

The Myth of Diminishing Firms

Economist Ronald Coase was not suggesting that because the size of firms is tied to transaction costs, the lower transaction costs of e-commerce would cause e-businesses to grow smaller and smaller.



Trying to grasp what the Internet means for the future shape of business, now that the dot-com bubble has inflated and subsequently burst, has caused an explosion of interest in the ideas of the 93-year-old economist Ronald Coase. Though he won the economics Nobel Prize in 1991, Coase did the work for which he is chiefly known and is today most associated with e-commerce as long ago as the 1930s.

The standard textbook *eBusiness 2.0* [6] includes a foreword by business-strategy guru Don Tapscott arguing that the digital economy is “destroying the old model of the firm,” explaining that Coase’s early writings are the key to understanding why. *The Economist* magazine’s book *E-Trends* noted that “parts of established companies are vulnerable to being ‘blown to bits’” [5], citing as its reason for this judgment Coase’s classic 1937 article “The Nature of the Firm” [3], based on a lecture he gave in 1932. References to Coase abound in the literature on e-business. His name is much better known today than it was earlier in his long career.

There is indeed a link between Coase’s theory of the firm and changes in the business environment brought about by information technology. But the implications of his ideas have been misunderstood. Coase’s theory does not justify the conclusions being drawn about “diminishing firms.”

Transaction Costs

The essence of Coase’s theory of the firm is an attempt to answer: Why do firms exist at all? and Why are they the size they are, not larger or smaller? Before Coase, no one had addressed these questions.

In a market economy, we see numerous transactions carried out through contracts freely agreed between economic agents. But within this ocean of market relationships, we find islands within which decisions on deployment of resources are made via hierarchical, managerial mechanisms; the islands are what we call firms or companies. Why, Coase asked, are all economic interactions not market interactions?; Why is economic life not carried on entirely by individuals contracting with one another, with no islands of managerial relationships?

Coase’s answer, which has been found convincing by economists for more than 60 years, was expressed in terms of transaction costs. There are costs involved in entering into a transaction on the open market, including the cost of searching for suitable trading partners, acquiring information about what is on offer from a seller, and what terms would be appropriate to offer a buyer, as well as in negotiating a contract and then monitoring its fulfillment. Transaction costs are estimated to represent large fractions of overall economic activity in a modern society.

Within a firm, the organizational costs of achieving corresponding arrangements are often much lower. Managers who need workers to execute a given task do not need to search throughout society to find them; they know which employees they are entitled to give work to and what they are qualified to do. Little negotiation is needed; if the task falls within an employee’s terms of employment, the employee is bound to carry it out, and the payment forms part of a regular wage or salary rather than being subject to negotiation. Likewise, managers have ongoing control over a particular range of non-human resources, deploying them to achieve the functions for which they are responsible.

That is Coase's explanation for why firms exist; they are a device for replacing high transaction costs with lower organizational costs. But, according to Coase, as a firm grows larger its costs for achieving arrangements managerially tend to rise. The larger the firm, the more complex and hence expensive its management becomes, until further growth would make the cost of managing the newly internalized operations greater than the cost of transacting them on the market. That is how Coase

[8] predicting that "Information technology will lead to an overall shift toward proportionately more use of markets—rather than hierarchies—to coordinate economic activity." The point did not continue to be stated in such measured words. The idea that Coase's theory implies shrinking firms really took off in 1998 with Larry Downes' and Chunka Mui's *Unleashing the Killer App* [4]. Downes and Mui used Coase's ideas to promulgate a new Law of Diminishing Firms, stating:

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The Frictionless Economy

Why should this idea find special resonance in the new world of e-business? The reason is that one of the most salient effects of Internet commerce is to diminish various transaction costs. Search costs, in particular, are reduced dramatically when a firm's catalogs and the like can be accessed in seconds on the Web. Negotiation costs may be greatly reduced through such techniques as electronic auctions. Some commentators use the term "frictionless economy" for the trading environment the Internet is bringing into existence, implying that transaction costs are becoming only a minor supplement to the prices paid for goods and services.

If transaction costs fall, Coase's theory predicts, other things being equal, the point at which organizational costs equal transaction costs should occur at smaller firm sizes. This theoretical prediction chimes with the current trend to outsourcing: Many firms focus narrowly on their core expertise, buying goods and services that used to be produced in-house. Adam Wishart and Regula Bochsler have written about an "Age of the Pygmies dominated by herds of tiny fleet-footed firms" [10].

The link among Coase's theory of the firm, information technology, and outsourcing was first expressed (to my knowledge) in a farsighted 1987 article by Thomas Malone, JoAnne Yates, and Robert Benjamin

"As transaction costs in the open market approach zero, so does the size of the firm." Since then, it has been the orthodoxy. Information technology reduces transaction costs, so e-businesses will be small businesses.

Some commentators make more obscure claims about the relationship between information technology and Coase's theory. Claudia Loebbecke wrote: "The traditional rationale for the existence of companies, as articulated by Coase and others, is the minimization of transaction costs... This analysis is no longer generally valid... [information technology] has dramatically reduced transaction costs" [7]. Loebbecke seems to be suggesting that since the theory makes inferences from transaction-cost levels to the size of firms, if those levels change, the theory is refuted. But this is illogical. Coase did not assume transaction costs always reach the same level. He said their level at any particular point in time affects firm size at that time. Most business commentators read Coase this way, saying that since transaction costs are falling, firm size is shrinking.

An Overly Simple Interpretation

We might suspect this interpretation is overly simple if we had read Coase about the communication technology of the time. In 1937 there were no computers, but the telephone had recently been integrated into business operations. For Coase the implications were clear: "Changes like the telephone and the telegraph which tend to reduce the cost of organizing spatially will tend to *increase* the size of the firm" [my emphasis]. The

point is that Coase's theory does not say firm size is determined by a single factor—the cost of carrying out transactions on the market. It says what counts is a balance between two factors—the cost of achieving a transaction on the market vs. the organizational cost of achieving the same result through a managerial mechanism. Firms will shrink if transaction costs fall relative to organizational costs. If organizational costs fall relative to transaction costs, firms will expand.

Coase evidently saw the telephone and telegraph as affecting organizational costs, rather than (or, at least, more than) the costs of transacting business between companies. I am not sure why he supposed that; in the era of operator-connected calls, perhaps the public telephone system simply was not a very convenient means for separate companies to do business, while internal company phone networks did a good job of keeping branches and head offices in touch. I do not know whether that is the correct interpretation, but the question is now of historical interest only.

The point relevant today is that, if we want to know how information technology affects firm size, it is not enough to look at its effect on transaction costs. We also have to look at the effect on internal organizational costs. If these costs are unaffected by information technology, then lower transaction costs would be predicted to yield smaller firms. But organizational costs are heavily affected by information technology.

Enterprise Resource Planning

Probably the most significant single category of business software application is so-called enterprise resource planning (ERP) systems supplied by such vendors as SAP, PeopleSoft, and J.D. Edwards. ERP systems are centrally about integrating a firm's internal operations, so the implications of any business action ripple automatically to all other points affected by it. An incoming order might trigger the scheduling of production, outgoing orders to raw-material suppliers, or raising an invoice, all with minimal human intervention. ERP reduces organizational costs; if it didn't, it wouldn't be used. Large firms also sometimes link their suppliers into their ERP systems via extranets, so the cost savings associated with ERP may affect interorganizational

transactions, as well as internal operations. But that is a secondary use of ERP; its main effect is on individual firms' organizational costs.

Information technology reduces internal organizational costs in other ways, too. Automation of such functions as payroll began long before the arrival of the Internet, though it was the Internet that triggered the recent surge of interest in Coase's theory. But ERP, besides being a particularly large-scale business application, is one that is spreading today, so organizational costs are changing simultaneously with changes in transaction costs arising from e-commerce.

If transaction costs alone were relevant to firm size and were changing in only one direction, then the theory would predict that firms should be getting smaller. But if both transaction and organizational costs are falling, then no simple prediction is possible. Instead of looking only at the direction of change, we would need to study detailed figures on how the potential costs of achieving particular arrangements in an Internet-mediated market compare with the costs of achieving similar arrangements managerially within an ERP-based firm. Obtaining these figures is difficult or impossible. Apart from the problem of factoring out expenses attributable to individual operations within the overall cost of running large-scale systems, many such figures would be purely hypothetical. For a particular firm at a particular time, a given transaction is handled either on the market or as a managerial operation, not as both.

An Inaudible Correction

Coase is well aware that his theory makes no unambiguous prediction about the effect of information technology on firm size. He was interviewed for *The Wall Street Journal's* "millennium edition," dated January 1, 2000 [2]. Responding to the interviewer's suggestion that reduced transaction costs would lead to a society of individual entrepreneurs, Coase said, "The question is whether the costs of transacting decreases [sic] as fast as the costs of organizing. My guess is that sometimes it does and sometimes it doesn't." But by then, the myth of diminishing firms had taken such hold that this correction was inaudible. Later that year, a *New York Times* article [9] celebrated the anniversary

of Coase's original lecture by discussing how plunging transaction costs, thanks to the Internet, were enabling firms to focus on narrow product slivers and business activities. The author quoted Coase as having little interest in e-commerce. "So much," he said, "is wrong with economics that I'm trying to correct some other things." But the bandwagon belief that Coase implies shrinking firms rolled on.

The truth is that transaction costs would not yield an unambiguous prediction about firm sizes, even if organizational costs could be ignored. Apart from Coase himself, the one author (to my knowledge) to have queried the myth of diminishing firms is Simon Avenell of Murdoch University, Western Australia, in a November 2001 conference presentation [1]. He pointed out that only certain classes of transaction costs, notably search costs, are reduced through Internet commerce; others, including protecting intellectual property rights, may well be increased.

Dazzled By the Immediate

Business analysts seem to have been dazzled by what they can see, to the point of completely forgetting what they cannot see but ought to know about. Internet trading is an exciting new fact of life available to us all to experience in our homes. As consumers, we get a direct sense of how the Internet shrinks the time and effort needed to compare prices and availability, and it is easy for us to extrapolate this from e-tailing to business-to-business dealings. Consumers are not concerned with other transaction costs, including intellectual property rights protection, that may be increased by the Internet. ERP is a back-office function normally invisible to the people interacting with the firms using it; the average consumer has surely never heard of ERP. So it is understandable how a consumer's-eye view of business fosters the myth of diminishing firms. However, a firm's viability depends on the costs of all its activities, not just the face it shows to its trading partners.

No Forecast Possible

Coase is an intellectual giant. It is remarkable to reflect that, before him, no one had systematically asked

whether and why firms must exist. Coase's answer continues to convince, as well as contribute to our general economic understanding. But it is a mistake to imagine his theory tells us that information technology must shrink firm size. Coase would not make that mistake.

Many contemporary firms are smaller than their counterparts of 20 years ago. Outsourcing is encouraged by factors apart from information technology, often as a response to low wage levels in the Third World; but, in many cases, outsourcing exploits information technology to achieve collaboration across firm boundaries over activities previously conducted within a single firm. However, we also see many mergers producing ever-larger companies. Two recent examples in the IT sector are Hewlett-Packard/Compaq and IBM/PricewaterhouseCoopers Consulting.

Coase's theory of the firm gives us no reason to believe that either of these trends must predominate over the other. As information technology is more fully exploited by firms in the years to come, the spectrum of firm size may shift toward more smaller firms; it may shift toward more larger ones; or the size spectrum may remain much as it is. Transaction cost theory cannot tell us which it will be. ■

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