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Why Do Firms Exist?

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1. INTRODUCTION

One of the most striking paradoxes in economics relates to the existence of the firm. Economists have known since Hayek or even, in a somewhat more nebulous way, since Adam Smith, of the manifold advantages of the market over command and planning as a means of coordinating the infinitely varied activities of an economy. They know in particular about the informational economy of the market. Unlike the state, the market has no need of a vast, cumbrous and costly apparatus of information-gatherers, most of whose information is non-quantifiable and therefore incommunicable, and whose self-interest dictates that they strategically distort their reports to the central authority. It can dispense with time-consuming central decision-making procedures which may well lead to inconsistencies a la Arrow. And it does not require an elaborate network of imperfectly controllable agents to monitor everyone and everything and enforce central decisions. All these are enormous advantages for the market over command structures. Yet at the heart of the market stands the firm, an institution whose internal structure is entirely hierarchic, a command system *par excellence*.

How do we resolve this paradox? What are the organisational advantages that enable the firm to survive, indeed to multiply and dominate the competitive struggle between alternative economic institutions? This was the essence of the question that Ronald Coase posed in his classic paper of 1937. [4]. Linked to this question is that of the environment of the firm: what are the technological and institutional features of its milieu which enabled the firm to evolve and flourish?

2. THE FIRM AS A PRODUCTION TEAM

In answering these questions one needs first a model of the firm. The firm is, at the same time, a production team, an insurance contract and a hierarchy of command. As a production team it is capable of economies of scale which cannot be achieved through separable individual production processes. In a team however the

contribution of the individual to the end product can rarely be isolated or identified. Piece-wages cannot work and must be replaced by time-wage systems. Thus unless the quality of individual inputs is monitored, moral hazard emerges: the individual is induced to shirk and free-ride on the efforts of his fellows in the team. The higher productivity of teamwork, as Alchian and Demsetz [1] averred in their seminal paper, depends on the existence of a monitoring mechanism; work must be monitored and shirking penalised, both of which imply an authority structure within the team Further, supervision can be effective only if the reward of the supervisor is linked to his efforts - if he is the full beneficiary of the output windfalls generated by his supervision, if, in other words, he is the residual claimant.

The modern firm is, in this sense, a product of the Industrial Revolution. As the technology of low-cost large-scale team production evolved, the factory system displaced guilds on the one hand and the domestic system on the other. In the factory, time-wage payments supplanted the piece-rate system of domestic production: and monitoring of input and disciplinary functions devolved on the profit-earner.

3. THE FIRM AS AN INSURANCE ARRANGEMENT

The firm however is not only a production unit. It is also, as Bailey [3] and Azariadis [2] have pointed out, an insurance contract in the sense that it contractually fixes the income of some of its members, thus protecting them from the risk of market fluctuation. Such risk is concentrated on the residual claimant. The firm thus offers a variety of roles to potential members, risk-lovers as well as the risk-averse, who achieve, by self-selection, a better sharing of risk than is possible with a uniform payment structure. Insurance, however, creates its own moral hazard. Those whose incomes are predetermined by contract have an incentive to shirk which must be contained by monitoring. Otherwise bankruptcy for the insurer (the residual claimant) is assured. Insurance, therefore, cannot be provided by an external agency: it must be supplied from within the production process by the monitor himself.

4. THE FIRM AS AN INCOMPLETELY SPECIFIED CONTRACT

The monitoring and disciplinary functions of the residual claimant are thus indispensable if the firm is to exploit the economies of team production or to insure some of its members against market risks. However, there is more to a command structure than this. In a firm this additional element arises from the incomplete specification of the duties of the employee. In an unpredictable world, a detailed specification of what the employee may be required to do in each of thousands of possible contigencies would be prohibitively costly. If the firm is to keep such transaction costs within manageable proportions while retaining flexibility and adaptability to changing circumstances, the employee must within certain broad limits, undertake to do as he is told by his authorized superiors. It is this contractual surrender of discretion by some people to others that is the basis of hierarchy. The firm is thus a command structure but one that is generated by contract.

5. THE FIRM AS A SAFEGUARD AGAINST OPPORTUNISM

If the cost of writing some contracts leads to the setting up of some firms, the cost of enforcing contracts dictates the establishment of others. A long run business relationship where one partner has invested in assets specific to that relationship tempts the other partners to 'hold out' on the first. The owner of the specific assets is vulnerable to blackmail, given the cost of enforcing his contracts with others. The problem disappears if the partners are linked by the formal authority structure of a firm (Williamson [6]).

The firm is thus an institution which facilitates

(1) the exploitation of economies of team production

(2) the insurance of the more risk-averse against market-risk

(3) adaptation to changing circumstances, and

(4) the avoidance of contract-enforcement costs for the owners of specific assets.

6. WHY ARE CAPITALISTS BOSSES?

All these factors imply that there should be a residual claimant who bears the major risks faced by the firm and that the supervisory, disciplinary and decision-making functions of the firm should vest in him. They do not necessarily imply that the *capitalist* should be the residual claimant and the boss. Indeed, the typical medieval firm under the guild system was owned, not by capitalists but by workers: it used borrowed capital, for which it paid a contractually fixed price, and reserved the variable residue after capital and other costs had been paid for the workers.

The rise of the modern capitalist firm was associated with an increase in the capitalist's ability and willingness to bear risk. Unlike labour, capital is a highly divisible resource: the growth of the share market enabled capitalists to divide their resources among many uncorrelated industries thus reducing the possible dispersion of returns by diversification. The worker could not diversify his allocation of labour between industries to a similar extent: the fixed length of the working day as well as the limited human capacity to learn confined him to one, or a few, jobs. The share market made the capitalist essentially neutral to the risks of a particular business. The worker, however, remained risk-averse. Optimally, therefore risk could be concentrated on the capitalist: he became the residual claimant and accordingly the boss.

The growth of the share market was stimulated by the principle of limited liability. By restricting the liability of the investor for the losses of a business to his personal stake in it, the principle encouraged equity investment. At the same time, it discouraged lending to the firm: in the event of loss the owner was responsible for repaying the loans taken by the firm, not fully, but only to the extent of his own stake in it. This generated moral hazard: the owner was tempted into imprudent risk-taking with borrowed capital. Thus, limited liability in a worker-owned firm created incentives for wasteful and speculative use of capital which in turn deterred potential lenders. As Easwaran and Kotwal [5] argue, the owner had to be the major source of

funds himself since he alone could supervise their end use. The capitalist became the owner and therefore, the boss.

7. LARGE SCALE PRODUCTION AND THE INSTITUTIONAL STRUCTURE OF THE FIRM

The factory system, the wage system, the share market, limited liability and the firm - particularly the capitalist-owned firm - are thus inextricably interlinked in their logic and functions. Central to this complex of institutions was the evolution of large-scale technology. Large-scale production did more than foster factories, time-wages and team-work with supervisory hierarchies. Its heavy fixed capital requirements involved far too much risk for the individual owner to finance or underwrite: it necessitated the pooling of risk and therefore the rise of the share market. Fixed assets are also generally specific to particular uses; firms dependent on them require increased flexibility in labour use if they are to adapt well to changing circumstance. This in turn reinforces the need for an agreed surrender of discretion by labour and a strong structure of authority. Finally, asset specificity increases the scope for opportunistic exploitation of the firm by those outsiders with whom the fixed commitment constitutes a long term link: it makes it necessary for these outsiders to be integrated into the firm.

The technology of large scale production thus created the environment in which the entire complex of institutions centred on the capitalist-owned firm proved Pareto - superior to alternative institutional structures. Will the retreat of large scale technology so often forecast as inevitable in the post industrial era reverse the fortunes of the firm? Or will the increasing importance of technical knowledge with its public good characteristics, as a major output of industry reinforce the traditional hierarchies while changing their form? That of course is another story and one which for the present must remain untold.

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