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# **Developing Communication Technologies**

## **and Transaction Costs: A Note**

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The paper discusses the role of communication technologies in reducing the costs of using market exchange. It analyzes the comparative effect of new technologies on transactions which take place within and outside the firm using Coase's postulate of the size of the firm. Technologically innovative firms in which technologies have the effect of essentially reducing the costs of internal organization would expand the size of firms. These are usually communication technologies having the effect of reducing the spatial distribution among factors of production. Communication and other technologies would have the effect of reducing the size of firms when they facilitate market transactions and reduce the costs of carrying out market exchange more than they affect transactions within the firm.

**Key words:** transaction costs, communication technologies, vertical integration

**JEL classification:** D21, D23, O31

In his revolutionary theory about the nature of the firm the famous British economist Coase (1937) defines transaction costs as the reason for the emergence and existence of the firm. By definition these are the costs of using the price mechanism by which the market operates as well as the marketing costs of conducting exchange. In order to carry out a market transaction a market participant should determine who it is he wishes to trade with and under what conditions. It is necessary to lead trade negotiations, sign a contract, follow compliance with the contract, etc. Such activities are too costly for an entrepreneur to ignore them.

If the costs of carrying out a deal through the market are excessively high, the different entrepreneurs would search for ways to avoid them by uniting in firms bigger than their sole proprietorships. Transaction costs, therefore, lead to vertical integration and determine a bigger size of the firm. Coase concludes that the reason for the existence of firms is exactly the price of using the market mechanism and that the firm would grow to the point where the price of carrying out a given operation within the firm is lower than what it would cost to organize the deal through the free market.

If the costs of using the market mechanism turn out to be lower than the managerial costs within the firm, this would put a limit to firm growth. To Coase the entrepreneur or the manager plays the role of a force integrating the factors of production.

With respect to innovative technologies Coase concludes that “inventions which tend to bring factors of production nearer together, by lessening spatial distribution, tend to increase the size of the firm” (Coase, 1937, p. 397). The example Coase uses is in the following context: changes which the creation of the telephone and the telegraph brought about reduce the costs of

organizing transactions. This is why these inventions would increase the size of firms. More generally, all new technologies which improve managerial skills and talent expand firm size.

Most technologies improving the spatial distribution of production factors are communication technologies. It is not by accident that Coase uses the example of the telephone and the telegraph. If Coase had not written his work “The Nature of the Firm” in 1937 but in the era of contemporary business, he would certainly use the example of the fax machine, electronic networks and the Internet whose effectiveness and price reduce the costs of commercial dealing substantially. These inventions to a great extent contributed to the improvement of firm organization, the avoidance of managerial mistakes, and the accumulation of entrepreneurial experience. Following the logic of transaction cost theory we conclude that these modern communication means would cause phenomenal firm growth.

In the context of the theory again we ought to consider the dual influence played by innovative technologies. When they increase the efficiency of combining factors of production innovative technologies expand the size of firms. If applied to the open market however technological inventions would reduce the transaction costs of market exchange dramatically, that is, the costs of using the price mechanism, and would thus tend to reduce the size of the firm. On the dual effect of communication technologies Coase concludes:

“It should be noted that most inventions will change both the costs of organizing and the costs of using the price mechanism. In such cases, whether the invention tends to make firms larger or smaller will depend on the relative effect on these two sets of costs. For instance, if the telephone reduces the costs of using the price mechanism more than it

reduces the costs of organizing, then it will have the effect of reducing the size of the firm.” (Coase, 1937, p. 397)

Today we witness the diverse influence communication technologies have on the development of the market. Introducing computer networks increases market efficiency immensely. Stock and commodity exchanges, for instance, operate with the help of mighty computer systems.

It is hard to say whether the effect of developing new technologies is greater on the firm or the market. Logically if the firm is innovative, i.e. more open to technological innovations improving the managerial function, it would tend to integrate vertically in an economic environment in which the market lags technologically. Such is the case of Bulgaria. If we assume that organized markets in Bulgaria are relatively unequipped with modern communication technologies, then the firms adopting new inventions in communications would be growing. On the contrary, in the conditions of a technologically advanced market firms would not expand but would rather shrink until the cost of carrying out particular actions equalize with the costs of transactions or fall below their level if the latter took place on the open market.

Why do firms then tend to grow in the conditions of a highly technologically developed market such as the Western one? For instance, Walmart in the USA is an example of vertical integration with other layers of the distribution channel which is possible only with the help of complex computer systems and in-time delivery schemes. Walmart is more than a giant retailer. Walmart is in effect the hegemon of the distribution channel, the dominant element of the channel.

Why is it that innovative firms exactly the type of Walmart today are those that tend to grow? Why do these firms manage to survive and remove competition by constantly expanding

their own size? How could these trends be explained by economic theory? What is the economic logic behind which innovations determine the fate of firms? The answer seems to be that in firms adopting new technologies these innovations have a stronger effect on the costs of internal organization rather than the costs of external transactions. By saving on the costs of internal organization within the firm much more than those of using the free market mechanism and by increasing the efficiency of the managerial function technological innovations increase the efficiency of firms. This expands their size.

#### Conclusion:

A conclusion can be drawn that transaction costs lie at the heart of the expansion of technologically innovative firms in today's economic environment by facilitating the managerial function. It is mostly communication technologies that help combine factors of production more efficiently within the firm. Such technologies would have the effect of reducing the size of firms when they facilitate market transactions and reduce the costs of carrying out market exchange more than they affect transactions within the firm.

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