions provide potential space, actually form and develop. Third, the beliefs must be sufficiently rational, based to a large extent on scientific (refutable) knowledge, in order not to strangle the economy by shortages of economic or technological competence.

As we have not yet inquired into the form of political institutions, only two very general remarks can be made about what the political system requires. First, the cultural norms must again supply all the necessary unwritten rules for winning political institutions -- whatever these may be. Second, the preferences and the beliefs must allow political agents to reach, under such institutions, all the political decisions required in the time required. If the winning institutions turn out to be of a democratic type (which they will indeed do, although first in Section 3.2), the two requirements will become quite severe. The first one will mean that the cultural norms must include acceptance of electoral results, including own defeat. The second one will require the values to be sufficiently homogenous (or at least monotone), to avoid political crises caused by

Arrow's Impossibility Theorem, and the beliefs to be sufficiently rational, to prevent democratic decisions from hindering socially valuable projects.

Finally, to be adapted to itself, the cultural system must supply all the unwritten rules for winning cultural institutions -- again, whatever these may be. For example, if they belong to the conservative family, the norms would have to contain resistance to all changes of norms, preferences, and beliefs. If they were of the reformist type, the norms would on the contrary have to contain openness to novelties and cultural learning.

Without any absolute condition to meet, the political system only needs to be adapted to the other systems and to itself. Much like the cultural system must supply all three kinds of institutions with suitable unwritten rules, the political system must supply all of them with suitable codified and formally enforced laws. In economic institutions, for example, the culturally produced respect for property rights and contracts may have to be complemented by formal specification of details and by rules that the cultural system alone is unlikely to supply -- such as suitable corporate law, antitrust law, and bankruptcy law. Cultural institutions, if conservative, may need a censorship law, and if reformist, laws on freedom of expression and perhaps also on critical thinking in education. Political institutions appear to be the greatest consumer of codified law: in modern nation-states, most of their rules appear necessary to codify.

Moreover, for the economic role that government is to play, the political system is required to choose government of sufficient integrity and competence, to minimize efficiency losses due to unproductive rent-seeking and/or incompetence of policy decisions. This requirement, however, is better seen as a problem of mutual adaptation between economic institutions and the political system. As the integrity and the competence of governments are always subject to binding constraints -- which, although different in different cultures, are never negligible -- economic institutions must compensate for these constraints by correspondingly restricting the economic role for government. Much of the earlier discussed case for capitalist market institutions follows indeed from these constraints.

All this, of course, is only a very rough sketch of what the efficiency and the wisdom conditions imply for the cultural and the political systems. But the main purpose, as noted, was to indicate how a fruitful inquiry into such implications can be conducted, rather than to reach specific results. The important point to note is that this

line of inquiry, to however specific results it might lead us, is only about the states of these systems, but not about their institutions. To learn about these, we must examine how the required states can be obtained and maintained, and ask under what institutions this can happen.

But as long as we remain within institutional statics, limited to properties of supposedly given institutional alternatives, we cannot learn much. To see why, recall the space of institutional alternatives from Section 2.1. Institutional statics can draw a map of this space, where points and regions can be marked by indications about their consequences on the working of social systems. What we have tried to learn is, which of these points are potential winners of the competitions of institutions (potential institutional equilibria). Institutional statics leaves us with four broad regions where such points might be found. Although it can say much about specific properties of economic institutions, it cannot see why all four combinations of political and cultural institutions should not be possible: democracy and reformism, democracy and conservatism, dictatorship and reformism, and dictatorship and conservatism. To meet the wisdom condition and the requirements of efficient economic institution, the cultural and the political systems must only be maintained in certain required states. For institutional statics it is unimportant how this is achieved -- whether the required laws are made by a parliament or a dictator, and whether all the required norms, preferences and beliefs are maintained by blind conservatism or by learning and reforming which no longer find rational reasons for change.

But in spite of this limitation of institutional statics, the map it can produce can contain much of useful knowledge: although it cannot be very precise about potential winners, it can point out large regions as definite losers. The knowledge of this map, as will argued below, is of great importance for institutional dynamics.

3 INSTITUTIONAL CHANGE, DELIBERATE POLICY, AND THEORETICAL KNOWLEDGE

3.1 The dynamics of institutional change

How institutions change and evolve can best be described as an experimental ('trial-and-

error') evolutionary process, involving two phases: (i) designing and trying out of projects, and (ii) selecting or rejecting the projects tried according to their consequences.

An important question is, how much knowledge about the eventual consequences can inform phase (i). In biological (darwinian) selection, it is none. At the other extreme, if all relevant knowledge were available, the process would not be evolution, but exercise in perfectly rational design. According to the present argument, evolution of institutions is an interesting intermediate case which is itself evolving from darwinian beginnings to increasing use of relevant knowledge -- although unlikely ever to reach the extreme of perfectly rational design.

Postponing the question of knowledge for a moment, let me briefly describe the two phases. In phase (i), the sources of design of institutional rules are seen here in the cultural and the political systems. The cultural system is the source of individualist trials modifying cultural norms, which spread from usually anonymous innovators through imitation by other individuals (cf. Hayek 1967). The political system is the source of collectivist trials creating or changing codified law (cf. Vanberg 1992). As attention is often paid to only one of these sources, it should be emphasized that both are important. No effective institutions can be made of legislated laws only; unless accompanied and complemented by suitable cultural norms, not even the best law can produce good results. But, at least in modern complex societies, the opposite is also true: unless complemented and supported by suitable law, not even the wisest cultural norms suffice to provide for efficiency.

It is phase (ii) that has the meaning of competitions of institutions. It is in this phase that winners are selected (maintained) and losers rejected.

To be maintained, the institutions of a system must effectively be respected by a quasi-totality of its agents. There are two main factors that can make an agent respect an institutional rule: (i) the fear of sanctions for non-respect; and (ii) the belief that the rule is right, given the agent's preferences. To them the present argument adds a third factor, which can be seen as a derivative of (ii): the knowledge that can -- but perhaps only up to a certain point -- replace the belief. Of course, to see knowledge as a derivative of beliefs raises the fine epistemological question of how to tell the difference between the two. But let me ignore this question for a moment, to return to it briefly in Section 3.3.

For understanding phase (ii), it suffices to understand rejection, for selection is nothing but a long period without rejection. In general, an institutional rule is rejected when it is no longer supported (respected) by a sufficient number of agents. In detail, there are several ways in which this can happen. The most drastic one is the demise of the agents themselves. For example, some institutions may induce them to behave so inefficiently that they become unable to obtain the necessary quantities and qualities of food, shelter, medicine, and defense to physically survive. This is the principal way for rejecting genes in biological evolution, but rarely used for rejecting institutional rules in social evolution. The reason is not that humans would be free of the danger of demise, but that thanks to their cognitive abilities they can often see the danger approaching and decide to reject such institutions before it is too late.

The human cognitive abilities are indeed the basis of all the other, less drastic ways of rejecting institutions. This has two important consequences. First, as these abilities are institutionally conditioned, institutions become interdependent. For example, as pointed out in slightly different terms by North (1990), whether certain economic institutions are maintained or rejected strongly depends on the prevailing values and beliefs, which in turn strongly depend on the prevailing cultural institutions. As North points out, this makes social evolution path-dependent, for past values and beliefs may thus strongly influence the possibilities of future institutional changes. The present qualification is that this is true to the degree to which the cultural institutions are conservative; if they are reformist, the path-dependency is weaker. Moreover, as argued above, whether any institutions can be maintained depends in the last analysis on the economic output, including the production of new knowledge, which in turn strongly depends on the economic institutions.

Second, as the human cognitive abilities are imperfect, they may also be sources of important errors. In particular, false alarms may be given and potential winners may mistakenly be rejected. Hayek was among the first ones to warn that this was what happened in all the societies where Marx's alarm about the imminent collapse of capitalism was taken seriously enough to reject capitalist market institutions and start experimenting with its much poorer socialist alternatives. The opposite errors of maintaining eventual losers, in spite of growing signs of an approaching disaster, can also be committed. But such errors cannot last longer than the time it would take for the

disaster actually to come and trigger the drastic way. The closer to this time they are allowed to last, of course, the higher the social costs incurred.

When this trial-and-error dynamics of institutional change is considered, it becomes clear why no knowledge of potential institutional equilibria that institutional statics might produce can predict the actual outcomes of future social evolution.

3.2 Political and cultural institutions: a dynamic point of view

In the previous section, cultural and political systems were exposed as sources of trials in institutional design. The question now is, what new can we learn about their institutions. To recall, institutional statics was not very informative. It admitted all of the considered combinations of political and cultural institutions as potential winners. Why institutional dynamics might tell us more is that it is also interested in the processes by which institutional alternative can effectively be attained and/or maintained. In the space of institutional alternatives, this means to be interested not only in points, but also in the trajectories that can lead to and from the points. The question therefore is, whether we can discover some differences among alternatives of political and cultural institutions by investigating their chances of being effectively attained and maintained.

For cultural institutions, the difference is easy to find. If the protection of status quo institutions is not absolutely errorless -- which it never can be -- institutional equilibria which rely on pure conservatism must clearly be unstable. Sooner or later they are bound to drift into disequilibria, which would then also be tried to be conserved -- as no corrective feedback, based on observations, learning, and reforming, is there in place. Of course, learning and reforming are not without problems. As noted, they risk to go astray. Then, instead of correcting a small disequilibrium, they can make it large. But this does not cure the drawback of conservatism. What an institutional equilibrium needs, to be stable, is rational reforming based on relevant theoretical knowledge. Whether or not there can be stable institutional equilibria thus turns out to depend on whether or not humans are able to acquire relevant theories for correctly reforming their institutions -- which includes keeping them stable, when they are in a favorable equilibrium, *and knowing it*.

The difference between the alternatives of political institutions take somewhat longer to discover. When the importance of relevant knowledge is recognized, the

crucial question is, who has it? To avoid misunderstanding, it should perhaps be emphasized once more that the relevant knowledge is not 'factual', which no single mind can possess, but theoretical. Its essential elements, if pedagogically explained, can be acquired by very many people -- for example, very many people can learn why socialism cannot work.

Interesting differences between democracy and dictatorship then appear depending on how large part of the population has the relevant knowledge -- or at least have enough of it to know who has more of it. If it is a majority, democracy is clearly superior. The inferiority of dictatorship can then be exposed as follows. There is a non-zero probability that the decisive authority -- be it as single dictator or a junta -- is selected from the ignorant minority. The expected social losses under dictatorship must be higher than the expected losses under democracy, for there the relevant knowledge is used with certainty. But if only a minority has the knowledge, an opposite ranking appears to be true. In this case, democracy is certain to produce the wrong decisions, whereas dictatorship has a non-zero probability to be right.

This, however, does not mean that dictatorship can be part of a stable institutional equilibrium. There are two reasons why this is unlikely. First, knowledge spreads. If the relevant knowledge about favorable institutions is produced and if most people are reasonably talented to learn it, the state in which it is limited to a minority is itself unstable. When this knowledge has spread to a majority, it is democracy that becomes superior. Of course, this does not exclude the possibility that a transitory use of dictatorship might have a positive expected value in a society with an actually ignorant majority. But in the long run, dictatorship becomes inferior.

The second reason has to do with a particular kind of preferences (values) that seem to be present in all cultures. These are preferences over institutional rules as such, regardless of the outcomes to which these may lead. Often discussed examples are preferences for democracy, regardless of what law and what government it may produce, and preferences for a market economy, regardless of what economic inequality it may cause. Dictatorship could be part of a stable institutional equilibrium only in a culture where preferences for dictatorship over democracy could lastingly be maintained. This appears unlikely, in particular when conservatism, which is the the only type of cultural institutions under which such preferences could be maintained is itself unstable. This

reason would be strengthened, if Chomsky (1976) were right and human resistance to dictatorship moreover had a genetic basis (cf. Section 1.3 and Note 4).

Preferences over rules are of importance also from another point of view. According to Hayek (1976), it is upon them, and not upon preferences over actual outcomes, that modern large societies must be based. This is indeed how his argument in favor of 'abstract rules of just conduct' and his criticism of 'the atavism of distributional justice' can be put in present terms. The argument is right that a culture which values only institutional rules, and not outcomes, is less demanding, and therefore easier to endow with a compatible efficient economic institutions than a culture which also values actual outcomes. The obvious difficulty with the latter is that it risks overdetermining the economic problem: the preferred outcomes may not be obtainable under the preferred rules, or may not be obtainable at all. Cultures that insist on such outcomes destroy their economies and cannot last long.

But this is not the entire story. A culture which values only rules is also exposed to a serious risk, germane to that of conservatism. There is no guarantee that the rules that happen to be preferred are also those that result in meeting the efficiency and the wisdom conditions. If they are not, such a culture cannot last much longer than the one which overdetermines its economic problem. With no valuation of overall outcomes, there can be no corrective feedbacks, and therefore no hope for redress.

Institutional dynamics thus makes the result of institutional statics more precise: potentially winning institutional alternatives must provide not only for a capitalist market economy, but moreover for political democracy and cultural reformism.¹¹ It moreover shows that an important condition for a favorable equilibrium to be stable is widespread knowledge that this is a favorable equilibrium.

3.3 Deliberate policies and theoretical knowledge

An important lesson of Section 3.1 is that nature punishes societies that are far from any institutional equilibrium by economic and social crises, which force them to search for other institutions through costly and risky transformation processes. As these crises and processes usually cause much of individual suffering and may threaten the very existence of organized society, it appears to be a natural objective for policy to try to attain and maintain a favorable institutional equilibrium.

Why the form of institutions should be a matter for deliberate policy, rather than left to spontaneous (cultural) evolution, may require a more thorough justification. Two cases are important to distinguish: (i) fortunate societies, which are in an institutional equilibrium -- in other words, have institutions that allow them to meet both the (adaptive) efficiency condition and the wisdom condition, and (ii) unfortunate societies, whose institutions are far from any such state. Probably no real society strictly belongs to (i), but there are many real societies that definitely belong to (ii) -- such as the "Southern" nations with chronically underdeveloped economies, or the "Eastern" nations, on the verge of economic and moral ruin after several decades of socialist experiments.

For case (ii) societies, the justification needs no advanced theoretical reasoning. Because of unfavorable cultural development and/or past policy errors, their institutions are in such a disastrous state that spontaneous recovery appears extremely unlikely. This is now also the prevailing belief (if not knowledge), for intensive search for suitable transformation policies is being conducted in most of them. For case (i) societies, if they existed, the reason for deliberate policy is close to the one why conservatism is evolutionarily unstable. As follows from the previous section, without protection by deliberate policy, the favorable institutions would slowly dissolve by institutional drift -- for example, through uninformed individualist experimenting.

When deliberate policy of institutional change is justified, the crucial question is, how to prevent it from causing higher social losses than spontaneous social evolution. The answer is, of course, that this can never be guaranteed. The only promising avenue is to work on minimizing the expected losses of policy errors by producing and putting to use relevant theoretical knowledge, by which policy choices can be enlightened. Of course, both the production of such knowledge and its putting to practical use raise enormously difficult problems. But -- and this is the final argument of this paper -- modern societies have no other choice than do their best in struggling with them.

Before exposing the argument, brief comments on each of these problems are in order. The production is what many students of institutions and institutional change have been working on, although they seldom explicitly consider the knowledge they produce as input into the evolution they study. For example, much of the work by Friedrich Hayek and Douglass North contributed to this production and started to influence practical policy, although none of them explicitly considered this influence.

But not all of what students of institutions produce can be considered relevant knowledge, which calls for a more detailed explanation what this should be about. A short way to describe it is to say that it should be about points and trajectories in the space of institutional alternatives (cf. Section 2.1) -- that is, about consequences of alternative institutions, as can be studied by institutional statics, and about the ways of attaining them and/or leaving them, as can be studied by institutional dynamics. The knowledge should be 'objective' in the sense that it is not subservient to our preferences (tastes, values, ideologies), but on the contrary allow us to study our preferences from a higher point of view and discover in them possible inconsistencies.¹² For example, much like medicine has found that the preference for longevity is incompatible with the preference for smoking, the social sciences should be able to find that the preference for civilization and welfare (in the broadest meaning of these terms) is incompatible with the preference for certain types of institutions.

Ideally, the knowledge should make it possible to identify both potential equilibria that policy should try to reach and preserve, and the unstable institutional alternatives, which lead to crises and disasters, that policy should avoid. In reality, however, it may never be possible to obtain all such knowledge. Although the knowledge is only about functional consequences ('general performance'), and not about specific ('factual') outcomes, its production is subject to at least two constraints. One is the openness of the space of institutional alternatives. Institutional innovations, which are impossible to predict, keep appearing and enlarging the space. An alternative that today appear as an equilibrium may thus be displaced by a new alternative that will be discovered in the future. But this constraint is largely a matter of precision and should not be overestimated. Even if we can never know an institutional equilibrium in detail, we may learn to locate it within a certain region -- for example, as was possible to do with winning economic institution in Section 2.2. Moreover, much knowledge can definitely be obtained about institutions that lead to crises and disasters. To know which policies to avoid, even if we do not know which policies to recommend, has also positive social value.

The second constraint stems from the fundamental difficulty of distinguishing knowledge from mere conjectures and false theories. If Popper (1973) is right, we can never have true knowledge, only yet unrefuted theories. This means that we cannot

exclude scientific errors, just as we cannot exclude policy errors. The theory of optimal socialist planning, which some of the best economists of their time helped to develop, and standard comparative economics, which failed to see the approaching collapse of real socialism, are spectacular examples of how serious errors can be produced by seemingly serious analysis. But this only confirms (or, to be popperian, fails to refute) Popper's view of the evolution of sciences as an intellectual trial-and-error process. Then, even if scientific inquiry can never yield true knowledge, to conduct it will still be of positive social value if its intellectual trials-and-errors can help to avoid some real policy errors.

In the social sciences, of course, intellectual errors should not be underestimated. False theories, if sufficiently believed, may have effects of self-fulfilling prophecies. The Marxist theory of class struggle, which even predicted a specific trajectory from capitalist to socialist institutions, is a notorious example: where it was believed, destructive class struggle was organized and the theory thus appeared confirmed. But the influence of such theories can only be temporary (although perhaps not entirely reversible): sooner or later, differences between them and the real world are bound to appear and grow in importance -- as happened, for example, with the Marxist theory, when it inspired real policies to try to follow the predicted trajectory. In the end, even this produced relevant knowledge, although at enormous social costs.

The difficulties with putting relevant knowledge to practical use are even difficult to survey, for there are many ways in which such knowledge can spread, and each has its specific obstacles. Efforts can be made to spread it directly to policy-makers or, in democracy, to the electorate -- neither of which may be easy. For example, in societies with conservative cultural institutions, an important obstacle is the above-mentioned path-dependency, which hinders new knowledge from modifying old beliefs, however harmful these might have become (cf. also North 1990, and Denzau and North 1994). To understand these difficulties in democracy, the usual theories, which see it only as a formal system for aggregating rational votes, are insufficient. Democracy must also be studied as a system of social learning and education, with the task of enlightening voters' choices by relevant knowledge.

A recent example of the importance of spreading relevant knowledge is the (relative) success of the Czech post-socialist transformation. Much of this success appears indeed due to such an enlightenment process. While the actually taken policy

measures were about the same as in many other post-socialist economies, the effort spent on explaining how markets work and why the measures were taken was unique. This appears indeed to be the only explanation why the Czech radical transformation policies could obtain and maintain broad political support, and why the Czech Republic is now the only post-socialist country where democracy did not bring back to power heirs of the old communist parties.

Of course, it can be objected that the Czechs just had good luck: they happened to begin the transformation process with a team of top policy-makers, chosen haphazardly in the turmoil of the 'velvet revolution', who happened to have the relevant knowledge (or beliefs reasonably close to it), together with the motivation and the pedagogical abilities to spread rapidly its most important elements to a critical mass of the electorate. Russia was less lucky: although many of its reformers had similar knowledge, they did not understand the importance of pedagogical explanations. Their electoral campaign was an offence to the reasoning abilities of an average voter and could not but bring their defeat. Ukraine was even more unlucky, for among her top policy-makers, relevant knowledge appeared entirely missing.

Yet, in spite of all the difficulties with producing and spreading the relevant knowledge, modern societies have no alternative. They can no longer return to the paradise -- if it ever existed -- where life could go on under wise institutions, whose consequences no one had to understand. Once people started to try to understand and meddle with their institutions, however clumsily they may have done so, they chased themselves out of that paradise. They must now work in toil, if not necessarily in sweat, to learn to do it properly. However hopeless this task might be, not to work on it would be even more hopeless.

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Notes

1. The problem of speed differences between institutional and structural changes is of particular importance in the context of post-socialist transformation; see Pelikan (1992) for a more detailed discussion.
2. For an interesting account of the role of mental models in institutional economics, see Denzau and North (1994).
3. This view of genetic limits to social evolution can be seen as a loose extension of Chomsky's theory of 'universal grammar', which he defined as genetically given means and limit to the creation and learning of languages (for a popular presentation, see Chomsky 1976). Chomsky also speculated about extending his theory to social evolution in general, and suggested an encouraging hypothesis that the genetic endowment of humans includes need for freedom, which prevents them from lastingly adapting to oppression. This may appear paradoxical, as he politically supported what turned out to be the most oppressive societies in modern history.
4. An logically clear example of systems whose internal state includes the rules governing the transformation of this state is the modern computer. It was von Neumann who had the genial idea to store computer programs, which govern operations with data, in the same memory as the data. This idea, which makes it possible to program modifications of programs, was perhaps the most important innovation in the architecture of automatically computing systems. In the 50's, before such computers became common, they used to be distinguished as 'computers with internal control'.
5. Perhaps the best statement of this observation is the chapter on creative destruction in Schumpeter (1942/1976). A particularly telling is the following quotation (p.84): 'The problem usually studied is how capitalism administers existing structures, whereas the relevant problem is how it creates and destroys them.'

6. This is at least what my study of this question allowed me to conclude (Pelikan 1987, 1988, 1992).

7. While the term 'adaptive efficiency' was probably coined by Marris and Mueller (1980), its presently used definition is much of my own making. I was, however, greatly helped by personal discussions with Douglass North, who also showed how this term could productively be applied in his 1990 book.

8. For a recent blueprint for market socialism, see Bardham and Roemer (1992).

9. For a similar point see Choi (1993).

10. As follows from an interesting argument by Breton (1992), the lack of such cultural norms can be compensated by formally enforced law, which can thus make capitalist market institutions formally compatible with a wide variety of cultural norms. As he points out, however, such compensation is costly, in terms of enforcement and transaction costs. If paid, these costs may tax the resulting efficiency so heavily that the efficiency condition is no longer met. If not paid, the effective institutions would not be of the right type, and would therefore also fail to meet the condition.

11. As Lüder Gerken pointed out to me, this result is analogous with the result reached by Eucken in his study of interdependence of orders (1952/1990: 180 - 185 and 332 - 334).

12. To be objective does not mean to be value-free. We cannot communicate in a value-free fashion, because all languages in which we may try to communicate are inevitably value-loaded. All languages are based on categories that someone, in terms of some values, found important to distinguish. But there is a difference between referring to categories that can be valued, and actually valuing them. (In mathematics, this is the difference between listing the arguments of a class of objective functions, and assigning to these arguments particular weights, and thus determining a specific function within this class.) Thus, although all knowledge must be expressed in terms of valuable

categories, it can be objective in the sense that it does not attach to these categories any specific values.