

ECONOMIC DECLINE AND THE FAILURE OF CHINESE ENTREPRENEURS

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In his book *The Theory of Economic Development*, Schumpeter (1934) pointed out that entrepreneurs are prime movers of economic change. The entrepreneurs described by Schumpeter were innovators. They opened new markets, created new types of industrial organization, and introduced new goods, production methods, and new sources of materials. This innovative entrepreneur stands out like an economic hero whose creativity invigorates the economy with new ideas that lead to economic growth. But less imaginative entrepreneurs can also play an important role. They can copy the business ideas of others and, in so doing, play an important role in spreading new business techniques and raising productivity throughout an economy (Baumol 1988). The economic importance of the entrepreneur was again stressed by Birch (1979) who found that new and growing smaller firms account for 81.5 percent of new jobs. Given this role, it raises concern when entrepreneurs fail to seize opportunities and the economy stagnates. It leads to two questions. The first is “why might entrepreneurs fail to seize opportunities” and second “what is the relationship between entrepreneurial failure and economic decline?”

Orthodox economics says little about entrepreneurial failure. In the orthodox neoclassical world, entrepreneurs were agents who exploited environmental changes in a rational way. For example, if a change in the price of one industry reduced its profitability, the entrepreneur would reduce investment in that industry, and the economy would see a shift of resources to other more profitable industries. Entrepreneurs built businesses on the basis of profit that was calculated on the basis of price of the goods they sold and the price of the inputs used. As entrepreneurs responded to price signals, the resources in an economy were efficiently transferred from sunset industries to sunrise industries.

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Nelson and Winter (1982) attacked the neoclassical model where businesses flexibly responded to changing market conditions. They criticized the old model for ignoring many essential features of change including the difficulty of making decisions under times of uncertainty, varying viewpoints, decision-making difficulties, the importance of search and alertness, and the role of errors. Nelson and Winter proposed an evolutionary model of economic change in which businesses were endowed with certain techniques of operation. According to this theory, all firms carry out procedures and use technologies that determine their success or failure. They labelled these behaviors "routines." They include standard operating procedures, investment behavior and, the process of finding better ways of doing things. The company with the most effective routines will become more profitable, and its success will indicate to other companies that they should adopt those behaviors. Hence, the most profitable routines will be broadly accepted and tend to become predominant over time. The profitability of routines will depend on the characteristics of the environment (which in turn will be shaped by the routines of existing firms). Under this model, it is the need to cope with a varied environment that leads to flexible and mutating behaviors as firms adopt new processes and routines. Consequently, routines change over time in an evolution of commercial technology.

Nelson and Winter's model did not explicitly include entrepreneurship; nevertheless entrepreneurs can be integrated into their model (O'Driscoll and Rizzo 1996). Existing firms are not the only engineers of change. Entrepreneurial innovation can lead to the creation of new routines in adaptation to the changing environment. We can see this in the spin-off firms, where employees leave old firms with learned production technologies that they use in the creation of their new businesses.

Kirzner also criticized the mainstream approach for ignoring the importance of knowledge and learning. The mainstream view that technology is a given and can be obtained by all members of society is flawed. "There was no suggestion that the set of opportunities likely to be in fact discovered might in some way depend on the institutional framework within which growth was sought" (Kirzner 1985, p. 70). Economic development requires growth in technical knowledge and the exploitation of opportunities stemming from them. It is the entrepreneur who discovers and seizes those opportunities. If opportunities remain unnoticed, output in a country can be lower than is desirable. It is not enough that opportunities exist; they must be perceived.

This leads to the question "why might entrepreneurs be alert and perceive opportunities, yet not seize them?" For Simon (1988), it is the expert who is most likely to identify new opportunities in the market. Although we may think of the creative genius as someone who can create something from nothing, in reality, those creative sparks are the result of a buildup of knowledge and information over time. Not only is being an expert the prerequisite to creativity, it also helps to make accidental discoveries and recognize the importance of a change in the market place. When you have a great deal of knowledge about

what is normal, it is much easier to identify a shift in the marketplace, the opening of a niche and other unique situations that have commercial implications. Simon's approach is supported by a number of researchers who have shown that many successful entrepreneurs start businesses in careers of which they already have knowledge. For example, Lamont (1972) found that approximately 85 percent of the new firms started with products or services that drew on the founder's previous technical experience. Similarly, Susbauer (1972) found that over 90 percent of the founders of the new companies had previously worked in the same industry. Industry experience is also important in making the new business succeed (Bruderl et al. 1992). These findings help us to view past knowledge and skills as the DNA for commercial offspring.

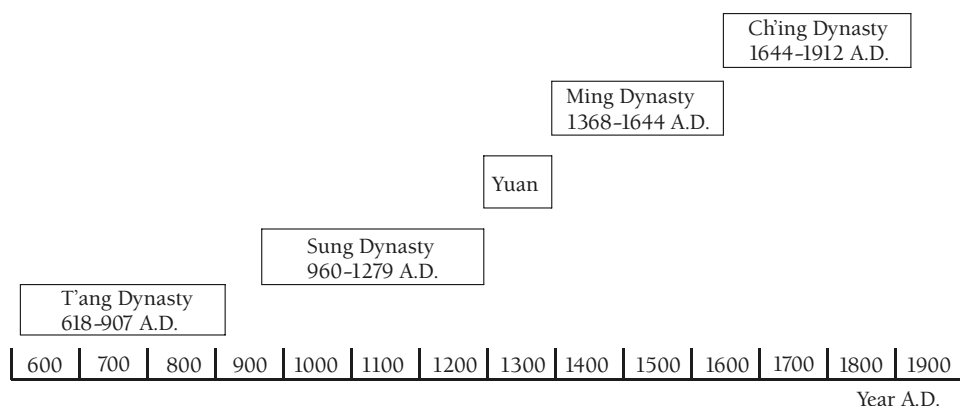
China, in the second half of the nineteenth century, provides an interesting period to explore why businessmen do not seize opportunities. This period of history allows us to contrast the flexibility of entrepreneurs as per orthodox economics with the importance of routines as stressed by Nelson and Winter. This was an epoch of substantial economic decline in which entrepreneurs failed to exploit opportunities available to them. This paper attempts to identify the cause of that failure, and link it to the economic theory on entrepreneurship. The first section examines the evolution of the Chinese economic environment and the routines that Chinese businessmen used to succeed in that environment. The second section examines the decline of that environment and the lack of innovation and Schumpeterian-type entrepreneurs. Section three takes a close look at the shipping industry, and examines the failure of Chinese merchants to adopt the latest shipping technologies.

1. THE CHINESE ECONOMIC ENVIRONMENT

For centuries, China possessed the largest market economy in the world with some of the wealthiest entrepreneurs. Well before Europe broke its feudal bounds, China had built a market economy in which people with entrepreneurial qualities could flourish. The market evolved during the T'ang (618-907 A.D.) and Sung (960-1279) dynasties when a revolution in transport and agricultural production occurred. Agricultural output grew on the basis of improvements in production techniques and equipment that were adopted across the nation (Elvin 1973, Merson 1989). The spread of rice cultivation combined with a spread of hydraulic techniques resulted in agriculture productivity significantly higher than we would find in the west. Its output could support a population twice the size of Europe's. The government was the key agent in diffusing the new technologies. Officials opened and operated large polders, taught hydraulic techniques and introduced pumping equipment in areas unfamiliar with them. They encouraged farmers to take up the new rice crops and provided tax relief and credit systems for its adoption.

The development of a market economy was also a consequence of improvements in transport and communications systems (Elvin 1973). The nation's waterways were adapted and mastered, becoming the basis of a network that could transport large volumes of goods across the nation. This opened up distant-markets to farmers who soon realized they would earn more growing produce for those markets instead of trying to be self-sufficient. As farmers across the nation specialized in crops that made the most of local conditions, there was a quantum leap in productivity. The Chinese peasantry became adaptable, profit-oriented, petty entrepreneurs; and a wide range of new occupations and industries appeared.

Figure 1
Chinese Dynasty Timeline



Markets were established as alliances between local clan chiefs, merchants and local government officers who sanctioned them in return for financial consideration (Shiba 1970). Everyone benefited, and a relationship of symbiosis grew between state and commerce. Consequently, the commercial rationality of Chinese merchants was not just the normal merchant thoughts such as getting the right mix of inventory. Commercial success also depended to a large degree on a merchant's bureaucratic connections (Murphey 1970), so a merchant would devote significant resources and energy to cultivating such connections. This high degree of cooperation also existed in the iron and salt trades where a state monopoly existed. The government granted licenses to private merchants to operate the state monopolies on behalf of the government. This organizational structure of "government supervision-merchant operation" became a long-lived feature of the economy. It reflected the successful partnership being built between merchants and the state.

It would be wrong to paint the government-business relationship as idyllic. The Confucian bureaucracy was not always conducive to business expansion. Balazs (1964) goes as far as saying the state had a tendency to clamp down on any form of private enterprise, killing initiative and the slightest attempt at innovation. Nor was commerce helped by a secret police atmosphere and the

arbitrary character of Chinese justice. However, L.S. Young (Murphey 1970) states that even in the relatively conservative Ming and Ch'ing dynasties, there was a genuine concern of the State not to ruin or even seriously impede merchants' activities. Nevertheless, merchant incentives and modes of operation were affected by the pervading Mandarins. The merchant class never dared to fight in order to extract the laws and liberties that western merchants obtained. This created a commercial culture in which businessmen preferred to compromise rather than fight, to imitate safe precedents and to invest money safely in preference to risky industrial enterprises. On obtaining wealth, their goal was to finance their children or grandchildren's education so that they became elite scholar officials themselves. In this way, Confucianism defined the goals of businessmen. However, while the goals of merchants complemented the goals of the Mandarins the commercialization of the Chinese economy would continue. Mandarins learned that they could benefit by supervising and milking merchant activity.

The extent to which entrepreneurship could flourish in this environment can be gauged by the size of the workforce of the enterprises. During the T'ang period, Ming-yuan operated five hundred looms in his own home for the weaving of silk damask, as a result of which he became very rich. During the Song dynasty, Wang Ko ran an iron smelter with a workforce numbering several thousand. Such employment levels in the iron industry would not be surpassed until the creation of the Urals iron industry in Russia in the eighteenth century (Elvin 1973).

To lubricate transactions, a number of institutional arrangements occurred and the structure of business organization increased in complexity. These improvements are associated with increased specialization and the spread of commercial techniques that reduced business costs and increased the efficiency of resource allocation in the market economy. These changes include the increased use of credit among merchants and the appearance of specialist brokers and wholesalers as institutions to facilitate commercial exchange. Brokers were particularly important in reducing transaction costs and raising the efficiency of the market. Another routine developed by merchants that helped reduce costs associated with default and noncompliance was "relationship building." Merchants and entrepreneurs spent a long time getting to know their business partners. A successful entrepreneur had networks of trusted suppliers on whom he relied. As well as networks, guilds also helped to enforce codes of conduct which enhanced the efficiency of the market.

As a consequence of these institutions, the Chinese market was very efficient with much to support the neoclassical view of markets. Chinese merchants made buying and selling decisions on the basis of changing market conditions, utilizing their network connections and the nation's efficient transportation system to source their supplies and reach their customers. It is not possible to break down all the facets of a merchant's methods of operation, but their routines included:

- Use networks to obtain goods and reach markets.
- Invest in relationships with other merchants and government officials.
- Build inventories in relation to market forces.
- On obtaining wealth, finance children's education.
- Employ family members—nepotism is legitimate.
- Milking of businesses for short term gain is legitimate.
- In international shipping, restrict sailing activities to East Asian waters.

2. ECONOMIC DECLINE

At the end of the eighteenth century, the Chinese mode of economic development with its hydraulic projects and national network of canals made China a wonderfully productive economy. Agricultural production was still higher per hectare in China than the West (Braudel 1984), albeit a more labor intensive method, and the economy showed a continual ability to adapt and grow. The amount of land cultivated doubled between 1600 and 1850, with the introduction of new crops such as fresh strains of early ripening rice and American crops like potatoes and peanuts (Jones et al. 1993). These crops could be used in drier areas not previously exploited, expanding the nation's agricultural frontier. As a consequence, Chinese society became even more market orientated with a rise in the number of goods traded and in the number of market towns. Merchants and guilds rose in power and status under the force of this commercialization. Private enterprise expanded with industries coordinated through a network of rapidly increasing density. Those industries showed themselves to be highly responsive to the ebbs and flows of market forces (Elvin 1973).

China also exhibited a high level of social mobility. Several factors changed countryside relationships to create a more fluid society. These included the ending of serfdom as an institution after a number of peasant rebellions. The possibility of being murdered during a rebellion caused some discomfort to landlords who gradually decided owning serfs was not as attractive as it had once been. This, and the practice of dividing land-estates on death resulted in a society which Elvin describes as "one of the most fluid in the world, lacking any of the status or caste restraints which typified late pre-modern Japan or India."

This was an economy displaying all the pillars of growth that modern economists seek—a wealthy, socially mobile, market-driven economy. According to Murphey (1970), per capita income at the beginning of the nineteenth century was equal to, or greater than, European levels, even though Europe was in the process of an industrial revolution. However, this may be overstated, as Adshead (1995) states that the per capita income of Europeans was double that of China at the time. Nevertheless, relative decline had set in. Jones (1990) argues that economic expansion was not accompanied by a per capita increase. There was "extensive" growth but not "intensive." Similarly,

Elvin noted that although vigorous economic growth occurred between 1500 and 1800, "invention was almost entirely absent." The economy experienced growth within the established paradigm with existing patterns of behavior, relationships and productive activity. Change might occur, but it did not significantly alter those established patterns. This could be seen in industrial output. Throughout the nineteenth century, China lost its industrial supremacy. In 1800, China was still producing 33 percent of the world's manufactured goods. However, by 1860, their share was 19.7 percent and by 1900, it was down to 6.2 percent. During the same period, Europe's share had grown from 28.1 percent to 62 percent (Kennedy 1988).

The extension of market activity increased opportunities for the type of entrepreneur found in orthodox economic literature, who could exploit price differentials between regions. However, the economy showed little sign of innovation or the Schumpeter-type entrepreneur who was transforming the British economy at the same time. This lack of significant invention in the techniques of production suggests a shortfall in Chinese science. Science in China did progress at this time, but it failed to advance at a rate achieved in the West (Jones 1990). Thinking in terms of National Systems of Innovation would suggest that Europeans had developed a system which more rapidly generated innovation, and the development of such institutions as the Royal Society and the Royal Observatory at Greenwich might support such a case. However, China had long had its Imperial Bureau of Astronomy and, since 1645, a Catholic missionary had always been in charge of the bureau (Teng and Fairbank 1954), reflecting some openness to Western innovations. However, astronomical advances were not widely distributed as they were in the West and Westerners came merely to advise the Emperor.

Chinese thought and education were changing in a way that reflected the fact that the economy had solved many material problems. From the fourteenth century, neo-Confucianist philosophers moved away from the material world and practical thought, and increasingly started to explore the "mind" and "spirit" (Elvin 1973). As the nation's top intellectual thinkers moved away from exploring the physical world, the growth of a modern science based on mechanistic and quantitative approach to phenomena was unlikely to occur, with negative consequences for science and technology. It reflected a distance between those who worked and those who had education and power. The consequence was a lack of attention to developing new production techniques. This stands in dramatic contrast to Europe where knowledge resources were increasingly applied to the problems of industry, and institution such as the Society of Arts were created to facilitate this link.

Formalization of education also caused stagnation. Once a highly rational mode of thought, Confucianism had become traditionalist and conservative (Balazs 1964). The reproduction of past successful thought resulted in examinations becoming formalized with a preoccupation with style. Education became repetitive with little in the way of advance. However, stagnation in science and technology should not be stressed too strongly as

a cause, as it presupposes that industrial technology in the west advanced on the basis of scientific advance and this was not the case until the nineteenth century. Industrialization in Britain during the eighteenth century had only a weak connection with scientific thought (Jones et al. 1993). Most of the industrial advances were made by artisans with little scientific knowledge. They were industrial “tinkerers” (Landes 1969) who held no scientific advantage over Chinese artisans who were also capable of making the products of the early industrial revolution. They had in fact, already made their own water powered spinning machines. A true “technological gap” did not open up until the second half of the nineteenth century when developments occurred in the steel, electrical, and chemical based industries. Formalization of science and education does not sufficiently explain the economic entrapment.

Another explanation for the lack of technological advance in the Chinese economy might be the restrictive nature of its government. The long-term investment strategy of businessmen was strongly shaped by the Confucian government who gave merchants a low ranking in society. The long term strategy of successful merchants was to invest wealth either in the safety of land or, in education so that their family could obtain a higher social standing and perhaps enter the bureaucracy themselves. Consequently, they did not invest in proto-industrial development as did the merchants of the West. However, Hao (1970) states that the theoretically low ranking of the merchant was misleading. When the government sold degrees to raise money, wealthy merchants could buy into the gentry, and merchants experienced a rise in status and power over this period. In fact, in this period of relative decline markets were growing and businessmen became respected and influential citizens. Officials showed an increasing appreciation of market forces and valued their symbiotic relationship with merchants which provided them with a valuable source of revenue. In return, merchants received increased state support and chance of official favors. However, this still diverted merchant energies away from technology. Chinese merchants invested their energies and capital into building relationships with scholar officials. So, while political obstacles to economic growth during the Ch'ing dynasty may have been minimal, the incentives generated by the scholar-officials continued to shape business behavior within the established mode of development. Cultivating relationships was more profitable to merchants and hence a more worthy area of development than improving techniques of production.

To assess the impact of the government it is worth noting that the government's share of GNP in China was 5 percent of GNP, compared with 10 percent for the United Kingdom (Adshead 1995). The government's role in the economy appears to be getting smaller during the period of economic decline. In the earlier Song dynasty (960-1279) the government had taken an active role in diffusing innovations, but during the Ch'ing dynasty (1644-1912), “the Chinese government ceased almost entirely to provide any kind of public services” (Mokyr 1990). A consequence of this was a vital part

of the economy was no longer involved in “search” and “exploring” and contributing to the National System of Innovation. The government retreated from economic activity, preferring to let the guilds carry out bureaucratic and legal functions of commerce (Jones et al. 1993). The guilds were certainly closer to the activity and in a better position to control what was going on. With decentralization, we would expect an increase in competitiveness; however, the guilds also administered rules and their jurisdiction over their members was absolute (Morse 1909). Through coercion and the practice known as “cessation of all business” (i.e., stop trading) they could impose their will on traders both inside and outside their membership. The resulting tyranny restricted freedom of enterprise and individual initiative. Guilds allowed industry to grow but not at the expense of another member’s income. Their concern with market share and corporate welfare could define them as a distributive coalition with little investment in innovation.

Guilds, personal relationships and other networks, through their rules and moral standards, reduced costs between transacting parties (Jones 1990). They increased efficiency within an existing mode of development. But new forms of techno-economic activity involved transactions between people outside of existing relationships and networks. By contrast, Europe had developed a legal system that made it safer for merchants to do business with strangers. However, the lack of independent law in China stopped the entrepreneur from safely going it alone. The rules and controls of guilds allowed an impressive degree of market expansion, but they impeded market deepening into new areas. Businessmen were entrapped within existing modes of economic development.

A possible explanation for the slow rate of innovation can also be found in the market where specialization, so praised by Adam Smith, had led to routine-based path dependency. Langlois (1988) had noted that markets of decentralized specialists can create coordination problems in implementing complex change. Market growth in China had led to a level of specialization where artisans specialized on producing goods with little attention given to the workings of the market. At the same time, merchants specialized in distributing goods with little thought given to how the goods were produced. The result was a rising gap between producers and merchants and in many cases, intermediaries and contractors increased this gap. The consequence was those with capital and the keenest awareness of market forces had no interest in production technology. At the same time, producers lacked the capital and marketing sense to create any significant leap in production technology (Elvin 1973). Consequently, no significant leap occurred. Market-based specialization had stunted domestic innovation. By contrast, in the United Kingdom, young industries were being created by men like Josiah Woodward, who had crafts-skills and an entrepreneurial eye for the market (McKendrick et al. 1982).

Ironically, this problem was reinforced by the market-based rationality of the merchants and entrepreneurs. If a merchant had problems getting supplies,

he never sought a technical or productive solution as he had no knowledge in this area. He sought solutions in the marketplace, where he had developed his skills and contacts linked by efficient communication networks. For example, if demand was high for cotton, wages would rise and encourage some of the hundreds of thousands of peasant households to divert their labor from agriculture to the cotton industry and when demand fell the peasant's labor would be redirected into farming. The market was so efficient that it was unnecessary for merchants to become directly involved in production. They could hold almost all their capital in relatively liquid form as working capital and avoid tying it up as fixed capital (Elvin 1973).

It wasn't just the market-based industries that were suffering. For example, the ceramics industry was also suffering from specialization that had previously reduced costs and enhanced quality. But technical perfection came at the cost of entrapment. Increased centralization of the industry under the state increased efficiency and quality of output, but reduced the chance for individual creativity (Medley 1989). While large-scale production reduced experimentation in China, the small state owned factories in Europe were given regional monopolies, government support and freedom to experiment and innovate (Atterbury 1982). In England, individual potters competing in a proprietary capitalist system proceeded on a path of continuous improvement. The industrial revolution was producing new products such as bone china and new techniques such as transfer decoration that more than held their own with the traditionally produced china-ware. As early as 1791, the English East India Company no longer found it profitable to import Chinese porcelain to Europe.

Although centralization had reduced the number of kilns in China, there is no evidence to suggest that there were fewer kilns competing in China than Europe where the industry was younger. Consequently, the decline cannot be attributed to a relative lack of local rivalry. Nor can state control take the blame, as many of the kilns in Europe were state-owned. The investment in rigid specialized routines and centralized control would seem to be the cause. The fact that both market- and firm-coordinated producers were entrapped provides some support for the importance of historical investment in routines, rules, and procedures.

It is ironical that such an efficient and flexible economy had become so rigid. Elvin (1973) describes the Chinese economy of the Ch'ing dynasty as being caught in a "high level equilibrium trap." Its farming and transport technologies were so good that "no simple improvements could be made." Its transportation and commercial system had reached the limits of efficiency from which no further improvements could be made within the existing paradigm. As agricultural productivity per acre approached the limits of what was possible without new industrial-scientific inputs, the nation experienced a decline in per capita production. This decline in output had a cumulative effect on the economy. Farmers had less additional output to trade and this reduced their demand for other products, reducing the opportunity for the

market to reward innovation. At the same time, resources were becoming scarce making it more expensive to produce capital goods while labor, fuelled by population growth, was becoming cheaper. This provided no incentive to innovate with labor saving machines or improvements in the manner of the Europeans.

In summary, the decline of innovation was caused by a number of features: guild rules and restrictions, formalization of education, specialization in the market and larger organizations, merchants entrapped by a market based value system, and the retreat of Mandarins from technological enhancers to distributional coalition. These forces all acted to keep Chinese merchants acting as their predecessors had. In effect, Chinese commercial routines were reproducing themselves with little in the way of mutation. China was entrapped in what had been a successful economic system.

While China had stopped being the source of technical innovation it once was, this should not have stopped Chinese entrepreneurs from acquiring foreign technologies. After all, this is what we would expect from orthodox economics. Changes in the efficiency and price of inputs should be recognized by entrepreneurs and reflected in their investment decisions. However, Chinese merchants were restricted by the "routines" and values they inherited. Even when they became aware of superior western technologies, few traditional merchants invested in industrialization (Hao 1970). It would take a brave man to risk large sums of money and time on production techniques he knew little about, so the attitude of the Chinese merchant was "stick to what you know." There was some good economic reasoning behind the conservatism (Murphey 1970). Western-style industrial projects took a long time to generate a return that matched traditional commodity trading and money lending. Chinese businessmen were driven by market forces and a system of rationality that told them to stick to their existing path of development.

There was however, one group of businessmen who did seize the new Western technologies. These were the compradores. Compradores were Chinese who acted as go-between for foreign companies operating in China. This experience provided them with a different "routine" inheritance to traditional merchants. They knew western methods and their operations. Their importance can be seen in the shipping industry.

3. ENTREPRENEURIAL FAILURE AND SHIPPING

Chinese merchants had dominated East Asian waters from the early thirteenth century (Levathes 1994). Here they developed an expertise with shipping technology suited to the environment. They chose not to sail into the Indian Ocean where conditions were different, but instead, chose to trade with Indian Ocean traders at midpoints such as Malacca. The Chinese developed a pan-Asiatic trade ring in which they traded with Koreans, Japanese, Vietnamese, Siamese, Southeast Asians, Bengalis, Persians, and Arabs.

The national economic system gave rise to several factors that underpinned their competitive strength. These included the nation's superior knowledge resources which led to superior shipping technologies including ships, equipment, and navigational ability. Second, were the forms of organization that made it easier to channel capital into shipping and facilitated the increased specialization of skills. Third, Chinese shipping drew strength from the supporting industries in the domestic economy. These provided the cargoes with which shippers could confidently seek offshore markets. Finally, supportive government policies which in the early days financed improvements such as harbors and navigation beacons and offered incentives for research and development in ship design. In this way, the domestic economy provided the competitive strength which entrepreneurs could exploit. It is impossible to isolate the success of the shippers and traders from the economic system to which they were part.

By the eighteenth century, some warning signs were beginning to appear for merchant shipping. The economy-wide decline in technological advance also affected shipping. Ishii (1998) notes that Dutch vessels sailing from Batavia to Nagasaki routinely took less time than the Chinese. European fully rigged ships could complete three voyages between Canton and Batavia per year in comparison with only one for the junks. The junks were unwieldy and could sail in a smaller range of conditions. They did not attempt to tack against the wind or sail at unseasonable times but simply sailed with reliable monsoon winds.

Nevertheless, in the first half of the nineteenth century, the Chinese were still secure in their competitive strengths. Even after the opening of the Treaty Ports that gave Europeans access to the Chinese market and removed a protected source of strength for the Chinese, European merchants were unable to compete. They lacked the "intimate knowledge of the markets and the skill in assorting and laying out cargoes, which the Chinese had acquired through centuries of experience" (Wong 1960). Chinese merchants proved themselves flexible to the changing fortunes thrust upon them and continued to dominate East Asian trade. Up until 1842, they were principal carriers not just for Japan and their own country but, also Vietnam, Siam and Cambodia as well as a substantial proportion of the remainder (Reid 1993).

Inevitably, decline in the broader economy impacted on the competitiveness of Chinese shipping and international trade. One by one, their sources of competitive advantage were eroded. Decline in the broader commercial environment meant they no longer had superiority in capital nor the quality of products to export. Another barrier to growth had been the decision to restrict sailing to East Asian waters. It was not irrational to avoid sailing in the Indian Ocean where different ship-types and local knowledge were the basis of competitive strength. And, up until the early nineteenth century, the Chinese were still the leading shippers in the China Sea. Reid (1993) estimates the junk trade of the South China Sea to measure 74,190 tons at this time, while Viraphol (1977) estimates the combined tonnage of Chinese and Southeast

Asian based junks in the inter-Asian trade at 85,000 tons. By contrast, prior to 1833, the English East India Company never had more than 30,000 tons in the region. However, the China Sea was just one of many markets for the British. As early as 1771-1773, the English had more than double that tonnage in the Atlantic trade alone (Davis 1962). Chinese shipping reflected a path dependency centered on the China Sea. While Chinese shippers had developed skills, experience and contacts in the East Asian trade, Europeans were developing new paths to riches. Western fleets had access to the world market. They sailed every ocean in the world with markets in each, developing economies of scale with which the Chinese family firm could no longer compete.

Slowly but surely, the Europeans began eating into the Chinese market share. The Chinese had long lost their technological edge in shipping technology. At the end of the century, the steamship would make the advantage complete. The British also developed more efficient organizational forms, with the advent of agency houses (Das Gupta 1994). Under orthodox neoclassical economics, we would expect Chinese merchants to adopt the latest best-practice technologies, especially the steamship. However, this did not occur.

For many reasons, steamship technology is not the best example to illustrate the limits of orthodoxy because government controls were a major barrier to their spread. Steamships had played a major role in China's defeat in the Opium war so were considered too important to be left in private hands. However, attempts at imitating in the steamship industry are well-documented in the English language and do a good job of illustrating the importance of routines in affecting decision-making under conditions of uncertainty.

Steamship businesses were the first and for a long time, the only field in which Chinese could view an example of modern Western entrepreneurship (Liu 1959). The commercial operation of steamships in China took off after 1860 when a number of foreign firms began to operate steamships under the commercial freedom given them by the treaties. After defeat in the Opium wars, several treaties were signed that gave foreigners freedom to operate in a number of coastal ports. The foreign companies operated in China as joint stock companies, and Chinese compradore merchants showed a willingness to invest in the companies. For example, when the American firm Russell and Company set up the Shanghai Steam Navigation Company, one-third of the company's stock was sold to Chinese merchants. Similarly, when Jardine Matheson set up the China Coast Steam Navigation Company, it retained less than half of the stock, issuing the rest to Chinese and foreign merchants in the Treaty ports.

Recognizing the importance of water transportation to the Chinese economy, the government established in 1872 the China Merchants' Steam Navigation Company to compete with foreign firms. However, attempts to introduce modern technology into an economy with incompatible values and institutions were fraught with difficulties. In theory, the company was a joint-stock enterprise with shares issued to private individuals. However, the company was

founded by a top official, the famous Li Hung-chang, and operated within an agency of the government, "the Bureau for Inviting Merchants to Operate Steamships." Many of the old administrative routines and values were carried over.

Li Hung Chang's principal adviser for the project was Chu Ch'i-ang, a gentry-merchant who personally owned junks and was a commissioner of the Chekiang Bureau of Sea Transport. He was previously in charge of the sea-transportation of government rice, a position for which he received commendation for his supervisory, negotiation, and dispute resolution skills. His combination of maritime experience at the highest levels and respect by captains and helmsmen seemed to make him ideal for the new position. Unfortunately, all his knowledge of Chinese junks was to little avail when confronted with steamships. His old routines and decision-making skills did not carry over into the new technology. The first ship he purchased was overpriced by some 60 percent (Hao 1970). His second purchase was only slightly better, and the first wharf he acquired was for a similarly inflated price. When dealing with foreign sea captains, he found himself in another position of incompetence. When he dismissed Captain James W. Connor for recklessness and putting a "squeeze on the crew," the subsequent legal activity suggested that Chu either did not know how to get good men or failed to handle them properly.

In 1873, Chu was replaced by Tong King-sing who had previously been employed as a compradore by Jardine Matheson and Company. The British Company had given Tong an intimate knowledge of the steamship business, and he was probably the most experienced native Chinese in the field. Tong brought to the company other Chinese compradores with experience in the treaty ports, as well as American and English captains, engineers, and marine superintendents whom he employed to run the ships. Foreigners were even employed as superintendents on the wharves and warehouses, this later group employed not so much for their expertise but for lack of faith in the Chinese (Liu 1959). He also rallied the support of the Chinese merchant guilds to develop an effective system of attracting freight. Tong's management brought success. The British company observed that the expenses for the ship *Nanzing* had declined from 7,000 taels to 4,000. With loans from the government, the company's fleet grew from four ships (totalling 2,435 tons) in 1874, to 17 ships (11,706 tons) by 1876 (ibid). In January 1877, the company purchased the entire fleet and shore properties of Russell and Company's Shanghai Steam Navigation Company, the company had become the largest steamship operator in China (with 33 ships totalling 23,967 tons).

Even though the company was run by a manager experienced in Western methods, he had to operate within old-style structures. The Mandarins who established the company had created an administrative framework with which they were familiar; the traditional "government supervision and merchant operation" system. Under this system, the security of the manager's position and the existence of the enterprise was tied to a particular group of bureaucrats. This made it difficult for managers to take a long-term view of their

position in the company. Even the officials (including Li), were not always sure of the company's permanence, with the consequence that managers and officials were not able to link their personal future with that of the company and hence took the opportunity to profit while they could. This short-term thinking also reflected old routines; the old "tax farmer spirit" was typical of Chinese government-business relations and even Li was not above putting personal gain ahead of state policy.

However, the company received some benefit from government financial assistance. These included large loans, tax concessions and, when the company was contracted to carry tribute rice, the government paid a rate at least twice that charged by foreign firms. But these advantages did not offset the negative consequences of official interference. In fact, the government aid only prompted the officials to meddle further in the affairs of the company. For example, two officials, who negotiated for government loans and rice carriage contracts, each received no less than Tls 20,000 every year as their share of the government payments for the rice transport. They also recommended protégés for lucrative posts in the company (as did other supervising officials). Although foreign companies operating in China also had to deal with nepotism and corruption, they were free of this level of government interference. By the early 1880s, the Chinese company's offices and warehouses employed two or three times the number of men actually needed. Cheng Kuan-ying, a manager in the company described the problem:

The personnel recommended by the officials are neither scholars, nor farmers, nor artisans, nor merchants. They are men who have never had any sort of experience. Some of them want to be secretaries and receive a salary without doing any work. Others seek posts as pursers on board steamers, the actual work being done by assistants while they themselves sit and wait for their share of the spoils. Still others become assistant managers at the branches of the company. They frequently entertain the local authorities and wastefully incur expenses without contributing anything to the operation of the company. (Sheng-shih wei-yen, quoted in Liu 1959, p. 444)

Nevertheless, the Chinese company was able to provide reasonably efficient shipping services and made sizeable profits between 1877 and 1893. Traditional Chinese methods never emphasized reinvestment of profit into capital, and the profits were not used to expand the size of the enterprise. One was the preoccupation of the managers with their immediate personal gain. Tong and his colleagues paid themselves very high interest rates for money they lent the company and, at other times, Tong borrowed money to finance their private real estate investments. The managers' actions also reflect an inability to take a long-range view of the company's future and their place in it; this was a consequence of the traditional short time scope of Chinese businesses, the tendency to milk the uncertainty of the business environment (Hao 1970). Liu suggests that these same factors also acted as a disincentive for Tong to invest time in improving his understanding of technical matters. As a consequence,

he did not study or adopt “innovations essential to effective entrepreneurship.”

Another factor limiting reinvestment was the practice of paying shareholders a guaranteed minimum dividend of 10 percent. In contrast, the foreign companies operating in China persuaded their shareholders that it was sound business practice to reinvest a good portion of their profits. This reduced the need to raise loans, in turn reducing their debt repayments. In this manner, the foreign fleets enjoyed long-term growth lacking in the Chinese company.

The Chinese industry may have fared better if other private companies were established, but two attempts to do so were opposed by the official patrons of the government-sponsored company. The companies did not evenuate. Although the need for a domestic steamship company was widely recognized, steamships were seen as too important a technology to be in private hands. It is notable that in the treaty ports where compradores were free from Mandarin control, Chinese shipping companies were established by compradores who had gained the necessary management capabilities from their experiences working for foreign companies (Hao 1970). With these routines entrepreneurs could successfully create new ventures. Without these routines, it would require a process of learning in the face of tough competition. Firms started by compradores include the Ningpo Steam Navigation Company which was established and registered as an American firm in 1877. Greaves and Company (Hung-an kung-ssu) was established by Chinese and British merchants with 70 percent owned by Chinese compradores who had worked for Jardine Matheson and Company, Butterfield and Swire, and China Merchants Steam Navigation Company.

4. DISCUSSION

The limitations of entrepreneurs in propelling economic growth have been illustrated here. The actions of potential entrepreneurs are limited by the capabilities they possess. The institutions, relationships, and business practices inherited from the past stunted the growth of the industry. In many ways, the Chinese experience illustrates both the advantages and disadvantages of prior knowledge and values. Traditional entrepreneurs trapped in the old-market paradigm were unable to break out. They showed a strong reluctance to enter new fields (Hao 1970). By contrast, compradores who had inherited a different set of routines and capabilities showed interest in the new techniques that they had been introduced to. Unfortunately, the treaty ports where the foreigners operated were just a scratch on the surface of the Chinese economy, and while they touched the compradores, their impact was limited (Murphey 1970).

The linkages between the activities of entrepreneurs and economic decline has been highlighted and shows a two-way relationship. While entrepreneurial activities lead to economic growth, entrepreneurial opportunity is dependent

on the broader economic environment, and we note that with the decline in the competitiveness of related industries (e.g., cargoes) and technologies, entrepreneurial opportunity was reduced. This, of course, can lead to a vicious cycle of impoverishment.

This paper gives support to Baumol (1990, 1993) who states that the rules of the game determine entrepreneurial activity. Baumol suggests that China experienced economic decline as its rules and incentive systems became biased against the acquisition of wealth and position through productive investment. There is evidence of this in all Chinese industries, as merchants sought to build relationships that allowed them to milk their enterprises, instead of making long term investments in technology. In the steamship industry, which was seen as a strategic industry, the government placed huge restrictions and the creation of new companies was opposed. The incentive structure did have a negative impact and the steamship managers pursued rent-seeking activities which affected their investment in the company. However, the support to Baumol's analysis is limited. First, his emphasis is on changing rules and incentive structures, yet he offers no evidence that these actually changed. There were times in Chinese history when the government placed extreme restrictions on all shipping, the most well known being in the early Ming dynasty, but these restrictions were repealed in 1567. A second limitation of Baumol's work is his heavy reliance on Balazs (1964). More recent research shows that the rules, incentive structures, and institutional forms were in fact enduring in China and existed during China's period of growth. In defense of Baumol, he argues that it is highly implausible that there is any single explanation for decline.

Perhaps the incentive structure should not be seen as one that changed, but one that was superseded by a more efficient western system. The Chinese experience also suggests that the efficiency of an incentive system can be reduced over time even though there has been no change in rules. In the early days, monopolies can provide advantages as they give a more definite market which can encourage investment and innovation, but over time they can reduce efficiency through reduced diffusion of productive technology and reduced competitive efficiencies. These factors are recognized in the West today, in the issue of patents.

The problems in defining rent-seeking as identified by Ricketts (1987) are exposed here. Ricketts contrasted two definitions of rent seeking. The first definition sees rent seeking as use of resources that lead to social waste. The alternative definition states that rent-seeking threatens the *status quo* in distribution of property rights; the *status quo* of property rights being supported by forces of etiquette and social custom. In the Chinese case, incentive systems were determined not just by the government but by inherited modes of thinking. The perception of the best incentives to pursue is often culturally determined. Conserving this *status quo* reduced efficiencies and contributed to rent seeking.

Many Ch'ing-dynasty entrepreneurs pursued options that would not fit the description of rent-seeking. They expanded trade as markets grew. These activities added to growth but not per-capita growth. To achieve per-capita growth, they needed to move outside their inherited capabilities. The persistence of routines and experience is consistent with Polanyi (1967) who noted that some tacit knowledge can only be acquired by experience and can not be easily be transferred. It is also consistent with modern studies of entrepreneurship which show that failure rates of new ventures are linked to the previous experience of the founder (Bruderl et al. 1992). Traditional Chinese entrepreneurs, like modern entrepreneurs, tend to invest in areas they know. Investing outside those bounds is fraught with risk. It suggests that even market economies are restricted by the competencies they inherit. Markets are path-dependent. The problem with the steamship example is the government's role distorts findings; however even where government restrictions were less invasive, traditional entrepreneurs were slow to adopt Western technology.

The Chinese experience also shows a persistence of routines in the government, despite a desire for change. Although, given the nature of bureaucracies, this should not be surprising. The new steamship company was placed in the hands of scholar-officials who interpreted policies and solutions within their preexisting outlook, principles, and patterns of administration. The system they created tied the new steamship enterprise to a bureaucracy that did not fully understand the motives of a businessman or the importance of costs, prices and the market. It also saddled the enterprises with traditional Chinese bureaucratic behavior including nepotism and the fleecing of funds by officials. The young enterprises had a millstone around their neck.

REFERENCES

- Adshead, Samuel A.M. 1995. *China in World History*. 2nd ed. New York: St. Martins Press.
- Atterbury, Paul, ed. 1982. *The History of Porcelain*. London: Obis.
- Balazs, Etienne. 1964. *Chinese Civilization and Bureaucracy: Variations on a Theme*. New Haven, Conn. and London: Yale University Press.
- Baumol, William. 1993. *Entrepreneurship, Management and the Structure of Payoffs*. Cambridge, Mass. and London: Massachussetts Institute of Technology Press.
- . 1990. "Entrepreneurship: Productive, Unproductive and Destructive." *Journal of Political Economy* 98 (1): 892-921.
- . 1988. "Is Entrepreneurship always Productive?" In *Entrepreneurship and Economic Development*. H. Leibenstein and D. Ray, eds. New York: United Nations. Pp. 85-94.
- Birch, David L. 1979. *The Job Creation Process*. Unpublished report, MIT Program on Neighbourhood and Regional change prepared for the Economic Development Administration. U.S. Department of Commerce. Washington, D.C.
- Braudel, Fernand. 1984. *Civilisation and Capitalism*. Vol. 1. London: Collins.
- Bruderl, J., P. Preisendorfer, and R. Ziegler. 1992. "Survival Chances of Newly Founded Business Organisations." *American Sociological Review* 57: 227-42.

- Das Gupta, Ashin. 1994. *Merchants of Maritime India 1500-1800*. Aldershot, U.K.: Variorum.
- Davis, Ralph. 1962. *The Rise of the English Shipping Industry in the Seventeenth and Eighteenth Centuries*. London: Macmillan.
- Elvin, Mark. 1973. *The Pattern of the Chinese Past*. London: Eyre Methuen.
- Hao, Yen Ping. 1970. *The Comprador in Nineteenth Century China: Bridge between East and West*. Cambridge, Mass.: Harvard University Press.
- Ishii, Yoneo, ed. 1998. *The Junk Trade from Southeast Asia: Translations from the Tosen Fusetsu-gaki, 1674-1723*. Singapore: Institute of Southeast Asian Studies.
- Jones, E.L. 1990. "The Real Question about China: Why was the Song Economic achievement not repeated?" *Australian Economic History Review* 30.
- Jones, Eric, Lionel Frost, and Colin White. 1993. *Coming Full Circle: An Economic History of the Pacific Rim*. Boulder, Colo. and Oxford: Westview Press.
- Kennedy, Paul. 1988. *The Rise and Fall of the Great Powers*. London: Unwin and Hyman.
- Kirzner, Israel M. 1985. *Discovery and the Capitalist Process*. Chicago: University of Chicago Press.
- Lamont, Lawrence M. 1972. "The Role of Marketing in Technical Entrepreneurship." In A.C. Cooper and J.L. Komines, eds. *Technical Entrepreneurship: A Symposium*. Milwaukee Center for Venture Management.
- Landes, David. S. 1969. *The Unbound Prometheus: Technological Change and Industrial Development in Western Europe from 1750 to the Present*. Cambridge, U.K.: Cambridge University Press.
- Langlois, Richard. N. 1988. "Economic Change and the Boundaries of the Firm." Reprinted in *Economics and Institutions: A Manifesto for a Modern Institutional Economics*. G. Hodgson. Cambridge, Mass. and Philadelphia: Polity Press and University of Pennsylvania Press.
- Levathes, Louise. 1994. *When China Ruled the Seas: The Treasure Fleet of the Dragon Throne 1405-33*. New York: Simon and Schuster.
- Liu, Kwang-ching 1959. "Steamship Enterprise in Nineteenth Century China." *Journal of Asian Studies* 18.
- McKendrick, Neil, John Brewer, J.H. Plumb. 1982. *The Birth of a Consumer Society: The Commercialization of Eighteenth Century England*. London: Europa.
- Medley, Margaret. 1989. *The Chinese Potter: A Practical History of Chinese Ceramics*. 3rd ed. Oxford: Phaidon.
- Merson, John. 1989. *Roads to Xanadu: East and West in the Making of the Modern World*. London: Weidenfield and Nicholson.
- Mokyr, Joel. 1990. *The Lever of Riches: Technological Creativity and Economic Progress*. New York: Oxford University Press.
- Morse, Hosea B. 1909. *The Guilds of China*. London: Longmans, Green.
- Murphey, Rhoads. 1970. *The Treaty Ports and China's Modernization: What Went Wrong?* Michigan Papers in Chinese Studies No.7. University of Michigan Center for Chinese Studies.

- Nelson, Richard R., and Sidney G. Winter. 1982. *An Evolutionary Theory of Economic Change*. Cambridge, Mass.: Harvard University Press.
- O'Driscoll, Gerald P., and Mario J. Rizzo. 1996. *The Economics of Time and Ignorance*. New York: Routledge.
- Polanyi, Michael. 1967. *The Tacit Dimension*. New York: Anchor Books.
- Reid, Anthony. 1993. "The Unthreatening Alternative: Chinese Shipping to Southeast Asia 1567-1842." *Review of Indonesian and Malaysian Affairs* 27: 13-32.
- Ricketts, Martin. 1987. "Rent Seeking, Entrepreneurship, Subjectivism, and Property Rights." *Journal of Institutional and Theoretical Economics* 143: 457-66.
- Schumpeter, Joseph. 1934. *The Theory of Economic Development*. Cambridge, Mass.: Harvard University Press.
- Shiba, Yoshinobu. 1970. *Commerce and Society in Sung China*. Mark Elvin, trans. Michigan Abstracts of Chinese and Japanese Works on Chinese History No. 2.
- Simon, Herbert A. 1988. "Understanding Creativity and Creative Management." In *Handbook for Creative and Innovative Managers*. R.L. Kuhn, ed. New York: McGraw Hill. Pp. 11-24.
- Susbauer, Jeffrey C. 1972. "The Technical Entrepreneurship Process." In *Technical Entrepreneurship: A Symposium*. A.C. Cooper and J.L. Komines, eds. Milwaukee Center for Venture Management.
- Teng, Ssu-Yu, and John K. Fairbank. 1954. *China's Response to the West*. Cambridge, Mass.: Harvard University Press.
- Viraphol, Sarasin. 1977. *Tribute and Profit: Sino-Siamese Trade 1652-1853*. Council on East Asian Studies. Cambridge Mass.: Harvard University.
- Wong, Lin Ken. 1960. "The Trade of Singapore 1819-69." *Journal of the Malaysian Branch of the Royal Asiatic Society* 33 (4).