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SOME PRINCIPLES OF ECONOMIC ORGANISATION

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THE NEED FOR CO-ORDINATION

The division of labour, upon which the wealth of nations depends, requires the existence of means by which specialised activities can be properly co-ordinated. The different means of co-ordination available and the different purposes to which they are suited, which have long been a central concern of economists, are the subject of this paper.

I addressed these issues in an article entitled 'The organisation of industry', which was published in the *Economic Journal* in 1972. It maintained that we should think of firms not as making products, but as undertaking *activities*, the nature of which would be in accordance with their particular *capabilities*, as determined by their skills, experience and market connections. I observed that these activities could be co-ordinated in three basic ways: though *market transactions*, through *co-operation* and by *direction*. Using these ideas, the article sought to explain the existence, within real-world economies, of 'the dense network of cooperation and affiliation by which firms are related' (Richardson 1972: 883). This phenomenon did not, at that time, much attract the attention of economists, although it has done so since.

I hope now to take this analysis further and to remedy at least some of its deficiencies. In particular, I shall in due course shift the focus of attention from relationships between firms to what happens within them. In the 1972 article I mentioned how when I began to teach economics I told pupils that firms were islands of central planning in a sea of market transactions; I admitted in that article to having been wrong about the sea, which cannot be properly described in terms of pure market transactions, and have to admit now to being wrong about the islands, co-ordination within which is not merely a matter of direction, at least in any simple sense. Ample opportunity to appreciate this latter fact was provided for me when, in 1972, I gave up economics to become Chief Executive of Oxford University Press.

THE INVISIBLE HAND

In seeking to explain how economic activities are co-ordinated, it is upon the role of *market transactions* that economists have overwhelming concentrated. Their functioning was described famously by Adam Smith in terms of an 'invisible hand', and modern general equilibrium theory is seen, by some, as the culmination of his line of thinking. I do not myself see it that way. Smith took account of the pervasive existence of increasing returns to scale, and envisaged free competition as increasing the wealth of nations by engendering continuous structural change. His theory of the working of markets is also therefore a theory of endogenous economic growth.[2] All this was largely lost sight of in the development of the more formalised models that now hold the stage. And this may account for the neglect of the process of continuous morphological change which I shall later discuss in this article.[3] It seems to me significant that both Smith and Marshall are concerned to explain the advantages of a regime of *economic freedom*, rather than of *competition* narrowly conceived; freedom enables businesses to co-operate as well as to compete, to merge or to separate, to take on activities or to give them up. Smith and Marshall allowed, in other words, for the continuous reshaping of industry, the process of constant mutation and selection that takes place under capitalism.

I do not wish to question the central role played by co-ordination through competitive market transactions, which are individually subject to, and which collectively determine, a system of prices. I have argued, however, that decisions taken by individual firms independently can achieve co-ordination only if certain conditions are met, and I have maintained that unless we understand the nature of these conditions, we shall be unable to explain why, in their absence, recourse to co-operation and direction is sometimes essential. One key condition, paradoxically, is that competition be not 'perfect'. The reasons for this assertion were set out in my book *Information and Investment*, first published in 1960, and I shall not try to rehearse them properly here. A summary statement is needed, however, to put what will follow it into context.

Economists have never been able to explain how, in perfectly competitive conditions, equilibrium could come about other than by fictitious and implausible arrangements, such as Edgeworth's system of re-contracting or the activity of Walras's auctioneer. Some have endeavoured to cut the Gordian knot simply by assuming that entrepreneurs somehow foresee equilibrium prices, presuming, for no good reason, that this foresight would lead to actions which would cause these prices to be realised. The reason for the failure to explain how equilibrium could be reached is in fact simple: for it to be possible for the equilibrium configuration to be attained through independently taken investment decisions, conditions must exist that are incompatible with the assumptions of the perfect competition model.

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If a producer is to invest so as to supply an expected future demand, he must have some assurance that the profit opportunity to which he wishes to respond will not be open equally to everyone else. In the real world this condition can be met naturally; the number of those likely to respond may be limited by the fact that only some are aware of the opportunity, and, of these, only some have the capability appropriate to respond to it. There exist, in other words, both *imperfect information* and *imperfect mobility*, which provide a natural restraint on the likely volume of *competitive* production. The incentive to invest depends, therefore, on the existence of circumstances which are deemed absent, by assumption, in the perfect competition model. A whole host of phenomena, the existence of which may, in certain circumstances, be necessary for informed decision-making to be possible, are either ignored or condemned as 'restraints on trade', with no attempt to analyse their essential function.

The firm contemplating investment will need also be reasonably confident that products *complementary* to its own will be available, that it will be able, for example, to purchase on the market the necessary inputs. If these inputs are currently available, then the firm will have to be confident that they will continue to be so. If they are not currently available, then the firm, if it does not have good reason to expect their future availability, will have to take steps itself to ensure it. Much will depend here upon the *closeness* of the complementarity in question, whether, that is to say, there will be a need for inputs that are highly specific to the process of production envisaged. And much will depend also on whether the producers of the needed inputs, assuming these are available, will be able to accommodate the additional demand.

A CARDINAL PRINCIPLE OF ECONOMIC ORGANISATION

Perfect competition theory ignores what we may call a *cardinal principle of economic organisation*, a principle which applies to any group in which there exists interdependence, in the sense that the action that any member would choose to adopt will depend on what that member expects other members to do.[4] If the members of this group have complete freedom of action, being subject to no constraints, whether external or self-imposed, then there can be no informed decision-making within it. Members of an interdependent group, that is to say, cannot entertain informed expectations as to what other members will do unless there are restrictions on their freedom of action.

This is true irrespective of the numbers within the group. On the reasonable assumption that their activities will be more productive if co-ordinated, what Robinson Crusoe would choose to do will depend on what Man Friday

chooses to do, Man Friday, however, being in the same situation with regard to his fellow islander. The possibility of informed choice in this context depends upon the existence of constraints that narrow down freedom of action, either in the form of external circumstances that preclude some actions for either party, or through reciprocal undertakings, habits or conventions. In the case of a large group, the same is true. The co-ordination of economic activities can result from independent market transactions only in appropriate circumstances, in the absence of which co-operative behaviour, in one or more of its many forms, is required.

To put the matter somewhat over-simply, for co-ordination to result from decisions taken independently there has to be a certain stability in the economic environment. Such co-ordination can ensure adaptation to change, but only within a context where, in the short run, most things remain substantially the same. If a manufacturer perceives a profit opportunity, he or she will be prepared to commit resources in response to it, on the assumption, which may not be consciously entertained, that the prices and availability of relevant *competitive activities* (i.e. those which would reduce the profitability of the investment) and of the relevant *complementary activities* (i.e. those which are necessary for, or would enhance, the profitability of the investment) do not change overmuch. Very often these conditions are sufficiently met – as each new dawn does not bring a completely new configuration of prices and outputs. In that sense, *natura non facit saltum*, to employ the observation with which Marshall (with a different implication) prefaces his *Principles* (1890).

THE NEED FOR CO-OPERATION

It is, however, perfectly possible that the existing pattern of output in the economy does not provide a firm contemplating investment with the complementary inputs it requires. It has then the choice between itself making the input or entering into a co-operative arrangement with an outside supplier. The balance of advantage between these options will depend, in part, upon whether producing this input requires a *capability* different from those the firm itself possesses.[5]

If the firm chooses to turn to an outside supplier, a framework of co-operation will have to be devised which offers an acceptable degree of security to both parties. The purchaser of the special input will wish to be able to depend on a continuing and reliable supply; the producer of the input will want assurance of continuing demand. The ways in which such arrangements can be put together are well known, as is the difficulty of making them completely satisfactory to both parties. 'The dense network of cooperation and affiliation', discussed and exemplified in my 1972 article referred to above, is composed of arrangements of this kind, and the

co-ordination of economic activity in the real world would be impossible without it.[6]

Co-ordination can therefore come about through market transactions, as a result of independent decision-making, given an adequately predictable environment, or through co-operation, which provides predictability by means of reciprocal undertakings. In either case, of course, decisions will both be influenced by and collectively determine a system of competitively determined prices, so that the relative scarcity of different resources and the relative preferences of consumers come to influence the resultant allocation of resources.

THE NEED FOR DIRECTION

What then is the function of *direction* as I defined it in my 1972 article? Or what, to pose a related question, to which Ronald Coase notably drew attention, is the role of the firm?

I recall, when first reading Coase's 1937 article, now some fifty years ago, being puzzled by the following passage.

> Within a firm, . . . market transactions are eliminated and in place of . . . exchange transactions is substituted the entrepreneur-co-ordinator, who directs production. It is clear that these are alternative methods of co-ordinating production. Yet, having regard to the fact that if production is regulated by price movements, production could be carried on without any organisation at all, well might we ask, why is there any organisation?
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> (Coase 1937: 19)

Having posed this question, Coase then proceeds to answer it by maintaining that 'the main reason why it is profitable to establish a firm would seem to be that there is a cost of using the price mechanism' (Coase 1937: 20).

Implicit in this reasoning appears to be the belief that 'the price mechanism' could somehow spontaneously bring into existence any required combination of human and material resources, if only the cost of using it were acceptable. But, by what sorcery is this to come about? In order to produce a good, a firm has to identify and assemble, and then properly deploy, an appropriate set of human and material resources; prices enter into the process by influencing the combinations chosen. This conscious ordering is certainly mediated by prices, but prices do not make it possible to dispense with it. There is no magic by which prices can by themselves lead people to assemble themselves spontaneously and simultaneously in appropriate groupings, and to work with each other and the non-human

resources similarly assembled for a particular process of production. This requires planning, and the prime purpose of a firm is to plan and execute, on a continuing basis, the processes that make and sell a product or service.

There are, as we have seen, circumstances in which independent decision-making can lead to spontaneous co-ordination; such co-ordination takes the form of incremental changes which can, over time, change the economic landscape. But where, as in a production process, *a complex set of closely complementary activities has to be put in place simultaneously*, conscious co-ordination is required. Were these activities each under, as it were, separate management, none would be undertaken without the assurance that the others would be undertaken; each activity would be effective only as a member of the set, and there would be no way in which the set could somehow, without conscious planning, be identified and brought simultaneously into being.

I cannot therefore agree with Coase that the existence of firms has to be attributed to the cost of using the price mechanism. As we shall see, a cost of this kind may be a consideration, even if not a principal one, in a firm's decision to 'make or buy' a necessary input, but to say that transaction costs explain the *existence* of firms is to reduce the role of conscious business planning to vanishing point. The term 'price mechanism' may perhaps too readily lead us to think that resources are somehow allocated without human agency. The reality, as we know, is that things happen because people do things; in this context, firms and consumers do things on the basis of plans that they consciously make, but plans which by interacting in their execution are so modified as to become woven into an overarching economic order.

Where ordering can be built up through incremental adjustment it can come about spontaneously, as a result, that is to say, of decisions taken by firms independently, without any consideration being given to their necessary integration. But where ordering relates to a set of closely complementary activities that must fit together in a specific way there must be conscious design and planned execution. And it is the function of management, at different levels within the organisation, to provide this.

Any one firm is concerned with only some stages in the process of producing final output; the physical inputs which they purchase are the outputs of other concerns and the labour they employ embodies some prior education and training. The question therefore arises as to what particular stages a firm will itself undertake. Adam Smith, as noted above, showed how the gains from the division of labour would lead to the emergence of specialist producers, enjoying economies of scale, who concentrate on particular activities, thus becoming the suppliers to a number of firms which previously would have undertaken the corresponding activities themselves. Firms therefore find that it is best for them to buy certain inputs, general-purpose inputs, we may say, on the market; special-purpose inputs, which

they alone need, will either be obtained from other firms on the basis of a special contract or made by the firm itself.

The so-called 'make or buy' decision has been subject to intensive examination in the literature. If the *closely complementary* activities are *dissimilar*, in that undertaking them requires different skills, experience and market connections, there will be an advantage in seeking to achieve their co-ordination by means of an agreement between firms with the appropriate – and, by assumption, different – capabilities. But there are well-known obstacles in the way of such agreement. It may not be possible to provide the supplier of the needed input, the making of which might require substantial fixed investment, with sufficient assurance of continuing demand for it. And it may be impracticable to draw up an agreement which allows for necessary unpredictable changes in what each party has to do. In such cases the closely complementary activities may have to be consolidated within one firm, despite their dissimilarity, in order to achieve a coherent production plan.

A firm is a system of organised co-operation. Where only a few complementary activities have to be fitted together, this can be achieved by co-operation between the relevant parties, each of them having a more or less equivalent say. It is possible for a handful of people to work out together a concerted plan of action and then to be jointly responsible for its execution. But even then it will prove at best laborious to agree whatever modifications in the plan will from time to time be required in order to meet changing circumstances. A leader is likely to emerge, or be chosen, and members of the group will tend usually to follow that leader, without having to be convinced at each and every stage that he or she is on the right road. Where the number of closely complementary activities or investments is large, where they have to be put into a precise relationship in respect of their character, magnitudes and timing, I have said, for want of a better term, that *systematic close complementarity* exists. In such circumstances, co-ordination requires *direction*.[7]

DIRECTION: ITS SCOPE AND LIMITS

Let us now consider the notion of direction and its modus operandi more closely. Direction, of a kind, is to be found on the parade ground, as men move like automata under the commands of the drill sergeant. Those directed decide nothing for themselves and respond to the will of the director as would his arms and legs. Clearly, in the economic sphere – and, indeed, also in the military one – little can be achieved by direction of this kind. There can be, say, within a factory operation conditions that require workers to act very precisely according to a set of detailed instructions, but rarely will there be no need for them to exercise discretion in response to

circumstances that cannot in every particular be foreseen. Indeed, if they were expected to behave as automata, then machines could do their work.

Direction, of the kind that concerns us, does indeed mean telling people what to do, but in the sense of allotting them roles and providing associated job descriptions. Management's function is to establish an appropriately related set of roles and rules – an appropriate organisation – and not to seek to prescribe what people should, in every foreseeable set of circumstances, seek to do. Management will change the organisation from time to time as circumstances change and to take account of personalities within a business, but will not routinely intervene to instruct a particular job holder to take this or that particular action at a particular time.

Co-ordination through direction is not, therefore, what it might at first seem. It does not mean that those who undertake the activities to be co-ordinated are being continuously told how to carry them out. It implies, rather, the setting up, for a chosen purpose, of an organisation in which people with appropriate skills, aided by appropriate fixed equipment, are given appropriate roles. The roles established, and the relationships between them, are designed to be such that if all the members of the organisation further the particular aims set for them the aim of the organisation will itself be realised. But how, we may ask, can this come about?

THE FIRM AS A MICROECONOMY

The mode of co-ordination which I have referred to as direction requires, as a necessary condition for its fulfilment, the creation of a particular system or organisation within which the relevant activities are carried out. Each organisation of this kind will comprise men and equipment working within a specifically designed set of relationships and for designated purposes, the 'operating software', as it were, being the roles and rules established. A firm, we may say, is a *microeconomy* both similar to and different from the *macroeconomy* within which it functions.

It is interesting to compare the microeconomy of the firm with the macroeconomy of which it is part. The former is the product of design, in a sense that the latter is not. Governments do not manage economies in the way that directors manage companies; they are responsible chiefly for the legal framework and the provision of central services, but they do not – at any rate in peace time – prescribe what pattern of goods should be produced (except in response to their own requirements) any more than they set up the organisations that will produce them. It is firms that take decisions about what will be produced, and although governments have essential economic functions to perform, it is competition and co-operation between firms that we expect to produce the co-ordination needed to ensure that resources are used efficiently and in accordance with consumer demand.

Between the two kinds of economy there are, however, similarities, which derive fundamentally from the fact that the knowledge and the capability of any individual are limited, as must therefore be the tasks they can undertake. The consolidation of activities within an enterprise does not change this circumstance. The division of labour continues to be practised, and the need for integration remains. The organisation of a firm will have been devised to put in place the jobs and equipment necessary for the co-ordination of a set of systematically complementary activities, but co-ordination will not result from that fact alone. A firm's external transactions are guided by market prices reflecting demand and scarcity, and it is necessary that decisions taken within the microeconomy are guided similarly. Within the contrived system of relationships which constitute a firm there may have to be a contrived system of prices.

PRICING WITHIN A FIRM

In our so-called 'theory of the firm', as featured in elementary textbooks, only market prices come into consideration, those of the 'inputs' purchased and the 'outputs' sold. The efficient deployment of inputs to produce outputs is seen, in this context, as a problem in the logic of choice, to be solved by one mind, that of the entrepreneur. In firms as they exist in reality, of course, the work is done by many people, perhaps a handful, perhaps many thousands, each with a specified role, and in order that they act in conformity with the firm's aim of profit maximisation ways have to be found of causing their decisions to take account of the cost of inputs or the prices of outputs, even although they do not themselves buy or sell on the market. Most subdivisions within a business will enter into transactions with other subdivisions, whether profit centres or cost centres, and, as these transactions will generally have an effect the costs and revenues of the firm as a whole, a way has to be found of guiding them accordingly. Ronald Coase has remarked that 'the distinguishing mark of the firm is the supersession of the price mechanism' (Coase 1937: 20). This is true in the sense that external market prices affect directly only the external transactions of the firm, but is false if interpreted to mean that decisions within a firm are not guided by prices of a kind, by prices, that is, which the management of the business has contrived to introduce, by means of the whole apparatus of profit centres, transfer pricing, cost accounting and so on. As Voltaire said of God, if prices did not exist, we should have to invent them, and in the design of the internal arrangements of a firm, this is what we in fact do.

Paradoxically, the creation of profit centres within a business may appear at once necessary for and incompatible with the maximisation of profits for the business as a whole. This situation arises where one profit centre sells to

another a good or service, the unit cost of which falls with the volume produced. The example is sometimes taken from the oil industry, where, within an integrated operation, the division selling crude, if it is free to choose its own trading terms, will charge the refining division more than is consistent with maximising profits for the combined business. The same issue arises in publishing, where, say, an Oxford University Press (OUP) publishing division in Oxford sells books to the OUP publishing division in New York for onward sale in the United States. In both cases, if the parties each seek to maximise their own profits, the outcome is that the volume of oil or books sold is less than that for which the profits of the business as a whole would be maximised; the marginal cost of increased output, for the business as a whole, remains below the marginal revenue that could be expected from its sale. In these circumstances, group management may intervene to secure a more satisfactory arrangement, but will inevitably find it hard to reconcile group profit maximisation with divisional accountability.

For the chief executive struggling with these problems, two consolations offer themselves. First, he or she should have in mind that the dilemmas posed are not characteristic only of internal price systems, but are also present where, in the macroeconomy, co-ordination takes place through real price movements. If activities have shared overheads and exhibit increasing returns they do so irrespective of whether they are consolidated within firms. One simply has to accept that there can be circumstances in which no system of price signals, whether those developing spontaneously in the macroeconomy or those specially contrived for a microeconomy, can ensure that firms within the one or profit centres within the other will, by seeking to maximise their own profits, automatically maximise the general welfare or group profits. The result obtained, in other words, will be inferior to those which could be obtained if the combined resources were deployed centrally to maximum advantage.

This comparison, however, provides no clear presumption, in the case of either the macro- or the microeconomy, that centralised deployment should be attempted. Against the disadvantages of the decentralised approach have to be set the difficulties, which complexity soon make insurmountable, inherent in the timely and continuous collection of, processing of, and acting upon information that centralised deployment would require. Decentralisation has advantages, of course, in terms of motivating and developing those taking the decisions, but recourse to it is essential, most fundamentally, because complex tasks requiring much detailed and 'local' information have to being broken down into parts, each of which becomes the responsibility of particular persons or group. It is interesting for us to know where decentralisation will give an outcome which is second best relative to the available practical alternatives, but less interesting to know when it is second best only in the sense that a preferable outcome would prevail

were we, by being able to call upon the services of an omniscient, omnipotent and beneficent Supreme Being, to live in a different world.

COMMUNICATIONS, SCALE AND STRUCTURE

In discussing earlier the relations between firms, we reviewed considerations which would influence management in its choice of the range of activities to undertake. By undertaking closely complementary activities in-house, where there can be rapid communication between those undertaking them, a firm may sometimes be able to secure co-ordination that is quicker and more effective than that which could be arranged through complex co-operative arrangement with outside suppliers, but, being unable to enjoy the economies of scale and specialisation available to these suppliers, have to accept a cost penalty for doing so. The issue faces a publishing business, for example, in deciding whether to undertake its own warehousing or its own marketing in a particular country.

The same issue arises, however, in designing a firm's internal organisation. At one time, for example, OUP had, in the United Kingdom, a central services division, separate from the editorial divisions, which was responsible for the design of books, for arranging their printing, and for their marketing, warehousing, distribution and sale. This arrangement appeared to offer advantages. It permitted a finer division of labour within each service activity. By combining the variable demands from different publishing departments, the load on the design department could be made more steady; by combining printing requirements, it was hoped, greater bargaining power could be obtained in dealing with printers; and there seemed everything to be said, on the face of it, for having a single sales and marketing force.

In fact the arrangement worked badly. The editing and design of, say, an English Language Teaching textbook with copious illustration are very closely complementary activities which have to be undertaken by people with different skills but in close touch. The marketing of such a book, moreover, requires those who do it to know a good deal about both its content and the needs which it would meet. When the central services division was in place, disputes frequently arose between the editors, designers and marketing people associated with particular titles, each expressing dissatisfaction with the work of the others. This would be in no way surprising, the reader will conclude, particularly if these people did not see themselves as members of a team. But it was not so much the disputes that gave most concern, but the difficulty in settling them. Had those undertaking the complementary activities been members of a team, there would certainly have been fewer disputes, and, importantly, such as did arise could be settled by rapid arbitration by the head of the team.

With the organisation OUP had in the UK at that time the issue became a matter for the heads of the editorial and services divisions, who, if they could not themselves resolve it by agreement, had to refer it to the head of the business for decision.

Where hundreds of people are involved, as was the case with OUP's UK publishing divisions, an organisation of the kind described soon ceases properly to work. In any organisation there must be co-operation between its members and the means of speedy and informed arbitration when this co-operation fails or falters. The centralisation characteristic of the arrangements in OUP, as I have described them, both prevented the development of the team spirit which, in small groups, fosters co-operation, and provided arbitration that was slow, remote, relatively uninformed and, in both the kind and the quantity required, beyond the capacity of those whose time and attention needed to be devoted to the strategy of the business as a whole. As the reader will surmise, the organisation of OUP was altered to provide greater decentralisation, large editorial departments being made responsible for their own design, marketing, etc. Of course, it is always a matter of balance; there was no question, for example, of giving these departments responsibility for their own warehousing, in which scale economies are particularly great.

I have chosen to illustrate my argument by an example, but it applies quite generally within industry. Ease of communication, the fostering of a team spirit, and the availability of informed and rapid arbitration are advantages just as much as are the economies of scale and specialisation, and there are trade-offs between them. Thus we have in the microeconomy effectively the same issue as concerned us earlier in discussing the macroeconomy. It appears in the former in terms of choosing a balance between centralisation and decentralisation; in the latter, in terms of where and when to consolidate activities within firms. Perhaps the beginning of wisdom, in the understanding of either system, is to appreciate human limitation.

A SUMMARY OF THE ARGUMENT SO FAR

Let us now pause to consider where the argument has taken us. The division of labour, upon which the creation of wealth depends, creates the need for co-ordination, which is achieved, in a regime of competitive free enterprise, through market transactions involving independent decision-making, through co-operation and by direction within firms. The first of these three mechanisms, in terms of which explanation of the working of the economy is normally provided, depends for its success on a certain stability in the relevant environment, on the ability of a firm contemplating investment to take for granted that the volume of competitive investment will not be excessive and that necessary complementary investments will be in place.

Where these conditions are not met, firms will exchange undertakings in order to remedy the deficiency. Co-operation is usually required, in particular, through long-term contracts or similar forms of association, where the activities to be co-ordinated are closely complementary, as when a firm needs an input of a specialised, non-standard kind.

Such co-operation fails to work well when the co-ordination of *systematically and closely complementary* activities is required. It then becomes impracticable to devise – and, as need be, revise – the complex set of agreements that simple co-ordination would require. An organised form of co-operation, which I have called *direction*, is then needed to design and execute a particular pattern of investment, or to ensure that a particular set of activities is properly matched in kind, quantity and timing.

Having identified what seemed to be the essential rationale of a firm, we then turned to consider more closely how intra-firm co-ordination was achieved. We recognised the firm as a contrived system, as a microeconomy similar in many ways to the macroeconomy within which it operates. Such a microeconomy has to be large enough to ensure the scope of the co-ordination required, but the number of activities it undertakes will be limited by the fact that these will generally exhibit economies of scale and require different appropriate capabilities for their successful execution. Nevertheless, a firm may be willing to sacrifice some economies of scale and specialisation, which it could have obtained by relying on outside suppliers, in order to be able itself, through direction, to co-ordinate complementary activities better, and it may choose again to make the same sacrifice, by creating a decentralised internal organisation able to facilitate co-ordination through closer communications and rapid arbitration.

The essential rationale of the firm is indeed to permit direction, but the direction is normally limited to ensuring that a set of related investments and appointments is put in place and kept in adjustment, thus to provide a context within which co-ordination is carried on by internal transactions and co-operation, guided by prices, in a way that mimics the processes at work in the larger economy of which the firm is part. In the macroeconomy, governments do not generally set the terms on which firms trade or co-operate; the presumption is that competition will do so appropriately, intervention being called for only where monopoly is present. Within the microeconomy, however, no such presumption can be made and central management will typically either set or supervise the internal pricing arrangements to which subdivisions are subject.

Within a firm, it is often remarked, hierarchy prevails. It does, but one should not imagine that, for this reason, the firm works by means of commands which originate from the top and are filled in with appropriate detail at each operational level. It is doubtful that even armies and navies function in this manner, far less so-called 'command economies'. Management does not consist just in giving orders from the bridge,

though this is part of it, but, rather, in creating, monitoring and, when need be, modifying a system of working relationships designed to ensure that each person employed by the organisation, by doing the specified job allotted to him, will further an overarching purpose. A chief executive can scarcely do more harm than by spending all his time telling people what to do.

THE COSTS OF CONSOLIDATION

I have sought to identify the essential *raison d'être* of the firm, but have said nothing about the determinants of its size. Nor have I mentioned the functions, other than this essential one, that a firm can perform. These are the matters to which I wish now to turn.

If I am correct, direction can achieve co-ordination in circumstances in which both market transactions and unorganised co-operation cannot. It might then seem, on the face of it, that direction should be the preferred mode of securing co-ordination, given that it can work both where the other methods cannot and, presumably, where they can. But such a conclusion would, of course, be false, and for two reasons. The first, and most important, relates to the economies of scale and specialisation; the second, to the costs of designing and supervising a microeconomy.

I have already had a good deal to say about the cost of consolidation in terms of economies forgone. There is no presumption that the activities which are to be co-ordinated by direction within a firm will relate to the same or similar capabilities, or that the scale on which they would be carried out would be large enough to exploit potential economies. It might be maintained that the firm could carry out any activity on the required scale and offer the balance not required on the market; this argument was used to urge the retention by OUP of a printing business and a paper mill. But if it is possible to sell the unrequired balance of printing or paper on the market, then it is probably possible to buy it on the market. And the advantage of the latter course is that of not being obliged to possess and maintain disparate capabilities.

Thus in circumstances in which it may at first seem that co-ordination can most perfectly be achieved by direction, the cost of the consolidation required to do so may be prohibitive. It might be technically better, for example, to produce a good from parts each specially developed in-house, but economically better to produce it from more standard parts obtainable from others.[8]

The second disadvantage of consolidation lies in the cost of arranging and supervising it. Ronald Coase attracted our attention to the need to compare the costs of making transactions on the market and the costs of organising them within a firm. I appear to differ from him in believing that a certain

kind of co-ordination, that of systematically complementary activities, can be achieved only by direction, irrespective of cost. But where market transactions, co-operation and direction are real alternatives, costs then obviously do matter. The order that is achieved through market forces, as a result of the interaction of many independent decisions, comes with no general design cost, whereas a planned configuration, a systematically related set of investments in manpower and equipment, clearly does. And that is not the only cost of direction. Within the designed microeconomy, as we have seen, there will exist market-type transactions, on the basis of terms that have to be prescribed, and co-operation, for which supervision will have to be provided. All these arrangements cost something to put in place, and, as they are difficult to make successfully, the people able so to make them are relatively scarce and therefore expensive. To be set against this, of course, are the costs associated with market transactions, but, in terms of the attention of senior management, internal transactions and co-operation may well exert the greater claim. Bureaucracy, everyone knows, is endemic in large organisations, but it is less well appreciated that once co-ordination is sought by direction rather than markets the costs of supervision are unavoidable. Given also that the span of effective control within an organisation is limited, complex hierarchical layers are equally inevitable, unless the business is broken up into small, quasi-independent profit centres, at the possible cost of potential economies of scale.

These circumstances go some way to explain why, in the economic field, victory does not always go the big battalions. And it is not hard to find examples of where large firms, relying on co-ordination by direction, have lost ground to smaller ones less burdened by the cost of doing so and more able to take advantage of specialisation by others. Commercial freedom provides competition not only between firms, but also between different forms of economic organisation; the appropriateness of each of these forms will depend on the circumstances in which they have to operate, and which will not for long remain the same.

OTHER FUNCTIONS OF THE FIRM

I have been concerned with the firm in its role of arranging for the co-ordination, through direction, of systematically complementary activities. But it is worth mentioning, for the sake of perspective, that although this seems to me to be the prime function of firms it is not their only one. Indeed, firms may exist which do not perform this function; management consultants or window cleaners could, for example, associate together under some central authority in order to arrange for the distribution of their aggregate earnings in a particular manner. And the more typical limited liability company, the prime purpose of which is co-ordination through direction, and which has

workers, managers and shareholders, also performs a distributive function of this kind, particularly by taking account of differential willingness or ability to assume risk.

Firms also provide a system of incentives, of which the distribution of their gross revenues is a key part. This article has been concerned with the co-ordination of activities, and not with the motivation of those who have to carry them out. The two issues, though distinct, are obviously related. I have been considering how, if people pursue limited and specific aims – in plain terms, do particular jobs – there may result a pattern of resource allocation that is efficient overall. But the question arises as to how people can be induced to pursue these particular aims, when doing so does not in itself answer to their own private interests.

In praising the work of the 'invisible hand', attention is often focused on how this latter alignment is achieved; there is mention of how private greed can be harnessed in the service of the public interest, and of course Adam Smith himself famously observed that 'it is not from the benevolence of the butcher, the brewer or the baker, that we expect their dinner, but from their regard to their own interest'. This is true, but it is also true that, even were people guided only by altruism, arrangements of the kind we have been discussing would still be required, whether at the level of the macro- or the microeconomy. Each individual person would still have to be assigned, somehow or other, tasks specific and limited enough to be within his or her competence, and ways would have to be found to achieve subsequent co-ordination. If a person were moved only to serve the public interest, it would usually still be best for that person to find a job where his or her talents were in demand and do it well.[9]

In addition to their co-ordinating, distributing and motivating functions, firms may also replace the market in its selective function. Independent enterprises have mandates to deploy resources which will wax or wane according to their earnings and their credit with wealth-owners generally. In this sense, automatic selection prevails; the units within a firm, on the other hand, have mandates that are determined by the central authority, which is not obliged to determine them on the basis of achieved earnings.

I have not considered, in this article, what determines the amount of resources that firms, or economic agents generally, can command. In a regime of private property this is determined by their wealth and their credit. Those responsible for direction within a conventional firm exercise authority derived from, and on behalf of, owners of wealth. Of course, the directors may be given great discretion, though they are rarely inattentive to their share price. Of course, the directors are also subject to important constraints, legal, moral and practical, to the extent that they will often claim that they have a triple responsibility, to consumers, workers and shareholders. Nevertheless, the authority to deploy resources depends, under capitalism, on their ownership. And, despite the inequality of wealth in

capitalist economies, this ownership is sufficiently dispersed to produce a plurality of free and independent decision-making.

NOTES

1 Brian Loasby and Nicolai Foss provided helpful comments on an earlier draft of this paper. I am very grateful to them for doing so and for encouraging me to return to economics after a break of over twenty years.

2 This is discussed in my article 'Adam Smith on competition and increasing returns', published in *Essays on Adam Smith*, edited by Andrew Skinner and Thomas Wilson and published by OUP in 1975.

3 Keynes, in a letter written in 1934 to Hicks, who incidentally was writing *Value and Capital* at the time, expressed the opinion that 'Walras's theory and all others along those lines are little better than nonsense' (Skidelsky 1992: 615). Schumpeter, on the other hand, maintained that:

> as far as pure theory is concerned, Walras is in my opinion the greatest of all economists. His system of economic equilibrium . . . is the only work by an economist that will stand comparison with the achievements of theoretical physics. Compared with it, most of the theoretical writings of that period – and beyond – however valuable in themselves and however original subjectively, look like boats beside a liner, like inadequate attempts to catch some particular aspect of Walrasian truth.
>
> (Schumpeter 1954: 827)

What are we to make of a subject on which two such very eminent practitioners take such divergent views?

4 Game theory has provided us with insight into the logic of choice given interdependence, but is not concerned with the question that has engaged me. That prior question is about how, in the real world, circumstances may exist, or may fail to exist, or may be deliberately contrived that sufficiently reduce our area of ignorance to permit tolerably informed decisions. Put otherwise, my concern has been with the availability of information to the participants in a market seen as a function of that market's structure.

5 The decision whether to buy in a good or service is sometimes represented as likely to turn on transactions costs, on the costs of making and monitoring a contract with another firm as compared with managing the activity in-house. But this is usually a minor consideration; most businesses use a lot of paper, but refrain from acquiring paper mills, far less a forest. The reasons are easy to see; they lack experience of this manufacture and are unlikely to use sufficient paper to employ a mill of optimum size. Transaction costs are real enough, and are incurred both between firms and within them, but they are not normally critical for the decision in question.

6 My experience in publishing introduced me to a particularly luxuriant variety of such arrangements. Publishing firms exist, to a remarkable degree, by taking in each other's washing. OUP was exceptional in the number of distinct activities it undertook; when I joined it, some 3,000 people were employed, some in printing and paper-making. At the other end of the spectrum, the Marvell Press, with which Philip Larkin published his first poems, was staffed by George and Jean Hartley, and by them alone. Of course the two businesses were doing different things, whether or not they find they are included in the same standard industrial classification. Book publishing comprises many different activities – commissioning, editing, designing, warehousing, marketing and so on. And even these categories need breaking down; firms that market in the United States will commonly not market in India, and marketing school books is an activity significantly different from marketing novels. Typically, therefore, publishing businesses find themselves linked with each other in both competitive and co-operative relationships.

7 It is worth observing that direction may become necessary in response not only to the complexity of co-ordination, but also to the speed with which it has to be carried through. It is noteworthy that planning is often introduced in wartime, when a radical and rapid reconfiguration of activity is required. So long as change can proceed fairly gradually, or at any rate does not need to take place on many different fronts at the same time, normal market mechanisms, we have seen, may be able to effect the adjustment required. But if change has to be radical, rapid and widespread, then individual businesses, being unable to assume that the presence and prices of relevant complementary and competitive activities will remain the same, may lack the informational basis on which to make the needed investment decisions. In these circumstances, governments may assume special powers of direction; 'manpower budgets' may replace or supplement financial ones, and investments, prices, profits and the movement of labour may all be brought under control. These measures promote the required co-ordination, but at a price. Market disciplines are undermined, so that the pressures to control costs are diminished and the fate of individual businesses is no longer automatically linked to their performance.

8 The microcomputer industry developed very much in the latter way, as is described by Professor R. N. Langlois in his interesting article 'External economies and economic progress; the case of the microcomputer industry', *Business History Review* 66: 1–50.

9 It is worth observing, at the risk of modest digression, that the principles of economic organisation, some of which this article has sought to address, are unlikely to be correctly elucidated on the assumption that people are moved only by selfishness. Certainly Smith himself, so often selectively quoted, did not think so. It is in his *Theory of Moral Sentiments* that Smith argues that, were we not moved by a sense of justice, 'a man would enter an assembly of men as he would enter a den of lions' (Smith 1976: 86). He did not consider beneficence, unlike justice, essential to the subsistence of society, but observed that society would however be 'not in the most comfortable state' (Smith 1976: 86) without it. A too close alignment of a manager's remuneration with the profits of the department with which he is responsible may often work against the interests of the business as a whole. It may sharpen distracting argument about the allocation of overheads, always to some extent arbitrary, upon which the determination of departmental profits depends. It may also cause departmental management to resist changes which, although in the interests of the business as a whole, happen to reduce the earnings attributed to a part of it. A chief executive is likely to value a manager whose keenness to make profits for his department is balanced by loyalty to the business of which it is part.

REFERENCES

Coase, R. (1937) 'The nature of the firm', *Economica*, N.S. 4: 386–405; reprinted in O.E. Williamson and S.G. Winter, (eds) (1991) *The Nature of the Firm*, New York: Oxford University Press.
Marshall, A. (1890) *Principles of Economics*, London: Macmillan.
Richardson, G. B. (1960) *Information and Investment: A Study in the Working of the Competitive Economy*, Oxford: Oxford University Press; 2nd edn 1990.
—— (1972) 'The organisation of industry', *Economic Journal* 82: 883–96.
Schumpeter, J.A. (1954) *History of Economic Analysis*, New York: Oxford University Press.
Skidelsky, R. (1992) *John Maynard Keynes: The Economist as Saviour*, London: MacMillan.
Smith, A. (1976) *Theory of Moral Sentiments*, Oxford: Clarendon Press.

4

CO-OPERATION AND COMPETITION PARADOXES IN THE THEORY OF THE ORGANISATION OF INDUSTRY

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INTRODUCTION

'The organisation of industry' (Richardson 1972) describes an industrial system that consists of direction within firms, inter-firm co-operations and market transactions. Such an organisation may be considered as a framework for the analysis of what has been called the 'institutional structure of production' (Coase 1992), i.e. the division of productive co-ordination among different kinds of institutional arrangements. The theory of industrial co-ordination proposed by Richardson is not simply another criticism of the theory of industrial organisation to be inserted in a transactional framework; this criticism proposes a new explanation of the organisation of industry, an explanation endowed with a greater empirical content. Indeed, the last footnote in Richardson's article tells us that the theory provided in this paper 'might be taken as giving content' (Richardson 1972: 896, fn 1) to the Coasian theory of the boundaries of the firm, this being revealed by introducing an explicit distinction between inter-firm co-operation and market transactions as modes of co-ordination.

The purpose of our paper is to inquire about what is meant by 'giving content'. This question is mainly a methodological problem that concerns the relationships between theoretical and empirical aspects regarding the functioning of industrial organisation. In fact, in such evolutive areas as the theory of the firm and that of industry, methodology matters because of its real effects on analytical developments. Such effects are related to the analysis of information, which is the core question of modern theories of the firm and industrial organisation. In particular, methodological choices made by