

On the Changing Nature of Entrepreneurship

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Abstract

This essay examines how the entrepreneurial role has changed over time in the context of an evolving American economy since the Civil War. Because entrepreneurs do what the market has failed to do by itself, entrepreneurs and the market are complementary to each other. It is, therefore, not surprising that as the market evolved over time, the role played by the entrepreneur also changed in a predictable fashion. As the entrepreneur's role evolved, the characteristics of the firm and the economy also changed as a consequence. The resulting firm becomes a coalition of entrepreneurs, and decision making in the firm is decentralized. Decentralization in decision making, in turn, leads to greater responsiveness to the consumer and more extensive utilization of the market. In short, the resurgence of the entrepreneur in recent years has greatly enhanced the market performance.

Introduction

Entrepreneurs in an uncertain market environment perform creative acts in the business sphere just as artists, essayists, and scientists do in their respective fields. Specifically, the presence of uncertainty causes the market to be incomplete and the incomplete market, in turn, destroys the market's ability to coordinate production. Entrepreneurs rise to organize production by assuming a part of the allocative role which, according to the traditional theory, is reserved exclusively

to the market. Entrepreneurs not only convert inputs into outputs in a more efficient manner or produce goods which give greater satisfaction to the consumer but also create markets to bring together buyers and sellers. Because entrepreneurs do what the market has failed to do by itself, entrepreneurs and the market are complementary to each other. It is, therefore, not surprising that as the market evolved over time, the role played by the entrepreneur also changed in a predictable fashion. It is important to note, however, despite the changing role played by the entrepreneur over time, the intrinsic nature of the entrepreneurial services remain the same [Wu, 1989; Ch. 1]:

The entrepreneur derives his status by creativity, therefore, his services are never routine. Because the outcome of production is uncertain, the value of entrepreneur's services cannot be ascertained *ex ante* and is subject to the abuse of moral hazards and adverse selection. As a consequence, no one is willing to hire entrepreneurial services at pre-determined prices. Since entrepreneurial services are essential for production under uncertainty, an entrepreneur must be self-motivated and self-employed. He must initiate and organize other factors into production and claim the residual as a reward to his services.

The entrepreneurs, in this manner, assume a pivotal role in resource allocation.

The purpose of this essay is to illustrate how the entrepreneurial role has changed over time in the context of an evolving American economy after the Civil War. At the outset, because the market, especially the capital market, was incomplete, business ventures were exceedingly risky and the cost of capital was very high. Under these circumstances, only capitalists could assume the entrepreneurial role and the burden to organize production. Hence, the

entrepreneur was a capitalist and the firm was managed by its owner(s). It is not surprising that the changes in the entrepreneurial role in the corporate sector over time have to do with the separation of the capitalist's financing role with the entrepreneurial function proper. However, this process of separation is not a straightforward one. First, the capitalist-entrepreneur surrendered the control of the firm to the manager and, only recently have the pure entrepreneurs emerged to wrestle control away from the usurper-manager. As the role played by the entrepreneur evolves, the characteristics of the firm and the economy also change as a consequence.

1. The Age of the Capitalist Entrepreneur

After the Civil War, with the Union preserved, the United States channeled its energy to reconstruction and economic development. Rapid construction of railroads and communication systems linked together every part of the nation. Local and regional markets merged into a single national market. The enlargement of the market encouraged greater division of labor and product specialization. Specialization, in turn, led to mechanization and more efficient utilization of inputs. Costs of production declined and so did commodity prices [Hughes and Cain; Appendix]. Because the economy at the time of the Civil War was basically agrarian (55% of Americans were farmers) and the rural households were, by and large, self-sufficient, the declining commodity prices undermined household production. Farm wives gave up spinning and weaving and opted for store-bought yard goods; they even abandoned the sewing of overalls and

preferred to order them through the mail. Singer sewing machines were purchased by those who still preferred to sew their own clothing. Concurrently, farmers no longer made their own tools but bought them instead. They even gave up hunting and fishing in order to concentrate their efforts on producing cash crops. Specialization in agricultural production stimulated the demand for manufactured goods and encouraged the manufacturing sector to expand.

At the same time, the nation's population began to concentrate in urban areas. Two factors contributed to this development [Lebergott, Ch. 25]. First, surplus farm workers resulting from improvements in agricultural productivity sought manufacturing jobs in the cities and second, large numbers of immigrants for a variety of reasons chose to seek their fortunes in urban areas. Because urban households were less self-sufficient than rural households, urbanization naturally boosted market demand for food and manufactured goods. In addition, the growth of urban centers required social capital formation. First, houses had to be built in order to accommodate the influx of people and transportation needed improvements so that food and other supplies could become available at reasonable prices and workers could travel to and from work with greater ease. Second, water works, sewage, and health facilities must be built to ensure good sanitation and public health. Finally, police and fire protection must be provided in order to ensure public safety while education and social services must be made available so as to enhance public welfare. All told, the growth of cities induced greater reliance on the markets and swelled demand for all types of commodities.

This swell of demand promised profits for those who could produce the sought-after commodities. Because there existed a production lag, resources must be committed before profit could be realized. Production decisions inevitably link present plans to future realizations. Because market opportunities occur sporadically but may vanish soon after and disasters once visited may inflict irreversible damages for some time to come, production commitment not only promises profits but also invites disasters. Businessmen must choose whether to face a given contingency or to avoid its consequences.

Never before had businessmen faced greater and more tempting market uncertainties than this emerging market situation. As the market extended from local to national, even though the options of the existing firms had expanded and the entry threshold for potential firms lowered, the hazard level of doing business in the emerging national market was nonetheless heightened. This is because the national market was in its formative stage and was highly incomplete and imperfect. Many component markets were not yet organized while markets that had been organized were changing incessantly and, therefore, difficult to navigate. The transaction costs of using the limited and imperfect markets were high. In addition, in an emerging national market environment, the businessman must act in uncharted territories with no experience to serve as a guide and no established routine to follow. At any moment in time, he must rely on his own wits and judgment to guide his actions. Given this situation, timid individuals would shy away from making commitments for production and refrain from entering into the market.

The turbulent market environment, though discouraging to the faint-hearted, actually spurred the entrepreneurial spirited individuals into action. It was precisely under these trying conditions that the most illustrious entrepreneurs gained their fame. Some entrepreneurs rose to shoulder risks that others found intolerable, other entrepreneurs produced new goods to satisfy existing or new wants as well as created markets that never existed before, and still other entrepreneurs turned the confusion in the market place to their own advantage. In all cases the entrepreneurs, by their own ingenious actions, not only committed resources to production but also improved the market environment and forever changed the landscape of the American economy. The following examples serve to illustrate the influence and accomplishments of the nineteenth century entrepreneurs.

In the post Civil War era, the fledgling capital market was still highly incomplete. Potential firms, with the exception of the railroads, faced with extraordinarily high interest costs, could not rely on the bond market to raise capital for production; the stock market was even less dependable. Under this circumstance, only those who already possessed sufficient capital could commit resources for production. The entrepreneurial spirited capitalists lured by profit opportunities risked their own monies to finance production and thereby bypassed the capital market. As a consequence, in the 19th century, firms were owner-managed. When the owner risked his own money for production, as observed by Frank Knight [1971], it would be "impracticable" for him to accept the burden of the production risk without being given the power to direct the

works of others who did not assume this risk. The employer-employee relationship resulted. Production, organized in the factory system, took place under the direction of the authoritative capitalist-entrepreneur. At first, the capitalist-entrepreneur exploited the advantage associated with natural division of labor. Over time, natural division of labor gave way to coordinated division of labor. Because production in this period relied essentially on mechanical devices, efficiency in production stemmed from standardization in parts and repetition of motions. Efficient production depended crucially on how the tasks were divided and how the production runs were put together. The capitalist-entrepreneur began to exercise his prerogative to organize production runs. Workers simply followed his instructions and acted like human machines to carry out the production plan [Marglin]. Because the owner viewed the formulation and execution of production plans solely as his responsibility, any attempt by workers to influence the planning and administration of the production plan was considered as an invasion of the owner's prerogative and was vigorously resisted. The worker could exert any such influence only through protestations and threats of non-cooperation. The adversarial style of management emerged.

In sum, capitalist-entrepreneurs faced with the high cost of borrowing simply side-stepped the market and opted to use their own monies to finance production. This entrepreneurial undertaking not only affected profoundly the control structure of the firm but also introduced a style of management emulated by business enterprises for years to come.

Other entrepreneurs reacted to high transaction costs induced by the incomplete market in a totally different way. Instead of side-stepping the market, they endeavored to create the missing markets. Frequently, commodities sold in local markets could not be sold automatically in the distant national market. One reason was that the consumer faced a variety of products coming from distant places but had no expertise to judge the true quality of these products. The information needed to ascertain the product quality was costly to obtain. High information cost discouraged consumers from purchasing these products. Entrepreneurs such as George Gilman and George Hartford, Frank Woolworth, and Aaron Montgomery, the founders of Atlantic and Pacific Tea, Woolworth, and Montgomery Ward, respectively, rose to create new markets composed of chain stores, department stores, and mail order houses [Lebergott, Ch. 24]. In these markets, sellers served to guarantee the consumer that all products sold by them did indeed meet a given standard. The appearance of these markets reduced the information costs and thereby converted potential demand into effective demand.

Another reason for the difficulty of selling local commodities in the national market was that some local products were not suitable for distant markets unless appropriate modifications were made. For example, initially cattle were shipped on the hoof by rail from midwestern stock yards to eastern cities where they were slaughtered and sold to the butchers [Porter]. Considerable transportation cost could be saved and substantial profits could be made if cattle were slaughtered in the midwestern stock yards and then shipped to distant

consumption centers. But, before profits could be realized, Gustavus Swift had to conquer obstacles hindering the realization of these profits. First, he had to improve the technology of refrigeration for both the shipment and storage of the beef upon arrival at its final destination. Second, he had to create a market by overcoming consumer resistance to chilled meat slaughtered days before, and by building a network of branch houses to store and sell the chilled meat. His success in creating this new market not only enabled Swift to reap a handsome profit but also forever altered the landscape of the American meat packing industry.

Finally, the emerging market was not only incomplete but also imperfect. No established rules existed to govern market behaviors and the notion of legality was also not well defined. Unfair methods of competition were widely practiced and monopoly power greatly abused [Purdy et al.]. Cut-throat price competition, price discrimination, coercion, and intimidation of rivals were common. The market was, therefore, made more hazardous and more uncertain. Entrepreneurs rose to direct the firm in these treacherous times. They did so, not merely by coping with market contingencies but often by seizing the chaotic market situation and turning it to their own advantage. They rallied under the Darwinian banner "the survival of the fittest" and adopted unfair methods of competition as weapons to consolidate their own market positions. Outrageous behaviors of the entrepreneurs ultimately led to government intervention and helped to spawn a body of anti-trust laws as well as a host of government regulatory agencies. The most colorful entrepreneurs dubbed as robber barons were the products of this

time. They transformed small scale competitive businesses in the middle of the 19th century into gigantic firms towards the end of that century.

The foregoing examples clearly show the crucial role played by the entrepreneur in production and demonstrate how entrepreneurial activities in a variety of ways affected the internal organization of the firm, the composition and structure of the market, and the relationship between government and business. Because entrepreneurs were, and still are, driven by profit motives, their activities were not always socially beneficial. Entrepreneurial activities were socially beneficial only when these activities created positive social effects either by increasing the size and efficiency of the market, or by increasing the variety and quality of products, or by improving the efficiency of the firm thereby decreasing the costs of production and the prices of the products. Whether or not the activities of the entrepreneurs in the 19th century were socially beneficial, one thing is however certain, the appearance of every giant firm reflected the distinctive accomplishment of a single bold and resourceful individual, and each firm was the personification of that entrepreneur.

Because of their enormous success, the 19th century entrepreneurs are epitomized as entrepreneurs par excellence. The entrepreneur is, therefore, acclaimed as the one who stands at the helm of any business endeavor. He supposedly seeks, discovers, and evaluates information and economic opportunities, charts the course for actions, leads and even inspires others to get things done, copes with contingencies, trades and defuses uncertainties whenever possible, and ultimately bears the residual uncertainty by himself. In short, he is

viewed as a charismatic leader who, despite the threat of failure, makes things happen; without him, the other factors of production would lie impotently idle. Because of the numerous colorful entrepreneurs that dominated the latter part of the 19th century, this period can truly be called the era of the individualistic entrepreneurs.

2. Ascendancy of the Manager

As the economy expanded and income rose, consumers desired a greater variety of products. In responding to these profit opportunities, the manufacturers sought to produce commodities not only from substances endowed by nature but also from those rearranged through the ingenuity of man. Basic methods of production underwent a profound change. Production ceased to employ only mechanical devices but now included chemical as well as electrical processes. As early as the late 1920s, two-thirds of the personnel employed in industrial research were chemists, electrical engineers, and metallurgists. By the 1930s, the chemical and electrical companies introduced more new product lines to the market than any other industrial group [Chandler, 1962. p. 474]. The number of new industries also multiplied.

In the meantime, mechanical methods of production improved steadily and culminated in Henry Ford's assembly line in 1908. Henceforth, Frederick Taylor's scientific management came into vogue [Chandler, 1977; pp. 272-82]. Taylor advocated that human work was subject to the same physical laws that rule the material world. He asserted that efficiency in production derives from

standardization in parts and specialization in tasks. Technological innovation required exploitation of more refined division of tasks and more careful synchronization of production runs. Each worker, once having mastered new tasks, could perform them repeatedly. Under Taylor's leadership, the design and coordination of production runs was elevated to become a branch of engineering sciences known as industrial engineering.

The extension from mechanical to chemical, electrical and, more recently, to biological methods of production greatly affected the nature of technological innovation. Under these new production technologies, many products must be produced jointly and each producer must engage in many production processes. The individual in control of production now must coordinate high volume and high speed flow of several production processes. In order to gain efficiency, the controller had to design process flow and production layout so as to decrease the in-process time and increase the speed of production. Improvement in production technology now meant integration of production processes, adoption of continuous processing machines, intensive use of energy, and curtailment of workers [Chandler, 1977; Ch. 9].

New innovations whether mechanical, chemical, or electrical in nature all led to standardization of inputs and outputs which, in turn, resulted in huge economies of scale associated with mass production and marketing. With the resulting great economies of scale, capital requirements for production increased enormously. This increase has two important implications; it altered the control structure of the firm and profoundly affected the firm's internal organization.

By the turn of the century, the capitalization of the firm had become so large that it was beyond the capability of a single individual or a small group of individuals using their own monies to finance production. Even if they were able to do so, it was not in their self-interest to bear the enormous risk associated with production. Fortunately, the equity capital market had greatly improved. A firm now could gain access to capital needed for production by selling its stocks.

Investors are willing to buy a firm's stock because, from their point of view, the stock market offers a new outlet for investment and a new way for the capitalists to manage their investments. Before the capital market gained its maturity, the capitalist had only two investment outlets: he could invest his money in the relatively liquid bond market or invest directly in capital assets which would require him to tie up his money for a long period of time. In the past, in order to make certain that his investment in capital assets reaped dividends, he had to secure control of the firm's production process. In the presence of a mature equity capital market, control of the production process is no longer a necessary condition for the investor to be guaranteed a satisfactory rate of return. He now can achieve the same objective through diversification [Fama]. The information requirement to guarantee a satisfactory rate of return directly from production and indirectly from an investment portfolio are very different. The former requires the investor to gain access to specific information about the corporation; the latter requires only market information which companies have a clear incentive to make available to the investors. The costs of gathering both types of information exist but differ markedly. As the stock market matured, the cost of acquiring the firm's

market financial data decreased sharply. Based upon the financial information made available through the capital market, the risk adverse investor selects from a wide range of investment opportunities a portfolio which yields for him a rate of return commensurate with his wealth and his risk attitude. Since the investor holds securities of many firms so as to avoid having his income dependent upon the fortune of a single company, the individual investor generally has no interest in gaining control of the detailed activity of any given firm. Therefore, it is not surprising that since the turn of the century more and more investors had given up making investments which require controlling production and had opted instead to invest in portfolios of securities. In this way, the capitalist abandoned control over the firm's operations and became a professional lender of capital; the control function was handed over to the manager.

The passing of the control function from the capitalist entrepreneur to the manager requires explanation. It was brought about by the routinization of the firm's decision making. At the same time, routinization of decision making also led to the bureaucratization of management and thus affected the internal structure of the firm. The crucial question is "what caused the firm to routinize its decision making?" It turned out that both the market environment and the internal dynamics of the firm favored this mode of operation.

Routinization of decision making was motivated by the desire to take advantage of the enormous cost advantage associated with scale economies. In order to tap the economies of scale, the firm must operate in an environment where the demand for its product must be homogeneous and remain relatively

stable over time. In the first blush, the pre-condition for a stable market demand environment did not appear to exist during the early twentieth century. A large number of new products such as automobiles, radios, electric appliances, indoor plumbing, etc. were introduced rapidly at this time. One may conjecture that consumer demands were quite diverse and unstable. Further analysis shows, however, that this conclusion is not valid. Consumer demand in this period was quite predictable. The reason is simple. Products introduced in this period were designed to satisfy the consumer's basic physical needs, albeit luxuries at the time of introduction. The new products were readily taken up by the consumers. Because these products satisfied basic needs, little advantage was associated with catering to any idiosyncratic tastes of individual consumers. This was especially so since the cost for ascertaining individual preferences was exceedingly high and any attempt to meet individual consumer's special needs would be unprofitable. It is, therefore, not surprising that despite the fact that the Ford Motor Co. had made no attempt to offer either different colors or designs, the demand for the Model T had soared. In order to insure that the consumer's latent desire for individualized products did not cause havoc for the producer, the producer simply countervailed the consumer's desire for personalized products by mass advertisement so as to convince the consumer that the product offered by the producer was indeed what the consumers wanted. As a consequence, each producer only produced and sold standardized products designed to satisfy the average consumer. Production runs were lengthened.

Not only was the demand for the producer's product not fragmented, the stability of its demand over time was also preserved. As observed by Schumpeter, innovations did not take place as a response to spontaneous changes in consumer wants. Instead, innovations were initiated by the producer [Schumpeter, p. 65]. In other words, the apparent changes in consumer tastes were engineered by the producer through massive advertising. In this way, consumers were under the complete control of the producer since they demanded only what the producer offered to them. With the demand situation under control, the producer turned to center his attention on exploiting the advantages associated with large scales of production.

Owing to the tremendous advantages associated with the large-scale production of standardized products, the size of the firm through vertical and horizontal integration increased enormously. The top manager was no longer able to singlehandedly direct the various operations of the firm; specialists had to be hired to manage each functional area. However, specialization also implied the need for closer coordination. Activities in different functional areas must mesh with each other and with the overall objectives of the firm. The top manager, who occupied the vantage point of the entire business operation, formulated the overall objectives of the firm. He selected the firm's scope of operations, determined its level of investment so as to ensure the firm's future demand would be met, organized the firm in such a way that the input needed would always be available, and conducted research and development in order to secure for the firm a favorable long-run market position. Top management also had the responsibility

to devise plans in order to attain the firm's objectives and to assign tasks to the various functional units for the purpose of carrying out these plans.

Organization was needed to support the top management's activities [Chandler, 1977]. First, information must be collected and processed to aid the top management in formulating plans. Once plans were devised, they were executed by distributing the various tasks to the functional units with the stipulation that each task be carried out in accordance with specific decision rules. Decision rules are designed to ensure that tasks were carried out in exactly the same way had the top manager had the opportunity to perform the tasks by himself. In order to support this centralized decision making and decentralized action taking system, middle management was needed to pass information from the bottom and relay orders from the top. Hierarchical bureaucracy was created. Bureaucracy was needed not only to design and execute the established policies but also to manage people, that is, to make sure that the established rules would be followed faithfully. Checkers were installed to check the checkers; layers of management were created.

In this command and control system, the all-knowing top management emulated the capitalist-owner by centralizing all decision making power into his own hands. However, there is a significant difference between these two systems. The capitalist-owner controlled operations through personal direction based upon his judgment while the top manager did so through the use of rules. Because it is not possible to prescribe rules to deal with every conceivable future event, rules are suited only for dealing with broad classes of events. Managers in every level

must exercise initiatives to complement the general rules. However, the overly extended bureaucracy tended to put managerial personnel in rigidly defined slots. Lower management seldom had a clear understanding of the firm's overall objectives and became obsessed with myopically perceived self-interests. The result was the ossification of the business enterprise. Now, under a changing market environment, a company man would always act by the established rules irrespective of whether the rules were still optimal or even relevant. The top management would, in time, also shed the entrepreneurial role. This happened whenever the manager acted to switch on the auto-pilot and allowed the once successful rules to perpetuate. As a result, managers at all levels refused to take initiative -- entrepreneurial spirit vanished altogether from the firm. In this way, manager-managed entrepreneurless firms assumed the dominant position in the market.

3. Resurgence of Entrepreneurs

As the American economy continues to evolve, changes take place in both the consumption and the production fronts. The affluent consumers have exhibited greater diversity in preferences and demanded greater product differentiation. Producers, on the other hand, have gained access to new production technologies and a greater range of information. These changes have affected competition in the market place as well as the internal organization of the firm.

Because per capita income in the U.S. increased continuously, by the 1960s the majority of the consumers' basic needs were, by and large, satisfied.

Greater and greater proportion of the consumer's budget is designated for the consumption of discretionary commodities. The demand for the discretionary commodities is, by its very nature, idiosyncratic. American preferences have become more individualistic and more changeable. Segmentation of the market has gained prominence and the producer's ability to ignore these differences in tastes has diminished. Moreover, an increase in communications now causes changes in one geographic area to spread rapidly to another. Aided by expansion in world trade and intensification of global competition, the pace of change in the market place accelerated. Increased differentiation in tastes and segmentation of the market lessens the manipulatability of tastes of the masses and the advantage of mass advertising. Businessmen find it increasingly desirable to personalize the product in order to meet the consumers' idiosyncratic demand. However, personalization of products can become a reality only after the arrival of the modern information technology which makes it possible to ascertain consumer tastes and to map consumer profiles. With this technology now in hand, firms began to secure sales by using data base to target relevant consumers and to employ niche marketing. This development laid the groundwork for the ensuing changes in the industrial organization.

At the same time, changes in production technology altered the nature of production and hastened the integration of production processes. Computer-aided manufacturing is a computer-controlled automated guidance system which links together a set of machines and robots [Kusiak, 1985]. This system, as compared with the traditional mechanically controlled system, consists of fewer machines

and fewer setups per process plan. It not only increases the number of operations in one setup but also allows greater precision and tolerates more variations in batch sizes. Under this system, production has become more responsive to variations in consumer demands. As a consequence, computer-aided manufacturing greatly increased production efficiency and flexibility. Not surprisingly, the new technology also improved the viability of the small producers. For example, a small flexible machine center controlled by a network of desktop computers is capable of producing precision machines at a fraction of the cost of machines produced by the traditional machine centers. With the advent of this technology, economies of scale in production were greatly eroded.

The segmentation of markets and the swift pace of technological change in recent years have not only lessened the advantage associated with mass marketing and large scale production but also affected the firm's choice of strategies and internal organization. As we have noted earlier, when consumers' preferences were hard to assess and production technologies were rigid, producers were forced to cater to the average consumer. In order to insure the success of this strategy, the producer relied heavily on advertising to manipulate consumers' tastes so that their demand would indeed be in conformity to the average consumer. Now, consumer profiles can be assessed and production technologies are sufficiently flexible. Under these circumstances, producers find it more profitable to meet the individual's special demand and, therefore, become more responsive to the changing tastes of the consumer. A new set of strategies has emerged. The firm uses its data base to map consumer profiles, employs niche marketing, develops

bonds with consumers and forms partnerships with downstream sellers. These strategies all reflect the fact that the firm has recognized the resurgence of consumer sovereignty in the market place.

Rapid changes in the market place also call for restructuring of decision apparatus and mechanisms within the firm. The internal organization of the firm now must be suited for taking advantage of fleeting market opportunities created by abrupt changes in consumer tastes and for supporting its capability to react ahead of its competitors. Under this market environment, it is more difficult for the slow moving and rule-taunting bureaucratic corporations to compete with their smaller and more agile competitors. A call for flattening of the hierarchy, sharing information, dividing authority, and in short, re-engineering the work place was heard in the early 1990s [Hammer]. This re-engineering implies, of course, de-emphasizing the importance of rigorous planning and the power of the organization but stressing instead the advantage of initiative and the value of entrepreneurship. A resurgence of entrepreneurs takes place as a consequence.

Re-engineering the corporation is made possible by innovations taking place in telecommunications as well as computer networking. These technologies allow information to become available to all, and thus permit greater disintegration of functions, decentralization of decisions, and opportunities of exercising entrepreneurial initiatives. For example, sharing information via a computer network enables a company or a division of a company to concentrate on what it can do best and to farm out the rest to others. This practice leads to greater specialization, greater reliance on the market, and smaller core production

unit. Greater reliance on the market, in turn, lessens the demand for administrative coordination. Employees who keep in touch with each other can do so directly without the help and interference of the coordinating managers. Because employees are able to share information through a network of computers, lower echelon workers or teams of workers are able to use the information at hand to make decisions concerning their tasks without having to seek permission from their superiors. All these developments have shifted the emphasis of the firm from managing people to managing policies. Owing to the fact that the functions performed by a modern business enterprise have become numerous and variable, managing policies requires the functionaries to take initiatives and accept responsibilities in dealing with the various contingencies. Timid individuals will shy away from accepting these responsibilities without the protection of the guiding rules. Entrepreneurial spirited individuals rise to meet the challenges associated with uncertainties and accept the responsibilities of decision making. As a consequence, the control of the firm returns to the entrepreneurs.

The resurgence of entrepreneurs notwithstanding, there are two fundamental differences between the 19th century entrepreneurs and the entrepreneurs of today. First, the 19th century entrepreneurs were the capitalist-owners of the firm, while the modern entrepreneurs have shed the ownership role and become pure entrepreneurs. Second, the 19th century entrepreneurs exercised control over the functioning of the entire business enterprise, while entrepreneurs today exercise control over a specific function of a business enterprise and collectively control the operations of a firm.

Joint control of the firm by the entrepreneurs signifies that the firm becomes a coalition of entrepreneurs [Wu, 1989]. As such, the firm now merely serves as a vehicle for the entrepreneurs to pursue each of their own self-interests; the firm ceases to have an objective of its own. Moreover, since pure entrepreneurs are not capitalists, production must be financed through the capital market. Coalition formation and financing of production become inextricably linked with each other. In addition, because entrepreneurs share the decision making role, decision making is decentralized. Decentralization of decision making leads to greater responsiveness to the consumer and more extensive utilization of the market. Thus, the resurgence of the entrepreneurs inevitably enhances the market performance. Finally, the economy also becomes more complex. Now, the economy not only encompasses production, consumption and exchanges activities, but it also includes coalition formations of the entrepreneurs. At last, the formation of firms becomes an integral part of the market process.¹ In short, changes in the characteristics of the entrepreneurs have profoundly affected the nature of the firm as well as that of the economy.

4. Concluding Remarks

This brief historical review makes it abundantly clear that the role played by the entrepreneur does change over time. At first, the market was highly incomplete; entrepreneurs not only had to deal with the vicissitudes of the market but also to create rudimentary markets in order to carry out production and

¹ For a model of the entrepreneur-centered economy, see Wu & Qin, 1996.

exchange. Firms were controlled by charismatic capitalist-entrepreneurs who made things happen. The entrepreneur acted non-cooperatively in the market to maximize profit. Because the firm was identified with and was personified by the entrepreneur, the objective of the firm was deemed to be profit maximizing.

Following the rise of big business, transactions within the giant firm expanded enormously. This expansion called for greater specialization of functions within the firm. Technically deft professional managers eclipsed the capitalist-entrepreneurs and gained control of production decisions. The manager exercised authority through planning and controlled actions. Rules were designed and administered by a bureaucratic hierarchy. Through mass advertising and sales efforts, the manager also gained initiative in the market and thereby eroded consumer sovereignty. Although the U.S. economy operated under the banner of a capitalistic economy, the bulk of its activities were, in fact, carried out under planning. A mixed market and planned economy resulted. Since the firm was identified with the manager, it no longer acted to maximize profit. Instead, it pursued the objective(s) of the manager, such as maximization of sales, rate of growth or managerial emolument.

The arrival of the information revolution changed this picture. Consumers regained their sovereignty, internal decisions of the firm began to decentralize, and greater utilization of the market as well as reliance of entrepreneurial initiatives reappeared. All these changes led to the restructuring of the firm, the market and the economy. Specifically, the firm becomes a coalition of pure entrepreneurs; as such, it no longer has an objective of its own. Moreover, market

activities cease to be dictated by the producer; consumer preferences again shape the market demand. The economy now exhibits both cooperative and non-cooperative behaviors; that is, entrepreneurs act cooperatively with each other within the firm to maximize each of their own objective(s), while buyers and sellers in the market act non-cooperatively to pursue each of their objective(s).

Finally this study also yields important theoretical implications; specifically, the historical evidence overwhelmingly weighs against the prevailing perception that the market is made up of omnipotent demand and supply forces which alone determine the market outcome or that the market works itself and there is no room for any agent to play an active role in it. The historical lesson we have learned points to a different conception of the market. Because the market is inherently incomplete and imperfect, market forces alone can, at best, achieve sub-optimal results. Entrepreneurs' contributions are needed to boost efficiency and to bring about progress and development. Thus, the market must be described as an interactive system wherein the market forces and the entrepreneurs act upon each other incessantly to create and exploit profit opportunities. In this creative process, new markets are established and the market becomes more complete. In addition, the function of the entrepreneur becomes increasingly specialized. Because the market and the entrepreneur are complementary to each other, greater specialization of the entrepreneurial role over time necessarily implies that the internal organization of the firm is streamlined and the overall efficiency of the market enhanced. As history has amply demonstrated, it is only with the active

participation of the entrepreneurs that the market system has gained its reputation as a dynamic and creative growth machine.

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