

THE VISIBLE HAND? THE ECONOMICS OF ALFRED CHANDLER*

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ABSTRACT

In his great work *The Visible Hand: The Managerial Revolution in American Business*, Alfred Chandler argues that the modern managerial enterprise replaced the invisible hand of the market in coordinating the activities and allocating the resources of the U.S. economy. But Chandler's view of the invisible hand of the market is much too narrow. The modern managerial enterprise is not a substitute for the invisible hand of the market but an integral part of it. *The Visible Hand* is actually a history of the invisible hand of the market.

Alfred Chandler has revolutionized business history. His work has greatly advanced our understanding of the large business firms that have been instrumental in making America the richest country in the world.

Probably the most influential of Chandler's many extraordinary studies is *The Visible Hand: The Managerial Revolution in American Business*. Business historian Thomas McCraw wrote of *The Visible Hand*, "As economics, Chandler's 'story' of the development of big business organizations will likely remain beyond significant challenge for many years to come."¹ I believe the time is ripe for such a challenge.

The Visible Hand

The theme of *The Visible Hand* is that "modern business enterprise took the place of market mechanisms in coordinating the activities of the economy and allocating its resources. In many sectors of the economy the visible hand of management replaced what Adam Smith referred to as the invisible hand of market forces."² Chandler maintains that the traditional American business firm was a small, single-unit operation which generally produced a single product for a small geographic area. The activities of the traditional firm "were coordinated and monitored by market and price mechanisms."³ Then came the modern business enterprise: a large, multi-unit operation which often produces many different products for many locations. The activities of the modern business enterprise, according to Chandler, came to be "monitored and coordinated by salaried employees rather than market mechanisms."⁴ In other words, the modern business enterprise superseded the market. It did so because "administrative coordination permitted greater productivity, lower costs and higher profits than coordination by market mechanisms."⁵

To Chandler, the market mechanism—the invisible hand of the market—is price competition between small, traditional American enterprises. It is essentially the per-

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fect competition model of neoclassical economics. Chandler is quite critical of the perfect competition model and where the model has led economists. He writes:

Much basic economic theory is still grounded on the assumption that the processes of production and distribution are managed, or at least should be managed, by small traditional enterprises regulated by the invisible hand of the market. According to such theory, perfect competition can only exist between such single-unit enterprises, and such competition remains the most efficient way to coordinate economic activities and allocate economic resources. The modern, multi-unit enterprise, by its very act of administrative coordination, brings imperfect competition and misallocation of resources. Since many economists have for so long considered the modern business enterprise as an aberration, and an evil one at that, few have taken the trouble to examine its origins. For them the desire for monopoly power has provided an adequate causal explanation.⁶

In particular, Chandler believes that the model of perfect competition cannot begin to help us understand the modern business enterprise and thus is of no use in understanding business history. He is correct.

The perfect competition model is a model of a market structure. A market is perfectly competitive if:

1. No buyer or seller is large enough to have any appreciable effect on the market.
2. Buyers and sellers have complete knowledge of exchange opportunities.
3. There is no product differentiation.

Perfect competition is also an equilibrium state. It is a state in which buyers and sellers have acted on their knowledge and have exploited all exchange opportunities. It is a state in which firms—to the extent that sellers are firms in the model—have exhausted all means of creating value. Firms do not compete in perfect competition. They do not innovate; they do not find better inputs, better technology or better ways of organizing production. They do not even cut their prices.

A model that assumes away competition and assumes that buyers and sellers have complete knowledge of exchange opportunities and have fully exploited those opportunities cannot help us understand the modern business enterprise. How do firms discover knowledge? How do they determine the demand for their product, which inputs to hire, which technology to use, and how to organize purchasing, production and marketing? The perfect competition model cannot answer these questions, nor can it be used to address the matters that business historians strive to understand, such as how the development of American business affected the development of the American economy and why American business evolved the way it did.

And, in the framework of the perfect competition model any market with characteristics that differ from perfect competition is considered imperfectly competitive and will fall short of economic efficiency. A small number of sellers, product differentiation, and incomplete information are considered market imperfections. Rivalry of any sort is evidence of imperfect competition. Such analysis would lead to some particu-

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larly dubious conclusions if applied to business history. For example, it would lead to the conclusion that the American steel industry of 1875-1898, lead by Carnegie Steel, was imperfectly competitive and thus inefficient. But do we really want to conclude that an industry which drove the price of steel rails down from \$160 a ton in 1875 to \$17 a ton in 1898 was inefficient?⁷

Chandler's criticism of the perfect competition model is right on the money. But to equate the perfect competition model of neoclassical economics with the invisible hand of the market is a huge error. The consequences of this error are particularly significant for Chandler, for the notion that perfect competition and the invisible hand of the market are one and the same is the foundation on which *The Visible Hand* is built.

What is the Invisible Hand of the Market?

The invisible hand of the market has been described by many economists but is best described by economists of the Austrian school, particularly Ludwig von Mises.

"The market," writes Mises, "is the social system of the division of labor under private ownership of the means of production. The market is not a place, a thing, or a collective entity. The market is a process, actuated by the interplay of the actions of various individuals cooperating under the division of labor."⁸

People have an inexorable desire to improve their circumstances. So they appraise, calculate, plan and choose. All of the actions that people take in the market are taken to attain gains through the market. The market process consists of all the actions people take in an economy in which the means of production are privately owned.⁹

It is through the market process that a society with private ownership rights solves its most fundamental problem. That problem, as described by Mises, is this:

There are countless kinds of material factors of production, and within each class they differ from one another both with regard to their physical properties and to the places at which they are available. There are millions and millions of workers and they differ widely with regard to their ability to work. Technology provides us with information about numberless possibilities in regard to what could be achieved by using this supply of natural resources, capital goods, and manpower for the production of consumers' goods. Which of these potential procedures and plans are the most advantageous? Which should be carried out because they are apt to contribute most to the satisfaction of the most urgent needs? Which should be postponed or discarded because their execution would divert factors of production from other projects the execution of which would contribute more to the satisfaction of urgent needs?¹⁰

The business enterprise is a critical part of the market process. The business enterprise strives to make profits and undertakes countless actions to achieve that goal. It changes prices, changes product features, and introduces new products. It discovers

better combinations of inputs and technology. It raises capital in a variety of ways. It employs managers and integrates vertically and horizontally. All of these actions are part of the market process, and all are instrumental in moving a market society toward the solution of the fundamental problem described by Mises.

The business enterprise strives for profits, but the only way for an enterprise to make profits is to bring products to the market that satisfy the desires of consumers. Mises writes:

Neither the capitalists nor the entrepreneurs nor the farmers determine what has to be produced. The consumers do that. The producers do not produce for their own consumption but for the market. They are intent on selling their products. If the consumers do not buy the goods offered to them, the businessman cannot recover the outlays made. He loses his money. If he fails to adjust his procedure to the wishes of consumers he will very soon be removed from his eminent position at the helm. Other men who did better in satisfying the demand of the consumers replace him.¹¹

In other words, the profit motive that arises from the existence of private ownership rights induces the business enterprise to search for the most efficient way to produce the products consumers most desire.¹²

This effect of the market process is the invisible hand of the market. The invisible hand of the market is not the perfect competition of neoclassical economics. It is not spot market transactions between many buyers and sellers coordinated exclusively by price. The invisible hand of the market is the effect of the market process in which business firms, to make profits, search for ways to best serve consumers.

The Error of The Visible Hand

By equating the invisible hand of the market with the price competition between small, traditional enterprises, Chandler misconstrues the market process and misrepresents the invisible hand of the market. This is no small matter. The theme of *The Visible Hand* is based on the premise that perfect competition and the invisible hand of the market are one and the same. If the premise of *The Visible Hand* is false, then so is the theme.

And the theme of *The Visible Hand* is false. Again, the theme of *The Visible Hand* is that the modern business enterprise, with its managerial hierarchy and vertical and horizontal integration, supersedes the market process and the invisible hand of the market. But how does the modern business enterprise supersede the market process when it is formed and run by people *in the market* for the sole purpose of achieving success *in the market*?

And how does the modern enterprise supersede the invisible hand of the market when, to make profits, the enterprise must cater to the desires of consumers? Chandler writes:

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The new bureaucratic enterprises did not, it must be emphasized, replace the market as the primary force in generating goods and services. The current decisions as to flows and the long-term ones as to allocating resources were based on estimates of current and long-term market demand. What the new enterprises did do was take over from the market the coordination and integration of the flow of goods and services from the production of raw materials through the several processes of production to the sale to the ultimate consumer.¹³

How can it be that the modern business enterprise supersedes the invisible hand of the market when the market is "the primary force in generating goods and services?"

Business historians who adhere to Chandler's economics make the same mistake. William Lazonick, for example, writes: "History shows that the driving force of successful capitalist development is not the perfection of the market mechanism, but the building or organizational capabilities,"¹⁴ and further, "Through managerial coordination, industrial corporations were able to develop the combined productive capabilities of human and physical resources in ways that market coordination, with its unplanned interaction of specialized producers was unable to do."¹⁵ What must the modern managerial enterprise do to be successful? According to Lazonick, "It *must* develop its productive resources in order to produce a superior product at competitive cost, a saleable product at lower cost, or both."¹⁶ Why must it do such things? Mises has already explained why: A firm that does not cater to the desires of consumers in the most efficient way will suffer losses at the hands of competing firms that do. How is that superseding the invisible hand of the market?

Yes, as Chandler wrote in his presidential address to the Economic History Association, "It is difficult to conceive of a greater difference between the roles, training, experience, and activities of the decision makers who manage the high velocity of through-put in the mid-twentieth century economy and those of the men who carried on the smaller and much slower economic activities of early nineteenth century America."¹⁷ But the difference between the small, traditional enterprise and the modern managerial enterprise is not that one is subject to the invisible hand of the market and the other supersedes it. Each firm is a phenomenon of the market; each is part of and subject to the invisible hand of the market. Mises writes:

The sovereignty of the consumers and the democratic operation of the market do not stop at the doors of a big business concern. They permeate all its departments and branches. Responsibility to the consumer is the lifeblood of business and enterprise in an unhampered market society.¹⁸

Management vs. the Market?

Chandler's all-too-narrow view of the invisible hand of the market is apparent in the distinction he makes between managing and using the market. He argues that

what distinguishes the modern business enterprise from the small, traditional enterprise is that the modern enterprise allocates resources by managing rather than by using the market, thereby superseding the market. But the distinction between managing and using the market is a blur.¹⁹

What do managing and using the market really mean? According to Chandler (as well as many economists), a firm is said to be managing when it makes some of its inputs and employs managers to coordinate that production, and a firm is said to be using the market when it buys an input. The problem with those definitions is that managing and using the market are inseparable. When a firm chooses to buy an input, when it searches the market to determine what inputs are available and how they might be combined with other inputs, when it negotiates contracts to use an inputs, and when it measures and monitors the performance of an input, what is it doing? Isn't it managing? And when a firm chooses to produce some of its inputs and hires managers to coordinate the production, is it really replacing the market with managing? Chandler says yes, but how does the firm come upon its managers? It buys their services on the market. Isn't that using the market?

The point is that the firm's decision to make an input or buy it on the market cannot be explained by creating a distinction between managing and using the market. No matter which decision the firm makes, the firm must manage and it must use input markets. Buying an input involves a whole series of decisions that amounts to managing; making an input requires the firm to use the market for managers. There is a difference between making and buying an input, of course, but neither decision is separate from the market process. The firm's make-or-buy decision is not a decision about whether to manage or use input markets; it is a decision about which input markets to use.

Above all, it is profound error to assert that by employing managers to coordinate production the modern business enterprise supersedes the market. The modern enterprise faces all sorts of market competition that it simply cannot avoid.

It cannot avoid competition in the input market. The modern enterprise does not own all its inputs. It does not own its managers. It buys services from its managers, and it competes with other firms for the services of those managers. When the firm vertically integrates and hires managers to coordinate purchasing, production and marketing, it does not supersede the input market; it competes in one set of input markets—including the market for managers—instead of another set of input markets.

Nor can the modern business enterprise supersede the capital market. Large firms rely on outside capital to operate and expand. Outside capital isn't just there for the taking; firms must compete for it in the capital market. And to attract outside capital, a firm must show promise of future profits. Owners of capital will scrutinize many aspects of the firm before they supply it with capital. They will scrutinize its product market decisions, its input market decisions, and its organizational decisions. If owners of capital don't like what they see, the firm will have difficulty raising capital.

Chandler agrees with Berle and Means that in the modern enterprise it is the managers of the firm—not the stockholders—who make both long-run policy and

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short-term operating decisions. Ownership may well be separate from control in the modern enterprise, but that does not mean the modern enterprise supersedes the capital market. The modern firm must still compete in the capital market. It must still make profits to attract outside capital. How the firm makes its profits may be up to its managers, but it must make profits to attract outside capital, and the capital market will punish bad managerial decisions—decisions which reduce profits—as surely as the product market will.

And, to repeat, the modern firm cannot supersede the product market. The significance of product market competition should not be understated. Product market competition permeates the entire organization of the firm. If the firm is organized poorly, it will be less innovative, less responsive to consumer desires, and less efficient. It will be punished in the product market with lower profits.

Much of the information that the top managers of the modern enterprise use to make organizational decisions is information generated in the product market. How do the top managers know if the firm is organized efficiently or poorly? How do they know if middle managers are making good decisions or bad ones? They don't have this knowledge a priori. They must discover such knowledge. They discover such knowledge from their firm's performance in the product market.

In Mises' words:

The profit motive through the instrumentality of which the entrepreneurs are driven to serve the consumers to the best of their ability is at the same time the first principle of any commercial and industrial aggregate's internal organization. It joins together utmost centralization of the whole concern with almost complete autonomy of its parts, it brings into agreement full responsibility of the central management with a high degree of interest and incentive of the subordinate managers of sections, departments, and auxiliaries.²⁰

Illustrations from *The Visible Hand*

Nothing better illustrates the argument that the modern managerial enterprise does not supersede the invisible hand of the market than *The Visible Hand* itself. Consider first some general observations from *The Visible Hand*.

As we have seen, an important observation of *The Visible Hand* is that "the market remained the generator of demand for goods and services."²¹ And, as we have seen, this observation is evidence that the modern enterprise does not supersede, or is a substitute for, the invisible hand of the market; it is evidence that the modern firm is subject to the invisible hand of the market.

The Visible Hand also observes that the modern enterprise came into being "when administrative coordination permitted greater productivity, lower costs, and higher profits than coordination by market mechanisms."²² And, by internalizing activities such as mass production and mass distribution, "a firm was able to coordinate supply more

closely with demand, to use its working force and capital equipment more intensively, and thus to lower its unit costs."²³ But if the market is the primary generator of demand, what is it that impelled entrepreneurs and top managers to organize their firms along the lines of the modern enterprise but the invisible hand of the market? The case that these general observations actually make is that the modern enterprise was developed by profit-seeking entrepreneurs searching for more efficient ways to satisfy consumer demands. That is not a phenomenon different from the invisible hand of the market; that is the invisible hand of the market.

The Visible Hand has important observations on firms that grew through vertical integration. The history of such firms reveals, Chandler writes, that "the nature of the market was more important than the methods of production in determining the size and defining the activities of the modern industrial corporation." In other words, the market ultimately determined what form of organization—vertical integration, horizontal integration, or neither—was profitable. For vertical integration to be profitable, a market had to be large and consumers had to have a preference for mass produced and mass distributed goods. The methods of production were also important—o mass produce a good, the technology to do so must exist—but, if a market was small or consumers did not prefer a mass produced good, vertical integration was not profitable even if mass production technology existed.

The Visible Hand concludes:

Markets and technology, therefore, determined whether the manufacturer or the marketer did the coordinating. They had a far greater influence in determining size and concentration in American industry than did the quality of entrepreneurship, the availability of capital, or public policy.²⁴

This is anything but a description of a type of business organization superseding the invisible hand of the market. What it is a description of is the invisible hand in its purest form. In some markets, the modern business enterprise proved to be the most efficient means of organizing production to satisfy consumer demand. In those markets, firms that vertically integrated thrived; firms that didn't, failed. In other markets, vertical integration proved not to be the most efficient way to satisfy consumer demand; in those markets, the smaller, traditional firms thrived, while firms that attempted vertical integration failed. Not even the most brilliant or the most ruthless entrepreneurs could make the modern enterprise profitable where market conditions were not favorable to vertical integration.²⁵

The case histories of *The Visible Hand* also support the argument that the modern firm does not supersede the invisible hand of the market. Consider Chandler's account of James Duke.

James Duke's company began as a small cigarette producing enterprise. In 1884, Duke adopted technology that enabled his firm to mass produce cigarettes. He then built an extensive network of sales offices that were responsible for the marketing and distribution of his product. At the same time, he developed an extensive purchasing

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network and added to that storing and curing facilities. Salaried managers headed both the sales and purchasing sides of the enterprise, as well as the production side. In 1890, Duke's firm merged with four competitors and became the American Tobacco Company. American Tobacco was soon organized in the same way as Duke's original firm: it was vertically integrated with purchasing, production and sales departments headed by salaried managers. The organization, of course, was hugely successful.

In the early 1900s, Duke attempted to dominate the cigar market using the same organizational strategy that enabled him to dominate the cigarette market. The attempt failed. In Chandler's own words:

Like wines the many different brands had distinctive tastes and flavors. Each appealed to a different type of customer. Cigars were not a product that could be mass produced and mass distributed, nor could the raw materials be purchased in bulk. Since these processes did not lend themselves to high-volume throughput, administrative coordination did not reduce costs and so raise barriers to entry. Neither massive advertising nor effective organization could bring the dominance of a single firm in the cigar business.²⁶

The lesson here is not that the visible hand of management replaced the invisible hand of the market when mass production and mass distribution were possible. The lesson here is that no firm supersedes the market because it is ultimately the invisible hand of the market that determines what type of organization will survive. In the case of cigars, market competition would eliminate any firm that organized itself to mass produce and mass market the product. In the case of cigarettes, market competition eliminated any firm that did not organize itself to mass produce and mass market the product. *The Visible Hand* all but says as much about cigarettes: "The massive output made possible by application of continuous-process machinery to manufacturing caused and indeed almost forced the creation of a worldwide, integrated organization."²⁷ Almost forced? Almost forced by what? By competition in the product market. If competition in the product market ultimately determines what type of organization will survive, then it does not follow that "modern business enterprise took the place of market mechanisms in coordinating the activities of the economy and allocating its resources."

Another lesson here is that management and vertical integration are not substitutes for the invisible hand of the market, they are part of the invisible hand of the market. What functions did Duke's managers perform? The managers of the sales department attended to product markets. The managers of the purchasing department attended to input markets. The managers of the auditing department obtained and analyzed reams of data generated in the market to assess costs. And the managers of the sales and purchasing departments shared the responsibility of coordinating the entire production process with the goal of reducing costs, matching supply with demand and

better serving customers.

Duke's managers were the critical input to his entrepreneurial vision. Chandler writes that Duke "realized the importance of his organization. According to his biographer, he always considered that his major task was to find and bring forward competent managers."²⁸ There was no superseding the market here. Ultimately, the services of those managers were purchased in the market for managers.

Chandler's account of James Duke's enterprise is not an account of a modern enterprise replacing the invisible hand of the market. It is an account of a modern firm enhancing the invisible hand of the market. It is an account of extraordinary entrepreneurship and a substantial amount of resources all directed toward the goal of long-term profitability, which is achieved by reducing costs and serving customers. Chandler's account of James Duke's enterprise is an account of the invisible hand of the market at work.

The Managerial Revolution in American Business: The Evolution of the Invisible Hand of the Market

There is nothing peculiar about the Duke history. *The Visible Hand* is packed with many similar histories.

The Visible Hand is indeed a history of "The Managerial Revolution in American Business." But it is not a history of how the modern managerial enterprise "took the place of market mechanisms in coordinating the activities of the economy and allocating its resources." That interpretation is based on the false premise that price competition between small, traditional enterprises is the invisible hand of the market.

Recognizing the invisible hand of the market for what it truly is—the effect of the market process in which business firms are impelled by competition to search for the most efficient ways to serve consumers—leads to an entirely different understanding of the history of the modern managerial enterprise. It leads to the understanding that the modern enterprise is not a substitute for the invisible hand of the market; it does not supersede the invisible hand of the market. Rather, the modern enterprise is subject to the invisible hand of the market. And the modern enterprise is part of, and an integral part of, the invisible hand of the market. The coming of the modern managerial enterprise may well have been, as Chandler believes, "the major innovation in the American economy between the 1880s and the turn of the century."²⁹ But its coming was a product of the invisible hand of the market, and its evolution has been part of the evolution of the invisible hand of the market.

The Visible Hand is actually a history of the invisible hand. It is the history of how the organization of business firms evolved to enhance economic calculation, to make better use of input and capital markets, and to reduce costs and better serve customers. It is the history of the integral role the modern managerial enterprise plays in the invisible hand of the market. In that light, it remains a great work in business history.

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Notes

* I would like to dedicate this paper to Jack Blicksilver, who died April 15, 1999. Jack was a past president of EBHS, a great scholar, and a great friend. He will be sorely missed.

1. Thomas K. McCraw, ed., *The Essential Alfred Chandler* (Boston: Harvard Business School Press, 1988), 19.
2. Alfred Chandler, *The Visible Hand: The Managerial Revolution in American Business* (Cambridge, MA: Belknap Press, 1977), 1.
3. *Ibid.*, 3.
4. *Ibid.*
5. *Ibid.*, 6.
6. *Ibid.*, 4.
7. Price data are from Jonathan R. T. Hughes, *The Vital Few: The Entrepreneur and American Economic Progress* (New York: Oxford University Press, 1986), 235.
8. Ludwig von Mises, *Human Action* (Auburn: The Ludwig von Mises Institute, 1998), 258.
9. Joseph T. Salerno, "Mises and Hayek Dehomogenized," *The Review of Austrian Economics* 6, no. 2: 113-46.
10. Ludwig von Mises, *Bureaucracy* (Grove City: Libertarian Press, Inc., 1983), 25.
11. *Ibid.*, 23.
12. The observation that business firms must ultimately cater to the interests of consumers is often called consumer sovereignty. Sovereignty is a bad metaphor here, so the term is not used here. See Murray Rothbard, *Man, Economy, and State* (Auburn: The Ludwig von Mises Institute, 1993), 560-66.
13. Chandler, *The Visible Hand*, 11.
14. William Lazonic, *Business Organization and the Market Economy* (Cambridge: Cambridge University Press, 1991), 8.
15. *Ibid.*, 29.
16. *Ibid.*, 199.
17. Alfred Chandler, "Decision Making and Modern Institutional Change," in *The Essential Alfred Chandler*, ed. Thomas K. McCraw (Boston: Harvard Business School Press, 1988), 352.
18. Mises, *Bureaucracy*, 39.
19. See Don Mathews, "Management vs. The Market: An Exaggerated Distinction," *The Quarterly Journal of Austrian Economics* 1, no. 3 (Fall 1998): 41-46.
20. Mises, *Bureaucracy*, 39-40.
21. Chandler, *The Visible Hand*, 1.
22. *Ibid.*, 6.
23. *Ibid.*, 286.
24. *Ibid.*, 373.
25. *Ibid.*
26. *Ibid.*, 391.
27. *Ibid.*, 390.
28. *Ibid.*
29. Alfred Chandler, "The Beginnings of Big Business in American Industry," in *The Essential Alfred Chandler*, ed. Thomas K. McCraw (Boston: Harvard Business School Press, 1988), 73.

