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EFFICIENT INSTITUTIONS FOR OWNERSHIP AND ALLOCATION OF CAPITAL

by

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Abstract: Standard analysis is inconclusive about the merits of different forms of ownership and allocation of capital. This paper reaches a more conclusive result by considering two rarely studied points. First, capital is considered as a currency giving its owners decision authority for organizing production. Second, talent for owning, needed to exercise this authority competently, is considered scarce. This is a consequence of the scarcity of talent for managing and the difficulty of its efficient allocation, studied by Manne (1965) and Lucas (1978). The allocation of talent for owning to effective ownership of capital is exposed as the top layer of the allocation of scarce economic competence, which in turn determines the efficiency of the allocation of all scarce resources (Pelikan 1989). Comparative institutional analysis reveals that economic competence is allocated relatively best if capital is owned privately and allocated by competitive capital markets. Implications include strengthening of the case against socialism, but also weakening of the case against a welfare redistributive society.

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1 Introduction

That efficiency requires monetary discipline and competition in product markets is now sufficiently clear. An open question, however, still is, whether it moreover requires private ownership of firms, or whether it allows firms to be owned by government. To be sure, much of empirical evidence now appears to support the private ownership answer. This includes the spectacular collapse of real socialism and the subsequent policies of large-scale privatization in the East, and the poor average performance of government-owned firms in the West -- e.g., as recently documented by Vining and Boardman (1992). Yet none of this evidence is entirely convincing. What happened in the East can be seen as a mere accident, limited to a few poorly conducted socialist experiments. The problem with the western evidence is that it is only statistical, and not deterministic. Although rare, well performing government firms and poorly performing private firms can nevertheless be found. Any of them suffices to refute, as a simple counter-example, all theoretical arguments trying to prove that private firms must *always* be superior to government alternatives.

The existence of well performing government firms, however small their number might be, moreover raises hopes that their experience and methods could be used for improving the performance of many other government firms. These hopes find further support in standard theoretical economics, which can provide several arguments why government firms could perform at least as well as private firms. Two of its chapters are particularly helpful: the one about the agency problem and the one about rational political voting. The former shows that private firms where ownership is separated from management -- as is the case of most large corporations -- can be sources of inefficiency, because of difficulties in monitoring managers. The latter shows that a firm owned by a democratic government, where rational voters play the roles of rational stock-holders and the Board of Directors consists of politicians submitted to regular re-elections, can cope with these difficulties at least as well as a private firm (Wintrobe 1987).

This paper shows that such theoretical support to government ownership of capital is fundamentally mistaken. Standard economics is shown unable fully to grasp how economic performance and social welfare depend on the form of ownership and allocation of capital. Two standard simplifications are found to be the main culprits: the Optimization Postulate, and the focus on how existing firms and government agencies

function, neglecting how they form and evolve.² It is because of these simplifications that standard analysis fails to see a crucial advantage of private and tradeable ownership of capital, compared to non-tradable government or cooperative ownership.

The argument starts with two in practice rather obvious, but in theory seldom studied points. First, in addition to the usual view of capital as a factor of production, capital is considered as a currency giving its owners rights to organize production. These rights convey the ultimate decision authority over the size of firms and the choice of managers. This includes the entry of new firms and the approval of new entrepreneurs, and also the choice of any specialized intermediaries, to whom the capital owners may delegate -- but only if they so decide and at their own risks -- some or all of these rights. How the ultimate authority is exercised is shown to be of primary importance for economic performance and social welfare. It is this importance that can fully be grasped only in a long-term evolutionary perspective on how firms and industries form and evolve, and not in the usual short-term analysis of how existing firms and industries function.

Second, how this authority is exercised is seen to depend -- in addition to the usually considered incentives and available data -- on particular abilities to handle the data. These abilities, referred to as 'talent for owning', are recognized to be scarce as a direct consequence of the scarcity of talent for managing and the difficulty of its efficient allocation, studied by Manne (1965) and Lucas (1978). It is the scarcity of these talents and the difficulties of their efficient allocation that cannot fully be seen as long as the Optimization Postulate is maintained. And it is precisely in this allocation that the institution of private and tradeable ownership of capital proves to have the greatest comparative advantage.

The second point involves a subtlety which should carefully be noted. At first

²The second simplification was first criticized by Schumpeter (1942, ed. 1976:84): "... the problem usually visualized is how capitalism administers existing structures, whereas the relevant problem is how it creates and destroys them". Both simplifications are frequently criticized in what has become known as 'neoschumpeterian evolutionary economics' (see, e.g., Nelson and Winter 1982). This economics, however, has also been unable fully to grasp how economic performance depends on the form of ownership and allocation of capital, but for another reason. Namely, its attention has been limited to private firms and the problems of market evolution, while governments have implicitly been assumed, in a nirvana fashion, to be infallible. Much of the present argument stems from paying also attention to governments and the problems of their politico-administrative evolution.

sight, the unequally distributed scarce talents for owning and managing may appear to be special cases of asymmetric information which standard economics is perfectly able to study. Upon a closer view, however, although they can indeed be categorized as asymmetric information, their cases are so special that they cannot entirely be comprehended by any economics built on the Optimization Postulate. The reason, which I expose at some length in Pelikan (1988, 1989), can be summarized as follows.

As pointed out by Polanyi (1962), there are two kinds of information: communicable and non-communicable, or 'tacit', on which the understanding and use of all communicable information must ultimately repose. In economics, typical examples of the former are data about prices, quantities and qualities of goods; the most important example of the latter -- which I globally denote as 'economic competence' -- is economic rationality, or the abilities to make an optimal use of the data. What the Optimization Postulate does is, in essence, to assume that all economic agents are abundantly endowed with economic competence, and may only differ in their access to scarce economic data - - e.g., in their costs of acquiring data on prices and/or qualities of goods. Hence standard economics can study cases of asymmetric information that involve asymmetric economic data, but cannot properly deal with asymmetric economic competence, of which talents for owning and managing are seen to be special cases.

Alternatively, scarce economic competence may be claimed to be only a kind of scarce human capital -- which is indeed admitted not to be directly communicable -- and be thus accessible to standard analysis from this angle. What this claim overlooks, however, is that this is precisely the kind which standard theories of human capital must exclude: they can admit that different individuals have different scarce abilities as factors of production, but not as economic decision-makers, which is what the scarcity of economic competence is about. To admit this scarcity contradicts the Optimization Postulate, on which the standard theories of human capital are built, which causes a paradox (Pelikan 1989:284).

The subtlety is that the apparently innocent step which extends the notion of scarcity from economic data and human capital to economic competence crosses a critical border beyond which the resource-allocation problem loses its familiar logical structure. This structure reposes on a sharp distinction between the scarce resources, including economic data and human capital, that are the objects of allocation, and the

rationality, or economic competence, which is an intrinsic property of economic agents, the subjects of allocation. To admit that economic competence is also a scarce resource and an object of allocation disturbs this distinction. As a consequence, the resource-allocation problem is complicated by elements of self-reference and path-dependency. The allocation of economic competence, which is not even recognized to be a problem under the standard Optimization Postulate, becomes central. It is this allocation that determines how economically competent or incompetent agents assume the key positions in an economy. And it is how efficient this allocation is that determines how efficient the allocation of all scarce resources will be, including -- and this is how self-reference and path-dependency can enter the problem -- the allocation of economic competence itself.

While I expose this subtlety in more detail elsewhere (Pelikan 1988, 1989), my present purpose is to show what it implies for the efficiency of different institutions for ownership and allocation of capital. To get from the theoretical subtlety to the more mundane problem of which institutions are efficient, the allocation of the talent for owning to the effective ownership of capital will be viewed as the top layer of the allocation of scarce economic competence. It is indeed to capital owners -- be it to their active choices or just passive approval -- that the entire chain of decisions about organizational design and job assignment, determining the number, the size, and the competence of firms and industries, can ultimately be traced. Then, by examining how the allocation of talent for owning to efficient social uses is facilitated, or on the contrary hindered, by alternative institutions for ownership and allocation of capital, new light on their respective merits and demerits can be thrown.

The rest of the paper is organized as follows. Section 2 exposes the difficulties and the social importance of the tasks of capital owners, in order to justify the present claim that talent for owning is scarce and its allocation matters. Section 3 formulates the problem of this allocation by extending the problem of the allocation of talent for managing, formulated by Lucas (1978). Section 4 compares alternative institutional regimes (constitutions) for their effects on the allocation of talent for owning. It shows that to be fruitful, the comparison must be evolutionary, considering the formation and evolution of firms and agencies, and not only static, limited to the functioning of existing firms and agencies. The main result is a new theoretical support for private and

tradeable ownership of capital. An interesting by-product is a new argument why all forms of socialism must result in a grossly inefficient supply. To conclude, Section 5 examines what these results imply for policy. The implications are found to combine, somewhat surprisingly, a strong support for privatization policies on the supply side with higher than usual tolerance to welfare redistributive measures on the demand side.

2 The decision tasks of capital owners

The assumption of passive capital owners, who have no significant influence on firms' performance, has been widespread (see, e.g., Fama 1980). As the present argument requires an opposite assumption, it should first be explained what decisions capital owners are seen to take, and how difficult and socially important these decisions are.

The argument by Lucas (1978) is a convenient point of departure. To recall, Lucas develops a simple formal model of the idea, due to Manne (1965), that a firm's performance depends on the talent of its manager, and that this talent is scarce and unequally distributed in the population. Assuming a simple production function, in which the manager's talent is a parameter, Lucas shows that a given distribution of talent for managing implies an optimal size distribution of firms that maximizes the total output from given labor and capital. A necessary condition is, of course, that the firms of different sizes be correctly matched with managers of corresponding talents: the most talented manager must lead the largest firm, the next best manager, the second largest firms, and so on, until the last marginally talented manager, leading the smallest firm, fills up the production capacity; those who are even less talented for managing than this last manager become employees in one of these firms.

Let me denote this state as the optimal organizational structure of production, say \hat{S} . The question that Lucas raises but leaves open is, by which specific mechanism can \hat{S} actually be formed -- in other words, how can the right size of firms be determined, and the managers of the right talents found and matched with the corresponding firms.

It is around this question that the present argument is built. Determining the sizes of firms, and selecting and contracting with the managers are seen to be the main decision tasks of capital owners -- be they individuals, organizations, cooperatives, or government. They can fulfil the tasks themselves, or delegate the tasks to some other agents -- e.g., directors, trustees, or managers of pension funds. The delegating may, in

fact, consist of chains of several stages, in which some of the delegates may delegate some of their tasks further, to other delegates. In any case, however, such chains always start from the owners, who thus bear the ultimate responsibility for the decisions taken. In other words -- and this is often misunderstood -- this ultimate responsibility is also born by those owners who appear to be only passive 'punters', as they must nevertheless choose, at their own risk, the decision-makers on whom they bet, or the decision-makers who choose these decision-makers. Neither is without problem, even if there are well-functioning capital markets to facilitate such choices, as can be illustrated by the numerous examples of people who lost their wealth by betting on the wrong decision-makers.

If we adopted the Optimization Postulate, of course, we could assume that all owners can optimally use all available data to maximize the expected returns. Hence, under the constraint of the data available, they would always choose optimal firm sizes, appoint optimal managers, or optimal intermediaries, and conclude with them optimal principal-agent contracts. In this case, it would, for social efficiency, be without importance who the actual owners are and how they have been selected out of the given population -- provided they are, or can by suitable incentives be made, interested in maximizing the expected returns. Anyone could be just as good as anyone else. Inheritance, lotteries, or government appointments would all lead to equally efficient results.

The present argument is, however, that if we admit that different managers may have different talents for managing, we should also admit that different owners may have different talents for owning, which makes the method of their selection of social importance. To support this argument, consider the difficulties of the owners' tasks. As Lucas notes, the true distribution of the talent for managing is difficult to observe. No one knows with certainty what this distribution is, and even less, where in it any specific individual, including oneself, is situated. Some data are available -- e.g., past results, prices of managers on the market, impressions from personal interviews -- but they are not entirely reliable and, in any case, cannot suffice for automatic (e.g., computer programmable) deduction of relevant results.

In consequence, interpreting the data and estimating the talent for managing must be recognized to be an art, which different people may master to different degrees.

Moreover, in spite of the interesting developments of principal-agent theories, to conclude a concrete contract with a concrete manager also appears to contain many elements of art -- which, somewhat paradoxically, may even be the more difficult, the more talented the manager. Furthermore, to estimate what a firm's production function is and how it depends on the talent of the manager is hardly any easier. As with all difficult tasks containing elements of art, it seems indeed reasonable to expect that different individuals have different talents also for these tasks, and that great talents are scarce.³

These difficulties of the tasks of capital owners can also be seen in terms of the errors that may be committed. Managers' talent may be more or less misjudged, principal-agent contracts may be more or less clumsily designed, and the size of firms may be more or less under- or overestimated. Such errors make the actual S -- that is, the actual partition of the supply side into firms with their actual managers -- deviate from the optimal \hat{S} . This results in social losses by causing some of the available labor and capital to be wasted in sub-optimal uses and the useful output to be lower than what \hat{S} would produce. Hence to minimize such errors, to be achieved by efficiently allocating the scarce talents for owning to the tasks of capital owners, is important for economic performance.

Two objections may be raised. First, one can claim that the talent of a firm's manager is not as important as Lucas assumes, and, consequently, that the talent of its owner, or owners, is not as important as the present argument claims. Clearly, the performance of firms, especially the large ones, also to depend on the talents, or competence, of many other employees -- such as those of workers and engineers, on which the quality of products directly depends.⁴ These talents can be claimed to matter at least as much as those of managers and owners. Moreover, the great importance of collective factors -- e.g., as often discussed under the names of "synergy", "cohesion",

³Note that we need not inquire about the origins of the differences. Be they given genetically or result from differences in early education, it is simply assumed that in a given adult population, not everyone is equally talented for being, or learning to be, a capital owner, or a manager -- much like, as is well-established empirically, not everyone is equally talented for learning to be a violinist, a mathematician, or a chess-player.

⁴See, e.g., Eliasson (1990) for an interesting description of the different kinds of competence that a large firm needs for its success.

"spirit", or "culture" -- can also be evoked.

While all these talents and factors are undoubtedly important, they do not weaken the present argument. Even they can be shown to depend significantly on the talents of a firm's top managers and, ultimately, on the talents of the owner or owners. Clearly, it is the managers who are responsible for much of a firm's hiring and promotion practices, on which the presence and the effective use of all the other talents depend, as well as for the main features of any "spirit" or "culture" that the firm may develop. In turn, it is the owner or owners who are responsible -- be it by their active choice or only passive support -- for the managers.

What makes some economists underestimate the key role of top managers and owners is, perhaps, that in the usual static view of an established firm in a quiet environment, this role is indeed hardly visible, while only the current activities of rank and file appear to matter. In an evolutionary perspective, however, when attention is also paid to how firms organize and reorganize in the face of changing markets and technologies, the great importance of this role is fully exposed. Even if constructive participation of rank and file still matters, the crucial impulses for change must come from the managers, or, if also these must be changed, from the owners.

Somewhat surprisingly, even the rare cooperative firms that have been efficient enough to succeed in market competition show a similar pattern. Such a cooperative typically owes much of its success to a very small number of enthusiastic individuals, on whom most of the ownership function effectively reposes. Whatever "synergy", "cohesion", or "spirit" there may be, much of it is due to the talents of these individuals for selecting, informing, leading, and motivating all the other members. To be sure, these individuals are not true owners in the sense that they cannot sell the cooperative. But, as the present argument will imply, this is precisely why cooperatives have so low probability to succeed in the long run. This constraint on possible reallocation of the ownership function is shown here to be a major reason why failing cooperatives, where the talents of these individuals turn out to be insufficient, are more difficult to redress than failing private firms, where new owners can take over by a simple market transaction.

Another possible objection is that good or bad luck is more important than any talents. To support this objection, examples can be given of apparently talented

managers who failed because of some a priori unlikely unfortunate events, or apparently incompetent owners who only had the good luck to pick a loyal and competent manager. A simple probabilistic reasoning, however, suffices to show that not even this objection disturbs the present argument. Unless talents are denied any importance whatsoever -- and there is enough empirical evidence to reject such an extreme view -- influence of good or bad luck can be acknowledged and yet the argument preserved. All that we need to do is to interpret it probabilistically, in terms of expected values. Indeed, no institutions for ownership and allocation of capital seem able to guarantee that all great talents will succeed, nor that all incompetence will be made socially harmless. Yet under some institutional rules, talents may be promoted and incompetence demoted with a significantly higher probability and a higher speed than under other institutional rules. The central question of the present inquiry can then be stated as follows: Under which institutional rules will this probability and this speed be relatively highest?

3 The problem of allocation of talent for owning

As noted, both the talent for managing and that for owning are seen here as special cases of economic competence. To recall, this is the competence with which economic agents decide on the allocation and use of the resources under their control, including available data and their human capital. This competence thus refers to what is often called 'rationality' or 'optimization abilities', and what the standard Optimization Postulate assumes to be always abundant.

For decision tasks that are sufficiently easy, the Postulate may be admitted as a good approximation to reality. For difficult tasks, however, scarcity of economic competence becomes one of the binding constraints; in Heiner's (1983) terms, 'competence-difficulty gaps' may appear. As follows from the previous section, the tasks of both managers and owners must be expected difficult in this sense.

The subtlety noted in Section 1 -- that scarce economic competence is needed for the allocation of scarce economic competence -- can now be expressed as follows. If some economic decision are so difficult that the economic competence they need is scarce, this competence becomes one of the scarce resources about which economic decisions must be taken. If, in turn, these decisions are difficult -- which they most often are -- the economic competence that they need is also a scarce resource about which

economic decisions must be taken. By repeating this reasoning, scarce economic competence will be structured into several levels, where the competence of one level is allocated by means of the competence of the level immediately above.

As noted, the present focus will be on two of such possibly many levels of economic competence: talent for managing and talent for owning. The latter is seen to be the highest level, used, directly or through choices of intermediaries, for the allocation of the former.

This raises a question that leads to the heart of the problem: if some economic competence is seen to be of the highest level, which economic competence can take care of its allocation?

There seem to be four conceivable answers: (i) talent for owning is abundant and its allocation needs no competence; (ii) this allocation is determined by a *deus ex machina*, who knows everyone's true talent for owning and can match it with a suitable capital holding; (iii) the allocation of economic competence involves an infinite regress, with no level being the highest; (iv) some feedback loop can make the allocation at the highest level depend on lower levels. Answers (i) and (ii), although perfectly admissible in standard analysis, must, for the earlier discussed reasons, be rejected here. Answer (iii) makes fruitful analysis impossible. This leaves answer (iv) to be the only hopeful hypothesis.

To examine this hypothesis, let me depict the two levels considered as follows. In addition to an unequal distribution of talent for managing, Γ , assumed by Lucas, assume now an unequal distribution of the talent for owning, say H . It is likely that the two distributions are positively correlated, as many competent owners have proved to be also competent managers and vice versa, but probably not identical, as there also seem to be competent owners, able to recognize and efficiently employ competent managers - or only recognize and efficiently use competent intermediaries who are able to recognize and efficiently employ competent managers -- without necessarily being competent managers themselves. In any case, however, the correlation between Γ and H is here unimportant.

Assume further that there is a distribution, equal or unequal, of ownership of capital, say K . It is the relationship between K and H that will be here in the focus.

The problem of allocation of talent for owning can now be seen, up to a point,

analogous to the problem of allocation of talent for managing. Much like social efficiency requires, as pointed out by Lucas, that the distribution of firm sizes depend on Γ , so it requires that K depend on H : the most talented owners should own most capital, less talented ones should own less, and the least talented ones possibly no capital at all.

Two comments are in order. First -- much like Lucas needed to explain, by the assumption of decreasing returns to management, why the most talented manager should not manage the entire production, organized into a single very large firm -- we need to explain why, typically, the most talented owner should not own all the capital. In part, as also owners' tasks are informationally demanding, it seems reasonable to assume that also ownership suffers from decreasing returns. Since, however, an owner typically needs to process less information per unit of time than a manager, if this were the only reason, the optimal share of the production owned by the most talented owner might still be too large, much larger than the optimal share managed by the most talented manager. Other reasons may, therefore, be needed. The most important one probably is the well-known need of a minimum of market competition, to provide for incentives insuring that capital owners will use their talent and capital in socially efficient ways. Hence somewhat more evenly distributed ownership of capital may be socially optimal than what consideration of talent for owning alone indicates. Some of the talent available may have to be underutilized as the price of insuring a socially efficient use of the talent that is utilized.

Second, in spite of the similarities noted, the present problem is more difficult to formalize than the one studied by Lucas. The greatest complication appears to be that -- as opposed to a manager whose decision authority can be well-defined by the size of the firm managed -- the decision authority of a capital owner may have more dimensions: for instance, he may be the sole owner of one or several firms, or share the ownership of one or several firms. In the latter case, there may be several more or less overlapping groups of owners, whose ownership rights may be distributed in a complex way over the firms. This would make it important to consider the distribution of control among, as well as within, such groups. In this paper, however, which is only a preliminary qualitative exploration of the general idea that the talent of capital owners matters, let me abstract from this complication.

From the assumptions that Γ and H are unequal, it follows that the problem of allocation of talent for owning is important for every society, if it is to take advantage

of modern industry, with its complex structure of differently difficult and differently important decision tasks. An efficient allocation of the talent for owning is a prerequisite for an efficient allocation of the talent for managing and, more generally, the formation of an efficient S, which in turn is a prerequisite for an efficient use of scarce resources in production.

An interesting implication is that who owns capital has important external effects, strongly influencing the present and the future industrial performance -- as opposed to the traditional view that capital ownership is only of individual utility to the owners themselves. If capital owners are competent, they are not the only ones to benefit, and if they are incompetent, they are not the only ones to suffer. For example -- and this is not always well realized -- the efficiency of the capital markets and the market for managers, on which the efficiency of an entire market economy crucially depends, stands or falls with the competence of the capital owners who come to trade on these markets.

4 The merits of alternative institutional regimes

To recapitulate, to answer the question raised by Lucas -- how managers are appointed and the sizes of their firms determined -- is seen here to be the task of the firms' capital owners. This, in turn, raises the symmetrical question of how the owners are appointed and the sizes of their capital holdings determined.

The symmetry, however, is not perfect. To answer Lucas's question is the task of capital owners under all institutional regimes (alternative sets of institutional rules) -- be they capitalist or socialist.⁵ In fact, the effective capital owners of a firm can be defined precisely as those who have the right to appoint its manager and determine its size. In contrast, the second question is handled in different ways under different regimes. These ways depend in part on the allowed forms of ownership of capital -- e.g., whether capital is owned privately, by government, or by collectives of employees -- and in part on the allowed forms of allocation of the ownership -- e.g., which, if any, capital markets exist, and which assets, under what rules, can be traded on them.

The main idea that I now wish to elaborate is that the different ways are differently good at allocating the scarce talent for owning to effective ownership of

⁵By labeling the set of institutional rules of an economy 'regime', I follow the terminology formally defined by Hurwicz (1971). A frequently used alternative term is 'economic constitution'.

capital. It is these differences that are to throw new light on the respective merits of alternative forms of ownership and allocation of capital.

Recall the distribution of talent for owning, H , the distribution of ownership of capital, K , and that social efficiency requires a certain relationship between H and K . Now consider an economy in an initial state, in which the relationship between H and K is different -- e.g., some rich capital owners are not highly talented, while some highly talented persons own little or no capital. Moreover, consider that at any later moment the relationship is subject to random disturbances. K may at least partly be changing because of windfall gains or losses -- e.g., a competent owner may lose his capital because of bad luck, or an incompetent owner may gain it through inheritance, tennis, or a lottery -- and H may be changing because of emergence of new talents or senility of some of the old ones. This suggests that alternative institutional forms of ownership and allocation of capital -- as defined by alternative regimes -- should play the role of adjustment mechanisms which are to compensate for both the initial differences and later disturbances, and thus keep pushing towards an efficient adjustment of K to H . The question, then, is how good adjustment alternative institutional regimes can deliver.

Let me consider four families of regimes. Each family is defined by some common features of the institutional rules concerning ownership and allocation of capital. Note that these families are not to provide for some nice, symmetric classification of alternative regimes. The only purpose of choosing them is to allow for a gradual narrowing of attention to institutional details relevant to allocation of capital and selection of capital owners.

- I - socialism, in which capital is owned and allocated by government and/or collectives of employees, while private ownership of capital and capital markets are prohibited;
- II - primitive capitalism, which allows for private ownership of capital, but prohibits the market for corporate control;
- III - capitalism which allows for this market, but prohibits financial innovations, such as options and junk bonds;
- IV - capitalism which allows for both the market and the innovations.

That these are families of regimes, and not specific cases, should be emphasized. This means that a clear distinction must be made between statements about all members of a family and those about only some of them. Negative statements can often be made about all members -- e.g., if a family rules out an important adjustment method, then all of its members must fail to reach some favorable results. In such a case, to search for a yet unknown exceptional member that would not fail is pointless (cf. searching within a species without wings for an individual which could fly). In contrast, positive statements are usually limited to only some of the members. To have institutional rules that allow for efficient adjustment is necessary, but possibly not sufficient; the results actually obtained may depend on many other factors -- such as the supply of entrepreneurship and the actual development of capital markets and the market for corporate control -- in which members of the same family may differ (cf. some birds cannot fly, in spite of having wings).

Let $L(R)$ express the social losses caused by regime R , defined as the difference $Y(\hat{S}) - Y(S_R)$, where $Y(\hat{S})$ is the output that could ideally be produced, under given resource constraints, by the optimal structure of production \hat{S} , and $Y(S_R)$ is the output that can be produced by S_R , the sub-optimal structure that can be expected to form under R . For the earlier explained reasons, $L(R)$ depends on the abilities of R to provide for adjustment of K to H in the above sense: the better the adjustment, the closer S_R to \hat{S} , and the lower $L(R)$. As $L(\cdot)$ will be used here for comparative purposes only, there is no need to define for it any absolute units.

My main argument can be expressed by the following conjecture. Let each family be represented by its best member, which minimizes $L(\cdot)$ within the family. Then,

$$L(IV) < L(III) < L(II) << L(I),$$

which is to say that (IV) has the potential to be the best, whereas (I) is by far the worst. Qualifications, however, are necessary, and I will discuss some of them in a moment.

I believe that, with suitable qualifications, this conjecture can be proved formally (and welcome any help in this direction). Right now, however, all I can do is to support it by the following qualitative reasoning.

The reasoning is evolutionary in the sense of Alchian (1950) and Winter (1971),

and reposes on my earlier efforts to extend such reasoning to comparative institutional analysis (see, e.g., Pelikan 1987, 1988, 1989). The general idea is that each regime (R), by the specific constraints of its institutional rules, guides in its characteristic way the formation and evolution of S.⁶ As some risk and uncertainty are always present, and the economic competence for dealing with them is scarce, S-evolution, under any R, cannot proceed without trials and errors.⁷ Interesting differences between alternative Rs can then be discovered, if the Rs are compared for their influences on the generation of trials and elimination of errors -- e.g., by comparing which potential successes the Rs may prevent, and which errors they may allow to survive, and for how long (see, e.g., Pelikan 1987, 1988, and also North 1990).

That in this process, the role of capital owners is crucial, is easy to see: as follows from the previous discussion, they bear the ultimate responsibility for much of the generation of trials and elimination of errors -- in particular the formation, growth, contraction, takeover, fusion, split, reorganization, and dissolution of firms. The fine point, to be carefully kept in mind, is that the owners themselves are endogenous, which means that the state in which a certain person controls certain capital must also be seen as a trial, which may possibly also be an error.

To connect this general idea to the present argument, examine what alternative Rs do precisely on this fine point: (1) whom they allow to try to become a capital owner, and (2) how they force incompetent capital owners to give up their control over capital. These the two moments are clearly crucial for determining how well, or poorly, K will be kept adjusted to H.

It is now easy, at least in this approximative qualitative reasoning, to compare the effects of the four families of Rs on the quality of this adjustment. (I) is the worst. All socialist Rs significantly restrict the avenues by which people may try to become effective capital owners: only politico-administrative careers within the government, the party, or employee organizations are left open. As confirmed by the experience of both socialist economies and government sectors of capitalist economies, the implied selection criteria

⁶The reader who likes biology may find it helpful to think of the genes of an organism which guide in their characteristic ways the formation and development of its body.

⁷In the context of a capitalist R, Schumpeter (1942) expresses a similar idea by speaking of 'creative destruction', and Eliasson (1988) of 'experimentally organized economy'.

are at best uncorrelated with H.

Moreover, in the absence of private ownership of capital and capital markets, no automatic, impersonal connection between economic results and the size of the capital controlled can be institutionalized, which means that even gross errors may indefinitely survive. All changes in the allocation of capital require decisions of specific persons in specific positions within a corresponding politico-administrative hierarchy -- such as a ministry or the Planning Board. As the selection of such persons is uncorrelated with H, their talent for correcting such errors is likely low, and their appointment to such positions is itself likely to be an error.

Note that this argument about economic inefficiency of socialism, concerning misallocation of economic competence, is stronger than the usual arguments about informational or incentive problems. As I explain in more detail in Pelikan (1985, 1987, 1989), both standard theory, under suitable simplifying assumptions, and the practice of large firms and conglomerates suggest that these problems may be solved reasonably well within a small open socialist economy. The present argument adds the crucial condition: to find and implement such solutions requires exceptionally high economic competence - - and above all high talents for managing and owning -- which, without private ownership of capital and capital markets, are highly unlikely to be mobilized and selected just for this task.

The main reason why (II) is superior to (I) is, according to the present argument, that (II) can employ product markets not only for determining prices and quantities of products, which a suitable form of market socialism could also do, but moreover as selection devices, setting capital availability constraints on the growth and survival of firms. This role of product markets have largely been ignored by economic theory; among the few writers that examined this role, Alchian (1950) and Winter (1971) are perhaps the most prominent.⁸ In present terms, selection by product markets can adjust

⁸Friedman (1953) also refers to this role, but only to defend the Optimization Postulate as a general methodological principle. He argues, in essence, that theory need not consider agents that are incompetent optimizers, for they are automatically eliminated by market selection. This, however, makes economic analysis ignore an important problem which arises when market selection is limited or suppressed; instead of being eliminated, such agents may then prosper and their economic incompetence may cause large social losses. As this appears to be a serious problem in all socialist economies, to ignore it means to ignore a major reason why socialism cannot be efficient. Strictly speaking, Professor Friedman cannot be accused of helping thus the socialist cause, as I mistakenly implied earlier (Pelikan 1989:296,n.14). As he pointed out to me in private correspondence, his defense of the Optimization Postulate was limited to theories

K to H better than what (I) can do: talented owners, who are most likely to choose talented managers and thus outperform other owners, are also most likely to increase their capital; symmetrically, less talented owners are likely to decrease it, or lose it entirely.

At this point, it also becomes clear why Wintrobe's (1987) defense of firms owned by a democratic government may be right only in the idealized world of standard economics, where economic competence is abundant, but not in the real world, where this competence is scarce and asymmetrically distributed. If neither all voters nor all stock-holders are of perfect economic competence, but some have more talent for owning than others, the expected performance of firms will depend, for the earlier explained reasons, on how the distribution of voting rights can be adapted to the distribution of this talent. Then, firms owned by a democratic government are handicapped by the basic rule of political democracy, which gives every person just one vote, regardless of his or her relevant competence. In contrast, privately owned corporations allow for accumulation of votes in the hands of those stockholders who prove to be -- by their direct participation or by their choice of suitable intermediaries -- more competent owners than others. Hence in the long run, private firms must be expected to be owned, and therefore also managed, with a higher relevant competence than government firms.

Although selection by product markets is an important mechanism for allocating talent for ownership, superior to all politico-administrative alternatives, it is far from perfect. Among other imperfections, such selection works only by a combination of complete bankruptcies and waiting for starts from zero of new firms -- both of which may take long time and involve high social costs. In is above all at this point that (III) has the potential of doing better. While both bankruptcies and starts from zero remain important, selection by the market for corporate control adds another circuit which can make this adjustment both smoother and cheaper. Not all unsuccessful firms need go entirely bankrupt; at least some may be saved in time, when efficient reorganization is

specialized in the functioning of capitalist market economies, while explicitly admitting that other kinds of economies may require other kinds of theories. Unfortunately, however, many even first-class economists - - such as Kenneth Arrow, Leonid Hurwicz, and Edmond Malinvaud -- misunderstood this limitation and used the Optimization Postulate for formal proofs of the existence of optimal socialist planning. Moreover, a theory specialized in the functioning of capitalist market economies has the crucial weakness of being unable to say anything about their comparative advantages.

still possible, by allowing, through buy-outs or take-overs, for changes of ownership. While not all such changes need succeed -- a majority may, in fact, fail -- at least some will. Thanks to market selection, the former will be eliminated, while the latter are preserved as important cumulative improvements of S (cf. Pelikan 1989).

Potentially, (IV) can further improve upon this adjustment as follows. What (II) and (III) can achieve, in adjusting K to H, is, roughly, to decrease the capital of rich but little talented owners, and increase the capital of the more talented ones -- provided they already own a sufficient minimum, necessary for entering the competition for corporate control. The drawback is that talented individuals without this minimum are a priori excluded, and their talent is thus socially wasted. This drawback can be alleviated, if the financial innovations which are admitted under (IV) can help such talents to enter. For example, the potential contribution of junk bonds to social welfare can be seen precisely in providing such help, by making it possible to compete for corporate control also with borrowed capital.⁹

Qualifications are now in order. As the words 'potential' and 'potentially' suggest, it is only in certain favorable circumstances that the market for corporate control and the institution of junk bonds can have the above-mentioned positive effects. In general -- as could recently be observed -- the two devices may also have negative secondary effects. For instance, the market for corporate control may be used for building non-natural monopolies which destroy competition, and not only for improving the allocation of talents; junk bonds may be issued by crooks who take maximum advantage of inherent asymmetric information.

Such qualifications point to the importance of detailed institutional design, localizing within family (IV) a good specific R, by which the negative effects would be minimized -- see, e.g., the suggestions of Shleifer and Vishny (1988) for alleviating the negative effects of the market for corporate control. The important point is that the negative secondary effects cannot be used as reasons for abolishing these devices, as is still frequently argued. This would be to forget about the crucial primary effects, and thus throw the baby with the water. Why the temptation to do so still persists is that the

⁹As Morton Miller noted in a personal conversation, the term "junk bonds" is misleading, for, in spite of the adjective, the word "bonds" may still falsely convey the idea of security. Perhaps "raider-betting", conveying the idea of "horse-betting", would be a more appropriate label for this financial instrument.

negative secondary effects are easier to see than the positive primary ones, which remain largely hidden to standard analysis. The main purpose of the present argument is to expose and emphasize the latter.

5 Conclusions and policy implications

The main conclusion is the usual one, drawn by most observers from the recent collapse of real socialism: Efficiency and social welfare are served relatively best if capital is owned privately and allocated through competitive capital markets. In other words, only inferior outcomes can be expected if capital is owned and/or allocated by government or in any other politically organized ways -- including labor-managed firms as in Yugoslavia, and wage-earners' funds as in Sweden.

The underlying theoretical argument, however, is less usual. Private ownership and market competition are usually seen to have their main advantage in creating stronger incentives for using capital efficiently. Without denying the importance of incentives, the present argument claims that efficient allocation of economic competence is even more important. The decisive advantage of private ownership of capital and competitive capital markets is seen in their superior ability to allocate the control over capital to agents with high relevant competence, or at least to protect it from agents with low competence.

This change in the underlying argument has some interesting policy implications. The usual focus on incentives, under the standard assumption that all agents are perfectly competent optimizers, leads to a weak support for private ownership of capital and capital markets on the supply side, and a strong support for consumer sovereignty and income inequality on the demand side. The support for private ownership of capital is only weak, for -- as both economic theory and managerial practice have shown -- reasonably efficient incentives can often be designed even for non-owners. The case for income inequality is strong, for all taxation and redistribution harms incentives, seen to be the only determinant of social efficiency.¹⁰

¹⁰To be sure, in pure economic theory any egalitarian policy is possible without damaging incentives, and hence efficiency, by the well-known theoretical means of lump-sum taxation. As is also well known, however, this kind of taxation has the unpleasant defect that it is not practically feasible. The present discussion is limited to policies that *are* practically feasible.

Somewhat paradoxically, the present focus on competence strengthens the case for private ownership of capital and capital markets, but weakens the case for consumer sovereignty and income inequality. If, on the supply side, not all agents are equally perfect optimizers, then even an ideal team in the sense of Marschak and Radner (1972) -- where no individual incentives are needed to make all members follow common objectives -- must solve the problem of how to allocate the most important decision tasks to the least imperfect optimizers.

It is as a means to solving this problem that private ownership of capital and competitive capital markets turn out to be irreplaceable, even within such a perfectly solidary team. In other words, more competent industrial leaders will likely be appointed in this way than by ministerial decrees, or one-man-one-vote elections. In such a team, of course, capital holdings would only determine the responsibilities of their owners for production, as opposed to a real economy, where they moreover determine the opportunities for personal consumption. For the following discussion, it is important to keep in mind both these roles of capital holdings, and also to realize that the roles can at least partly be separated by a suitably designed tax on consumption which avoids taxing investment in production.¹¹

To admit the existence of differently imperfect optimizers on the demand side, however, must obviously weaken the case for consumer sovereignty. For example, not all consumers can then be expected to have sufficient competence to demand the optimum quantity and quality of education, health insurance, and pension plans. This provides some support to public policy by which such a competence-dependent demand is brought closer to the optimum -- or, as this is usually unknown, by which at least the most obvious insufficiencies are alleviated.

Note well that that the justification is limited to policies concerning final demand - - such as earmarked subsidies and minimum quality norms. For the organization and management of supply, the above argument continues to apply: the relevant competence is better mobilized and selected by private enterprise and market competition than by

¹¹In the income tax v. progressive consumption tax debate (for a recent statement see Pechman, 1990), the present argument thus strengthens the cause of the latter. The only efficient egalitarian policy appears to be to tax conspicuous consumption, while affecting as little as possible the selection of competent capitalists for the control over production.

politico-administrative methods of government bureaucracy.¹²

This also throws some new light on the long-standing issue of government ownership v. regulation of natural monopolies. For example, a strong defence of the ownership alternative is in Sappington and Stiglitz (1987), and a somewhat weaker defence of the regulation alternative is in Vickers and Yarrow (1991). The present argument gives a clear support to the latter. The reason is that regulation is less demanding on government competence than ownership. In both alternatives, of course, the government needs much of user competence to protect the demand side against inefficient price rises and quality deterioration. While one can be skeptical about how much of this competence the government can actually have, this does not affect the issue. If some government intervention is better than none, the government must act with however low user competence it happens to have. What makes the crucial difference is that the regulation alternative is less demanding than the ownership alternative on the government's talent for owning, crucial for efficiently organizing the supply.

Let me now turn to income redistribution.¹³ What weakens the case against it is that the present argument, compared to standard analysis, softens the well-known efficiency-equity tradeoff. When economic competence is scarce and in need of efficient allocation, the effects of inequality on efficiency need not be only positive. If many owners of scarce talents are so poor that they cannot find the minimum starting capital to enter any meaningful competition, their talents are socially wasted. Hence income redistribution that improves the access of scarce talents to starting capital may more than countervail its negative effects on incentives.

Moreover, the negative effects themselves may be weaker than usually expected. When the purpose of market competition is not only to distribute profits, but moreover to appreciate and promote competence, the wish to excel may become an important incentive by itself, which income redistribution leaves largely intact. Even if monetary

¹²A suitable voucher system is the obvious solution for connecting subsidized demand with competitive market supply. While in the U.S. and British debates, vouchers are usually advocated by the political right and criticized by the political left, few seem to know that such a solution has for a long time been part of the Danish (but not Swedish!) style of welfare society, in particular in child care and primary education.

¹³This discussion draws on Pelikan (1992).

incomes remain important, their impact on incentives is thus diluted.¹⁴

The main policy implication is that, on the supply side, the best institutions for ownership and allocation of capital remain to be suitably shaped private property rights, tradable on competitive capital markets, regardless of what policies may politically be preferred for the demand side. These may even include strongly paternalistic and egalitarian policies -- such as subsidized merit goods, consumer protection, and progressive taxation -- without changing the implication.

Note that egalitarian policies are not claimed to be always harmless to economic performance. Although in some cases, as argued, they may help, by enlarging the pool of scarce talents with access to starting capital, in general they must still be expected to decrease total output; their negative effects on incentives are diluted, but remain negative. The advocates of income redistribution must thus still be ready to pay a price in terms of foregone efficiency, even if the price turns out to be somewhat lower than what standard analysis implies. The main point here is that the price is lowest if private ownership of capital and competitive capital markets are preserved on the supply side. Any other way of owning and/or allocating of capital is shown to cause additional efficiency losses, further increasing the price, because of the lower expected competence in the organization and management of supply.

The extreme egalitarian view expressed by Roemer (1987) provides an instructive example. This is to view any unequal distribution of talents as unjust, and demand that all the unfortunate persons who have been given too little talents by nature be compensated by society. The present point is -- and this is what Roemer seems to miss -- that the compensation, to minimize its negative effects, must be limited to parts of final consumption. To let untalented persons gain control over production would ruin the economy, leaving there little to be redistributed.

There is an interesting policy implication for the nearly ruined post-socialist economies, searching for a way towards efficiency and economic growth. That competitive markets must take over planning as the main mechanism of resource-allocation is now generally recognized. There is, however, still much controversy about what to do with ownership of firms, most of which still belong to the State. The main

¹⁴That people like to compete, doing their best to excel to some extent even regardless of the eventual prizes, seems to be a well-established psychological fact.

variants discussed are: (a) improve management, but preserve the State ownership; (b) transfer the ownership to the employees and/or local government; (c) privatize. The last variant is further divided according to how shares in firms are to be sold; the main subvariants are: (c1) for money, (c2) for equitably distributed investment vouchers, with restrictions on further trade with both vouchers and shares, (c3) for such vouchers, but without such restrictions.

The present argument clearly excludes (a), (b), and (c2). To recall, private ownership of firms which is itself subject to market selection has been shown crucial for allocation of relevant competence to the ownership tasks, on which the quality of management essentially depends. The problem with (a) and (b) is that they do not introduce private ownership at all, whereas (c2) introduces it, but does not submit it to market selection. Hence none of them can be expected to improve management in any systematic way. The usual argument for (c2) is egalitarian, demanding that ownership of capital be and remain equitably distributed. This contradicts the above implication that striving for equity should be limited to final consumption, whereas allocation of ownership of capital should exclusively be a matter of competence and efficiency.

Only a combination of (c1) and (c3) can thus be recommended. The novel reason for recommending (c3) is that it broadens the starting field for market selection, and thus decreases the probability that some scarce talents will be left out. This is important especially in a post-socialist economy, where, after several decades of non-market selection for top economic jobs, such talents can now be dispersed over the most unexpected places. In contrast to (c2), (c3) is to allow for a fast start of market selection and, provided a minimum competition is preserved, concentration of ownership. This does not mean that small shareholders should be eliminated; their broad continuing involvement is likely to have several positive effects -- informational, educational, and psychological. The main purpose, however, is to let emerge from the broad starting field a few strong and competent owners, able to assume leading roles in the badly needed restructuring of firms and industries.

This means that the present argument destroys hopes for efficient socialism of any variety, including all forms of socialist planning, market socialism, government owning firms and allocating capital, and compulsory labor-management. On the other hand, some hopes are left for a welfare society, where inequality is to be limited and some

goods, classified as merit goods, are to be subsidized. The first necessary condition is, of course, that this kind of society be sufficiently valued and politically supported by the population -- e.g., as appears more often to be the case in Western Europe than in North America. Another necessary condition, pointed out here, is that all taxes, subsidies, and other welfare measures be concentrated on the demand side, without causing misallocation of competence in the organization and management of supply.

Much of today's crisis of welfare societies can indeed be traced to violations of the latter condition. In Sweden, where the crisis is particularly acute, several such violations can be identified. For example, virtually all the supply of subsidized merit goods -- amounting to about one third of GNP -- is reserved to government monopolies, organized and managed in similar ways and suffering from similar defects as a typical socialist economy. Moreover, the private industrial sector is also being damaged. Several taxes adopted for egalitarian reasons are in fact eroding working capital and the supply of risk capital, with a particular bias against small and medium firms. The entire formation and evolution of industrial structure, with the underlying allocation of scarce competence, are thus distorted -- e.g., small growing firms are often fiscally encouraged to sell themselves to a large established firm rather than continue their growth to become new large firms themselves.

By stopping such clumsy interference with supply, which needlessly increases the cost of welfare policies, the outlook for a welfare society can be made brighter than what today's empirical observations suggest. How much brighter remains to be seen; obviously, much will also depend on how far the limits to inequality will actually be pushed. In any case, the present argument involving the problem of competence-allocation is somewhat more optimistic, and expects that the limits can be pushed somewhat farther, than the usual analysis considering only incentives.

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