

**MANAGEMENT COMPETENCE,
FIRM GROWTH
AND ECONOMIC PROGRESS**

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Printed at INSEAD, Fontainebleau, France.

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Abstract

Starting from the empirical observation of a positive correlation between the relative prosperity of an economy and the number of large firms operating in that economy, we propose that this correlation is an artifact of the positive influence of “management competence” on both these variables. We develop a theoretical framework that distinguishes between two aspects of management competence - entrepreneurial judgement and organisational capability. Both aspects relate to the process of value creation through the combination and exchange of economic resources: Whereas entrepreneurial judgement refers to the cognitive aspect of perceiving potential new resource combinations and exchanges, organisational capability is the ability to actually carry them out. As we show, the interplay of those two factors affects the speed at which firms expand their operations, the kind of expansion, and the process through which firms create value, not just for themselves, but for society as a whole.

I. INTRODUCTION

This paper is motivated by a simple empirical observation: There appears to be a strong positive correlation between the relative prosperity of an economy and the number of large firms operating in that economy. The relationship seems to be reasonably robust to many different ways of operationalising both the prosperity of nations and the size of firms. At the extreme, figure 1 represents this relationship when prosperity is measured simply by the GDP per capita of the country and when we consider only the very largest firms, viz. those that find a place in Fortune's list of the 500 largest firms in the world. Figure 2 shows the relationship between the GDP per capita of nations and the proportion of their working population employed by large companies, when firm size is measured at the level of firms earning in excess of US\$ 10 million in revenues (which, though much smaller than Fortune 500 firms and often described as medium-sized rather than large, still figure at the right tail of the frequency distribution of firms by size in any society). Figure 3 shows the relationship between total expenditure on R&D (as percentage of GDP) and the proportion of their working population employed by large companies (above US\$ 10 million revenues). Collectively these different aspects of the relationship between the progress of nations and the extent of large firms operating in those nations rule out some obvious interpretations such as larger countries will have more large firms simply because there is more scope for such firms to exist. Something else is going on here, clearly.

- Figures 1, 2 and 3 about here -

If the persistence of this relationship across countries at very different stages of development can be considered to rule out sheer chance or other forms of spuriousness, three different causal explanations may exist. First, it may be that large nations provide a strength for local firms to grow, i.e. the relationship may represent a locational advantage for firm growth (e.g. Porter, 1990). Second, it may be that large firms help economic progress of societies relatively more than small firms constituting the same level of economic activity, i.e. the relationship may represent the societal dimensions of Galbraith's defence of large corporations. Third, both variables, i.e. economic prosperity of nations and the growth of firms to large size, may be influenced by a common factor.

Our objective in this paper is to present an argument for the third explanation. We suggest that "management competence" is the factor that, on the one hand, leads to the growth of firms and, ultimately, to the emergence of a relatively higher proportion of large firms in an economy that is well endowed with this competence. The same factor, on the other hand, leads to the creation of more economic value out of a society's endowment of resources, thereby leading to its growth and prosperity. In other words, with management competence, a country simultaneously expands its income and the proportion of large firms operating in its economy, thereby establishing the correlation we have observed.

We do not, as yet, offer this as anything more than a plausible theoretical speculation. But it is an interesting speculation. It is interesting, theoretically, because it suggests an

important new dimension for “growth theory” which has become an arena of almost frantic activity in the discipline of macroeconomics, and also because it opens up a new and potentially rewarding line of inquiry on the role of large firms within the field of management studies. It is also important, from a practical perspective, because it suggests some radically different approaches to modernising emerging economies - different from the controversial “shock therapy” approach that has produced such a mixed record of outcomes - and also because of the implications it has for public policy with regard to the role and regulation of large firms and for the strategy and conduct of the firms themselves, and of their managers.

We begin by defining the term “management competence” (section II) as the foundation of the arguments that follow. Subsequently, building on the arguments of Penrose (1959) and Schumpeter (1934), we show why and how management competence leads to the growth of firms and, ultimately, to an industrial structure in which large firms come to adopt a relatively greater role (section III). After that, we elaborate on the second half of our argument, viz., why management competence also leads to a better exploitation of an economy’s stock of resources and, thereby, to its economic growth (section IV). Finally, in section V we put the two hypotheses in perspective and focus on the links between the size of firms and economic progress and discuss some of the theoretical and practical implications of our arguments.

II. MANAGEMENT COMPETENCE

The recognition that the performance of organisations depends to a large extent on the ability of those who administer their operations does not require much insight into the real world of the successes or failures of established enterprises. Yet, when it comes to the theoretical conceptualisation of organisational entities, such as firms, management competence does not usually occupy the centre stage. In this paper we wish to redress this deficiency.

Our analysis is grounded in three views on the role of the firm. First, following Knight (1921) and Simon (1951), a firm can be viewed in terms of the employment relationship where the employer offers the worker a wage in return for a task that is to be specified by the employer. The contract between the two is necessarily incomplete as the employer may not be able to specify all of the tasks that will have to be carried out by the worker, partly because this is costly to do, and also because some of his/her perceptions on the nature of the project in question are not clearly developed and largely tacit. This view is significant not from the perspective of the employment relationship as a risk-sharing institution per se, but to underline the differences in the ability to perceive, evaluate and seize profitable opportunities. That is, the employer requires the worker to provide a complementary service that the worker may not be able to associate with the overall project of the employer (otherwise called the entrepreneur). As we shall explore later in this section, these differences in ability to perceive profitable opportunities together with certain costs

of persuading and informing other individuals of the potential value of the undertaking suggests a way to define the role and tasks of firm management.

Second, and as an extension of the first view, a firm can be seen as a pool of more or less intangible and idiosyncratic resources. This position was first taken by Penrose (1959) and more recently developed in the evolutionary theory by Nelson and Winter (1982) and the increasingly influential "resource-based view" that characterises the firm as a "set of differentiated technological skills, complementary assets, and organisational routines and capacities" (Teece, 1988). This perspective on the firm has its origins in the work of Adam Smith and later Friedrich v. Hayek (1945) who associated the division of labour with a corresponding division of knowledge. The knowledge that individuals gather is often tacit, i.e. it is difficult and costly (if not impossible) to be articulated (Polanyi, 1969). Moreover, individuals in organisations typically co-specialise in certain tasks and acquire a mutual understanding of this task that, over time, becomes idiosyncratic to the group. In other words, knowledge in an organisation is context-dependent and has reduced applicability, and thus value, outside the enterprise. Management competence, as we will argue later in this paper, is the factor that drives the acquisition, development and deployment of these context-dependent and idiosyncratic knowledge resources of the firm which shape the firm's productive opportunities and, thereby, influence the direction of its growth.

Both the first and the second view of the firm are compatible and mutually supportive. The fact that the employer (entrepreneur) hires workers to perform complementary tasks that together contribute to the project envisioned by the employer implies some degree of

specialisation on behalf of the employer to know what the task is and on the workers to perform the task. Moreover, several workers can be expected to specialise in different aspects of the project, which increases their special knowledge, but at the same time - given some degree of interdependencies between tasks - promotes the development of certain capabilities that are very much specific to the organisation in which they collectively operate.

The third view of the firm that we adopt is - compared to the first two - in a relatively underdeveloped stage: that is, the firm as an agent of discovery and economic progress, as first proposed by Joseph Schumpeter (1934). It is here that we wish to propose some ideas which, in combination with the first two perspectives, would suggest a more significant role of firms in general, and management competence in particular, with regards to the creation of economic wealth for society as a whole. Our use of the term “management competence” is based on the first two views of the firm and bears fundamental importance for the third. In what follows, we will outline the dimensions of management competence in the context of our analysis.

The Role of Management: Resource Combination and Exchange

The creation of economic value, be it by individuals or organisations (such as firms) in an economy, is a process which involves the use of economic resources. By the term resources we refer to any tangible or intangible object which can be allocated property rights, and which can be transformed (by means of other resources) into an “output” which,

in itself, constitutes a new resource. However, in order to produce something of value (i.e., a value that is greater than the value realizable from the resources themselves, if used independently), these economic resources must somehow be combined. In other words, combining resources provides the basis for the creation of new and better products, or new and better ways of making products (i.e. with higher productivity of given resources). In order to do so, (a) new resources have to be combined or (b) given resources have to be combined in new ways. Either way, as Schumpeter argued, “to produce things, or the same things by a different method [or to] combine these materials and forces differently” (1934: 66) constitutes “economic development”. Such combinations represent “simply the different employment of the economic system’s existing supplies of productive means” (p.68).

In order for economic actors to combine new resources or given resources in new ways they have to deploy the resources in question. That is, they must make them available for this purpose or, as Schumpeter might have put it, they must place the required materials and forces within reach. Each time resources are deployed in making new combinations, a new source of "potential" value is created and added to the economic system. By the term value we refer (in the context of this analysis) to economic value which must be distinguished from other, more intrinsic, forms of value. Yet this "potential" value is of limited use to society and cannot contribute directly to its economic wealth. Economic value is realised when resources are reallocated to more productive uses (i.e., placed within the reach of more actors). This value realisation is accomplished largely by means of

exchange (North and Thomas, 1975: 18). We will examine the role of resource combination and exchange in more detail in the fourth section of this paper.

The process of resource combination and exchange by any economic actor requires two distinct abilities: First, the ability to perceive the resource combination and exchange potentials, and second, the ability to actually carry out the resource combination and subsequent exchange in question. In a market environment where individuals make independent choices as to the allocation of their available resources, the price mechanism is the common way of guiding people's behaviour in allocating resources to their most productive uses. In firms, on the other hand, besides a certain influence of the price system from "outside" (e.g. in terms of input prices etc.), it is largely the function of management to influence the allocation of resources (Bower 1970).

As outlined by the first view on the firm, the reason for this is that the employer/entrepreneur possesses a unique insight into the firm's undertakings. Initially, when a firm is founded or relatively small, this insight may reside in a few or even only one individual. Obviously, as the organisation grows beyond an owner-manager stage and "professional" managers are introduced and are delegated decision-making authority, many more individuals are likely to have their own "unique insights." Eventually, as each individual in the firm accumulates specific skills and a stock of knowledge about what he/she does, this "unique insight" will evolve into a unique organisational view, comprising the insights of a multitude of different local experts (second view of the firm). Yet, it is still management that remains actually responsible for the ultimate allocation of

the firm's resources, even though its influence may be either direct or indirect (Bower, 1970; Burgelman, 1983).

Thus, the two universal requirements necessary to create new resource combinations and exchanges (i.e. the ability to perceive the resource combinations and exchange potentials plus the ability to carry them out) define the role and primary responsibility of the management of a firm: The ability to combine and exchange economic resources effectively in firms can be associated with the competence of its management. We term the ability to perceive potential resource combinations and exchanges as entrepreneurial judgement and the ability to actually carry out any combination and exchange as organisational capability. In other words, management competence consists of entrepreneurial judgement and organisational capability. As we shall see, both aspects are crucial to the process of firm growth and to the value-creating role of firms in the economy.

Entrepreneurial Judgement

The concept of entrepreneurial judgement is rooted in the literature on entrepreneurship. It is here that the relevance of the first view of the firm that we presented becomes apparent. In a world like ours, where novel possibilities for productively deploying resources are always emerging, the exercise of judgement is required to “process complex and incomplete information usefully in an intuitive way” (Langlois, 1995:83; see also Knight, 1921). We define entrepreneurial judgement, then, in a way that is consistent with the concept of entrepreneurship, as developed by Knight (1921), Schumpeter (1934), and

Kirzner (1973), as the ability to discover new ways of dealing with known problems or “new combinations” of given knowledge. There are two aspects of this concept that need highlighting. First, entrepreneurial judgement is contingent upon the initial stock of knowledge and insight within the firm. Second, entrepreneurial judgement embodies a strongly cognitive dimension such as is found in the literature on learning and innovation. The ability to see previously unrecognised opportunities, or to evaluate known opportunities differently must involve some degree of perceptive capability, which involves greater knowledge and insight about the relevant aspects of the task in question but must also include an ability to link this absorptive capacity (Cohen and Levinthal, 1990) to some overall vision or imagination of what might be possible (Hamel and Prahalad, 1994).

Organisational Capability

As Schumpeter pointed out, entrepreneurship (or innovation) is significantly different from invention: “The inventor produces ideas, the entrepreneur ‘gets things done’...” (1947:152). To facilitate successful exploitation requires a firm to establish a context that accommodates the entrepreneur’s judgement. This accommodation process implies a substitution of one institutional context for another (e.g., internalisation of some market or firm activity into another organisation - often a new firm). The ability to carry out new combinations typically entails some administrative reorganisation of economic activities that is needed to enhance one’s ability to “cope with the resistance and difficulties which action always meets with outside of the ruts of established practice” (Schumpeter, 1947:

152). We refer to the aspect of management competence that enables such administrative reorganisation, which in turn, facilitates the carrying out of new combinations, as “organisational capability.”

Organisational capability is essentially a social phenomenon. As emphasised by Barnard (1938), it implies the existence of some insight into the behaviour and capabilities of those whose cooperation is needed to carry out the necessary resource deployments. To gain this insight takes time and close interaction. Additionally, human actors can not be assumed to have perfect foresight, nor do they always behave rationally (Simon, 1945). As a consequence, firms can not fully anticipate the results of their actions and must thus to some degree rely on trial and error (Eliasson, 1990). By learning from past experience, firm members build up a stock of constantly evolving and changing knowledge about how to conduct certain activities. Through this ongoing process, organisations enjoy economies of learning arising from repeated and close social interaction. Therefore, beyond the aspects of formal structure, certain social dimensions such as trust, identification with the organisation, loyalty, and sacrifice are important elements of this component of management competence.

It is important to note that management competence is not restricted to “managers”. The term which seems to be rooted in the first view of the firm that we presented (i.e. the ability of the employer to see opportunities, hire workers, and direct the production process), is in fact applicable to a much wider group. As we shall explore, the ultimate source of both entrepreneurial judgement and organisational capability potentially resides in any

organisational member. Indeed, as we argue in the following section, whether or not a firm's managers are able to create an organisational context that accommodates changes in the management competence that resides throughout the firm determines, to a large degree, the extent to which the firm's collective entrepreneurial judgement is exercised within or outside the bounds of the firm. At the same time, both these components of management competence are shaped by the collective social organisation that constitutes the firm. As for entrepreneurial judgement, the process of organisational learning as a collective phenomenon enables the exchange of ideas and knowledge among individuals in a firm, widening the set of opportunities perceived as viable. Similarly, organisational capability (the ability to combine and exchange resources within organisations) is facilitated through collective interaction which creates capabilities that are embedded in the processes and "routines" of organisational members (see Nelson and Winter, 1982). In effect, management competence is a social phenomenon that is linked much more to the second view of the firm. The following sections of the paper shall deal with the role of the two aspects of management competence in their influence on both the growth of firms and on the process of economic development (see figure 4).

- Figure 4 about here -

III. FIRM GROWTH

Why do firms grow? What makes them expand their existing operations or develop activities into new fields? The argument put forward in this section is an attempt to answer

these questions by looking at the way processes and procedures within the firm are organised, and not just how, but especially how well. In other words, we shall argue that management competence is a significant factor for the growth process of firms, determining not just the speed at which firms expand their activities, but also the success with which this growth can be achieved. Our analysis of firm growth consists of two parts. First, we look at the conditions under which entrepreneurial judgement produces incentives for firms to expand into similar or dissimilar activities and how organisational capability determines the locus of this growth (i.e., in new or existing firms). Second, we integrate the two processes into a conceptualisation of firm growth as an iterative process of expansion into related and different areas driven by the ongoing interaction of entrepreneurial judgement and organisational capability.

Penrosean Growth

In her revolutionary “Theory of the Growth of the Firm”, Penrose (1959) opens the black box of the firm and takes a look at the internal processes that determine a firm's rate of growth. Arguably the most significant breakthrough in her work concerns the nature of the firm per se: The firm is viewed as a coherent administrative organisation which is characterised by resources that are in some way specific to it - even if only by their internal coherency (i.e., relative to all other things inside and outside the organisation). These resources “provide both an inducement to expand and a limit to the rate of expansion” (1995: p. xii). Because the value of any firm's productive opportunities depends on the resources available to that firm, these opportunities (even though they are external to the

firm) are also necessarily firm-specific. Consequently, the value (to the firm) of the firm's internal resources, such as its managers, increases with the level of experience in their deployment with other resources inside the firm. Since, this learning process takes time, it effectively limits the rate at which a firm can internalise resources into its organisational structure - the rate of the firm's growth. Yet, even though management as a factor poses a dynamic limitation to the speed at which a firm can expand, it simultaneously creates new incentives to apply this firm-specific management knowledge to new profitable opportunities, partly because of temporary under-utilisation of existing management. Thus, firms expand so they can utilise idiosyncratic organisational resources that come in indivisible "bundles". Note, however, that while a firm's rate of growth is limited by the current stock of resources that are within its reach, its size, per se, has no practical limit. What, if anything can limit a firm's current size over the long term? Penrose suggested the answer but did not develop it.

Responding to the ever widening inducement to expand - brought about by a growing firm's ever increasing (albeit, not continuous) availability of slack resources and its ever expanding opportunities to productively deploy these resources (particularly in a growing economy) - is, in itself, not enough to ensure the continued growth of a particular firm. Each successive wave of growth must be accommodated by a process that successfully assimilates the old with the new. That is, firms must "undergo an administrative reorganisation to enable them to deal with the increasing growth" (Penrose, 1995: xvii). Such reorganisation, however, is neither automatic nor assured. Indeed, as Penrose took care to emphasise, her theory explains the growth of successful firms (see Penrose, 1959:

32-33). Later, she noted that, although she did not develop the supporting evidence, all the firms whose growth her theory was developed to explain "seemed to undergo" such reorganisation in both their "managerial function" and their "basic administrative structure" (1995: xvii). We submit that this accommodation process is the same change process that is commonly referred to in the literature as "Schumpeterian integration" (e.g., see Langlois, 1995) and is used to describe the entrepreneurial process of "carrying out new combinations" within new firms. As we argue below, Schumpeterian integration is necessary not only to enable an individual firm to grow over time but also for it to retain its size in any dynamic environment in which the forces of Schumpeterian integration also exist outside the firm.

Schumpeterian Integration

The carrying out of new combinations requires an institutional context that motivates both the perception and execution of those combinations and any other resource deployments that are needed to support these combinations (Moran & Ghoshal, 1996). The context provided by existing markets and firms is unavoidably inappropriate for many such deployments. Schumpeter explained why: "when confronted with innovations . . . [an individual] . . . needs guidance . . . While he swims with the stream in the circular flow which is familiar to him, he swims against the stream if he wishes to change its channel. What was formerly a help becomes a hindrance. What was a familiar datum becomes an unknown" (1934: 79 - 80). In noting also that "new combinations are, as a rule, embodied, as it were, in new firms which generally do not arise out of the old ones but start producing

beside them," Schumpeter (1934: 66) also drives home the point that development is, in general, no easier nor any more likely to occur within existing firms than it is in existing markets.

No single institution, whether that institution is a state, a firm, a market or a system of markets can provide an institutional context that sufficiently enables the successful exploitation of more than a tiny fraction of the opportunities a society has for productively deploying its resources (Ghoshal, Moran & Almeida Costa, 1995). One reason, emphasised by Schumpeter (1934) is that the new combinations that must precede subsequent leaps in economic progress are never as productive as alternative deployments of the same resources that are also available at the time. Indeed, even though it may be shown retrospectively that a particular "new combination," which subsequently triggered such progress may have been "the "best" of the methods "possible" at the time, as Schumpeter put it, this same combination, at the time it was carried out, was not likely to be 'the "best method" of producing in the theoretical sense,' if "best method" is defined as "the most advantageous among the methods which [had] been empirically tested and [had] become familiar" at that time. (Schumpeter, 1934: 83).

For a variety of reasons, individuals in alternative institutions lack the ability to evaluate the ability of the entrepreneur, or the profit opportunity itself. First, by definition, the entrepreneur is someone who can see things others cannot see. This has nothing to do with perfect foresight, and little to do with even a relative difference in overall capability or imagination. Rather, it stems from the coincidence of a unique resource set, which makes

possible specific opportunities for deployment, and the necessary capability and imagination to see these particular opportunities when others with similar opportunities cannot. Second, in the absence of a consistent track record of discovering new projects, there is no way of estimating whether the entrepreneur is correct in his/her judgement. Third, and perhaps most importantly, the entrepreneur cannot trade his/her services through the market, because there are considerable costs involved in persuading and communicating with those who have complementary abilities or resources (Silver, 1984; Sah, 1991). Due to the idiosyncratic nature of the entrepreneur's knowledge, there exists a lack of "receiver competence" (Eliasson, 1990) on the part of those who could gain from deploying their resources, but don't because they do not realise it or because they believe they might not be able to appropriate enough of the gain. By internalising these resource (and their associated opportunities for deployment) within the context of a new institution (i.e., as part of a new firm or newly organised old firm) the entrepreneur makes such deployments more salient (i.e., by enhancing their motivation and perception) and, therefore, more likely to occur.

It follows then that some change in organisational capability is generally required to accommodate the entrepreneur's vision and ability. This change can come in the form of a new firm, as Schumpeter emphasised, or as an "administrative reorganisation" of an existing one, as is implicit in Penrose's theory. In either case, "Schumpeterian integration," takes place as a substitution of the market by a firm. This internalization arises not from the fact that it is better than alternative institutions (i.e., as may exist in the market or in other firms), but simply because no supporting (i.e., motivating) context is available (i.e.,

within reach either through the market or in another firm) that would divert resources away from theoretically "best methods" towards the new combinations that may be more promising, but only appear so as perceived by the entrepreneur. This general unfamiliarity with means and the relative unavailability of supporting context implies that there exists an inherent "non-contractible" nature to the coordination that is needed to carry out new combinations. It is this "non-contractibility" that gives rise to the need for a non market form of organisation and leads to the integration of at least some activities within a firm.

As a consequence, activities that need to be and can be complementary to the entrepreneur's competence are integrated inside the boundaries of a firm. The firm provides a coherent context for coordinating these activities in ways that ensure they become and remain complementary (and do not become substitutes). It does this, largely by influencing the perceptions and behaviour of its members in ways that are very different from that provided by any other context that may be "within reach." Note that this view drastically differs from the "Comparative Institutional Analysis" of Williamson (1975, 1985) which largely focuses on the role of asset specificity and its implications for opportunistic human behaviour. Instead, it is the idiosyncratic nature of knowledge and competence, i.e. the "suitability to the innovation of the particular market institutions in place at the time in question" (Langlois, 1995: 86), that makes an entrepreneurial breakthrough very much context-dependent. It is also a manifestation of the differences in perceptive and cognitive capability that is at the centre of the first view of the firm presented in the last section of this paper. Consequently, it is the combination of differences in perceptive capabilities, on the one hand, and transaction- and information

costs of informing and persuading those with complementary abilities, on the other hand, that creates the forces which lead to the creation of firms and their expansion into previously non-complementary activities. In many cases, this will involve vertical integration by internalising the activities of a supplier (upstream) or buyer (downstream) to enable the firm to pursue a certain kind of activity.

We are now ready to address the questions we began this section with. While Penrose's theory explains why firms grow and the mechanisms through which growth is accomplished, continued growth over time requires Schumpeterian integration. Schumpeterian integration is needed to provide a context that is hospitable for carrying out new combinations. Without Schumpeterian integration firms will not be able to continue to grow indefinitely, particularly in prosperous economies where the opportunity cost of carrying large stocks of resources is likely to be greater for any one institution. But if firms are generally no more likely than markets to provide the necessary context for new combinations, then what can account for the continuing growth of larger firms? Indeed, what enables these firms to forestall the migration of their resources to more productive uses by others? In other words, is there any reason why we should not expect to observe a long term trend toward more and more Schumpeterian integration accommodated in new and relatively smaller (not larger) firms? We suggest that "management competence" contributes to a symbiotic process of persistent firm growth that counteracts the more natural process of the opportunities contributing to that growth being exploited outside of the firm.

The Symbiotic Process of Growth

Because Penrosean growth and Schumpeterian integration are distinct processes, each driven by different drivers of growth, they tend to affect the direction of an individual firm's growth in different ways. For example, Penrosean growth, which stems from opportunities to enhance the productivity of a given set of resources, seeks, on the one hand, to extend the firm's existing organisational capabilities, often through horizontal expansion into fields that are in some way related to the existing firm-specific stock of knowledge. Schumpeterian integration, on the other hand, which is determined by the entrepreneur's demand for a "redesign of [those] complementary activities" (Langlois, 1995: 90) that constitute the firm's organisational capability tends to induce growth by means of vertical integration. While Penrosean growth is driven by what the firm can do, Schumpeterian integration is driven more by what could be possible with a different organisational capability. The interaction of these two forces can, perhaps, best be seen by tracing the emergence and growth of a hypothetical firm.

In the first instance, the inherent non-contractibility of the entrepreneurial judgement needed for "carrying out new combinations" that generally cannot be accommodated by current organisational capacity leads to the creation or expansion of a firm via Schumpeterian integration. This creation or expansion implies immediate demand for improved organisational capability to encompass the newly integrated activities with the old. For example, by integrating vertically-related activities, firms provide the context for knowledge sharing and collective learning among previously competing entities. This

process, therefore, contributes as much to an expansion into non-complementary activities (by redefining what is complementary) as it simultaneously sets the stage for improved internal coordination and adaptation, i.e. for the enhancement of organisational capability. As a result, firms will be able to (indeed, must to some extent) take on new related resources or tasks in order to utilise this enhanced organisational capability efficiently (i.e. Penrosean firm growth). Because each integration of activities leads in a similar fashion to more resources under the control of the firm and, consequently, an expanded set of productive opportunities within its reach, the firm faces a continuing cycle of inducements to initiate one form of growth or the other: first, to find more productive uses for its current resources (i.e., Penrosean growth), then to restructure its administrative organisation in order to coordinate these uses more efficiently (Schumpeterian integration) and finally, to bring in new resources to exploit these new coordinative capabilities, only to start the cycle once again.

As Cohen and Levinthal (1990) have documented, the ability of a firm to assimilate and use new knowledge is largely determined by its prior related knowledge. To the degree that the ability to perceive potential resource combinations is largely a function of knowledge (in addition to personality-related factors such as patience, and other virtues such as imagination, which may or may not be related to prior knowledge), the absorptive capacity of an organisation and that of its members arguably affects their entrepreneurial judgement. As Cohen and Levinthal argue, absorptive capacity is most likely the by-product of routine activities when "... the knowledge domain that the firm wishes to exploit is closely related to its current knowledge base" (p. 150). In other words, Penrosean firm growth promotes

the development of cognitive capabilities, such as those that are involved in the development of entrepreneurial judgement. At the same time, it is necessary to recognise that these consequences are not automatic and their actual realisation depends largely on the transfer of knowledge within the (grown) organisation. Thus, the limitations to the rate of growth as put forward by Edith Penrose apply equally to Schumpeterian integration, and thus to firm growth in the combined form that we have suggested: The ability of management to assimilate firm-specific knowledge is a crucial factor for the iterative and symbiotic cycle of Schumpeterian integration and Penrosean growth to be initiated and maintained.

Further, as with management competence in general, this assimilative ability can reside in any organisational member and not just in the firm's managers. Cohen and Levinthal argued that the difference in the direction of the firm's expansion (i.e., into related vs. unrelated activities), correlates with a difference in the ability to absorb new knowledge (i.e. firms find it harder to accumulate new knowledge when expanding into unrelated fields). We suggest that by redefining the basis for relatedness, Schumpeterian integration facilitates the absorption of new knowledge in new areas and, thereby, stimulates more unrelated expansion, as well. In other words, Schumpeterian integration can create the conditions for organisational learning and adaptation which in turn improves organisational capability and thus facilitates further lateral growth of the organisation to utilise existing, though diverse, capabilities of the organisation's members (for example into other geographical areas or through increased scale). This means, firm growth is very much path-dependent on the ability of the organisation to cope with successive stages of its growth

process. It should be noted that, whereas Cohen and Levinthal focus on R&D activities, our discussion extends to all parts of the organisation.

There are various pieces of historical evidence to support this symbiotic characterisation of firm growth. For instance, consistent with Langlois and Robertson's account of the acquisition of Fisher Body by General Motors in 1926 (Langlois and Robertson, 1989), had both Fisher and GM remained separate entities with divergent visions, the necessary acquisition of new related (but still non-complementary) knowledge that was needed to exploit GM's vision of the potential for closed-body vehicles, would not likely have occurred. Integration is what made the activities associated with acquiring this knowledge complementary. Moreover, the integration of Fisher Body also improved GM's internal production flow and thereby enabled workers to acquire skills about processes related to chassis assembly which were applicable in neighbouring activities. These skills, and the associated learning and adaptation of GM's production line workers, increased GM's overall productivity, which in turn created incentives to increase scale to accommodate these newly acquired skills. Thus, the ability to envisage a commercial solution (the closed-body vehicle), which made necessary the integration of vertically-related activities, subsequently increased the organisational capability to deal with this activity, and eventually created incentives to broaden the scale (and scope) of this activity.

Similarly, Ford's acquisition of the Keim Mills initially sought to reduce uncertainty about product flows from its supplier. However, "once the equipment was in the Ford plant, Ford engineers noticed ways to improve the technology and integrate it better into the rest of

Ford's internal production system. This had the effect on the margin of biasing technological change in a systematic direction and further reinforcing Ford's trend towards vertical integration." (Langlois, 1995: 93). Initially, at least, this technological trajectory (Dosi, 1988) contributed to a coherent context for motivating and enhancing the salience of many resource deployment opportunities that were then within Ford's reach. This, in turn, exposed a need for and stimulated improvements in Ford's organisational capability, leading to a further raising of its production-cost advantage over its competitors. Thus, the firms' ability to acquire specific knowledge enabled it on the one hand to exploit economies of scope by moving into related markets, and on the other hand to expand geographically to exploit economies of scale (Chandler, 1990).

IV. FIRMS AND ECONOMIC PROGRESS

There can be little doubt that the sources of economic progress for a society are rooted in the productive processes of its institutions - foremost firms and their competitive interplay through markets. Given the self-evident importance of wealth creation to social and economic progress and its obvious dependence on the conduct of organisations in general, and business firms in particular, there is clearly a need for theory that relates the roles of firms to the creation of wealth. Building on the work of Schumpeter (1934) and its subsequent development within the literature on the evolutionary theory of the firm (Nelson and Winter, 1982) and the resource based view of strategy (Dierickx and Cool, 1989; Teece, Pisano and Shuen, forthcoming; Conner, 1991; Barney, 1991) Moran and Ghoshal (1996) have recently presented a theoretical justification for how firms may create

economic value beyond the extent that can be achieved by markets alone and why many firms are needed to ensure the effective exploitation of the multitude of alternative productive opportunities inherent in any prosperous economy. In this section, we will recapitulate and build on their arguments, relating the process of value creation by firms and the economic progress it implies with the characteristic features of such progress with which all successful firms must cope.

The Conditions for Resource Combination and Exchange

In the second section of this paper we reiterated Schumpeter's argument that new resource combinations are the source of wealth and that their deployment determines whether and the extent to which additional value is added to the economic system. Here, we focus on two types of resource deployments, which account for the bulk of all wealth creation: (i) new resource combinations, as the source of new potential value; and (ii) exchange, which is necessary for the actual realisation of this potential value.

One can identify three conditions which must exist for any particular deployment of resources to occur intentionally and voluntarily. First, the opportunity to deploy the resources in question must obviously exist. Second, the parties with the opportunity to execute the particular deployment must be motivated to do so. That is, they must expect to appropriate some value from the deployment. Finally, the resource deployment opportunity must also be perceived to exist by the relevant parties. Obviously, the satisfaction of these three conditions is interdependent. All purposive resource deployments imply the

satisfaction of the last condition, which itself is greatly influenced by the existence of the other two.

Since resource combination and exchange are both means of deploying resources, the execution of either requires that all three necessary conditions for intentional and purposeful deployment be satisfied. That is, some potential opportunity for either must exist, and that opportunity must also be perceived and be motivated. In addition, since exchange, by definition, requires more than one party, an additional and potentially demanding condition is added, viz., that the three conditions must be satisfied by all parties whose resources are to be exchanged. This additional condition is commonly referred to as “double coincidence”.

The alignment of these three conditions (i.e., the deployment opportunity and its motivation and perception) among actors capable of executing the resource deployment opportunities poses significant challenge for theory and practice. While exchange goes a long way toward overcoming the first constraint, exchange itself is largely inhibited by a failure to satisfy the second and third conditions. In a hypothetical world of no transaction costs, each opportunity or need for exchange would independently provide all the motivation that is necessary for any exchange to take place. However, in the real world, transaction costs are likely to manifest themselves by distorting an exchange opportunity’s appropriability and/or one’s perception of its appropriability or perception of the opportunity itself. Thus, the added constraint imposed by the “double coincidence” is likely to accrue potentially large additional transaction costs in locating suitable exchange

partners and in assessing the availability and usefulness of the resources in question. Under these circumstances, the institutional logic of markets as arenas of exchange imposes severe limits on the scope of value-adding resource deployments that are supported by exchange. There are two reasons for this.

The Limitations of Markets

First, markets may be “missing” (or more precisely, incomplete) because of their failure to meet the need for “double coincidence”. Even though the opportunity or need for deployment is recognised, the market conditions or conventions necessary for exchange may be incomplete or entirely missing. Such situations can include exchanges for which pricing is difficult, money is inappropriate, rights are unclear, inadequately specified and protected/enforced, etc. The nature of these “market failures” stems in part from the conservative standards that must be applied by most markets in establishing exchange viability and not from the distribution of resources and rights per se. In the markets of the most developed economies, conventions have evolved that support and reinforce an institutional logic which enables actors to enter into and exit from a variety of exchange relations at relatively little cost and, thereby, preserve their independence from all other actors. The very advantage of this independence of individual actors, which makes it easier (and therefore more efficient) for these market participants to adapt autonomously to changing conditions without the need to consult others, necessarily restricts the form of viability which must exist around each exchange transaction. Consequently, market exchanges must satisfy the condition of what Coleman (1990) has described as “reciprocal

viability”, i.e. each exchange must be viable, by itself, for each of the participants to that exchange.

Second, many resource deployments are systematically discouraged by markets to the extent that, in the presence of transaction costs, some potentially value creating resource deployments are always discouraged by any single institution, whether one market or one firm. In the presence of transaction costs, any institution that induces behaviour through a system of incentives (e.g. by allocating resources, assigning rights and restricting access) encourages the pursuit of some opportunities and necessarily discourages the pursuit of others. That is, each institution favours the conduct of a unique set of economic activities over all other activities - and the set of favoured activities comprises those that are more efficient, as defined by that institution. Therefore, some resource deployments critical for future economic development may be unlikely to come about from market exchange, given the current distribution of resources, rights and individual perceptions (North, 1990). In other words, markets (as single institutions) fail to adapt institutional incentives to new opportunities, which results in some degree of lock-in to the current set of opportunities that are motivated.

Value Creation by Firms

Consequently, for economic progress of societies (i.e., to enhance the fraction of potentially value creating resource combinations and exchanges that are actually executed) some other institution besides markets alone is required. It is this role that organisations

generally, and firms in particular, play and it is through playing such a role that these institutions help create value for society beyond what markets alone can create. Firms broaden the scope of exchange in ways that systematically address both of these limitations of markets by creating their own unique institutional logic for overcoming the market's stringent demands for viability and for circumventing (at least for a while) the severely constraining forces of static efficiency that exist in the market. Firms possess the ability to pursue resource deployment strategies that are difficult (i.e. costly) or impossible to pursue in markets. Such strategies include those which require resources that (i) are difficult to acquire or accumulate through market exchange (e.g. because prices or even markets are "missing") or the use of which is difficult to coordinate among independent actors, subject to the stringent demands of "reciprocal viability"; (ii) as well as those that cannot be created, accumulated or deployed in ways that viably satisfy the market's stringent demands for static efficiency yet appear promising to those with requisite local knowledge.

First, the organisation's advantage in overcoming the market's "reciprocal viability" constraint dramatically broadens the scope of resources that are exchanged and considered for deployment within firms relative to markets. It is an organisation's internal institutional context that permits it to ensure the viability of exchange under less restrictive conditions. Two such less restrictive conditions of viability have been referred to by Coleman as "independent viability" and "global viability". Whereas the former requires only that each actor has a positive account balance with the organisation as a whole and not with each of the other exchange parties, "global viability" is even less restrictive, in that individual actors themselves do not all require a positive balance for it to be globally viable. Because

the organisation itself is an “implicit third party” to every exchange relation, members are able to enter into and maintain relations that may be beneficial to the organisation itself even if they are not directly beneficial to them (Coleman, 1990: 428ff). Thus, by permitting individuals and groups to enter into voluntary exchanges that benefit the organisation but benefit themselves only indirectly, organisations open up and make accessible to members a much broader range of resource deployments (including exchanges) than would be possible were exchange required to satisfy the stringent condition of the “double coincidence” and, hence, of “reciprocal viability”.

The second advantage of organisations as additions to the market system lies in their ability to overcome the constraint that is present in any single institution (i.e. institution-specific efficiency). In structuring incentives, all institutions, whether market or organisational, and the conventions and norms that have evolved to support them, largely determine what economic activity is efficient and what is inefficient, given the institutional structure these institutions have helped to put in place. The conventions and norms of markets in most developed societies tend to be biased toward the achievement of what North (1990) has described as “allocative efficiency”: Instrumental in making a set of available options as efficient as possible by directing resources away from the less efficient and toward the more efficient uses, market adaptation tends to be guided by current relative efficiency and is independent of the efficiencies of future states. In other words, a highly efficient future state that must be preceded by the occurrence of relatively inefficient states are unlikely to be reached through market exchange, regardless of how efficient the future state may be (Arthur, 1989).

Firms relax this constraint of market exchange by creating a unique subsidiary context within their boundaries - not an instrumental one that mirrors the market or responds to market failures (though, undeniably, some firms may do this) - but a coherent institutional context consisting of a combination of its own unique mix of incentives and muted market incentives that encourages the assimilation, sharing and combination of local knowledge in ways that are difficult to do under the alternative institutional context of the market. This unique context of each firm enables its members to actually defy (albeit, and importantly, only for a limited time) the relentless gale of market forces and thereby set the countervailing forces in motion necessary for a society to achieve "adaptive efficiency" (North, 1990).

The role of the firm then is to transform the market context, which favours certain activities over others, into an alternative context that implicitly or explicitly favours economic activities that are otherwise unproductive, inefficient or simply infeasible in the market. The unique context of a firm affects, and is in turn affected by both entrepreneurial judgement and organisational capability: Given that each individual in the firm is allowed to disregard the immediate and reciprocal viability requirements present in the market, the firm creates the incentives to share local knowledge of each of its members (a form of resource deployment) - to broaden the scope of their collective perception of opportunities. At the same time, by facilitating such sharing the firm also enhances its stock of knowledge and, thereby, its organisational capability to execute resource deployments and exchanges to pursue new opportunities. Arguably, it is this process, driven by the management competence of firms, that lies behind what several economists have highlighted as the on-

the-job accumulation of human capital through “learning-by-doing” (Arrow, 1961; Schultz, 1962; Minzer, 1962; Stokey, 1988; Young, 1991) and that Lucas (1993) has recently offered as a key explainer of the economic progress of societies.

Because of their greater size and diversity, large firms can do all these things, only with greater staying power. While the piper must ultimately be paid - i.e., the firm’s defiance of the market straightjacket cannot continue indefinitely and must lead sooner or later to efficient (i.e., adaptable) behavior either in the production of goods or services that conform to the market’s evolving rules or that change the rules themselves - large firms can make more, bigger and longer lasting bets. Their advantage lies in their ability to integrate those resource deployment opportunities that are unfavored (e.g., because the benefits are not easily appropriable) in markets. Hence, they can reach much further than smaller firms beyond the “prevailing wisdom” of current best practices while at the same time withstanding the strong selection forces imposed by markets (particularly prosperous ones) to adapt to the routines of current prices. While some, perhaps many, of these bets would undoubtedly go wrong and lead, ex-post, to complaints of waste and inefficiency (Williamson, 1991; Jensen, 1993), it is out of these bets that emerge many of the value creating innovations (essentially new resource deployments) that enhance the wealth of societies.

DISCUSSION

In the last two sections we have made an attempt to explain the relationship between management competence and the emergence of large firms on the one hand, and economic progress of societies, on the other. So far, however, each half of our twin-hypothesis is largely independent of the other. In this section, we shall focus on the relationships between the two sides of the argument and their theoretical and practical implications.

In order to understand the possible linkages between firm growth and economic progress, we shall first examine the interrelationship between organisational capability and entrepreneurial judgement. As we have set out in the beginning, both are different (though related) aspects of the same concept. Both kinds of competence are non-contestable, path- and context-dependent, largely tacit, and difficult to imitate. Moreover, as we have seen in the discussions above, they are closely interlinked: As for the growth of firms, the non-contractability of entrepreneurial judgement in the presence of uncertainty and costs related to informing and persuading individuals with complementary capabilities/resources leads to the emergence and subsequent expansion of the firm through Schumpeterian integration. Yet, once the firm is established, the shared knowledge out of collective learning enables the firm to take on new tasks in order to utilise this organisational capability (Penrosean firm growth). Similarly, the institutional context of the firm creates incentives to share local knowledge among its members which enhances its organisational capabilities, and simultaneously provides the context for collective "learning-by-doing" which leads to improved entrepreneurial judgement. Together, the ability to perceive new resource

combinations, carry them out, and subsequently realise their economic value through the means of exchange enhances the effectiveness with which the resources of a society are used, thus leading to its economic progress.

We should, however, be cautious as to the limits of these effects. Clearly, there are limitations to both firm growth and -size. Moreover, there can be no doubt that these limitations also apply to economic progress. In other words, one giant firm that employs the whole population of a country (whether it makes profits or not) will almost certainly fail to continuously enhance the value that can be obtained from that country's endowment of resources. As we have seen, in the presence of transaction costs the advantage of institutions such as firms is the ability to relax the viability constraints of markets. Yet, this is achieved only at a cost. This cost manifests itself in the very nature of institutions as systems of conventions and norms.

Institutional Pluralism

Over centuries, institutions like markets and organisations have evolved to help us cope with the ubiquity of transaction costs. By collectively establishing (largely through our institutions) routine ways of dealing with common activities, we have enabled ourselves to engage in large numbers and variety of exchanges without the need to focus on every aspect of every single exchange. While the benefits of our habits and routines are many, they are accompanied by a significant cost associated with changing those routines.

The advantage of any single institution, whether a decentralised system of prices, a centralised authority system or some other set of complementary conventions and norms, is its ability to focus on certain activities while ignoring others. The disadvantage is the cost in overcoming that focus to do other things. Thus, in what may sound paradoxical, firms, while reducing some of the constraints that markets place on individual transactions, actually increase constraints on individual perceptions. In other words, the disadvantage of institutions is the cost in overcoming those constraints in the presence of changing external conditions that challenge the very foundation of those institutions. In terms of our framework this means that the ability to support the scope of exchange that is necessary to promote all value-adding resource deployment opportunities in a systematic way gets lost in any single institution - whether a market or a firm. In the presence of transaction costs, no single institution by itself is capable of bringing about adaptive efficiency, because it seeks to adapt its constitution of resource rights to make them as efficient as possible, given the constitution of rights it must operate in (North, 1990).

Consequently, a variety of firms, by creating an institutional context that specifies different sets of opportunities that are motivated and perceived and which are unique to each, provide an institutional alternative that substantially broadens the scope for exchange relative to markets alone. Because the set of motivated and perceived opportunities differs from institution to institution, many more deployments than are likely to occur in a single institution can be expected in the presence of many institutions. In the process, the set of deployment opportunities motivated in the system as a whole continually adapt, in a relatively efficient manner, to opportunities as they are perceived.

In the face of these limitations of single institutions, that is, single firms or single markets, institutional pluralism remains the viable solution to either problem. Institutional pluralism constitutes itself in the multitude of firms, each representing a different context - i.e., a different set of convictions and bets - competing with one another with differing intensity. Institutional pluralism contributes to the process of achieving adaptive efficiency in several ways. First, the scope of exchange is broadened to include more opportunities that are not exploited elsewhere. Second, some resources that are currently deployed elsewhere are made available for deployment within the firm under a different set of motivating conditions. By replacing those motivating forces that encourage certain deployments with forces that motivate alternative patterns of deployment, firms make it easier for value creating new combinations to be discovered. Thus, in the absence of institutional diversity, increasing firm size will create problems: First, larger size ultimately slows down the process of organisational learning (the basis for both aspects of management competence), because the ability to share a common stock of knowledge and capabilities is limited by the ability to hold it. Second, lacking institutional diversity reduces the diversity in entrepreneurial judgement, which reduces the scope of potential resources to be deployed in new ways and retards progress by "...restricting the number of independent sources of initiative" (Scherer & Ross, 1990: 660). This reduced scope, in turn, limits the quantity of resources actually exchanged, and thus the amount of value realised. The moral of the story is: Individual rent-seeking firms must have the ability to create an internal context that relaxes certain market constraints and temporarily widens the scope of possible and actual exchanges, while at the same time there must exist sufficient competitive pressure by other

firms which seek to appropriate some of that value created and thereby force the innovator to re-focus on ever-changing resource combinations.

While the firm thus benefits from innovative new resource combinations which result either directly in better final products or in enhanced intermediate products, which translates into improved factor productivity (Grossman and Helpman, 1991b) and, thus, into economic progress of the society, the inherent characteristics of innovation as information capital creates forces that will eventually lead outside firms to benefit from the innovation. Information capital, i.e. productive knowledge with value that derives from its utilisation in a given context, is very different from physical capital in that it is ultimately subject to imitation by competitors (e.g. Dosi, 1984). Thus, the process of internal resource combination and exchange inevitably leads to some of the newly-created value to spill over to other firms in a process that Schumpeter described as “handing on”. However, this usually happens with a lag, so that, even if eventually all of the value is captured by imitators in the market, until that time, the innovating firm will have benefited from the rent stream that it had generated. Therefore, the more value a firm creates, the more likely it is to benefit from some of that value in the form of appropriable, if transient, rents. This competition can never reach a final outcome, as it is impossible to appropriate the full benefits of the innovation. As time passes, the information content of the innovation will be revealed and diffused to competitors. Moreover, new innovations will undermine the value of the first in a never-ending process of “creative destruction” (Schumpeter, 1934, 1950). In fact, this process constitutes the interaction between firm growth and economic progress in a dynamic framework. The rents that the firm keeps help it acquire new

resources and to grow - the part that is handed on contributes to societal growth. Thus, firms create new value and as markets force it to be handed on to society, both grow, in creative and constant tension, driving economic progress.

In summary, the argument we have put forth in this paper is that the notion of “management competence” provides a plausible explanation for the apparent disproportionate distribution of large firms in the most productive economies. We have suggested that “management competence” is the factor that leads to the evolution of institutional innovations that promote and sustain the continued growth of both prosperous nations and large firms in these nations. Institutional innovations are responsible, on the one hand, for the realisation of more economic value from a given society's endowment of resources and, thereby, its growth and prosperity. The emergence and growth of firms, where arguably the bulk of a society's management competence resides, are largely a manifestation of these institutional innovations and the prosperity they enable. The proliferation of institutional innovations and their accompanying prosperity, on the other hand, make it difficult for any individual firm, and more difficult for larger firms, to retain the level of management competence needed to continue their growth or even to sustain their size. To achieve continuing growth over time in such a challenging (i.e., high management competence) environment, firms must be able to attract, develop and retain high levels of management competence within their own institutional boundaries. Large firms in prosperous societies that are rich in management competence, are more likely than less richly endowed firms to discover and to implement institutional innovations that will enable them and their societies to better explore and to exploit the wealth creating potential of their societies' resource base. In short, with management competence, a country

simultaneously expands its income and the proportion of large firms operating in its economy, thereby establishing the correlation we have observed.

Implications for Economic Theory

The issue of whether, and if so, how, the size of firms is related to the welfare of a country has been dealt with extensively by economists, particularly by those working in the fields of industrial organisation and institutional economics. The great majority of their arguments have tended to focus on factors such as market power and the link between innovative activity and firm size measured by profits or market share. It is only recently that studies have concentrated on the issue of “creative destruction” as the source of economic development, and the findings seem to support the Schumpeterian hypothesis about the link between market structure and innovative activity (Caballero and Jaffe, 1993; Bughin and Jacques, 1994; Smulders and van de Klundert, 1995; Archibugi, Evangelista and Simonetti, 1995). Our arguments here are aligned to this line of inquiry and, taken together with Schumpeter’s (1934, 1950) premise that “perfect competition is incompatible with innovation”, they suggest some potentially rewarding extensions in the areas of both industrial organisation economics and growth theory.

For industrial organisation, one implication is the need of, and potential benefit from, looking more closely at the concept of management competence. Although the concept of management competence as a determinant of firm size has been formally introduced in the past (Lucas, 1978), main-stream economics has hardly been affected by it. Second, our

arguments support the growing challenge to the perfect-competition formulations that have influenced past efforts at restructuring transitional economies. In the "real world" of developing countries, there is now sufficient ground to argue that recent efforts of structural adjustment such as IMF/World Bank initiatives in the former Soviet Union, India, and other developing countries, have produced more damage than help (Bock, 1994). In particular, one can now see that shock therapy attempts to create a tabula rasa of "free" markets have in fact damaged the inherent management competence embedded in existing enterprises. The framework we have presented shows why, in the process of helping transitional economies, it may be necessary to focus on improving management competence within existing organisations while, at the same time, creating the markets that are necessary to enhance their innovative abilities. A further implication for industrial organisation, and in particular for transaction cost economics, is the recognition that the existence of firms is not purely a manifestation of "market failure" based on restricted assumptions about human behaviour (i.e. opportunism) and asset specificity as the determinants of the "most appropriate" governance structure. Instead, as we have suggested here, it may be useful to develop a more "positive" theory of the firm based on the recognition that organisations, such as firms, represent institutional contexts that have distinct advantages over markets in the process of identifying and exploiting new resource combinations.

For economic growth theory, a similar (and based on advances in industrial organisation) departure from perfect competition assumption has allowed the endogenisation of the process of innovation itself, which had so far been neglected. Some of the more recent

contributions in the so-called Neo-Schumpeterian growth models (Aghion and Howitt, 1992, 1994; Grossman and Helpman, 1991, 1994; Romer, 1990, 1994) have begun to focus on intentional and purposeful innovation. Most technological progress, which is undoubtedly the engine of growth (as first suggested by Schumpeter, 1934, and first empirically shown by Solow, 1970), requires an intentional investment by profit-seeking firms. This profit is initially earned by the innovator, but, at some stage, will be appropriated by another firm which discovers a better way of combining existing resources. There is empirical evidence that this resource-combining capability of firms has significant aggregate effects on macroeconomic growth. Carlsson (1991) and Eliasson (1991) have shown that the reallocation of resources within and between existing plants is a major contributor to total factor productivity growth. Our arguments also suggest that the concept of management competence has some important implications for the issue surrounding the measurement and comparison of productivity, in particular capital productivity. As has been found in a study by the McKinsey Global Institute (1996), the ability of American managers to allocate resources to their most efficient use has more than offset the considerably lower aggregate savings rate of the US economy compared to those of Germany and Japan.

Yet, despite recent advances in the adoption of more heterodox assumptions by economic theorists (such as imperfect competition, incomplete appropriability, and increasing returns to scale), there are still unexplored sides of the issue, some of which we have tried to identify. Most notably, theories of economic growth ought to incorporate the role of institutions and of transaction costs in the process of economic development (North, 1989;

Aghion and Howitt, 1994). As we have argued, by looking at the institutional dimension of resource combination and exchange, economic development as the process of expanding the fraction of potential transactions that are realised, must necessarily rely on the institutional context provided by firms and markets. Moreover, by replacing physical capital with knowledge as the input for transaction creation, one will be able to address the importance of specific idiosyncratic capability and competence - including management competence - embedded in those institutions as an essential factor in the growth of firms and the prosperity of nations.

Implications for Strategy Theory

Two theoretical perspectives dominate the strategy literature and both focus on the appropriation of value by firms rather than the creation of value by them as the basis for explaining and predicting firm performance. In contrast, our arguments here will suggest that value creation rather than value appropriation must lie at the heart of strategy theory and, therefore, at the centre of how we conceptualize the role of management as the shapers of strategy in their firms.

Consider first those theories that are based on the perspective of traditional industrial organisation (IO) economics, which arguably represents the earliest and most rigorous efforts to-date in formalising strategic concepts in theoretical terms. Standard economic theory holds that unless otherwise obstructed, the competitive forces that drive rivalry among firms in any given industry will also tend to force performance across industries and among firms within industries toward convergence at equilibrium. Firm differences, i.e., heterogeneities in their

performance, that persist at equilibrium are attributed to the barriers to entry that characterise different industries (Bain, 1956) and mobility barriers that restrict rivalrous behaviour and promote strategic interaction among groups of firms within the same industry (Caves & Porter, 1977). The objective of strategic management, both as positive and as normative theory, according to this IO perspective, is one of gaining and maintaining market power to appropriate as much of the value that accrues from these economic rent sustaining barriers as possible. Indeed, the prescriptions that flow from Michael Porter's (1980; 1985) five forces model of competitive strategy and value chain analysis are all centred around steps to gain competitive advantage by positioning a firm in its industry in ways that facilitate the appropriation of as much value as possible from the firm's suppliers, buyers, competitors, potential entrants (to its industry or strategic group) and producers and potential producers of substitute products and/or services.

The more recent emergence of the "resource-based view" (RBV) of the firm has extended this IO perspective to explain behaviour at the level of the individual firm, particularly in the markets for a firm's factor inputs or resources (Rumelt, 1984; Wernerfelt, 1984). According to the general consensus of the resource-based view, isolating mechanisms (Rumelt, 1984; 1987) act as mobility barriers which restrict the extent to which essentially all firms are able to mimic any particular firm's behaviour and, thereby, replicate its performance and ultimately appropriate some or all of its rent streams. Note, that the strategic behaviour that is implied by this perspective (both prescriptive and normative) is very similar to the one that is implied by the IO perspective: the strategy of a firm focuses on appropriating the rents of other firms and preventing other firms from appropriating its rents and is not concerned with the sources of these rents.

The reason for this bias in favour of rent appropriation over rent creation stems not from any notion that appropriation is or should be preferred but reflects the prevailing view that purposive action is more usefully applied in the protection of rents than in their creation. Indeed, the RBV explicitly recognises heterogeneity among firms as the source of all rents but this view remains atheoretical in regard to explaining the value creation process because it attributes the source of rents and, by association, the source of value to unexpected changes (Rumelt, 1984) or luck and foresight (Barney, 1986). The general consensus is that firms could not benefit from any recipe-like strategy for creating rents, even if one did exist, because once such a strategy is identified and implemented, its value would soon be eroded by its imitation by others. Therefore, no systematic theory of rent creation exists or can exist (see, for example, Barney, 1986; Schoemaker, 1990). It is not surprising, then, that the centre stage of strategy theorizing has focused (indeed, is left with no alternative but to focus, if for no other reason but by default) on rent appropriation as the means of securing a position of sustained competitive advantage.

In the recent past, a number of scholars have begun to challenge this focus on value appropriation as the essence of strategy and, indeed, to contest the underlying theoretical framework that has been the source of this bias. Dierickx and Cool (1989), for example, have argued that to create sustainable competitive advantage, firms need to develop and accumulate strategic resources and capabilities; an argument that has been echoed and extended by Teece, Pisano and Shuen (forthcoming) in their conceptualisation of “dynamic capabilities” of firms. In a related but different stream of work, Conner and Prahalad (forthcoming), Kogut and Zander (1992), Nonaka and Takeuchi (1995) and others

have also begun to sketch out an argument on how firms can create value, with a particular emphasis on their ability to integrate, expand and exploit knowledge in ways that markets cannot.

While still incomplete in many ways, the theory we have put forward in this paper resonates with this relatively more positive view of firms as value creating institutions. Such a view, opens up the opportunities for developing some very different theories of strategy, based not on the task of locking in the appropriability of existing rent streams but on the continuous creation of new, if transient, rents through innovative new combinations of resources (Winter, 1995). Such a theory of strategy would also imply a very different and much more satisfying role of management: instead of being the agents that impede social welfare by preventing the Schumpeterian process of handing on, they would have to see themselves as the agents of social progress who drive the process of wealth creation.

REFERENCES

- Aghion, P. and Howitt, P. (1992), 'A model of growth through creative destruction' *Econometrica* 60: 323-352.
- Aghion, P. and Howitt, P. (1994), 'Endogenous technical change: the Schumpeterian perspective' In: Pasinetti, L.L. and Solow, R.M. (eds.), *Economic growth and the structure of long-term development*, Macmillan, London.
- Archibugi, D., Evangelista, R. and Simonetti, R. (1995), 'Concentration, firm size and innovation: Evidence from innovation costs' *Technovation* 15(3): 153-163.
- Arrow, K. (1961), 'The Economic Implications of Learning by Doing' *Review of Economic Studies* 29: 155-173.
- Arthur, W.B. (1989), 'Competing Technologies, Increasing Returns, and Lock-in by Historical Events' *Economic Journal* 99: 116-131.
- Bain, J.S. 1956, *Barriers to new competition*. Cambridge: Harvard University Press.
- Barnard, C.I. (1938), *The Functions of the Executive*. Harvard University Press, Cambridge, MA.
- Barney, J.B. 1986, *Strategic Factor Markets: Expectations, luck and business strategy*. *Management Science*, 32 (10 October): 1231-1241.
- Barney, J.B. 1991, *Firm Resources and sustained competitive advantage*. *Journal of Management* 17: 99-120.
- Bock, J. (1994), 'Innovation as creative destruction: The role of small businesses in the Commonwealth of Independent States (CIS)' *International Journal of Technology Management* 9(8): 856-863.
- Bower, J.L. (1970), *Managing the Resource Allocation Process: A study of Corporate Planning and Investment*, Division of Research, Graduate School of Business Administration, Harvard University, Boston.
- Bughin, J. and Jacques, J.M. (1994), 'Managerial efficiency and the Schumpeterian link between size, market structure and innovation revisited' *Research Policy* 23(6): 653-659.
- Burgelman, R.A. (1983), "A Model of the Interaction of Strategic Behaviour, Corporate Context, and the Concept of Strategy", *Academy of Management Review*, 8: 61-70.

- Caballero, R. and Jaffe, A. (1993), 'How High are the Giant's Shoulders: An Empirical Assessment of Knowledge Spillovers and Creative Destruction in a Model of Economic Growth' *NBER Macroeconomics Annual*, MIT Press, Cambridge and London, pp. 15-74.
- Carlsson, B. (1991), 'Productivity Analysis: A Micro-to-Macro Perspective' In: Deiacco, E., Hornell, E. and Vickery, G. (eds.), *Technology and Investment - Crucial Issues for the 1990s*, Pinter, London.
- Caves, R.E., & Porter, M.E. 1997, *From entry barriers to mobility barriersL Conjectural decisions and contrived deterrence to new competition*. *Quarterly Journal of Economics*, 91 (May)L 241-261.
- Coase, R. H. (1988). *The firm, the market, and the law*. Chicago: University of Chicago Press.
- Chandler, A.D. Jr. (1990), *Scale and Scope: The Dynamics of Industrial Capitalism*, Belknap/Harvard University Press, Cambridge.
- Cohen, W. and Levinthal, D. (1990), 'Absorptive Capacity: A New Perspective on Learning and Innovation" *Administrative Science Quarterly* 35: 128-152.
- Coleman, J.S. (1990), *Foundations of social theory*, Harvard University Press, Cambridge, MA.
- Conner, K.R., & Prahalad, C.K. Forthcoming. *A resource-based theory of the firm: knowledge versus opportunism*. *Organisation Science*.
- Dierickx, I., & Cool, K. 1989. *Asset stock accumulation and sustainability of competitive advantage*. *Management Science*, 35 (12): 1504-1514.
- Dosi, G. (1984), *Technical Change and Industrial Transformation*, Macmillan, London.
- Dosi, G. 1988. *Sources, procedures and microeconomic effects of innovation*. *Journal of Economic Literature*, 26(September): 1120-1171.
- Eliasson, G. (1990) 'The Knowledge Based Information Economy' In: Eliasson, G. et al., *The Knowledge Based Information Economy*, IUI, Stockholm.
- Eliasson, G. (1991), 'Deregulation, Innovative Entry and Structural Diversity as a Source of Stable and Rapid Economic Growth' *Journal of Evolutionary Economics* (1): 49-63.

- Ghoshal, S. & Moran, P. 1996. Bad for practice: A critique of the transaction cost theory. *Academy of Management Review*, 21(1): 13 - 47.
- Grossman, G.M. and Helpman, E. (1991), *Innovation and Growth in the World Economy*, MIT Press, Cambridge.
- Grossman, G.M. and Helpman, E. (1994), 'Endogenous innovation in the theory of growth' *Journal of Economic Perspectives* 8(1): 24-44.
- Hamel G. and Prahalad C.K. (1994), *Competing for the Future*, Harvard Business School Press, Boston.
- Hayek, F.A. von (1945), 'The use of knowledge in society' *American Economic Review* 35(4): 519-530.
- Kirzner, I. (1973), *Competition and entrepreneurship*, University of Chicago Press, Chicago.
- Knight, F.H. (1921), *Risk, Uncertainty and Profit*, 1965 edn., Augustus M. Kelley, New York.
- Kogut, B., & Zander, U. (1992). *Knowledge of the firm combinative capabilities and the replication of technology*. *Organisational Science*, (August): 383-397
- Langlois, R.N. and Robertson, P.L. (1989), 'Explaining vertical integration: lessons from the American automobile industry' *Journal of Economic History* 49(2): 361-375.
- Langlois, R.N. (1995), 'Capabilities and Coherence in Firms and Markets' In: Montgomery, C.A. (ed.), *Evolutionary and Resource-based Approaches to Strategy: A Synthesis*, Kluwer Academic, Norwell, MA and Dordrecht.
- Lucas, R.E. Jr. (1978), 'On the size distribution of business firms' *The Bell Journal of Economics* 9(2): 508-523.
- Lucas, R.E. Jr. (1993), 'Making a Miracle' *Econometrica* 61(2): 251-272.
- McKinsey Global Institute (1996), *Capital Productivity*, Washington, DC., June.
- Milgrom, P. & Roberts, J. 1988. *Economic theories of the firm: Past present and future*. *Canadian Journal of Economics*, 21(3): 444 - 458.
- North, D. C. 1987. Institutions, transaction costs and economic growth. *Economic Inquiry*, 25(July): 419 - 428.
- North, D. C. 1994. Economic performance through time. *The American Economic Review*, 84(3 - June): 359-368.

- Minzer, J. (1962), 'On-the-Job Training: Costs, Returns, and Some Implications' *Journal of Political Economy* 70, S50-S79.
- Moran, P. and Ghoshal, S. (1996), 'Value Creation by Firms', *Academy of Management Best Paper Proceedings*, pp. 41-45.
- Nelson, R. R. 1991. *Why do firms differ, and how does it matter?* *Strategic Management Journal*, 12: 61-74.
- Nelson, R. and Winter, S. (1982), *An Evolutionary Theory of Economic Change*, Harvard University Press, Cambridge, MA.
- Nonaka, I., & Takeuchi, H. 1995. *The Knowledge creating company*. New York: Oxford University Press.
- North, D.C. (1989), 'Institutions and Economic Growth: An Historical Introduction' *World Development* 17, pp. 1319-1332.
- North, D.C. (1990), *Institutions, Institutional Change and Economic Performance*, Cambridge University Press, Cambridge.
- North, D. C. & Thomas, R. P. 1973. *The rise of the western world: A new economic history*. Cambridge: Cambridge University Press.
- Penrose, E. (1959), *The Theory of the Growth of the Firm*, (3rd edition 1995) Oxford University Press, Oxford.
- Penrose, E. T. 1995. *The theory of the growth of the firm*. Oxford: Oxford University Press.
- Polanyi, M. (1969), *Knowing and Being*, University of Chicago Press, Chicago.
- Porter, M.E. (1980). *Competitive Strategy*. New York: Free Press.
- Porter M.E. (1985). *Competitive Advantage*. New York: Free Press.
- Porter, M.E. (1990), *The Competitive Advantage of Nations*, The Free Press, New York.
- Romer, P.M. (1990), 'Endogenous technological change' *Journal of Political Economy* 98, s71-s102.
- Romer, P.M. (1994), 'The origins of endogenous growth' *Journal of Economic Perspectives* 8(1): 2-22.
- Rumelt, R. P. (1984). *Towards a strategic theory of the firm*. In R. B. Lamb (Eds.), Competitive Strategic Management: 556-570. Engelwood Cliffs, NJ: Prentice-Hall.

- Rumelt, R P. (1987). *Theory, strategy, and entrepreneurship*. In D.J. Teece (Eds.), *The Competitive Challenge*: 137-158. Cambridge, MA: Ballinger.
- Sah, R.K. (1991), 'Fallibility in Human Organisations and Political Systems' *Journal of Economic Perspectives* 5(2): 67-88.
- Scherer, F.M. and Ross, D. (1990), *Industrial market structure and economic performance*, 3rd edition, Houghton Mifflin, Boston, MA.
- Schoemaker, P.J. H. 1990. *Strategy, complexity and economic rent*. *Management Science* , 36(10): 1178-1192.
- Schultz, T.W. (1962), 'Reflections on Investment in Man' *Journal of Political Economy* 70, S1-S8.
- Schumpeter, J.A. (1934), *The theory of economic development*, Harvard University Press, Cambridge.
- Schumpeter, J.A. (1947), "*The Creative Response in Economic History*", *The Journal of Economic History*, 7(2): 149-159.
- Schumpeter, J.A. (1950), *Capitalism, Socialism, and Democracy*, (3rd ed.), Harper, New York.
- Silver, M. (1984), *Enterprise and the scope of the firm: the role of vertical integration*, Martin Robertson Press, Oxford.
- Simon, H.A. (1945), *Administrative Behaviour*, The Free Press, New York.
- Simon, H.A. (1951), 'A formal theory of the employment relationship' *Econometrica*, 19: 293-305.
- Smulders, S. and van de Klundert, T. (1995), 'Imperfect competition, concentration and growth with firm-specific R&D' *European Economic Review* 39(1): 139-160.
- Solow, R.M. (1970), *Growth Theory: An Exposition*, Oxford University Press, Oxford.
- Stokey, N.L. (1988), 'Learning by Doing and the Introduction of New Goods' *Journal of Political Economy* 96: 701-717.
- Teece, D.J. (1988), 'Technological change and the nature of the firm' In: Dosi et al., *Technical Change and Economic Theory*.
- Teece, D., Pisano, G. & Shuen, A.(forthcoming). *Dynamics capabilities and strategic management*. *Strategic Management Journal*.
- Wernerfelt, B. 1984. *A resource-based view of the firm*. *Strategic Management Journal*, 14: 4-12.

- Williamson, O.E. (1975), 'Hierarchical Control and Optimum Firm Size' In: Williamson, O.E., *Markets and Hierarchies: Analysis and Antitrust Implications*, The Free Press, New York.
- Williamson, O.E. (1985), *The Economic Institutions of Capitalism*, The Free Press, New York.
- Winter, S.G. 1995. *Four Rs of profitability: Rents, resources, routines, and replication*. In C. A. Montgomery (Eds.), 147-178. Norwell, MA and Dordrecht: Kluwer Academic.
- Young, A. (1991), 'Learning by Doing and the Dynamic Effects of International Trade' *Quarterly Journal of Economics* 106: 369-406.

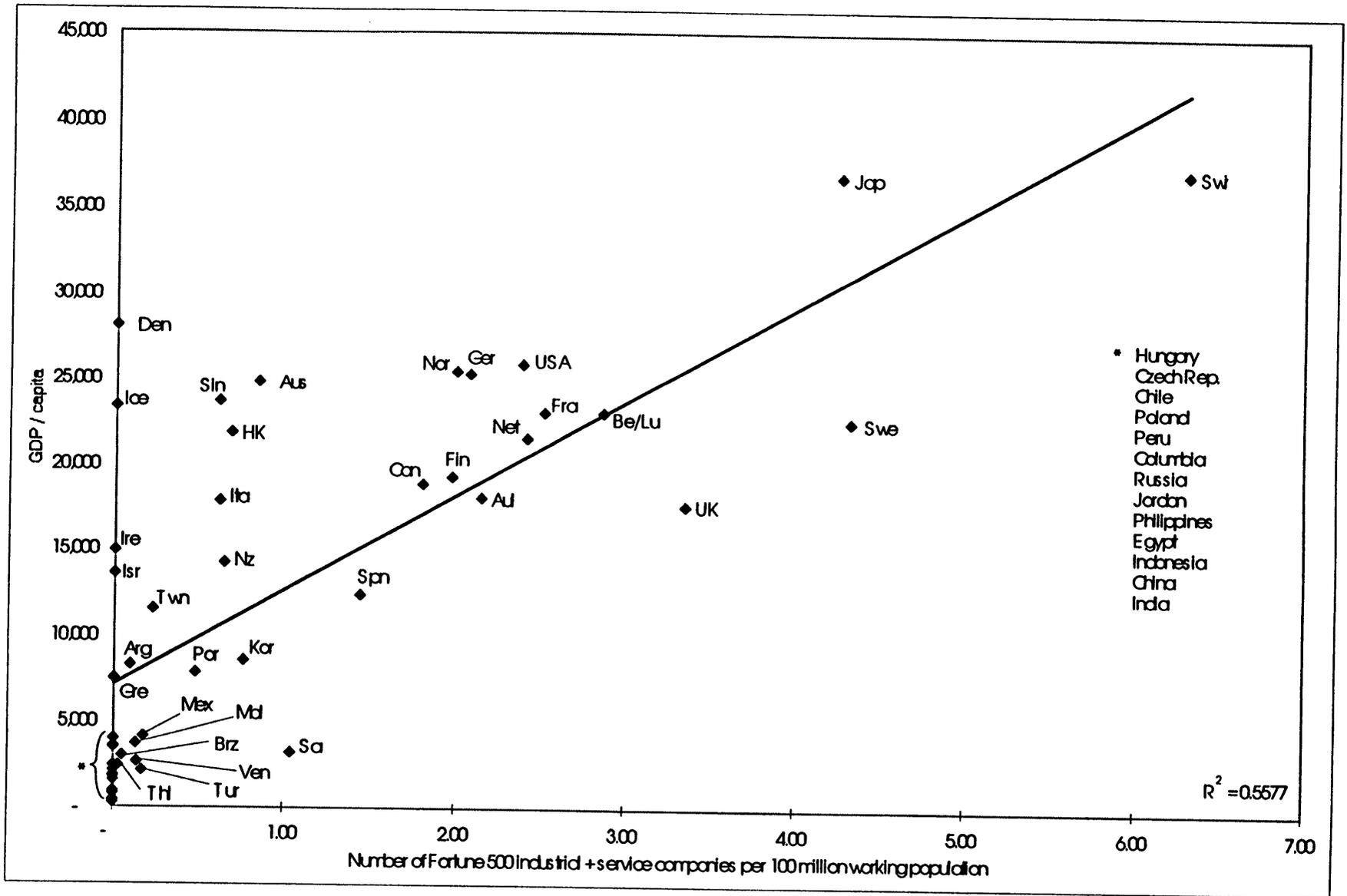


Figure 1: GDP/capita versus number of large companies for 48 countries (1994). Source: World Economic Forum.

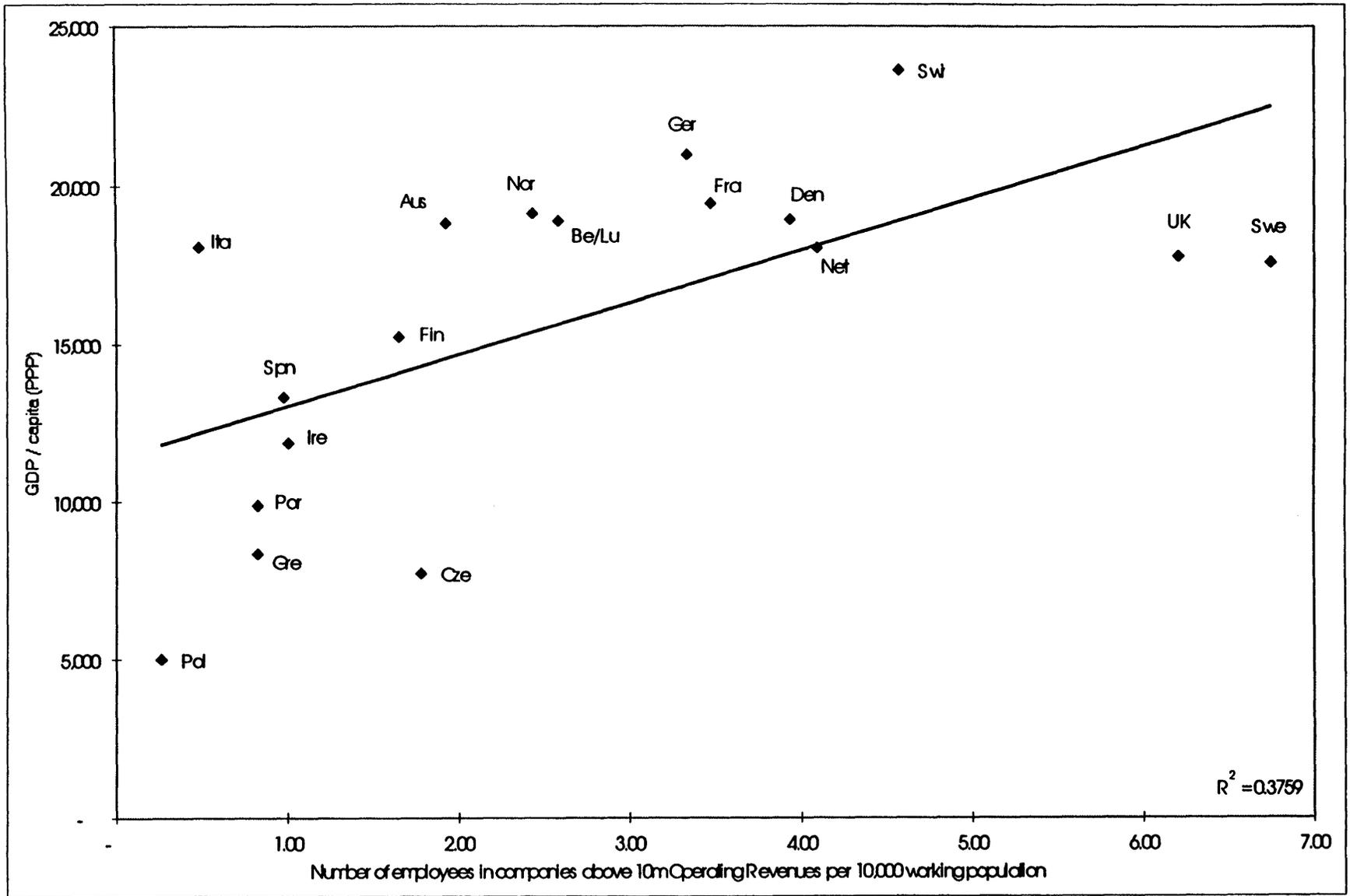


Figure 2: GDP/capita versus proportion of labour force employed by large companies for 18 European countries (1994). Sources: AMADEUS European Companies Database and World Economic Forum.

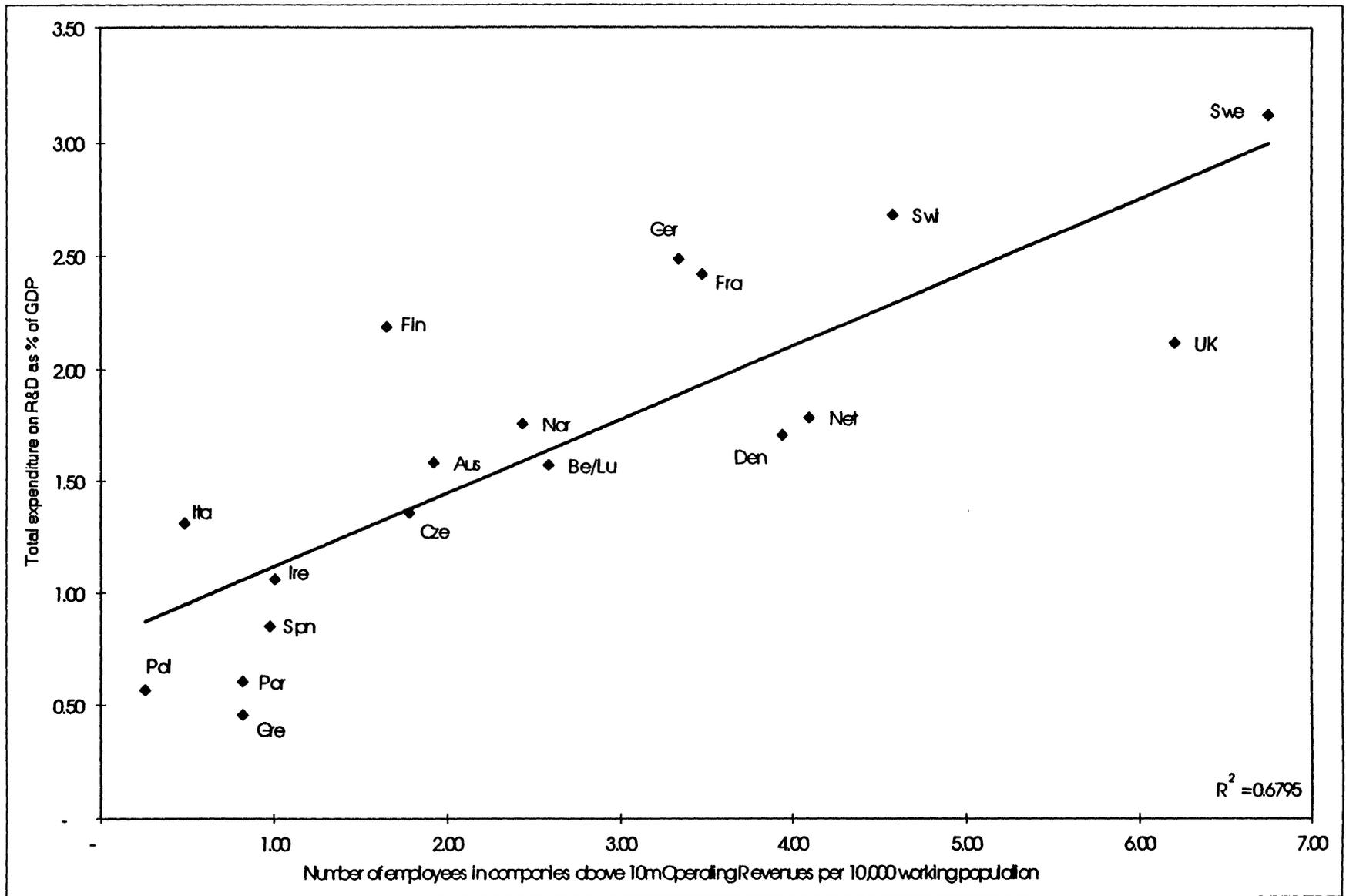


Figure 3: R&D expenditure as % of GDP versus proportion of labour force employed by large companies for 18 European countries (1994). Sources: AMADEUS European Companies Database and World Economic Forum.

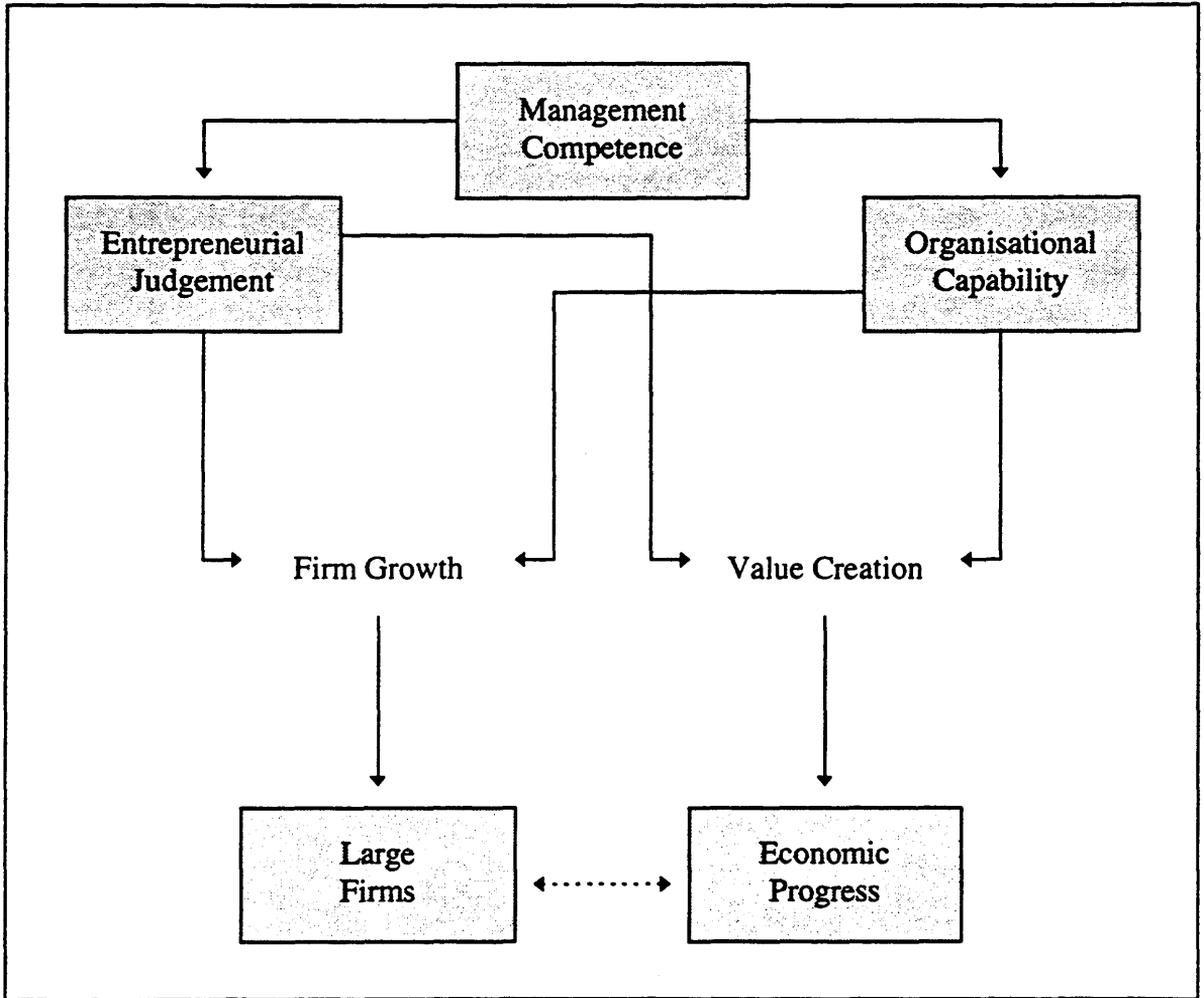


Figure 4: The dual role of management competence and the interaction between organisational capability and entrepreneurial judgement contributing to firm growth and economic progress.