

## Leibenstein and the “new” firm

Amit Jyoti Sen  
Indian Institute of Management Calcutta

### I

Harvey Leibenstein has been hailed as a pioneer of our time. It is claimed that he has provided a new way of looking at economics. His contributions are in the areas of demography, development and the theory of the firm. The basic thrust of his work has been to identify a source of inefficiency which he calls “X-inefficiency” as opposed to allocative inefficiency the central theme of neoclassical economics.

To the neoclassical economist proper allocation of goods and services aided by the (unrestricted) use of the price mechanism leads economies to get to the production possibility frontier, and achieve Pareto optimality.

Leibenstein argues (from his experiences of developing countries) that there is much greater source of in efficiency (X-Inefficiency) which arises because of the *underutilization* of resources as compared to their *improper* use, the theme of allocative efficiency. Labour, machinery or raw materials are not used to their full capacity or full effectiveness. Inevitably this leads him to focus on the theory of the firm and in particular the firm as an organisation.

As we know the standard neoclassical theory does not have a theory of organisations. The so called theory of the firm turns out to be a theory centred on the production function which is a well defined technological relationship between inputs and output.

But firms are very much more complex. For one they produce a variety of products which are often related sometimes unrelated. Also firms perform many activities than just produce the finished product. They may make a number of intermediate products. Decisions have to be made on what to make and what to buy in, also how to sell: the “vertical integration” debate. The multi-fold activities of a firm are inadequately covered by standard neoclassical theory. But a more serious limitation of the neoclassical theory is that there is no discussion of organisational structure.

Some of these limitations have been dealt with in the new extensions of neoclassical economics: namely transactions costs economics broadly defined. Oliver Williamson has given a basis of vertical integration and outsourcing decisions. Agency theory has provided a very rudimentary theory of hierarchy essentially a series of one step superior subordinate relations couched in terms of Principal and Agent. And the multi-product firm has been explained in the discussions on economies of scope.

But it is in the area of hierarchy or more generally of organisation structure that neoclassical contribution has been very modest. Such discussion as there is can be found in the management literature which does not sit comfortably with neoclassical theory.

It is in this context that Leibenstein's contribution is very significant. Almost alone among economists he links discussions on output and performance of the firm with psychology of workers and managers, in particular he shows that the effort supplied by the worker and thus his contribution to the firm depends upon features of the hierarchy. The hierarchy affects the motivation of workers and hence their performance. The nature of the hierarchy and the formal and informal linkages between levels and across levels determine productivity and performance. Another contribution in the same line has been made by Aoki.

However both the approaches (Leibenstein and Aoki) have limitations in that they are based on a rather restrictive view of the firm as a single unified entity. But the modern firm is a much more complex enterprise where its boundaries are not clearly defined. The modern firm is often a network of independent and quasi-independent enterprises. This development in the nature of the firm has been reflected in developments in management theory and transactions costs economics but as much of this work has taken place in recent years Leibenstein's X-efficiency theory has not been applied to it. So here we will explore how Leibenstein's and Aoki's work apply to this kind of firm.

To do this we will first have to review the literature on organisations in management theory.

## II

Organisations create value; they enable more to be achieved by a group of individuals than would be possible for them if they worked separately. In an organization the activities of a group of individuals are *consciously coordinated* and this is what enables the creation of value.

Conscious co-ordination is not the only form of co-ordination. Another form is co-ordination through the price mechanism. The different economic agents indulge in exchange. This also leads to the creation of value.

It would seem that the real reason for the creation of value is exchange. If the economic agents are in isolation they will have some level utility based on their initial endowments of goods and their capacities to augment them through their own efforts. But by freely indulging in exchange, that is with no coercion, each member would be better off or at least no worse off than by being in isolation. The group as a whole would be better off; value is created.

Exchange can take many forms. There could be a series of bilateral contracts where every individual enters into a contract with each of the others in the group. This means that each member of the group will have to make a deal with every other. Even with a small number of individuals this means a very large and unworkable number of contracts.

One way out is for each individual to enter into a bilateral employment contract with a central contracting party. But this is not all. The process by which one would arrive at

an equilibrium solution is problematic. Also there could be a number of equilibrium solutions. Neoclassical theory argues that as the number of contracting individuals increases there would be a unique equilibrium solution but the question nevertheless remains about how to get to it. If full information is available to each individual then there is no need for the parties to search for the optimal outcome. They could reach it right away. Neoclassical general equilibrium theory assumes that each party has full information; in other words that there is no uncertainty.

In reality we have insufficient information and uncertainty. This implies that many of the contracts will remain incomplete. This leads to problems of enforcement and which can be expressed in terms of transactions costs. Exchange under incomplete contracts can take place if there is trust between the parties.

Incomplete contracts can range from pure “relational” a situation where there is a measure of equality between the parties to hierarchical where one party is dominant as is the case with employment type contracts. Employment contracts are one sided in that the employer has the right to set procedures and give direction.

An organisation consists of a set of contracts. Some of these are complete “spot market” contracts others are incomplete. Incomplete contracts can be of the employment type and of the relational type.

Traditionally the set of employment type contracts have defined the boundaries of an organisation. There has been a clear distinction between what is inside and what is outside. However relational contracts occupy a middle ground. They are neither market nor hierarchy.

Another way to deal with uncertainty is having an agency type relation with the “employee”. The firm is seen as a giver of incentives. Although there is no conscious direction the authority sets the terms so it is like giving direction.

The key feature of an organisation is the existence of a central contracting agent who sets the terms under which human resources act. Whether the terms are of the employment type or agency type does not matter.

In deciding which activities to engage in organisations will strive to follow a least cost approach and will carry out activities based on production cost and transactions costs. So even if a specialised producer of a component may produce it at a lower cost than the focal organisation, it may not acquire it from the potential supplier because of higher transactions costs. Of course there are costs of internal governance which will have to be also taken into account.

So far we have made very general statements about vertical integration. Even so there is no clear demarcation between external and internal. Firms enter into a variety of arrangements with suppliers and customers. They range from pure spot market transaction at one end to complete internalisation and use of direct supervision on the other. There can be a variety of intermediate arrangements as well.

The neoclassical firm consists of a set of spot contracts. These are complete contracts and by definition X-inefficiency does not exist.

Incomplete contracts make it possible that some resources are underutilised and that X-inefficiency exists. It also means that there is room for pressure on those subject to the contract (albeit up to a limit) to improve/increase their performance. Pressure can take the form of close supervision and monitoring. Pressure could also take the form of revision of the terms of the contract. This is relevant when the firm takes the form of provider of incentives as in the agency theoretic view of the firm.

Leibenstein argues that pressure on employees arises from pressure on the enterprise from the environment. For business organisations this would mean competitive pressure. This may take the form of price competition if the organisation is pursuing a cost leadership strategy. If the organisation is pursuing a differentiation strategy the pressure can be to innovate. Leibenstein appears to concentrate on price competition and cost cutting. The applicability of his analysis to organisations pursuing a differentiation strategy is in question.

### III

In Leibenstein's work the X inefficiency concept is related to the employment relation where the employees are subjected to pressure to perform in order to reduce costs. But it can also relate to any hierarchical relation where costs are the issue.

Now fully formed (complete) contracts such as spot market contracts are non hierarchical in nature. The market determines the price at which the transaction will take place.

Incomplete contracts can have hierarchical features. This is clear when we speak of employment contracts. But other types of incomplete contracts including "relational contracts" can also have hierarchical features. Therefore two firms nominally independent linked through a relationship can be in a hierarchical relationship as can a firm and any other external party.

At the same time if a firm makes extensive use of market like arrangements with its human resources (internal markets and the like; fully specified contracts) then the possibility of exerting pressure upon them is diminished.

So we do not have the simple alternative of firms and markets, which translated into organisation theory terminology, would be organisations and the external environment. Instead we have firm like (hierarchical) contracts and market like (spot market) contracts. Firm like contracts can range from a situation where the firm under question has the upper hand (it sets the terms) to where it is at the receiving end.

Thus Leibenstein's X-efficiency theory has to be seen in a wider context. True exercise of pressure can lead to X-efficiency gains, but firms are not simple entities

with a clear boundary separating them from the environment. Firms are complex entities. More over there are different types of hierarchies. Firms differ in their structure and to this we now turn.

#### IV

A standard distinction in the strategy literature popularised by Chandler is between U-Form and M-form. The U-form is the unitary organisation geared towards production of a single product and the M-form is the multi-divisional firm. This is not very interesting because M-form turns out to be a collection of U-form entities.

Management theory provides a time tested distinction between mechanistic and organic structures. The mechanistic structure is characterised by well defined tasks and vertical communication. The organic is characterised by flexible tasks and horizontal communication (lateral linkages).

In the mechanistic structure individuals carry out specific specialised tasks and coordination is done by superiors. In the organic structure individuals though having specialised knowledge of their own field also have enough knowledge of other areas to be able to interact with their peers. Thus a part of the coordination is done mutually (mutual adjustment).

It is a commonly held assumption that hierarchy implies the mechanistic structure whereas the organic structure is non-hierarchical. This is not so, because what Aoki describes as the Japanese-form organisation, is very much hierarchical but it is flexible (organic). Hierarchy and flexibility go together in the J-mode.

In the J-mode the hierarchy is very much present because final control is exercised by the top management, but it is done in a manner very different from the mechanistic form. In the J-mode top management reviews the life-time performance of employees and promotes them on the basis of their contribution and loyalty. In the mechanistic form of the US variety (A-form) positions are well defined, individuals are seen as being replaceable, and the assessment is on the basis of current performance on the job. If they are found to be inadequate they are replaced. If found adequate, they would be rewarded which would typically take the form of a performance bonus. Sometimes a promotion may be offered but there would be no guarantee of any further promotion. Career advancement usually takes the form of job hopping between organisations and sometimes within organisations.

In both the J-mode and the A-mode hierarchical pressure can be applied, and the X efficiency concept holds. In the US type mechanistic system, pressure takes the form of direct supervision and setting of targets. In J-mode organisation hierarchical pressure is of a moral kind where commitment and sincerity is monitored. The US-form organisation does not need to have much memory.

But what about the organic form of the US-type? Mintzberg calls this organisational form “the adhocracy.” By definition it is non hierarchical; it places great emphasis on lateral links to the detriment of hierarchical control. But how are organizational objectives achieved? It would seem that the control systems are very weak and that X inefficiency would be at a peak here.

How can we put pressure in an adhocracy where there is no clear hierarchy? What form can the pressure be? It would appear that the primary method would have to be economic rewards and punishments based on some measure of performance rather than direct supervision. This will result in a competitive bidding up of salaries. The punishments would take the form of dismissals and demotions. The reliance on economic incentives means that the primary method of co-ordination would be what Mintzberg call standardisation of output. Yet this would be very difficult to specify when in an adhocracy because standards of performance are ambiguous.

How do we ensure commitment in such organisations? Money does not necessarily generate commitment and involvement. The adhocracy appears to be brittle. If there is no feeling of community then what holds it together? There is a paradox here. How can the firm decentralize power to individuals or teams who have no commitment? Such organisations also consist mainly of professionals tend to be committed to their own profession and professional colleagues outside the firm.

V

Why are structures different? Traditional organisation theory links structure with the organisation’s environment. When uncertainty is high information has to be processed during the execution of the task. Thus it is not possible to pre-programme. Therefore decision-making has to be decentralised down to the operating levels. This is the reason we have the organic form. The organic form can be of the Japanese type with hierarchical control exercised indirectly or it can be of the of the US form the “Adhocracy”.

The other approach in discussions of organisation structure relates structure to strategy.

Two types of generic strategies have been identified: Low cost or cost leadership and differentiation.

Low cost strategies would require a lean structure. The traditional hierarchy would be the best. This could take the US or Japanese form. There is tight control from the top and costs are closely monitored. In a cost leadership strategy lowering costs would mean either putting hierarchical pressure or finding low cost sources of inputs. There are limits to the former and hence the pressure to outsource and offshore.

Differentiation strategies require that the structure encourages innovation. Various structures have been suggested. Principally innovation is a bottom up process and cannot be dictated from the top. There are limits to hierarchical pressure here.

The pure organic form “adhocracy” would seem appropriate. A hierarchical form such as Aoki’s J-mode mode is good for process innovation which is more suited to the cost leadership strategy and not for product innovation.

But how is the adhocracy to be managed given that there are limits to hierarchical pressure? One way is through financial incentives and creation of internal entrepreneurs. This may lead to a bias at product innovation for its own sake. Also costs may go out of control.

A possible way out and a way of reducing costs would be to similarly outsource and offshore. Indeed the pressures to offshore would be if anything more severe in this situation given that there are very real limitations of hierarchical pressure.

## VI

A distinction has to be made between outsourcing and off shoring. Outsourcing is a situation where the firm instead of producing an intermediate product buys it in. this can be from the market or from a vendor with whom it has a long-term understanding.

Off shoring is sending work overseas where labour costs are substantially lower. One can have outsourcing without off shoring and off shoring without outsourcing and at times both.

Outsourcing can help reduce costs because the tasks that were done internally could now be done by firms which are specialised in this activity and so can produce it at lower cost and price it low. Often these firms are new and have few legacy costs. They also tend to pay lower salaries.

Off shoring reduces costs because of the market exchange rate is a fraction of the PPP exchange rate. This means that well trained individuals who live reasonably well in their own countries are available for a fraction of the cost of similar individuals in the developed countries. A firm can offshore without outsourcing when it sets up a fully owned subsidiary overseas. This would be the preferred route when the activity involves proprietary knowledge.

Thus we find that firms which very innovative are shifting more and more of their R&D activity overseas. When the R&D activity is critical they establish fully owned subsidiaries; when it is less critical the work contracted out to offshore specialist firms.

Often work that is outsourced to a specialist provider of a service may be off shored. The specialist provider aggregates work for many different firms and ships it overseas.

## VII

What can we conclude from this discussion?

Leibenstein's X-inefficiency theory is largely valid. We have clear evidence of pressure on employees in the 1980s and 1990s. This took the form of downsizing and de-layering and it was accompanied by a very sharp increase in work load especially for middle level managers as it was this category which was drastically reduced in numbers. At the same time income differentials between senior managers, particularly top management and the other employees increased very sharply. This suggests that the pressure on employees was not just the transmission of competitive pressure on the organisation from the environment but a change in the norms in society which encouraged and allowed such changes justified presumably by the plea of increasing shareholder value.

By the 1990s the scope for further gains in this manner became limited. No further pressure could be applied on the employees who had been pushed to the limit.

So other ways of reducing costs (and therefore increasing profits) had to be found. Firms took recourse to outsourcing. Of course this was not entirely new. No firm has ever been completely vertically integrated. The standard argument in favour of outsourcing is that it enables inputs to be obtained at lower cost (after taking into account transactions costs) because the supplier is a more efficient producer of the input. This could be because of economies of scale or because of better knowledge of the production process for that particular input (an example of the virtue of specialisation)

But there is another reason for the lower cost advantage to outsourcing. The labour costs in the supplier are often lower not just because of lower wages but also because of poorer benefits. This argument of course holds only if the outsourcing firm is in some sense larger (has more power) and more visible (has better salaries and benefits) than the supplier and is in a position to push for terms which are favourable to it.

This would be the case with what is called the "stable network". The virtual firm or the "dynamic network" type of organisation would not have this advantage. On the contrary it might find itself in a weak bargaining position with respect to the supplier.

Off shoring is like outsourcing not new. What is different now is the scale at which it is being done aided by developments in communications technology. Off shoring refers to the shift of production and administrative facilities overseas. It gives the firm access to manpower at the fraction of the cost.

Off shoring can be to one's own facilities overseas or it can be combined with outsourcing where the work is done overseas by a third party. The third party vendor is often in a relation of dependency. So costs are lowered not just because of the exchange rate but also because the vendor is in a weaker position.



## VIII

Leibenstein's original formulation needs to be expanded to take into account the changes in the nature of organisations, namely the shift from the unified firm to the distributed form.

The central theme of hierarchical pressure to reduce costs by reducing X-inefficiency holds. This pressure is now transferred to organisations with which the firm has relational contracts.

This requires a reformulation of Leibenstein's postulates. (Summary will follow)

Fully formed market type contracts have no scope for hierarchical pressure. Incomplete contracts do. Hierarchical pressure takes the form of reviewing the results of performance. But how do we assess performance when the criterion of performance is ambiguous?

### BIBLIOGRAPHY:

- Leibenstein, Harvey: *Inside the Firm* Harvard University Press 1987  
Leibenstein, Harvey: X-Efficiency: From Concept to theory *Challenge* Sept-Oct 1979  
Leibenstein, Harvey: *Collected Essays Vol.2* Edward Elgar  
Tomar, John: Strategy and Structure in the Human Firm *Journal of Socio-Economics* Vol 24 No. 3 1995 pp 411-431  
Dean, James and Mark Perlman: Harvey Leibenstein as a pioneer of our time *The Economic Journal* Vol. 108 January 1998 pp 132-152