Evolution in Economics and in the Economic Reform of the Centrally Planned Economies*

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> The science of constructing a commonwealth, or renovating it, or reforming it, is like every other experimental science, not to be taught *a priori*. Nor is it a short experience that can instruct in that practical science; because the real effects of moral causes are not always immediate...The science of government being therefore so practical in itself, and intended for such practical purposes, a matter which requires experience, and even more experience than any person can gain in his whole life, however sagacious and observing he may be, it is with infinite caution that any man ought to venture upon pulling down an edifice which has answered in any tolerable degree for ages the common purposes of society, or on building it up again, without having models and patterns of approved utility before his eyes.
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> Edmund Burke, *Reflections on the Revolution in France*, 1789.

1. Introduction

The transformation of the centrally planned economies into market economies is an immensely complicated task for which economic theories can only provide loose metaphors, rather than precise lessons. Economists are not so fortunate as engineers assigned to build a bridge, armed with a simple goal and with hard and fast, and tested, scientific principles. Rather, economists must rely upon sets of theoretical propositions known to be true only under highly stylized circumstances and empirical results often connected to the basic theories by tenuous extra assumptions. Thus, in deliberating on economy-wide economic reforms, economists should remind themselves that their theories are incomplete metaphors, rather than precise instruction manuals laying out the path to progress in a clear and definite way.

The purpose of the present paper is to present the lessons of one such economic metaphor: to examine an evolutionary approach to economic reform. When the word 'evolutionary' is used in common parlance, it usually conjures up two images. The first image is of slow and gradual change, rather than a revolutionary leap. Secondly, there is the connotation with the theory of natural systems that is central in biology. I hope to show in this paper that the conjunction of these two images is no simple matter of coincidence. The economic theories that are related to the theory of evolution do, on balance, suggest that the economic reform process should be gradual. Perhaps more importantly, these theories suggest that economists should be wary of emphasizing the benefits of privatization and instead should focus on the postive effects of building a market economy by encouraging the growth of a nascent private sector.

The ideas comprising the 'evolutionary paradigm' derive from a number of sources. The early impetus was from Schumpeter (1950). At the simplest level, the theory also draws some insights by analogy with biological evolution. However, as Nelson and Winter (1982) make clear, the underlying basis of the evolutionary paradigm rests securely on a systematic articulation of theories of individual and organizational behavior, particularly focusing on informational problems. This fact implies that there are many links to be made between the evolutionary paradigm and that part of current economic theory focusing on informational processes -- for example, investigations of the informational limitations of markets, the role of institutions in informational transmittal, the game theory approach to economic organizations, etc.[1] Of pertinence in the present context, Murrell (1990) argues that the evolutionary paradigm identities those systemic features most responsible for the differences in the economic performance of capitalist and centrally planned economies. These are the features of centrally planned economies that must be most urgently changed in the process of reform.

Section 2 of the paper presents a summary of those elements of evolutionary theory that seem most pertinent when deliberating on the process of economic reform. Section 3 considers the connection between the

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[1]. Stiglitz (1989) and Murrell (1991), although not addressing this point directly, show connections between some recent theoretical results and evolutionary views.

speed of imposition of reform and the level of economic performance in the immediate post-reform phase. Section 4 examines the hopes for privatization and considers whether the process of privatization itself might impede the attainment of other worthwhile objectives of reform. The nature of stabilization programs is considered in section 5, particularly the extent to which those programs should rely solely on market-based measures. Using the view of organizations emanating from the evolutionary paradigm, Section 6 considers whether the existing organizations of the pre-reform economy should have any role in the transition process.

2. The Evolutionary Paradigm From the Perspective of Reform

The evolutionary paradigm begins with two premises.[2] First, in order to understand the success of capitalism, one must primarily focus upon mechanisms that produce growth and change, not on equilibrium processes. Second, one must begin one's economic theorizing with a satisfactory description of the behavior of economic agents, especially one that takes full account of problems of decision-making and organization in the face of severe limits on information processing abilities. Then, the description of economic processes must follow directly from this view of the nature of agents.

At the center of the evolutionary emphasis on growth and change is the notion that innovation has been the driving force behind the immense increases in wealth occurring since the industrial revolution. However, one must be careful not to attach too narrow a meaning to the notion of innovation. Progress has come not only from new technologies, but also from organizational and institutional innovation. Thus, the notion of innovation should conjure up not only the invention of the blast furnace or

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2. Nelson and Winter (1982) provide the most complete modern exposition of evolutionary theory. The present discussion closely follows their treatment, emphasizing elements most critical to reforms.

the semiconductor, but also the development of the multi-divisional corporation and fast-food franchising.

In emphasizing growth and change, and thus innovation, the evolutionary perspective implicitly accords relatively less importance to the property of allocative efficiency. According to this perspective, the neoclassical paradigm's primary focus upon allocative efficiency and competition within an equilibrium framework is misleading. Rather, as Schumpeter (1950, pp. 84-85) stated most forcefully, these features are of secondary importance compared to capitalism's mechanisms for change and innovation:

> [I]t is ... competition within a rigid pattern of invariant conditions, methods of production and forms of organization in particular, that practically monopolizes attention. But in capitalist reality as distinguished from its textbook picture, it is not that kind of competition that counts but the competition from the new commodity, the new technology, the new source of supply, the new type of organization....This kind of competition is much more effective than the other as a bombardment is in comparison with forcing a door, and so much more important that it becomes a matter of comparative indifference whether competition in the ordinary sense functions more or less promptly.

A direct implication of this quote -- and the evolutionary approach -- is the notion that economic reform proposals concentrating on the pursuit of allocative efficiency will not address the main problems of socialist economies.[3]

In modelling processes of growth and change, the evolutionary approach begins by acknowledging the effects on behavior of rampant uncertainty and the consequent demands on informational resources.[4] Thus, agents are

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[3]. This is the conclusion reached by Murrell (1990) in a comparative analysis of socialist and capitalist economies.

[4]. The justification for the view of organizational behavior taken in the evolutionary paradigm is provided in detail in Nelson and Winter (1982). Here, I follow these authors in emphasizing the importance of organizational routines. One could reach essentially the same conclusions using the concept of corporate culture, as developed by Cremer (1987).

constrained, not only by financial and physical constraints, but also by limits on information processing capabilities and by the difficulties of exercising control in complex organizations. The latter constraints have profound consequences for the construction of effective organization.

A complex system organizing the interaction of many individuals must be able to coordinate the actions of those individuals and to process the information that flows between them. The exercise of routine operations is an efficient means of handling such coordination. Through the repetition of tasks varying only over a narrow range, an organization is able to economize on the scarce information processing resources of each member. Then, each member can clearly interpret the flow of messages that provides the coordination that is the essence of large-scale organization. Hence, organizational efficiency is intimately tied to the exercise of a particular "routine", or narrow range of routines.

With this view of organizations, it is important to realize exactly where information, or technology, resides. That information should not be viewed as held by individuals, but rather as maintained in the continuing interactions between individuals. Information and skills, then, have value largely through interactions taken in the context of the exercise of a particular organizational routine. The productivity of an organization (and the individuals within that organization) depends to no small degree on the ability of that organization to continue its operations within some small neighborhood of its past behavior.

As well as solving the coordination problem, routines are also an element in the solution to organizational incentive and income distribution. A routine is essentially one equilibrium of the complex non-cooperative game that is at the heart of efficient organizational design. There are usually many equilibria of such games, of widely varying efficiency. Hence, the process of reaching efficient solutions could entail a long search. Thus, the perpetuation of a routine is itself a protection against the creation of conflict that would arise in any attempt to find an alternative solution to the organizational game. During such conflict the efficiency, and indeed the existence, of the organization would be under great threat.

Of course, organizations are not totally inflexible. They do change routines. But the search for alternatives is constrained by an existing stock of information. Since that information is intimately bound to the exercise of an existing routine, search is highly prescribed. Hence, the search for alternatives should be characterized, not as wide-ranging choice over a universe of alternatives, but rather as a history-bound process of discovery within a neighborhood of existing operations. Moreover, when such search occurs, the existing routine is itself threatened, jeopardizing the stability of the organization by calling into question the existing division of organizational income.

Given the reliance on routines and the constraints on search, societies that succeed in a changing world must have a mechanism freeing them from the inertia inherent in the operations of an existing set of organizations. Capitalism provides such a mechanism in several ways. First, there is the automatic way in which markets reallocate the control over resources from inefficient organizations to efficient ones. Second, bankruptcy and, to some extent, takeovers and mergers remove inefficient organizations. Third, there is the process of entry -- the creation of a variety of new organizations, some of which will find an effective organizational structure in the new circumstances. Then, in a process that marks the evolutionary approach to economic change, according to Nelson and Winter (1982, p.9): "Patterns of differential survival and growth in a population can produce change in economic aggregates characterizing that population, even if the corresponding characteristics of firms remain constant."

We are now in a position to summarize the elements of the evolutionary paradigm that must be kept most firmly in mind when deliberating upon economic reform.

1. The use of routines and the fact that search reflects the historical experience of an organization mean that one should expect much persistence in organizational behavior.

2. The evolutionary approach forces one to focus on the concept of the economic environment -- the set of external influences that affect an organization's performance, including the set of other organizations in society. Given a stable environment for a long enough period, the types of routines and behaviors that are present in any society will be conditioned by the environment in which society's organizations have survived and adapted.[5] Hence, in an initial period after a change in environment, the types of behaviors observed will be to a large extent a reflection of the past environment.

3. The evolutionary approach emphasizes the importance of selection processes, or entry and exit, in accomplishing change. Changes within organizations are de-emphasized in favor of a focus on shifts in economic resources from inefficient (or technologically obsolete) to efficient

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5. This does not, of course, mean that the society will necessarily become progressively more productive over time. Increasing fitness of organizations to the conditions of a social system will be sure to result in improved productivity only when a social system encourages only productive behavior. However, I do assume in this paper that socially productive behavior was encouraged to some degree by the old systems, but not to the degree that such behavior is encouraged in market economies, of course. Thus, at the beginning of transition the socialist economies have a stock of enterprises whose productivity, within the old system, is certainly better than that of a random set of organizational arrangements and whose productivity, within a market environment, cannot be assumed to be better than this random set of organizational arrangements.

(technologically progressive) organizations or to new organizations better suited to the new economic environment.

4. To aid in the efficacy of the selection process, there is a need to generate <u>variety in the types of organizations</u> that are present in society. This is especially the case when a radical change in environment is considered and society's stock of organizations has been honed in a different environment. Moreover, it must also be emphasized that a variety of organizational forms is characteristic of modern capitalist societies (Nelson 1990).

5. The <u>uncertainty and the limits on information processing</u> that are emphasized in the evolutionary approach to organizations must also be acknowledged as elements in the policy-making process. Policy-maker knowledge of the behavior of the economy outside a narrow domain close to past experience will be highly inaccurate.

We turn now to a discussion of the importance of these points for understanding the process of reform and for deliberation on the types of policies that should be implemented during reform.

<u>3. Reform, Organizational Response to Adversity, and Economic Performance</u>

Comprehensive economic reform means first and foremost a radical change in the economic environment. However, the existing stock of organizational routines and information is a product of the old environment. In the case of most Eastern European countries, this past environment is the centralized, bureaucratic system of administrative allocation and control. Given that this system survived for a number of decades in a number of countries, it is reasonable to suppose that organizational routines were selected according to the needs of the unreformed environment and are largely suited to that environment.[6] Moreover, the allocation of personnel to positions has occurred within that bureaucratic system. Thus, the centrally planned systems will have an allocation of human capital and of management styles that matches the dictates of a non-market environment.[7]

Because the stock of existing routines, behavioral patterns, and expectations -- organizational structure for short -- is suited to the existing environment, it is unlikely to be suitable for a new market environment. A radical change in the economic system requires large changes in organizational structure, which will induce much poorer economic performance during the lengthy and difficult process of changing organizational routines and reallocating managerial personnel. This decline in performance is all the more certain when the change in environment produces adversity that removes the possibility of simply continuing past behavior. Organizational efficiency tends to diminish rapidly in the face of adversity when long-stable cooperative agreements are no longer viable and must be replaced with less attractive ones.[8] Thus, a precipitate change in the economic system could be equivalent to

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6. For fear of misinterpretation, the points in the previous footnote must be emphasized. This analysis does not imply that the centrally planned economies became progressively more productive, nor does it mean that the centrally planned system will be an efficient one. All that is necessary for the present argument is that pressures to be socially productive were not totally absent in the old system.

7. Consider, for example, the following statement about the Hungarian chemical industry (a convertible-currency export oriented industry in the most reformed Eastern European country): "Managers selected by officials of the ruling party in the past have conformed with communist traditions: loyalism, mediocrity, and inflexibility. The number of western-type entrepreneurial managers remains low..." Chemical and Engineering News November 12, 1990.

8. See Nelson and Winter (1982) pp. 121-4.

reducing, at a single blow, the productivity of each enterprise by a substantial amount.[9]

The decline in economic performance that is immediate on the implementation of reform would occur even if the new economic system would be exactly the one that would be best in the long-run, after things have had time to hammer logic into men.[10] Thus, whereas in the long-run a market system might be the most productive economic environment, in the short run, when routines and expectations are still adapted to the bureaucratic environment of central planning, a swift changeover to the market could be very destructive of the capacity of the existing enterprises to produce output.[11]

It is important to emphasize here that the phenomena to which I point are general ones, widely observed in market societies, and not simply the product of socialist economic reform.[12] For example, in the United States "...there's an important correlation between change and corporate crises. Most big companies have built in immobility...Consequently, some changes in markets or competition demand a degree of flexibility they simply aren't

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9. It should be emphasized that there are two effects of change that need to be taken into account. The first effect arises from the fact that the features of organization that are productive in one environment are not necessarily productive in another environment. The second effect arises because all organizations are less productive while undergoing the process of change.

10. The last phrase is of course a slight rewording of Schumpeter's (1934, p. 80) dictum on when one can use theories that assume that "conduct is prompt and rational".

11. Thus, here I provide an interpretation of the causes of the declines in output in Polish industry in early 1990 that is very different from those that rely on macroeconomic imbalances (Frydman and Wellisz 1990 and Coricelli and Calvo 1990).

12. Abernathy and Clark (1985, p. 18) point out that deregulation of a capitalist industry can create conditions that are similar to those in a new industry. Hence, reform (i.e., deregulation) is essentially equivalent to the creation of a new selection environment.

capable of, and could not reasonably be expected to possess." (Austin-Smith 1966, p.8) What is unique about the Eastern European situation is of course the number of companies that will be simultaneously subject to the stress of change and therefore the likely feedback between declines in performance in one area and the pressures of adversity elsewhere. Moreover, it seems that there is a highly non-linear relation between adversity and declines in performance. Whereas moderate amounts of adversity might be salutary, inducing productive reactions, extreme adversity appears to produce highly dysfunctional response, enhancing crisis rather than diminishing it (P. Nelson, 1981).[13]

The previous point leads directly to the question of whether the present observations are relevant to decisions on the speed of reform. Given a non-linear relation between organizational performance and degree of adversity, and given that declines in performance in one sector due to adversity will produce adversity in others, then it could well be that a slow reform results in a larger sum of discounted national income over the relevant time period than does a fast reform.

The notion that one might want to change only gradually to a better environment (i.e., the market) could at first seem paradoxical. But the element of paradox vanishes as soon as one realizes that there are inherent externalities in the creation, design, and destruction of large organizations. These externalities arise from the non-market elements of coordination intrinsic in organizations and from the public goods nature of organizational performance that is a consequence of the impossibility of establishing an automatic link between individual performance and

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13. Large amounts of adversity destroy the existing cooperative agreements that are the basis of organizational performance. Conflicts that had been suppressed will surface and the members of the organization will turn to the struggle over distribution rather than focusing on production.

individual rewards. In such situations, cooperation unsupported by immediate short-term incentives is essential for organizational performance. If existing cooperative arrangements are rendered non-viable by a large change in the environment, then a long and costly search for new cooperative arrangements is necessitated.[14] During this process, the productivity of each worker will be lower than before, because each worker's productivity is intimately connected to the behavior of other workers. In sum, in the transition to a market economy, there is an inherent market failure arising from the destruction of system-specific organizational capital, which is the solution to the externalities problem that is intrinsic in organization itself.

Given that reform calls for the replacement of a large portion of society's organizational capital, one can view the speed of reform through the lens of optimal capital replacement policy. Decisions on the speed of reform must depend upon the cost of borrowing for consumption smoothing during transition. If such borrowing is not possible to the degree necessary, which seems likely given the present situation of the reforming economies, then the optimal path of reform would be one that conserves some of the existing organizational capital in the early stages of transition. This would seem all the more likely if it is important to ensure that living standards are not radically depressed in the early stages of democracy.

4. On the Benefits of Privatization

Quick privatization of existing state enterprises is often viewed as a necessary and sufficient condition for the success of reform. It is assumed that, given a new ownership structure and market competition, there

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[14] It is important to understand that strikes and large amounts of manager-worker hostilities are inherent in this process and not simply a symptom of some type of social and political failure.

will be large increases in the efficiency and output of the existing stock of enterprises, which will more than repay the rather large political, social, and organizational costs incurred in the privatization process itself. Here, I use the evolutionary paradigm to reflect upon the likely benefits from privatization.

The construction of new organizations is costly and difficult. However, it could be even more costly to restructure old organizations that must be transformed because of a change in economic environment.[15] An existing organizational structure entails the adaptation of behavior and language of communication to existing conditions, the alignment of organization with an existing structure of physical plant, and many commitments to existing members that are costly to negate. Because of the difficulties of changing such organizational features, the reconstruction of existing organizations involves costs that are not present in the construction of new organizations. Hence, there can be no *a priori* assumption that privatization is better than simply shutting down existing enterprises in coordination with the gradual rise of new private enterprise. In the process of privatization and restructuring of state enterprises, more capital might be used than would be required in the process of creating new enterprises. This is especially the case if "restructuring grants" (i.e., subsidies) were a part of the whole privatization process.

This argument gains force when one remembers that it is the experience of capitalist societies that large organizations are often quite

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15. Leszek Balcerowicz recently emphasized that the costs of transition were much higher than expected, resulting in unexpectedly poor economic performance in the early part of 1991. One of the reasons that he cited was the slow pace of changes in management structure. See FBIS-EEU May 14, 1991.

unresponsive to new circumstances.[16] As Arrow (1974, pp. 56-9) emphasizes, new organizations are often essential for change, because established ones are likely to have an irreversible commitment to existing arrangements. In capitalist societies, in new industries and in existing industries where the technology is new, new firms are of enormous importance for these very reasons (Mansfield et. al. 1977 p. 16 and Nelson 1981 pp. 1051-2). It seems plausible that the situation of a newly privatized enterprise would be every bit as demanding as that of an existing capitalist firm confronted by a new technology.[17]

The difficulties of reorganizing existing enterprises would be especially large if restructuring would require fundamental changes in an enterprise's sectoral specialization, production technology, or market orientation. Yet, there is reason to believe that Eastern European enterprises will have to make changes of all three types during the restructuring process. Judging by comparisons with capitalist countries at an analogous level of development, there are large structural shifts to be made from industry to services and within industry from heavy to light.[18] Changes in production technology will be needed because of the imposition of more stringent environmental policies, the higher quality standards of new Western markets, and the downsizing of factories that are of

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16. The reasons for this are clear given the arguments of Section 2.

17. Moreover, the factors that give large established firms an advantage in market economies -- economies of scale in science-based R&D and the benefits of accumulated learning-by-doing -- will not be as relevant to the situation of large established enterprises in reforming economies.

18. If one compares the size of industry in an average Eastern European economy to that in the poorer European countries, then the over-production of industrial goods is probably between 25% and 33%.

inefficient scale for a market economy.[19] Large changes in market orientation follow from the demise of the CMEA and the desire to become more fully integrated in international markets.

The foregoing argument gains additional force when one acknowledges the strength of entry and exit processes in capitalism. In a normal market economy, there is substantial turnover of firms. If this process were imitated during the next few years in Eastern Europe, a substantial number of enterprises would be expected to close anyway. For example, only 60% of large, new, single-plant firms survive their first five years of operation in the U.S. (Dunne, Roberts, Samuelson 1989, p. 694). Given the status of Eastern European enterprises -- large organizations being cast into a new market environment -- one could expect their failure rate after privatization to be of the same order.

The implication of the previous discussion is that perhaps too many hopes have been invested in privatization and rather too much intellectual, social, and political capital is being consumed in the process of privatization. This is especially the case when the efforts behind privatization are contrasted to the lack of attention being paid to creating and fostering the development of new private sector firms. In many Eastern European countries, policy toward the private sector can be characterized, at best, as one of benign neglect. In particular, little attention has been paid to the question of how to generate the additional capital to realize investment in the private sector.[20]

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19. On the basis of very crude calculations, I estimate that the Eastern European economies would have to shut down half of the manufacturing capacity of large plants (and create a similar amount of capacity in small plants) in order to obtain a distribution of plant sizes that was roughly comparable to that in Western Europe. In individual industries, such as textiles, the figure could be as large as 70%.

20. Other authors (e.g., Svejnar, 1990) have consistently emphasized the benefits that can come only from a new private sector, rather than from

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In fact, in the early stages of reform, there is a trade-off between efforts to create a new private sector and the speed and scope of privatization. In the centrally planned period, the state extracted the surplus from its enterprises and used it to reallocate investment across sectors. During reform, the state could either surrender its claims on such revenues through decentralization and privatization or continue to use state-sector surpluses as a means of financing the growth of the private sector. In that case, there is an inverse relationship between the amount of privatization and the rate of growth of a new private sector.[21] This inverse relationship also occurs because a significant part of the country's entrepreneurial talents and scarce financial infrastructure will be consumed in the process of privatization itself, rather than being freed to participate in the new private sector. Moreover, the desire to privatize ongoing operations, rather than to sell their assets by the piece, leads to a lack of facilities, particularly buildings and land, that are easily available to new entrepreneurs.

In conclusion, one might venture the thought that "privatization" has gained too much prominence as an objective of reform policy. The appropriate goal is "creation of a private sector". Privatization is only one route to that latter goal. Moreover, it might be a very costly route, one whose implementation impedes more effective means of creating a private

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20. (...continued) privatized firms. However, it is my perception of the literature that such emphases are not the major focus of the majority of discussions of the transition process. For example, it is common to see the terms "privatization" and "creating a private sector" used synonymously. Conversely, it is quite unusual to find authors who emphasize the costliness of the privatization process and the need to slow down this process in order to channel resources to the new private sector.

21. Exactly this trade-off is appearing in the most dramatic way in Poland. The Huta Katowice steel plant is under consideration for privatization and commercialization, but the government is reluctant to begin the process because of the drop in tax revenues that will result. See the Financial Times April, 19, 1991.

sector, particularly the encouragement of the development of the nascent private sector.

5. On Market-Based Macroeconomic Stabilization Measures

The evolutionary paradigm emphasizes that there is a strong tendency for organizations to continue behavior that has been successful in the past. If this is correct, there is one particular aspect of pre-reform enterprise behavior that would prove to be very dysfunctional in a swift change to a market-regulated regime. Kornai (1980) has emphasized that excess demand pressures are almost intrinsic in the operations of economies with large state productive sectors, due to enterprise manipulation of soft-budget constraints. When reforms are being implemented, the organizational behavior that led to excess demand in the past is likely to be an important determinant of economic outcomes. Until a process of large scale restructuring and entry and exit has taken place, it is likely that the Eastern European economies will have a much stronger tendency to generate macroeconomic instability than economies that have had dominant private sectors in their recent past.

This prediction has been borne out in the recent reform experience of Hungary and Poland. Enterprises in those countries have used their previously learned channels of action against adversity in the new environment. Hence, there has been a very large growth of inter-enterprise credit in Poland and Hungary in the past year, after the reforming governments tightened banking system credit. The growth of inter-enterprise credit can be viewed as a simple continuation of the passive monetary system of central planning, where credits and debts were built largely to accommodate changes in the real side of the economy and where creditors were largely unconcerned about the risks of non-payment.

The essence of the problem of macroeconomic stability during reform lies in the incompatibility between the new market environment and the enterprise behavior and expectations that are a heritage of the past.[22] The old systems accommodated themselves to certain features of enterprise behavior, among them the tendency to disregard financial constraints in the face of seemingly more urgent real priorities. Given the stability of the old system over a number of decades, one might conclude that, within the constraints of that system, such accommodation was successful in controlling or neutralizing those elements of enterprise behavior that had most immediate dysfunctional consequences.[23] Thus, policy and institutions under the old regime were matched to the behaviors and expectations of enterprises. But with a swift change to market-based stabilization policies and with the destruction of old institutions, deep problems arise when the old expectations are still held and when the old patterns of behavior continue.[24] Hence, market-based stabilization policies will be much more costly for reforming economies than they are in economies with a tradition of markets and private enterprise.

The main policy conclusion to be derived from the above observations is that during transition there might be a case for direct controls on state enterprises to promote macroeconomic stability, rather than relying upon

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22. An interesting example of this phenomenon has been identified in capitalist economies in the period after deregulation of an industry. In such cases, it has been observed that firms continue cartelistic behavior, using the very instruments that were legal before the deregulation took place. See the Willig essay in this volume for details of the U.S. experience in this respect.

23. The old centrally planned system was moderately successful in keeping macroeconomic imbalances in check, in the sense that these imbalances did not threaten the short-term stability of the system. In such a way the system accommodated to the most immediate consequence of state-sector financial indiscipline. Of course, all the negative effects of macroeconomic imbalance on productivity, work effort, and quality emphasized by Kornai (1980) were not ameliorated.

24. One Eastern European central banker explained the extending of inter-enterprise credit by saying "If only our managers had just once seen a company not paying its debt, but this is not part of our corporate culture."

solely market-based measures. At the very least, the economist's usual presumption of non-interference in markets can hardly be accepted without question. Certainly, for the state sector, price and wage controls, direct credit restrictions, and exchange controls must be considered as potential candidates for use by macroeconomic policy-makers.

The foregoing also contains lessons on the manner in which stabilization programs should be implemented. With the melange of old enterprises and new market institutions, there will be very little knowledge in society of how the new system functions. Hence, the early period of reform will provide valuable information about the characteristics of the new system. Where there is some element of irreversibility to the actions involved in stabilization,[25] there is some value to implementing a stabilization program with caution. The existence of learning implies that there is value to be had from preserving options through the implementation of appropriate policies (Arrow and Fisher, 1974).

Moreover, while learning is taking place, it might be unwise to base stabilization too heavily upon schemes that depend upon "nominal anchors". The fixing of such anchors relies upon the necessarily scanty knowledge about the structure and behavior of the newly reformed economy. Hence, such anchors can only be set with large margins of error, thus causing the stabilization program itself to be wide of its target, putting the government under the severe pressure of weakening its very commitment to stabilization. Hence, observers of the Polish economy comment frequently about the overshooting that was the cause of the unexpectedly large macroeconomic adjustments that occurred in the first part of 1990. It is

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[25]. Elements of irreversibility include, for example, decentralization of the enterprise sector and loss of the government's political capital if there is a failure to keep to commitments.

crucial, however, to emphasize that this overshooting must not be viewed as the result of mistakes or poor planning. Rather, it was a normal outcome for a stabilization relying upon the setting of nominal variables in an environment where policy-makers are only beginning to understand the structural features of the economy.[26]

The points emphasized in the preceding paragraphs gain extra force when stabilization is considered within the context of the reform process as a whole. In that process, the creation of a viable private sector is the sine qua non of success. The essence of market-based stabilization policies is to contain the expansionary impulses of enterprises and firms, usually by imposing very tight money policies and high real interest rates. These policies will, if the state and private sectors are treated symmetrically, greatly constrain the growth of new private sector firms at a time when the economy most needs them.[27] Hence, one observes again the very important trade-off between the creation of a private sector and the short-run decentralization and marketization of the state sector. That initial decentralization, before privatization, will impede the development of the new private sector in a manner that will ultimately lengthen the transition itself. In deciding whether only market-type stabilization measures are to be used or whether more dirigiste policies might be countenanced, one should perhaps consider whether the growth of the private

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[26]. The Polish stabilization policy depended rather crucially on estimates of the appropriate exchange rate and forecasts of the rate of inflation, which helped to establish monetary and credit targets and affected enterprise evaluations of the implications of the tax-based wage control measures.

[27]. In the Polish stabilization, the tight credit policy in Poland applied both to the private and state sectors, as did the draconian wage control policies. Thus, despite all the exaggerated claims for the growth of the private sector in Poland in 1990, investment in the private sector went down from 1989 to 1990. See Rzeczpospolita, February 2, 1991.

sector might be a more important goal than decentralization of the state sector.

6. Do Existing Institutions Have Any Value?

To some reformers, a market economy is synonymous with the decentralization of decision-making. In this view, the destruction of the existing control institutions of central planning is sufficient to lead to a viable market economy.[28] That notion, together with some justifiable resentment of the past impositions of the center, probably contributed in no small degree to the destruction of the old system of planning and control in many countries in the latter half of the 1980's, before any market institutions had been created. In turn, that destruction, together with the accompanying decentralization of decision-making, was the proximate cause of the loss of macroeconomic control that was evidenced in a majority of East European countries in the late 1980's.

But this market-as-decentralization view overlooks the role of the many important institutions of control present in modern capitalist systems, each contributing at a microeconomic level to macroeconomic stability. First and foremost, there is the institution of private property, which places responsibility at the individual level, especially the immediate responsibility for obeying budget constraints. Second, there are large sets of institutions ensuring that allocation of responsibility is clear and can be enforced -- for example, commercial codes, civil law procedures, collateral, and bankruptcy. Third, there are the institutions that monitor and control the behavior of those who hold the property of others in trust -- accounting practices, banking regulators, stock markets, securities regulators, etc. Lastly, there is a whole set of

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28. This view was shown to me most clearly by one top official of a reforming regime who proudly boasted of the "liquidation" of the central planning apparatus, at a time when no market economy institutions had been created.

expectations about the way other economic agents will behave, and these expectations apply most importantly to the actions of government itself.[29]

It is a given that these institutions will take many years to create.[30] Thus, there is a decision to be made at the beginning of the reform process concerning how society is to exert the necessary degree of control over the actions of economic agents in order to preserve budgetary, financial, and monetary stability during the early stages of reform. The central issue in this decision is whether it is optimal at the earliest stages of reform to rely exclusively upon the disciplining force of the free market. The alternative is, of course, to use some of the existing state institutions on a selective and temporary basis to exert control over the state enterprises in the period before privatization and creation of market institutions can take place.[31] Although this latter alternative is politically less attractive, there are some economic arguments implying that this option should be put on the agenda for consideration.

The suggestion of using some of the existing structures of the old regime rests upon the thesis that the creation of workable institutions and organizations is a lengthy process requiring much trial and error. The information and skills of existing personnel are attuned to the existing set of institutions and lose much of their value when those institutions are destroyed. In situations of increasing uncertainty, that is, reform,

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29. In the foregoing, I have emphasized the control functions of the institutions of capitalism rather than their incentive properties. There is no implication here that those incentive properties are less important in the long-run. Rather, it is the control functions that need to be emphasized in the present discussion of the treatment of state enterprises, before they are privatized.

30. For example, Fischer and Gelb (1990) cite the very revealing fact that it takes five-years to train a bank examiner in the United States. Additionally, the privatization process is inherently a slow one.

31. Here, I emphasize that the nascent private sector should not be subject to the same control.

the value of information sources increases (Hess 1982). Therefore, some economic value might lie in existing institutions, even though they are not the best from a long-run point-of-view and even though there are firm intentions to scrap these institutions during the transition process. This argument is, of course, the obverse of the argument that privatized firms might not be able to change to fit the requirements of the new capitalist market: the old institutions might still be useful for temporarily carrying out the tasks for which they were originally designed.

What possible job could the old institutions do in the early stages of reform? One property of traditional central planing -- probably much envied by some reforming regimes -- was the ability of the old system to produce some semblance of macroeconomic balance.[32] The traditional central planning systems had a passably good record of budgetary, financial, and monetary stability (of course at a cost in terms of economic efficiency). There is thus a _prima facie_ case to suggest that some elements of the traditional central control system could be kept in the early stages of reform.[33] This case is strengthened once one realizes that there is virtually no example to which one can point of a decentralized socialist economy that has evidenced macroeconomic balance and stability. (Privatization takes long enough that reforming economies are still dominantly socialist ones in the first few years of reform.) Decentralization and liberalization can occur too early. Old inefficient institutions may be better than ones that are planned, but which do not yet exist.

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32. In questioning the veracity of this statement, the reader should keep in mind the exact time periods when traditional central planning was operating. For example, Poland had essentially given up economy-wide macro-economic balancing in the mid-1970's. See Montias (1982).

33. In particular, it would seem that there is an argument to keep some central control over the state enterprise use of credit, access to foreign exchange, and payment of wages.

Beyond these remarks, there are good reasons not to be more precise when talking about reforms in general. Given the differing histories of different countries during the period of central planning and given that each country is now at a different stage of reform, few general points can be made. Analogous institutions will have functioned with varying degrees of effectiveness in different countries. Reform and change might have already irreversibly destroyed many institutions of the old systems. Nevertheless, at the beginning of the reform process policy-makers should take stock of the effectiveness of the existing institutions and ask whether there are some that would be useful in the early stages of reform.

I will conclude this section with a theme that has run through the conclusions to previous sections. This theme is the trade-off between the reform of the old state sector institutions and the creation of new private sector ones. In the context of the present section, this trade-off appears in two ways. First, if old institutions are immediately scrapped, there is an immediate need to create market institutions that help to control state enterprises. Assuming that there is a scarcity of talented personnel, some precious talent will be used in the state sector that might be more advantageously employed in creating the institutions most needed by the new private sector.[34] Second, when the state is not willing to use the old state control mechanisms to constrain the activities of the state enterprises, the effects of their actions are much more likely to impinge on the nascent private sector. For example, monetary policy might need to

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[34]. For example, the creation of a commercial code is probably more important to the new entrepreneurs who are building new commercial relationships and who do not have the backing of the state, than to the state sector firms with their traditional ties. Hence, the creation of a authoritative commercial code at the outset of reform is essential if the emphasis is on the creation of a new private sector. However, this element of the legal infrastructure will perhaps receive lower priority when the new free markets are dominated by state sector firms than when the government is concentrating on the needs of the new private sector.

be more stringent and foreign currency less available for the private sector, if the state eschews all non-market means of controlling its own enterprises. Hence, the growth of the new private sector would be slowed.

7. Conclusion: Conflict Between Reforming the Old and Creating the New?

In this paper, I have explored the implications of using evolutionary economics to examine the central policy questions that arise during the early stages of the transition from socialism to market capitalism. One concern has consistently recurred in the discussions of the diverse elements of policy -- the fact that there is a trade-off between promoting the growth of a new private sector and reforming the old state sector. The centrality of this concern arises from the basic insights of the evolutionary paradigm, especially the existence of rigidities in organizational behavior and the importance of entry and exit processes to the dynamism of capitalism. Hence, restructuring and privatizing the state enterprise system, which is the central hope of most transition plans, is bound to be a long and costly process, using resources that might be more profitably employed in facilitating the growth of the new private sector.

The case for a go-fast policy in the state enterprise sector weakens once one acknowledges the competition for scarce resources between the state enterprise sector and the nascent private sector. Rapid reforms in the state sector might actually impede the vitality of the entry and exit mechanism in the new private sector. Since this mechanism is vital in imparting dynamism to the transition, the overall speed of change in the economy might be inversely related to the effort spent on reforming the state sector.

Although inconsistent with the views of rapid marketizers who are in the majority in the Western academic community, the observations made in this paper do find reflection in the actual course of reforms. The economic reforms have proceeded at a much slower pace than the rapid marketizers first believed would be the case. Moreover, the need for non-market constraints on existing state enterprises is recognized even in the policies of the fastest reforming countries: wages are still subject to very severe controls; full convertibility has still not arrived; and domestic credit is still rationed. The present paper shows why such constraints are consistent with the desire to create market capitalism as quickly as possible. However, the paper argues that such policies of state-sector restraint should be set within a consistent program that promotes the growth of the private sector, rather than as epicycles patching up a free market theory of reform.

There are echoes of the conclusions reached in this paper in other general analyses of reform that have appeared in the last year. Kornai (1990, p. 62) writes: "Precisely because I am a proponent of liberalization of the economy...I would like to see tight control over the ways in which taxpayers' money is spent. In this respect I classify the manager of a state-owned firm among the state officers." The identification of the possible conflict between liberalization of the economy and liberalization of the state sector, as well as Kornai's emphasis on organic development of the private sector, mark his theories as broadly consistent with an evolutionary approach. Similarly, the phenomena of "negative value added" and the "shoddy product syndrome", identified by McKinnon (1990), can be viewed as examples of the organizational legacies emphasized above. Moreover, the role of these legacies in justifying McKinnon's advocacy of a gradual reduction in tariffs is also consistent with an evolutionary approach to policy during the transition.

A significant omission in the argument of this paper is the political dimension of reform policy, which is obviously very important given the intertwining of democratic and economic transitions. The particulars of the politics of each country are important in defining the exact implications of the foregoing arguments, for at least two reasons. First, the efficacy of the old institutions during the transition will depend on the extent to which these institutions were dependent on the structures of the old political system. The lesser was this dependence, the more use will the old institutions have during reform. Second, it is possible that some reformers might see a non-economic, political need to destroy the old system. The structure and rhythm of the economic transition must certainly be attuned to the needs of the democratic transition from the old political structures. Indeed, this is one of the lessons of the evolutionary paradigm, which emphasizes the importance of the legacies of the past, both political and economic.

References

Abernathy, William J. and Clark, Kim B., "Innovation: Mapping the Winds of Creative Destruction." Research Policy 14, pp. 3-22, 1985.

Arrow, Kenneth J., The Limits of Organization, New York: Norton, 1974.

Arrow, Kenneth J. and Fisher, Anthony C., "Environnmental Preservation, Uncertainty, and Irreversibility." Quarterly Journal of Economics, 88: 312-9, 1974.

Austin-Smith, Richard, Corporations in Crisis. New York: Anchor, 1966.

Coricelli, Fabrizio, and Calvo, Guillermo, "Stagflationary Effects of Stabilization Programs in Reforming Socialist Countries: Supply Side vs. Demand Side Factors." World Bank, mimeo, 1990.

Cremer, Jacques, "Corporate Culture: Cognitive Aspects," Virginia Polytechnic Institute, mimeo, 1987.

Dunne, Timothy, Roberts, Mark, and Samuelson, Larry, "The Growth and Failure of U.S. Manufacturing Plants." Quarterly Journal of Economics, pp. 671-698, Nov. 1989.

Fischer, Stanley and Gelb Alan, "Issues in Socialist Economic Reform", World Bank, mimeo, June, 1990.

Frydman, Roman and Wellisz, Stanley, "The Ownership-Control Structure and the Behavior of Polish Enterprises During the 1990 Reforms: Macroeconomic Measures and Microeconomic Response." C. V. Starr Center Economic Research Report 90-50, New York University, November 1990.

Hess, James, "Risk and the Gain from Information." Journal of economic Theory, 27:231-238, 1982.

Kornai, Janos, Economics of Shortage, New York: North-Holland Pub. Co., 1980.

Kornai, Janos, The Road to a Free Economy. New York: Norton, 1990.

Mansfield, E., J. Rapoport, A. Romero, E. Villani, S. Wagner and F. Husic, The Production and Application of New Industrial Technologies, New York: Norton, 1977.

McKinnon, Ronald The Order of Economic Liberalization: Financial Control in the Transition to a Market Economy. Stanford University, mimeo, 1990.

Montias, J. Michael, "Poland: Roots of the Economic Crisis". The ACES Bulletin. XXIV 3:1-20, Fall 1982.

Murrell, Peter, The Nature of Socialist Economies: Lessons from Eastern European Foreign Trade, Princeton University Press, 1990.

Murrell, Peter, "Can Neoclassical Economics Underpin the Economic Reform of the Centrally-Planned Economies?" Journal of Economic Perspectives, forthcoming, 1991.

Nelson, P. B., Corporations in Crisis: Behavioral Observations for Bankruptcy Policy. New York: Praeger, 1981.

Nelson, Richard R., "Research on Productivity Growth and Differences," Journal of Economic Literature, September 1981, 19 (3), pp. 1029-1064.

Nelson, Richard and Sidney Winter, An Evolutionary Theory of Economic Change, Cambridge, Mass: Harvard University Press, 1982.

Nelson, Richard, "Capitalism as an Engine of Progress," Research Policy, 19, pp. 193-214, 1990.

Schumpeter, Joseph A., Capitalism, Socialism and Democracy, New York: Harper, 1950.

Schumpeter, Joseph A., The Theory of Economic Development, Cambridge, Mass. Harvard University Press, 1934.

Stiglitz, Joseph E. "Incentives, Efficiency, and Organizational Design." NBER Working Paper No. 2979, 1989.

Svejnar, Jan "A Framework for the Economic Transformation of Czechoslovakia." PlanEcon Report, January, 1990.

Evolutionary economics is a new scientific approach to economic analysis and one that has come of age in the past decade or so. It is related to evolutionary biology, but it is not just normal economic theory with a Darwinian gloss â€”. 1.Â The common ancestry of both evolution and economics stems from the moral philosophers of the 18th century Continental and Scottish Enlightenment, amongst whom were Hume and Smith. They were the first to think clearly about the nature of human knowledge in a world of change, and it was they who furnished us with the idea of evolution. Darwinâ€™s Origin of Species was a brilliant and far-reaching application of this existing concept. 1 For example, J. Barkow, L. Cosmides, and J. Tooby.