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Upgrading the Competitive Advantage of Chinese Private Sector – Challenges and Potential in the Case of Chinese Pneumatics Industry

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ABSTRACT

Through China's economic reform in the past decades, Chinese private sector has been developing rapidly. By the case study of China's pneumatics industry, this paper makes effort to investigate the variables determining the competitive advantage of China's private sector, and offer recommendations for China's private enterprises and China government for upgrading the national competitiveness of private sector.

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CHAPTER 1 INTRODUCTION

1.1 Background of the Study

In a little more than three decades, China has become one of the largest industrial powerhouses with incomparable growth rate for many years. From 1979 when the epoch-making Reform and Open-Door policy commenced to 2009, China's real Gross Domestic Production (GDP) grew at an average annual rate of 10.8% (Morrison 2006; National Bureau of Statistics 2009). In 2010, finally, China successfully rose to be the world's second largest economy in the second quarter of 2010 (Bloomberg News 2010). According to Bloomberg News, Japanese Cabinet Office said on Aug 16, 2010, Japan's nominal gross domestic product for the second quarter of the year totalled $1.288 trillion, less than the $1.337 trillion of China.

As observed by all economists all over the world, the Chinese private sector has been contributing overwhelmingly to the rise of Chinese economy. Since 1979, the private sector has been playing a role of increasing importance in economic activities, and relentlessly contributing to China's economic growth. The total number of private firms (excluding individual units) has been experiencing a steady rise since 1979. In recent years, the growth has kept going, from 2.0 million in 2004 to 3.6 million in 2008, by 81.4% (National Bureau of Statistics of China 2009). In contrast, the number of State Owned Enterprises (SOE) decreased by a remarked 20%, from 0.18 million in 2004 to 0.14 million in 2008; the number of collectives by 44%, from 0.34 million in 2004 to 0.19 million in 2008 (ibid). In the end of 2008, in total, there were in China 4.95 million enterprises of all types, SOE accounting for 2.9% and private firms for 72.5% (ibid).

In term of contribution to employment, Chinese private enterprises also have very good performance. In 2003, according to China statistics, SOEs hired 68 million employees, almost just half of that in 1995, 112 million. In sharp contrast, workers employed by individual and private enterprises in 2003 reached 89 million, a 62% increase from that in 1995, 55 million (National Bureau of Statistics 2003). Meanwhile, the transformation of private sector playing an increasing role in China's economy is evident in the shifting sharing of GDP from 1978, since when the economy undergone a fundamental change from complete reliance on SOEs and collectives to a mixed economy. The ratio of GDP contributed by SOEs decreased from 58% to 37% in 2000. On the other hand, the enterprises, private and in transition, grew at a compound

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annual growth rate of 26% from 1978 to 2000, contribution to the total economy rising from 5% to 33% during this time span (Asian Development Bank 2003).

1.1.1 Concept of the Private Sector

However, what is the academic and administrative definition of the private sector in the People's Republic of China (PRC)? First, business entities in China have many synonyms, including individual business, private enterprises, private economy and privately operated economy, which makes the concept quite complex. To simplify, some experts propose classifying enterprises into state-owned and private enterprises, using ownership as an ultimate criterion. Meanwhile, others, with a broader perspective, insist that the private sector also should include all the foreign-invested enterprises and non-public shareholding companies which are not owned and controlled by the government. In the administrative and practical field, according to the Sate Council of PRC (1988), the private sector mainly represents individual and private enterprises. In this study, the definition of private sector is consistent with the stipulation of the Sate Council, excluding the foreign firms, because the scope of this study is the status quo and upgrading of competitive advantage of Chinese private sector, thus foreign firms are not of the concern.

1.2 Objective of this Study

China's economy has been one of the most heated topics in the world recently, with its surprising rise. Along with interest in how the country shifted from command economy to market oriented economy, much focus lies in where it is heading to, and how it can get there. Though much literature exists in investigating the problems China's economy is having and possible solutions to these problems, most lacks systemic support by theories, just empirically and discursively (Asian Development Bank 2003, Toshiki et al 2004).

However, quite different from the planned economy where SOEs are dominant to carry out the central plan by controlling an absolute majority of the national capitals, a market economy should have a majority body of private sectors to dispose the majority share of the national capitals, in order to make the market economy mechanism run well, because the free price system set by supply and demand which a market economy features can only be realized and utilized to its full extent through the functioning of private enterprises which are owned and managed by numerous profit seeking individuals (Samuelson and Nordhaus 1998). In order for China to construct a more market oriented economy, more private enterprises are needed to take over larger share of

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the national economic output from SOEs, because generally, private sector is more productive and competitive than SOEs (Haggard and Huang 2008). Thus improving the competitiveness of Chinese private sector is the ultimate solution to upgrading the competitive advantage of Chinese economy as a whole. Therefore, this paper aims to figure out what factors affect the competitive advantage of China's private sector and how to upgrade these factors in order to elevate the competitiveness of China's private sector.

In essence, an economy consists of an economic system where the factors including labour, capital and land resources, and the economic agents are socially involved in the production, exchange, distribution, and consumption of goods and services; The productivity of the economy depends on how efficiently these factors are utilized in those economic activities (Friedman 2002). Michael E. Porter's diamond of competitive advantage appears to be the best theory to be utilized for this analysis, as it takes into account most all these elements affecting the competitiveness of a nation, in a national perspective. Hence, it is widely applied to the analysis and explanation of competitive advantages of a certain industry of a nation or region (Porter 1990).

This paper aims to analyze the current competitive advantage determinants of China's private sector, using Porter's diamond, and make suggestions for firm management and policy making. Suggestions for policy making will be the focus of this research, because of the active role played by the central and local governments in economic and industrial development: there are a lot of actions for the central and local governments in China to take; As China's economy has been transiting to market oriented for only 30 years, many characteristics of a planned economy (namely command economy in essence, but this term, planned economy is more widely used in China by citizens and officials, and to a larger extent, characterizes the functioning of the economy system) still prevail, even dominant in some sectors like telecommunications, petrochemicals, and banking; It is generally agreed that continuous government intervention may become an obstacle to furthering China's economic reforms.

1.3 Scope of the Study

The pivotal aim of this dissertation is to investigate the most important competitiveness determinants of the private sector of China at present, the favourable direction of development, and to work out recommendations for private enterprises management and government policy making on upgrading the competitive advantages of Chinese private sector in the end. As necessarily, the economic reform since 1978 will be covered in sections as prelude to the

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discussion of China's current economy, as it would help investigate how China's private economy has come into being and what is its role in China's development up-to-date. Deserving a unique important elaboration is the planned economy in China since the establishment of PRC till the economy reform in 1978, because it would facilitate understanding of the problems that impede the economic development, especially that of the private sector.

In fact, though the private sector still faces restriction imposed by the government to enter many important and profitable industries, Chinese private enterprises are present in most industries. They share common traits such as factor-driven (in forms of being labour-intensive, resource intensive, etc), low technology content, small and medium size, lack of management skill, etc. Furthermore, they mostly reside in manufacturing industries, in terms of output, number of enterprises, and number of employees, except the individual families in agriculture which are not taken into account as part of the private sector. Based on the understanding of the common characteristics of the private sector, they are viewed as a homogeneous group while studying the national competitive advantages.

However, the choice of the private industry to be researched is critical. Criteria for the choice include wide private ownership, internationality, fully demonstrating the common natures of Chinese private sectors mentioned above. Pneumatics industry, to a large extent, fulfils these criteria, as this industry is quite new, still totally factor-driven, at the early stage of development, almost 100% privatized, and have a high degree of internationalization (Li 2003). Chinese pneumatics industry has all the typical traits Chinese private industries have. The findings based on Chinese pneumatics industry are able to be generalized to most other Chinese private sectors. For example, almost all the Chinese pneumatics enterprises are located in small towns, even some in rural areas, far away from large cities or metropolitans like Beijing and Shanghai, all facing the problem of attracting high educated labour. All are not competent enough to vastly invest in Research and Development (R&D) and employee education and training.

1.4 Outline of Chapters

The chapters of this thesis is as outlined briefly below,

- Chapter 1 "INTRODUCTION" discusses objective and scope of this paper.

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- Chapter 2 “BACKGROUNG” presents the background of this study, be offering a brief look at the history of Chinese private sector development/retrogression, and especially the economic reform since 1979.

- Chapter 3 “FRAMEWORK-THE COMPETITIVE ADVANTAGE OF NATIONS” briefly introduces Michael E. Porter’s “diamond” framework, which is to be applied in the analysis of Chinese private sector’s competitive advantage.

- Chapter 4 “METHODOLOGY” discusses the research methods those are used in this study, and justifies the feasibility of this application.

- Chapter 5 “CHINESE PNEUMATICS SECTOR” studies the Chinese pneumatics industry’s history and development, and the competition of the industry.

- Chapter 6 “INTERNATIONAL COMPETITIVENESS OF CHINESE PNEUMATICS INDUSTRY” conducts in-depth analysis of the competitive advantage of Chinese pneumatics industry, in the framework of Porter’s diamond.

- Chapter 7 “RECOMMENDATIONS” provides Chinese private owned firms and Chinese governments with recommendations on upgrading competitive advantage of Chinese private sector.

- Chapter 8 “RESEARCH LIMITATIONS” discusses the potential limitations of this research, and suggests means for future researches to improve.

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CHAPTER 2 BACKGROUND

The purpose of this thesis is to study the competitive power of China's current private sector. This is also a quite hot topic of current Chinese economy debate. Most people, even professional economists, only mention that private economy did not exist in previous China's planned economy, which dominated China till the great transformation was initiated in 1978, and explain that there are so many obstacles hindering China's private sector development, because China's private economy is still quite new and young and China is in lack experience of private economy. In fact, it is misleading, either deliberately or unintentionally. Private economy is not at all new in China, in the territory concept of the term China. Private economy has existed in China for a very long history (Yan et al 2005). Actually, as every adult has history since infantry, childhood through teenage, economy also has history. The current economic situation is determined by the historical, economical, social and political context; decision on current economic policies must take into account of factors that existed near and long ago, and are influenced by the cultural and historical traditions of the Chinese people, including the policy-makers and the ordinary citizens whose support is required. Based on this reasoning, we need to take into consideration China's economic history when explaining and understanding the current situation of it. Firstly, this chapter will briefly touch on the history of private sector development before the formal inauguration of the People's Republic of China (before 1949), with critical events and examples highlighted. Then, the chapter will proceed to study its evolution the planned economy of PRC in 1949-1978 till the reforming started. Afterwards, we will tap the introduction of and major steps in the following economic transformation from 1978 till 2010. In the end, with more detail, we will study the status quo of China's private sectors in the context of transformation, mainly focusing on the problems they are facing.

2.1 Natural and Steady Development of China's Private Sector before PRC

China's history went through many dynasties, long or short life, till the overthrown of the Qing Dynasty in 1911. Though, due to Chinese typical traditional cultural and political conditions, commerce had been hindered and undervalued, in comparison with agriculture which had been put in the first place, private sector, dominantly agricultural and handcraft, had been out of strict control, and instead, had been developing steadily. Abundant evidence of existence and

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development of China's private sector exists in works in many dynasties (Chow 2002). During the "Spring and Autumn" period at the end of the Zhou dynasty (1100 BC – 256 BC), Chinese civilization experienced a golden period for development, with diverse schools of thought flourished. Many of these thoughts underpinned the current Chinese philosophy, political ideology and economic values. Daoism, for instant, advocates inaction, letting nature take its course with minimum human inference, and minimum government intervention in citizen's activities, including economic ones

Concrete evidence of the existence of a market economy appeared in the book, *Records of the Historian*, written by the great historian Sima Qian of Han dynasty (206 BC – 220 BC). In the chapter entitled "The Biographies of the Money Markets", Sima Qian describes the functioning of the market farmers producing food, artisans producing household apparatus and toys, and merchants distributing all these goods, all at self will, without government delivering orders. Sima Qian's work shows that in the Han dynasty at last some part of China had a functioning market economy. China's market economy was fairly well developed in the Song dynasty (960 – 1279). In many ways the economy resembled a capitalist system. People with money set up business for profit and there were plenty of rich people. Various productive and commercial activities flourished (Frank 2008).

In the first half of the twentieth century till 1949 when the Chinese Communist Party led by Mao Zedong who in the end overruled Republic of China and established People's Republic of China, when Chinese were suffering political instability and wars, the economy remained in operation as well. In other words, the market economy of China had been in operation since the Han dynasty till then. In that traditional market economy, agricultural products produced by family farms accounted for the majority of the national output, with handicraft as the second largest, and peasants the majority of the population. Since the Western impact in late Qing dynasty, modern industries and financial institutions started to emerge; modern commodities including textiles, toys, and paper products were manufactured in factories in coastal cities like Shanghai and Tianjin, modern infrastructure for transportation such as railroad and for communication such as telephone lines and telegraph network were also built by governments to some extent. Many other new things appeared, like electric power supplies, new commercial banks, stock market, private life insurance companies, and modern education systems. Thus, in short, despite political instability, economic activities and economic development carried on between 1911 and 1937 when the war against Japan broke out. Modern economic institutions evolved naturally in the market economy without government over-intervention, along with modernization.

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Even though it was still quite a poor economy as a whole with few advanced coastal cities, China had a market economy which functioned well. The trend of economic progress would have been maintained and intensified if there had been no internal political instability and no war with Japan which suffocated this progress.

Brandt (1989) and Rawski (1989) observe that the decades preceding the outbreak of full-scale war against Japan invader in 1937 witnessed China's modest, but significant economy development. This development was fuelled by the openness of China's economy to international trade and investment, embodied by the thriving domestic and foreign private business in Shanghai-centred Yangzi Delta and infusions of officially directed Japanese capital, technology, and expertise in northeastern provinces (Brandt and Rawski 2008). By a look back to the history of China before the establishment of PRC, it is easy to find that market economy had been prevalent in China's history, with little direct government intervention in private sectors i.e. agriculture and handicraft, and some modern industries like textile, banking, and telecommunication in the most time of Republic of China.

2.2 Discontinuity and Retrogression of China's Private Sector Development in 1949-1978

After the establishment of PRC, the China Communist Party followed Soviet Union's model to restructure the economy, by taking several steps to transform the originally market economy into a highly centrally planned, or command, economy. Overall, this is a progress of anti-market economy transformation, through nationalization, rationing system, pricing system elimination, totalitarian control of state over all economic aspects of China, economic deliberalization of citizens. The steps are briefly outlined below.

1949-1952 Land Reform

The PRC government redistributed the land of landlords to tenant farmers by force, in essence, extinguishing the landlords as a class, overtook all the state enterprises which used to belong to Republic of China. Nevertheless, other aspects remained as before, such as educational institutions, freedom of people to choose jobs and to travel. In this step, the private property rights were violated at the national level, which hence undermined the one of the cornerstones of market economy and private sector (BRAMALL 2004). This could be viewed as a tactic to

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realize the China's Communist Party's (CCP) promise to ordinary people to revolutionize their lives by offering lands. Disastrously, the initiatives to be taken in the coming years were definitely unexpected by the farmers and private enterprisers nationally.

1953-1957 the First Five Year Plan – Overall Shift to Planned Economy and Totalitarian Regime

Educational institutions were reorganized, all private universities being nationalized and incorporated into state universities. Simultaneously, capitalists were forced to surrender their enterprises and became only managers of the enterprises only if they obeyed to the governments' instructions. Further approaches to central planned system were taken that the farmers were organized into cooperatives losing individual ownership of lands and having to surrender their produce to government procurement agencies, and the government totally controlled the distribution and marketing of farm produce. In this period of time, the whole country was nationalized, and the economy was converted to central planned economy, with land, labour and education all under control. Market economy and private sector disappeared totally.

1958-1961 the Great Leap Forward Movement

Pushed by crazy imagination to developing China's economy dramatically, Mao launched the Great Leap Forward movement in 1958 where all farms in China were converted to communes working as a team and eating together in mess halls, unrealistic output targets were assigned to communes and factories. It resulted in an economic disaster, over 25 million people died of famine due to lack of food supplies mainly caused by lack of incentive for farmers working in the communes, Mao's misguided policies of growing grain in inappropriate places and of killing birds (causing insects to flourish in turn), and bad weather. It was the most severe in Chinese history (Thaxton 2008).

1962-1965 Adjustment after the Great Leap

After the Great Leap, the economy returned to normal, still central planned. The farmers were allowed to farm on private plots of land, while the commune system still existed nominally. Unreasonable output targets were abolished. In 1964 the government's objective to achieve "four modernizations" of China was announced, but the policy was not carried out until after economic reform because of the interruptions of the Cultural Revolution.

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1966-1976 the Cultural Revolution

The Chinese government administration and economic system were under attack by millions of Red Guards on the pretext of a cultural revolution. Political power was transferred from the pragmatic economic planners to the radical elements of the Communist Party in the name of destroying an old cultural tradition that was said to hinder social revolution. The education system ceased to function and universities were closed. The ensuing political turmoil, including worker demanding higher wages, led to a resolution to freeze all prices at the end of 1966. The movement lasted for a decade and prevented the proper functioning of the Chinese economy (Clark 2008).

1976-1978 Deng Xiaoping Assumes Leadership

The period of 1976-1978 witnessed the re-establishment of political and economic order after the Cultural Revolution; a political and economic system somewhat resembling the one existing in the early 1960s was restored, making China ready for the following economic reforming which started in late 1978 till now (Chow 2002).

Prior to 1979, China pursued a central planned economy. The state controlled all the aspects of the country with an overwhelming majority, by assigning production targets, controlling prices, and allocating all resources throughout the economy. In result, by 1978, private sector and foreign invested firms in real sense did not exist at all; state-owned enterprises controlled nearly three fourths of industrial production. Economic self-sufficiency was the central goal of the government. Lacking of profit incentives for economic activity participants including firms and farmers, the central planned economy kept the Chinese economy inefficient. (Brandt and Rawski 2008).

It is unquestionable now that the introduction of central planned economy in China was a totally wrong decision, leading to China's lagging position in the world. It is clearly demonstrated to Chinese officials and ordinary citizens that a market economy outperforms a planned economy. This comparison was revealed by the economic discrepancies between China and the successful developments in other Asian parts including Taiwan, Hong Kong, Singapore, and South Korea.

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2.3 China's Economic Reform since 1979

In 1978, realizing the centrally planned economy had failed to produce efficient economic growth, the Chinese Communist Party decided to carry out a reforming program to improve the economic performance. First, this reform characterizes as gradual, by introducing more role of market in the economy, but not eliminating the root role of communism, that is government plan and strong role of SOEs. Second, the reform is incremental and experimental, by taking pilot programs in certain areas in the country, and introducing it more widely to other areas if they prove successful. Up to now, as witnessed by the world, the reform has been very successful in increasing consumer goods supplies, improving living standards, and has originated a new environment of opportunity and enthusiasm in the economy (Wu 2005).

Starting Reforms, 1978-1984

After the Cultural Revolution, Deng Xiaoping took power, and with widespread support among the elite for economic reforms, initiated gradual economic reforms which later proven to be extremely successful in increasing the nation's wealth. Firstly, reforms began in agriculture, by decollectivizing agriculture and introducing the Household-Responsibility system, which divided and allocated the land of communes as private plots to individual farmer families (Lin 1988). More important, after handing in a fixed share to the state, farmers were entitled to keep the rest as earnings. This system extremely offered incentive for farmers and increased agricultural production and living standards of hundreds of millions of farmers (Brandt 2008).

In urban industries, a dual price system, with two markets of plan and negotiable prices, was introduced, in which SOEs were allowed to sell output beyond the plan target. The plan proportion was to be sold at fixed price, the proportion beyond the plan target to be sold at market/negotiable price, thus pricing system got freed partly, and more incentives motivated people and enterprises. Meanwhile, private businesses were allowed to operate, and service sector recovered. China was opened to foreign investment again, by creating a few special economic zones which later became growth engines for the national economy (Luo 2007).

Further Industrial Reforms, 1984-1993

Further actions were taken in this period: less control on private businesses and government intervention, small-scale privatization of state enterprises, a notable decentralization of state

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control by letting local governments experiment with increasing the economic growth and privatizing the state sector, birth and rapid growth of township and village enterprises, and reopening the Shanghai Stock Exchange market. Importantly, privatization proceeded in that private sector surpassed the state sector in share of GDP for the first time during this period, succeeding in political status upgrading from as a "complement" to the state sector in 1988 to then as an "important component" in 1999 of the socialist market economy (Tsui et al2006).

Rapid Privatization, 1993-Present

Generally speaking, privatization and economic liberalization characterized this period of more than 10 years: large-scale privatization in most SOEs with only a few large monopolies in such industries as petroleum, banking and telecommunication service provision remaining, substantially reduced tariffs, trade barriers and regulations, reformed banking system and welfare system, People's Liberation Army being forced to divest of businesses and accession to World Trade Organization (WTO) (Yang 2008). In success, the number of SOEs dropped by 48%, the domestic private sector first exceeded 50% of GDP in 2005 and has further grown since. The trend is going on till now.

2.4 Summary

A brief retrospection of China's history in economic perspective reveals that the more freedom of private sector and less intervention of government, the higher national economic output and the stronger competitive advantage. From ancient time till the end of ROC, Chinese private sector, mainly agriculture and handicraft, had generally been away from government control, and had went through a gradual and steady road of natural development. Unexpectedly, at least at that time, the western impact and invasion as long as over 100 years extremely stimulated nationality (patriotism) of general Chinese and strong revolutionary enthusiasm of working class, which led to the introduction of Communism from the west. Communism is based on public ownership, eliminating private sector and free market system, instead establishing public /state owned enterprises and introducing central planning system. But the tragedy of the first over one quarter century of PRC proved that central planning system and dominance of public/state sector can not improve the productivity of the economy, neither better off the living standard, because all the economic factors are fettered, without incentives to boost the efficiency, market signaling are distorted, without effective and efficient price system at place.

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Up to now, the reform proves to be successful, in the right direction toward more market orientation and privatization, less central planning or routine intervention.

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CHAPTER 3 FRAMEWORK - THE COMPETITIVE ADVANTAGE OF NATIONS

An epoch making work of our times, Michael E. Porter's *the Competitive Advantage of Nations* offers the first theoretical ground for analyzing competitiveness by investigating the origins of productivity with which companies and nations compete.

Michael E Porter, a professor at Harvard Business School and the author of the book, researched several leading economies like USA, Germany and Japan, and emerging economic powerful nations in 1980s including Korea and Singapore, analyzing why the leaders were powerful and the emerging were growing, and for sustaining the leadership and obtaining solid ground for further development, what the nations should do, the enterprises as business players and the governments as business environment builder and keeper (Porter 1990).

Firstly, Porter developed the so-called diamond framework to theorize the determinants of the competitiveness of industries and nations, and furthermore, explained the dynamics of the diamond framework, in which the determinants interact and enforce mutually. He argues that traditional comparative advantages, as introduced by David Ricardo (1817), endowed with factor inputs had decreasing role in an increasingly global economy. In contrast, upgrading advantages based on basic factors are critical for all nations, or initial leadership supported by basic factors like abundant land, abound cheap labour and national resources would be lost, sooner or later. In upgrading advantages, except firms' individual competitive strategy based on the industrial environment, government role can never be undervalued, in creating a good business environment, along with supporting institutions, that facilitates the upgrading of inputs of the nation or industry as a whole (Porter 1990, p127). For this goal, governments, based on the status quota of competitiveness, should work out an agenda to pave the way to the right direction (Porter 1990, p684).

3.1 Determinants of National Competitive Advantage

To understand how international success in a particular industry is achieved, four broad determinants of a nation constitute the milieu in which local companies compete. They facilitate or hinder the genesis of competitive advantage (see Figure 3-1):

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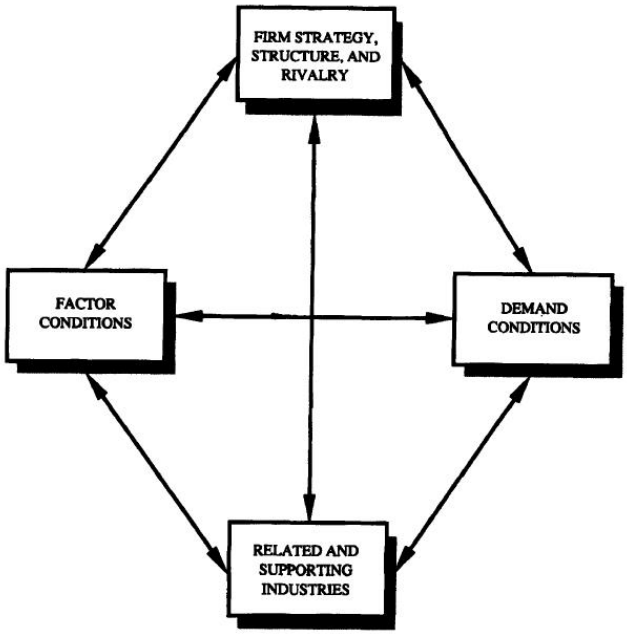
Figure 3-1 The Determinants of National Advantage



Source: *Porter, Michael E, The Competitive Advantage of Nations (1998): p72*

Factor conditions

Production factors, such as labour, natural resources, weather, location, and capital, are the inputs which are needed for firms and nations to rival in any industry. Generally speaking, according to the theory of comparative advantage, a nation tends to export goods which are intensive in use of the factors the nation is relatively well endowed with (Ricardo 1817). However, in modern times, the most important factors to competitive advantage in most industries are not inherited naturally but created and upgraded within a nation, such as technology, productivity-fostering culture, and advanced legal system, etc (Porter 1990, p74). As well known, China has very good endowment with factor conditions of abundant natural resources including natural minerals, forests, water, plantation, long coast, etc. Thought the amount per capita is small, but the total size is quite attractive. Besides these, the largest number of cheap labour in the world fuelled Chinese economic rapid growth in the past 3 decades. However, all these are basic as designated by Porter's theory. In order for China to sustain the development at high rate, factor conditions must be upgraded, by cultivating and strengthening advanced factors such as technologies, management skills, advanced infrastructure, and many other factors which are frequently ignored but very important including improved social welfare system, legal system, culture and education

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etc. The latter group is often intangible, and constitutes the environment the national economy is running.

Demand conditions

This indicator refers to the characteristics of home demand for a certain industry's product or service. Home demand conditions impact every industry directly; the more important influence the home demand conditions exert is usually dynamic. The three significant broad attributes of home demand are home demand composition (i.e. nature of buyer needs), the size and pattern of growth of home demand, and the mechanisms by which a nation's domestic preferences are transmitted to foreign markets (Porter 1990, p89). The rapid development of Chinese private sector benefits from booming size of domestic market. The economy development has been a process of increasing national economic output, but also a sustained growth of the national market size. At the beginning of the economic reform in 1978-1979, everything was scarce in China, not only production capitals, but also consumer products such as food, clothes, shoes, household electrical, etc. The rapid developing market fed the Chinese industries including private sector. However, now, the Chinese market has shifted from a supplier market to a buyer market, namely a generally saturated market. With choices much more than before, Chinese consumers are becoming demanding; the market is segmenting, and becoming sophiscated. In order to keep the market share and build up more competitive market position, Chinese firms must upgrade their core competencies.

Related and supporting industries

This determinant refers to the existence of internationally competitive related industries in the nation, most of who supply inputs to the industry at question. The competitive advantage in the supplier industries would be transmitted to the receiving industries directly, seeding competitive advantage in those industries in result, because they produce inputs that are widely used (Porter 1990, p101). Through long time of cooperation and evolution, these related and supporting industries become a cluster, a group of firms accounting for a value chain. Though the economic reform began just roughly 30 years ago, clustering exists widely in Chinese industries, mainly dispersed in coastal areas where private sector flourishes. For example, the majority of pneumatics enterprises are located in Fenghua Ningbo and Yueqing Wenzhou. In Fenghua, as in Yueqing, thousands of factories specialize in various production processes, from die casting, machining, coating, through assembling; in various products including air preparation units, air cylinders, valves, and fittings, etc. All these players compose of a value chain. Challenges facing

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one of the members are transmitted to others through the chain, pushing upstream and downstream members to improve, otherwise, all members involved would be punished by losing orders and surpassing by competitors. The convenience of proximity and common dialect foster the frequent communication between owners and technicians of closely located enterprises by meeting, which make quick response possible. But one challenge is the absence of research and designing function in the two clusters. Generally speaking, Chinese pneumatics enterprises are not able to conduct original R&D. This issue will be discussed in detail in the Section 6.1.

Firm strategy, structure, and rivalry

This aspect refers to the individual nature of the firms, e.g. how they are created, organized, and managed, and the competition between the domestic competitors. National environment always inevitably affects firms' strategy and structure. Tough local competition usually benefits the genesis and development of international leading position of a nation, only if the competition is well monitored and guided (Porter 1990, p108). Chinese private sectors are mostly created with individual capitals, with few instance of borrowing from banks which are mostly owned by the state and treat private sector discriminatorily. This trait determines that most of Chinese private firms have to start from very small scale, and can only grow gradually through self cumulated capitals, thus in the end, hinder the otherwise faster rate of growth, and sacrifice the competitiveness. Management of Chinese private enterprises is also of concern. Most private firms are managed by the owner and founder. Initially, most owners had worked in SOEs or Village and township enterprises, as operators. They mainly are lowly educated; do not have knowledge of advanced management. They do not know how to authorize, how to build up efficient management hierarchy. Of most instances, the owner manages the company; is the busiest person, directly responsible for almost all functions. Over-focus on routine operation inevitably leads to the failure of the leader to ensure the competitive strategy. Rampant low profit of Chinese labour-intensive enterprises has been drawing national attention from many areas. The direct reason is tough rivalry. However, the ultimate reason is absence of differentiation in products made by Chinese private enterprises. Without innovation, all the products are the same, in terms of design, quality and service; the companies have to compete on price, which lowers the profit definitely and reduces the ability to invest in innovation and expansion in turn. Thus, though rivalry is good for the long term development of Chinese private sector, it needs right leverage with rational strategy for competition.

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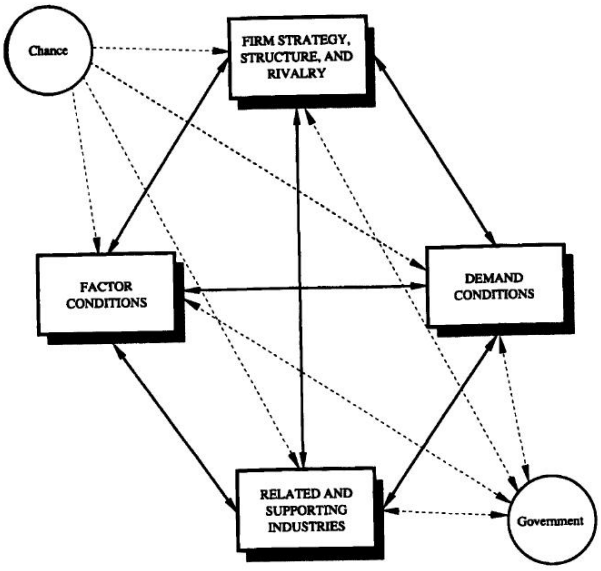
Above is the well-known “diamond” framework invented by Porter. Supplementary to these four determinants, two additional elements can also be of importance in shaping the circumstance for competition in particular industries. These are chance and government both of which are needed to perfect the theory (see Figure 3-2):

Figure 3-2 the Complete System



Source: *Porter, Michael E, The Competitive Advantage of Nations (1998): p127*

The role of chance

Chance events are occurrences that are not controllable by the firms or national governments. However, they are important in creating discontinuities that allow changes, positive or negative to particular firms and industries, in competitive position (Porter 1990, p124).

The role of government

The government's actual role in building up national competitive advantage is to influence the four determinants. It can both influence each of the four determinants either positively or negatively; in result, government has an important influence on national competitive advantage (Porter 1990, p127). Government plays a prominent role in international competition. At one extreme, some, at an absolute free market economy perspective, view government as a passive

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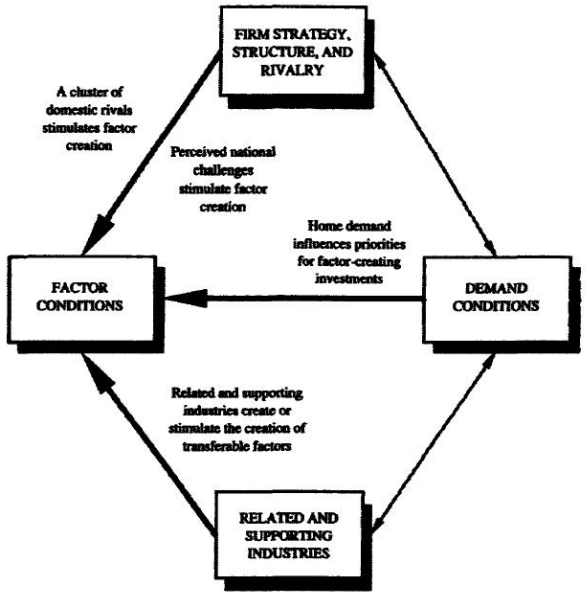
player in the process of economy development and international competition. Because all the major determinants of national advantage are inherently interconnected to each other in a mutual enforcing mechanism, by being so naturally embedded in a nation's buyers, suppliers, its culture, and other unique social circumstances, it is safe to argue that there is no need for much government involvement. Nevertheless, according to Porter's theory and his empirical researches on many nations' economies, that is not the case (Porter 1990, p128). Government policy does affect national advantage, either positively or negatively depending on the policies taken.

3.2 The Dynamics of National Advantage

Along with chance and government role, the four major determinants of national advantage represent a complicated system, through which numerous national attributes factor into the formation of competitive advantage of the industry and nation. This is a dynamic system, continuously evolving rather than being stagnant. The mutually reinforcing interplay of advantages in several areas would lead to sustained competitive advantage and create a unique business environment which is difficult for foreign competitors to imitate or emulate (Porter 1990, p131). Figure 3-3 through 3-6 illustrate how some determinants affect the others.

Figure 3-3 Influences on Factor Creation



Source: *Porter, Michael E. The Competitive Advantage of Nations (1998): p133*

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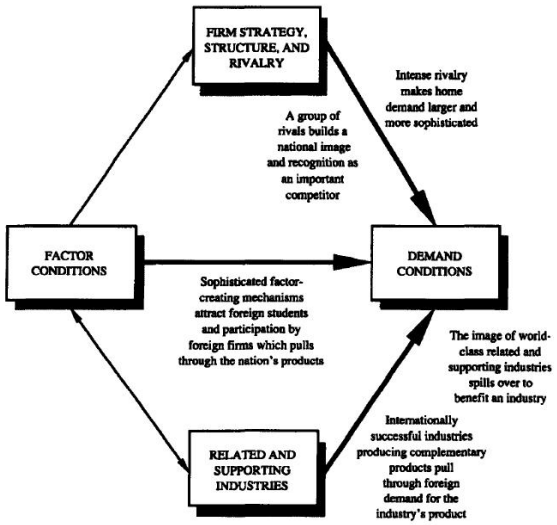
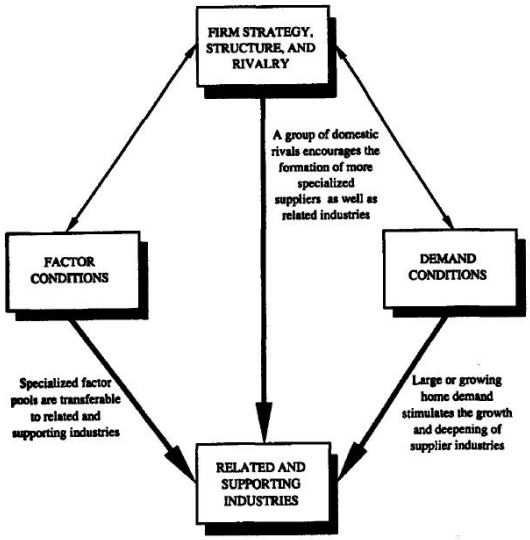
Figure 3-4 Influences on Home Demand Conditions



Source: *Porter, Michael E. The Competitive Advantage of Nations (1998): p13*6

Figure 3-5 Influences on the Development of Related and Supporting Industries



Source: *Porter, Michael E. The Competitive Advantage of Nations (1998): p13*9

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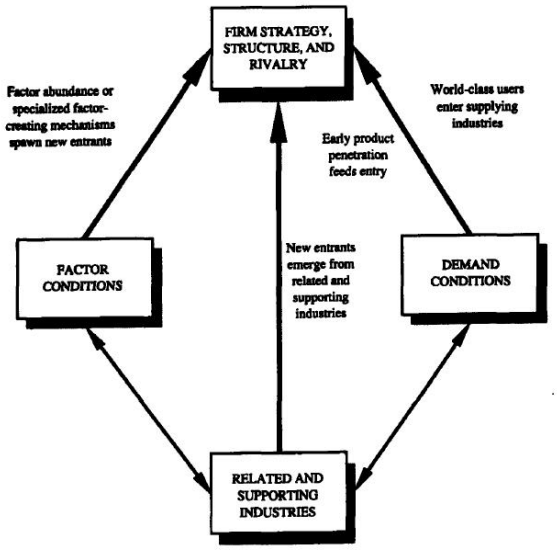
Figure 3-6 Influences on Domestic Rivalry



Source: *Porter, Michael E. The Competitive Advantage of Nations (1998): p141*

The mechanism of how the "diamond" works determine the gloomy destiny of centrally planned economies (Porter 1990, p676). They lack the mechanism for specialized factor creation. Buyer choices are restricted, which suffocate generation of demand sophistication and, as result, eliminate pressure for business to improve. The lack of competition eliminates the motivation to communicate with related and supporting industries. Without innovation and specialized skill, centrally planned economies would only be able to compete on price and in standardized segments. Their national advantage will almost exclusively be factor-driven. For better mechanism of the framework and advanced competitive advantage obtainment in the end, wholesale reforming is in desperate need, economic and political.

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CHAPTER 4 METHODOLOGY

The previous chapter has examined the relevant theoretical ground and background of the Chinese private sector. In this chapter, the research methodology of this paper will be focused on. In an attempt to conduct in-depth analysis of Chinese private sector, case study of Chinese pneumatics industry is undertaken in this paper. A case study applies to provide an analysis of the context and processes which illustrate the theoretical issues in question (Hartley 2004). Aiming to study the problems Chinese private sector is facing, this thesis employ qualitative approach to generating and analyzing the data. Besides case study, semi-structured interviews were conducted for achieving primary data to complement the review of secondary data such as published documents, books, news etc to avoid partiality and misjudgement. This chapter is to explain the research methodology and data collection method which has been used, along with elaboration of the actual research process.

4.1 Qualitative Methodology

This section briefly discusses the qualitative methodology by focusing on its advantages and disadvantages to the study of Chinese private sector status quo. Qualitative approach is chosen because it is believed to bolster in-depth understanding and assessment of the situation Chinese private sector is in. Qualitative research focuses on less rigorous sampling and garnering textual information for non-statistical analysis (Wilson 2003). Its primary concern is answering the questions ‘why?’ and ‘how?’. It endeavours to understand people’s behaviour and find out how people are affected by the events surrounding them and how opinions and attitudes are formed (Denzin et al 2005). Thus, it is able to offer a ‘richer’ answer to research questions which differs from that obtained through quantitative approaches which emphasizes on factual knowledge. Qualitative research can provide insight of value which may be neglected by quantitative research. These insights would lead researchers into the hearts and minds of the people studied, and help them to understand their decisions and values (Gephart 2004). Therefore, qualitative research is of particular value for exploring organisational goals, linkages and process in the organizations, and understanding failures of policies and practices (Skinner et al. 2000). It can help to understand the status quo of the competitiveness of Chinese private sector, and investigate how to upgrading the competitive advantage.

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However, weaknesses also exist for qualitative research, though it has the above mentioned strong points. Intrinsically subjective, qualitative methodology can not preclude bias easily (Bryman 2004, Chisnall 2005). In qualitative research, the main instrument for data collection is the researcher, so what all is obtained through the researcher observing, hearing, and feeling is all subject to the researcher's predilection (Clark-Carter 2001).

4.2 Case Study Research

The paper chooses Chinese pneumatics industry as a case for study to characterize Chinese private sector. Creswell (1994) defines a case study as 'a single, bounded entity, studied in detail, with a variety of methods, over an extended period'. Case studies can describe, explain, explore and evaluate the social phenomenon in study (Yin 2003). Though case study as a research method is criticized by some scholars of no attempt to line the description with theory, and tendency simply to record information without any attempt to structure or analyze the information (Baker et al 2008), case study remains one of the most useful methods to answer such research problems as 'How and Why'. This paper chooses Chinese pneumatics industry, because the author believe Chinese pneumatics industry fully present the current being of Chinese private sector, being fully privatized, internationalized to large extent through rapid export development and market opening to foreign competitors, and still at the development level where most Chinese private industries are. The author is fully confident of the qualification of the case of Chinese pneumatics industry as study sample and the generation of representative and insightful finds from the case study.

4.3 Sources of Data

Good interpretation and analysis of data necessitates proper data sources. Generally speaking, there are two types of data sources, primary and secondary (Kelly 2005). Secondary data is defined as information and statistics that have been already gathered for other purposes relating to the research at hand (McDaniel et al 1999). Playing an important role in the research process, secondary data saves time and effort which would be needed otherwise for primary research phase of a project, offering comparative data with which primary data can be more insightfully interpreted and as sometimes, providing a complete or partial solution to the research questions (ibid). Hence, a variety of secondary data were collected for this study from many sources, including industrial journals, management journals, papers regarding Chinese private sector and

pneumatics industry, information offered by China Hydraulics Pneumatics and Seals Association (CHPSA, www.chpsa.org.cn) and Fenghua Pneumatics Association (FHPA, www.fhpa.cn) , news reports on WEB and related books.

Besides secondary data, a large amount of primary data was collected for this study. Primary data is data collected by the researcher selves using methods such as direct observation, surveys, interviews, and logs (Sauders et al. 2007). The author engaged in pneumatics business for longer than 6 years, as an employee in a pneumatics factory initially and a partner of a trading company exporting pneumatic products later. Much of the research data is derived from direct observation during the 6 years of engagement in the industry. Another major primary data source is interviews with people directly engaged in this sector such as entrepreneurs, managers, and ordinary employees, and indirectly involved parties including government officials and industry associations. In this research, semi-structured interviews are used.

Both primary and secondary data are used in this paper, because combination of two of them tends to maximize their advantages and minimize their disadvantages simultaneously. Not only saving time, secondary data also help in minimizing the personal bias of the researcher that would affect the choice and interpretation of primary data source, i.e. the interviewees in the case of this paper, because the fact that secondary data are usually collected from a variety of sources including all the stakeholders would improve the validity and reliability of the data. On the other hand, primary data are the closet to the truth (of the research question), helping to avoid the distortion made by the creators of the secondary data.

4.4 Participant Observation

Originating in field work of social anthropologists, participant observation, as a widely used research methodology, aims to grant an insightful knowledge about a given group of individual (just like the Chinese pneumatics industry in this paper) and their behaviours through an intensive and extensive involvement with them in their intact milieu, usually in a comparatively long period of (Jankowski 2002). The author started working in a Chinese pneumatics factory as an overseas salesperson 6 years ago, and opened a trading company exporting pneumatic products 2 years later. During the engagement in the pneumatics sector, the author has wide contact with people working in and related to this industry. As an employee, the author watched the internal management in a factory, including human resource management, R&D and the management hierarchy, etc. As a participant in the industry as a company later, the author views the industry at

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an entrepreneur's perspective, involving in inter-firm matters and activities between firm and government, directly or indirectly.

4.5 Unstructured Interview

This study also uses unstructured face to face interview for collecting primary data. An interview is an information exchange involving an interviewer seeking to obtain specific information on a topic by asking questions to the interviewee/s (Baker et al 2008). Unstructured interviews are interviews without limited, pre-set range of answers for the respondent to choose. In an unstructured interview, questions can be changed or adapted by the interviewer according to the interviewee's intelligence, understanding, and personal characteristics like belief, experience, and education. Unstructured interviews emphasize how each individual interviewee responds to the questions (Flick 2009). For different respondents, based on their personal traits, questions for interviewing are designed, selected, and adjusted accordingly, in order to stimulate the interviewee fully and achieve the answers of the best quality in terms of authenticity, reliability and completeness. During the interviews, audio taping is to be conducted for subscription later. After I explained to them the purpose of this study, all they interviewees accept audio taping.

4.6 Designing Interview Questions

All interview questions are open-ended which allow free expression of opinions of interviewees on the specific topics or questions. The theoretical structure of Porter's Diamond elaborated in Section 3.1 underpins the design of the interview questions. New ideas or questions that might emerge with interview going on are one the important characteristics of unstructured open-ended interviews, which represent the exploratory nature of the interview and could lead to other questions that cannot be preset in advance (Maylor and Blackmon 2005). To elicit great details from the interviewees, probes are needed (King 2004). Therefore, for possible probes, good knowledge about the topics is important, and question ordering is set with skills to stimulate response effectively.

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4.7 Sampling of Interviewees

A ‘purposive sampling’ technique is employed for this study where interviewees are selected by the researcher for a specific purpose or objective (Hair et al 2007). By purposive sampling, individuals or groups are chosen where the phenomena on question are most likely to occur. As the wide scope of the topics covered in this study, a variety of interviewees of different job positions and natures are sought out, including 4 entrepreneurs, 3 managers, 8 lower level workers, and 2 government officials, etc. The 4 entrepreneurs are all owners and the current directors of 4 pneumatics manufacturing companies, the 3 managers at middle management positions in 3 pneumatics factories, the 8 workers from the 4 companies for the 4 owners, and the 2 officials from Fenghua Pneumatics Industry Association and Fenghua Bureau of Industry and Commerce Administration respectively. They all provide insightful perception from personal perspectives.

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CHAPTER 5 CHINESE PNEUMATICS SECTOR

5.1 What Are Pneumatics Parts

As the process of industrialization has been proceeding, automation has been increasingly important in that it has proved successful in greatly reducing labour cost and fostering productivity. Along with the other means, namely mechanical, electrical, electronic and hydraulic automation, pneumatics (standing for pneumatic automation) is one of the major approaches to automation. With only 130 years of advanced industrial applications, pneumatics is still a young technology, having unpredictable room for improvement and development.

As a system, a basic pneumatics system typically comprises of air compressor, air tank, air preparation units, flow control valves (for controlling flow direction, air pressure, or flow speed), and actuators as the destination. The pneumatic component parts, as professional jargon, mainly include air preparation units (air filter, air regulator, and air lubricator), flow direction control valve, actuators (for linear and rotary motions), and accessories such as fittings, silencers, air tubes, and sensors.

5.2 Applications of Pneumatic Parts

Human utilization of air power actually could trace back to ancestors, but the pneumatic application on record, in the advanced technological concept, had not happened till in 1776 when John Wilkinson invented an air compressor which is able to produce air pressure of 1 bar. In 1880, the epoch-making air brake system was applied to train successfully. In 1930s, pneumatics technologies were utilized to open-close door, and applied to ancillary functions of machineries. In 1960s-1970s, with rapid development of industrial mechanization and automation, pneumatics started being widely used in almost all automation areas, gradually coming into what it is now, advanced pneumatic technology. (SMC 2008)

Pneumatics is an application of an easily compressible gas, e.g. air or a suitable pure gas. Both as fluid power automation, pneumatics and hydraulics are often compared by engineers. Compared with hydraulics, pneumatics has advantages of simplicity of design and control, higher reliability, storage of compressed air energy, and safety. Furthermore, with improvement and development,

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pneumatics has also advanced remarkably recent decades in areas of accuracy and higher load. Thus pneumatics applications have been widened steadily.

Nowadays, the main areas of use for pneumatics are industry, trade, rail transport, motor vehicles, mining, shipping, medicine, construction, and defence. Main application areas are clamping tools, feed units, lifting and lowering, opening and closing, swivelling, pneumatics presses, door control, rotary transfer tables, tool loading, welding clamps, ejectors, vibrators, braking, screw drivers, grinders, thread cutters, drills, shears, and nibblers. The most representative industries for pneumatic technology applications are automobile factories, and semiconductor fabrications.

5.3 Map of Pneumatics Industry in the World

The recent 2 decades witnessed a rapid development of pneumatics market in the world, according to records of major pneumatics market countries. In 1970s, ratio of the trade values of hydraulics and pneumatics was 9:1, however, today the ratio has changed greatly, especially in the highly industrialized economies like USA, Europe and Japan, becoming 5:5. Due the cheaper unit price of pneumatic products than that of hydraulic products, for the same trade value, the pneumatic units used outnumber the hydraulic units, and the application scope of pneumatic products also is wider. In the geographic term, the three most important markets for pneumatic products are North America (with USA as the center), Europe (mainly including Germany, UK, and Italy) and Pacific Asia (Japan being the center). The most famous and important pneumatic firms are SMC from Japan, FESTO from Germany, Norgren from UK, and Parker Hannifin from USA. With rapid development of industrialization and automation since the reforming and open-door policy introduction, the Chinese pneumatics market has been booming in recent 3 decades. Meanwhile the pneumatics industry in China has also witness a dramatic growth, booming to meet the burgeoning market at home and abroad.

5.4 History of Chinese Pneumatics Industry

In China, pneumatics industry did not exist at all till late 1960. Before that, pneumatic units were designed and produced by the factories that used them. Most of them were automobile and tractor makers, using just simply pneumatic parts on production and assembly lines. There were no professional producers and traders for pneumatic products and systems. (Chen 2005) In June 1967, a specialist pneumatics industry meeting was held in Beijing attended by specialists and

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experts from several units, focusing on supplying The 2nd Automobile Manufacturing Factory with pneumatic products to be used on production line. At that meeting, two R&D teams were established, staffed by people from Jinan Casting and Forging Machinery Institute and Shanghai Mechanical-Electrical Product Designing Institute, who later developed products including flow direction valves and air preparation units. This meeting and the two teams were viewed as the starting of Chinese pneumatics industry. Late 1960, only 16 categories, covering more than 80 products were developed and produced.

In 1975, the First National Professional Pneumatics Industry Meeting was held in Zhaoqing, Guangdong. Four united designing teams were established, staffed by specialists from academic institute and factories, focusing on R&D of flow direction valves, flow rate controllers, air cylinders, and pneumatic logic controllers, etc. At that meeting, development project of pneumatics industry was drafted, and manufacturing factories for pneumatic products were designated. Up to 1978, pneumatic product supplies were expanded to 61 categories, including 256 products.

In 1981-1985 (namely the Sixth Five Year Plan), pneumatic products were listed in the 38 Important National Scientific and Technological Projects. During that time, many technical problems were solved, and new product or component parts were developed, including aluminium air cylinder tube, 5/3 puppet type direction control valve, solenoid pilot valve, etc. In 1982, Shanghai Pneumatic Units Factory introduced 4 product categories from Herion Company in the then West Germany, incorporating air preparation units, mechanical control valves, electrical control valves, and multi-media valves, along with production technologies.

In 1986-1990 (i.e. the Seventh Five Year Plan), as part of the national projects, around 73 new pneumatic products were born in China, such as precision air filter, precision air regulator, auto drainer, non-lubricator solenoid valves, digital locating cylinder, rotary cylinder, dual rod cylinder, etc. Meanwhile, Zhaoqing Pneumatic Units General Factory, in Guangdong, introduced from TAIYO IRON WORKS LTD, Japan (changed name to TAIYO Ltd in 2007) non-lubricator cylinders; Yantai Pneumatic Units General Factory, in Shandong, introduced from Leibfried, then West Germany, ISO standard cylinders; Wuxi Pneumatic Units General Factory, in Suzhou, introduced from CKD Corporation, Japan, multi-application solenoid valves; the pneumatic branch factory of Dalian Combined Lathe Institute, in Liaoning, introduced from Martonair Germany ISO cylinder and pneumatic valve, etc. Late 1990, Chinese pneumatic categories expanded to more than 450.

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In 1991-1995 (namely the Eighth Five Year Plan), companies such as Wuxi Pneumatic Technology Institute, Shanghai Pneumatic Units Company and Fuxin Pneumatic unit Factory undertook state-designated R&D programs including non-lubricator puppet type electrical-pneumatic direction control valves, refrigerating type compressed air dryer, modular air preparation units, high frequency solenoid valves, and low watt solenoid valves, etc. On the other hand, many new products like mini air cylinder, Mickey type air cylinder, safety air preparation modular units, automatic to-and-fro cylinder, vibrating cylinder, air vibrator, air gripper were developed independently by firms in Jinan Shandong, Zhaoqing Guangdong, Yantai Shangdong, Wuxi Jiangsu, and Changchu Jilin, etc. Meanwhile, Jinan Huaneng Pneumatic Company introduced designing and manufacturing technologies from Japan and Germany. Up to end of 1993, Chinese pneumatic products grew to 1080 categories.

In 1996-2000 (namely the Ninth Five Year Plan), the national centralization of pneumatic product development was reduced, with only two projects being carried out. On the other hand, Chinese pneumatic companies intensify investment in R&D, successfully developing new products such as oval tube cylinder, parallel dual-rod cylinder, multistage telescopic cylinder, new type gas-liquid damping cylinder, Energy-saving Gas-liquid Pressurized Cylinder, new type air gripper, pneumatic pilot air regulator, low watt solenoid valve, and valve terminal, etc, and a great number of new products for applications for automobile exhaust cleaning system, Environmental automobile fuel system, automobile air brake system, textile, printing, rail train, petrochemical, and non-ferrous metal, etc. Even breakthrough was achieved at pneumatic applications in areas like mechatronics and automation. In late 2000, pneumatic product categories grew to around 1480.

Up to now, Chinese pneumatics industry went through the process of united R&D under national central coordination, technology introduction from developed countries, and self innovation and development. After around 40 years for development, Chinese pneumatics industry grew rapidly, with more than 1100 companies, more than 50,000 employees, sales of 1.1 billion USD in 2009, about 2000 product categories (CHPSA 2010).

In the recent two decades, in addition to just exporting products to China as they had been doing for many years, foreign companies FDI (foreign direct investment) in China pneumatics market witnessed steady growth, many foreign companies opening branches or factories such as SMC and CKD from Japan, FESTO and Bosch Rexroth from Germany, Camozzi and Metal Work from Italy, Parker Hannifin from USA. Among them, SMC invested 300 million USD in production

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centre in Beijing in 1994 (SMC 2010), Airtac from Taiwan investing 50 million USD in production centre in Fenghua, Zhejiang in 2002 (Airtac 2010), Bosch Rexroth acquired major stock share of Chinese pneumatics company Easun in 2008 (AutomationWorld 2008), FESTO purchased 100% share of Jinan Huaneng Pneumatics Company in 2007 (Qilu Evening News 2007) who was one of the largest Chinese pneumatics company.

5.5 Summary

Thanks to the economic reform, through the past decades, Chinese pneumatics industry developed rapidly, with favourable factor conditions (abundant cheap labour, lands and electricity, etc), fast developing domestic market, steady growth of foreigners' interest in using Chinese pneumatic products for trial, and spill-over through imitation, learning, and hiring former foreign employees. But the situation changes very fast, with rising cost of labour, land and energy, increasing inbound FDI by foreign competitors seeking to take larger share of Chinese market and to take advantage of the cheap local labour, increasingly demanding foreign and domestic customers. Chinese pneumatics products are still 2-3 generation behind leading western foreign competitors. As the domestic market demand grows in sophistication, if Chinese pneumatics companies fail to catch up and grasp the chance of upgrading the products and service, they would be left only with the lest profitable market segments.

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CHAPTER 6 INTERNATIONAL COMPETITIVENESS OF CHINA'S PNEUMATICS INDUSTRY

6.1 Factor Conditions

In Porter's diamond framework, factors comprise of the inputs needed for economic activities, such as labour, land, natural resource, knowledge and skills, and capital. Factor conditions refer to the availability of factors and who they are being used in a nation, both of which would influence the productivity of a nation decisively. The latter is often defined as Total Factor Productivity (TFP). This section focuses on human resource, financing market, and innovation system in terms of Chinese private sector.

6.1.1 Human Resource

In whatever perspective, human resource is the most important factor for economy development, because every economic activity has to be carried out by people. Human resource is catalyst in the process of genesis and evolution of competitive advantage. This section discusses conditions of vocational education and training, and mobility of Chinese labour force in relation to competitive advantages of the pneumatics industry in China. The former directly influences the availability and production of skilled human resource, hence to potential for upgrading Chinese manpower; the latter affects the allocation system of Chinese labour force, which underpins the efficiency of labour force utilization and determines the productivity of the economy in the end (Yusuf and Nabeshima 2006; Fleisher and Yang 2003).

6.1.1.1 Severe Lack of Vocational Education and Training

All interviewees express concerns with severe lack of skilled workers in Chinese pneumatics industry. Except the fact that numerous migrant workers with skills who already have worked in this industry for 5-10 years have to return home due to lack of local hukou (for reason, refer to Section 6.1.1.2), lack of vocational education and training, organized and offered within and external to the company, deserves much attention. Few of the 316 pneumatics companies in Fenghua offer internal company training to their employees, none of them offer regular training and provide general training to new employees at company level. A common practice is to ask

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senior colleagues to act as mentors to new employees. Such mentoring, different from training, focuses predominantly on the job the worker is designated to do, without giving a big picture of the knowledge of the industry, which inevitably hinder the skill development of the employees. All respondents state that there have been no companies sending their employees to technical schools for further education, no matter in pneumatics industry or other private industries. Lack of a large number of professional vocational schools in this area is another impediment to skill development of employees. In Fenghua there are only five vocational schools (Fenghua Education Bureau 2010), which is inadequate to meet the need of the fast developing private sector. Furthermore, poor management of the schools and arrangement of courses discourage worker enrolments. The situation of Fenghua also exists widely in many other industries and regions.

Some of the problems in Chinese vocational education and training are derived from the central planned economy where most workers were guaranteed lifetime jobs and had almost fixed wages, and state enterprises leaders had also set wages independent of the business performance of the enterprises, thus both parts did not have motivation to invest in human capital through vocational education and training (Hannum et al 2008). On the other hand, education was, and still is, highly controlled by the governments, with little investment from private capitals. Even though private investment in education and training is allowed, according to government regulations, private schools are not allowed to make profit, which absolutely curb the interest of private investors (Gao 2000, Ke 2003)). In Fenghua all five of the vocational schools are state owned; the key organizers such as principals are designated by higher level government officials. As a result, on the service supplier end, the providers of vocational education and training are also in lack of motivation to improve the service offering.

On a national level, the main problems of Chinese vocational education and training are as follows (GTZ 2009)

- Without responding to the business environment change, Chinese vocational education still tends to be too theoretical and largely designed for the requirements of large SOEs rather than private businesses. Practical skills are generally neglected, with curricula, tests and exams emphasizing the factual knowledge. Teaching and discussion are usually conducted in solely technical viewpoint, ignoring interdisciplinary implications.

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- Almost no communication and interplay take place between schools and businesses. Quite often, the curricula are not consistent with the business need, instead, just based on historic conditions and qualifications of the teachers. There is a lack of established organizational networks to act as a bridge connecting education and profession.

- Student participation is largely not valued, their contribution to educational quality being underestimated. Student learning is confined to listening to lectures, reading and memorizing by heart. Many employers complain that most of the students are not well prepared for the jobs and will have to be retrained on job.

- School facilities are often considered not important; thus schools are quite poorly equipped. They are usually obsolete, and outdated to catch up with enterprise equipment.

- The image of vocational education is low in China, though governments at national and subnational levels have expressed importance of the development of vocational education. Moreover, vocational training is still regarded as inferior by the public, including potential students, their parents and even by many employers.

Being aware of all these problems and having identified vocational education as the "weakest link" between business and education, the Chinese government has made much effort to improve the system: set more practical courses based on the labor market needs and demands, increased vocational education enrolment by annual growth rate of 8%. Though the secondary vocational student share in the whole secondary education rose 7.2% in 2007, it is still much lower than those of western developed countries, e.g. 23% in Germany (ibid).

In March 2010, in association with Fenghua Pneumatics Industry Association, Fenghua Vocational Education Center launched the pneumatics programs specific for training people working or planning to work in pneumatics industry. For that, Fenghua Pneumatics Industry Association offered 100,000RMB for the Pneumatics Program Scholarship (NBEDU 2009).

6.1.1.2 Mobility vs Hukou System

Labor mobility is one of the most important topics of this paper, because as the author views, the inefficiency of Chinese labor market has been one of the most disastrous obstacle to development of Chinese private sector. In the past decade, the job share not controlled by the state has risen substantially, whereas the agricultural employment has been declining, in the national background of ongoing urbanization (Duan 2003; Lu and Wang 2006). Through migration,

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official or unofficial, over 200 million people have entered into urban areas, in face of various impediments to labor mobility, such as resident registration and the subsequent restrictions to social service access (Tunon 2006). As a major instrument to control migration during the centrally planned economy, in political and economical purpose, the hukou system as introduced in the late 1950s. The most important two aspects of hukou system are the location and classification as agricultural or nonagricultural. Agricultural hukou guarantees a citizen of access to farmland, while the nonagricultural hukou justify the holder's access to jobs, housing, and other state-sponsored benefits (Chan and Buckingham 2008). The access to farmland warranted by agricultural hukou is not ownership of the land, instead, the household has right to use the allocated land for a period of time, 30 years according to the current laws and regulations in most areas. After that, reallocation of the farmland is to take place under the village leaders' control, in consideration of the changing circumstance of households (an size increase of reduction), whether or not the land is effectively used, and commercial opportunities sought after by village officials (Krusekopf 2002;Yang 1997). To receive social welfare and public services, including health and education, from local governments, an individual needs have a right hukou. Actually, an unban hukou guarantees the holder access to many benefits including lifetime employment, healthcare, housing (with minimum rent fee) and pension benefits (Park 2004). Because that is a costly commitment for the central and local governments, rural to urban migration is strictly controlled and limited, which would raise pressure to municipal government for urban social benefits (Fan 2004). In result, the domestic labor market is fragmented, generally into agricultural and nonagricultural. Moreover, the inter-rural and inter-urban migration is also very difficult, because the benefits associated are strictly confined to the locations where the hukou registration is.

In recent years, actions haven been taken, by central or local governments, to relax the restriction on labor movement. The reforms introduced early incorporate "self-supplied food grain" hukou in 1984, "temporary residence permit" in 1985, and national identity card issuance in 1985. All these measures have successfully made it easier for rural-urban migrants to find job in host areas on a temporary basis (Fan 2004b). Since late 1980s, hukou started to be sold by local urban governments to prospective migrants who met the requirements specified by the individual governments. After 1992, further relaxation of rural to urban migration took place in larger cities like Shanghai and Shenzhen by offering so-called "blue stamp" hukou to migrants with desired skills (Hu 2010). Furthermore, in 2001, further relaxation was approved by the State Council based on the 1997 pilot program. By all these changes, migrants from rural to urban areas are enabled to obtain local hukou in urban areas only if they have stable incomes and legal residence.

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Despite the hukou reform guidelines issued by the State Council to relax the hukou system, the enforcements varied to large extent among cities. Some are more open to rural migrants, by granting a large number of urban hukou to migrants, as Shijiangzhuang did in 2001 and 2003; other larger cities, like Beijing, Guangzhou, and Shanghai, on the other hand, have resisted further relaxation of hukou, considering would-be to fast increasing pressure on services and possible emergence of shanty towns (Ma 2010). These cities are more interested in attracting highly skilled migrants. However, all these steps stopped short of eliminating the hukou system which would facilitate promotion of productivity and greater equity in urban areas and in the whole nation.

Most respondents in this study, either local residents or migrant employees from other locations, state that the hukou system remain a major barrier to upgrading the local human resource. About two thirds of the total employment of Fenghua pneumatics industry is migrants from rural places, with decreasing order of share of employment, mainly from Anhui Province, Jiangxi Province, other areas in Zhejiang Province which are much less developed than Fenghua, Hunan Province. The migration employment in Fenghua pneumatics industry has a history of 20 years, but few migrant workers ended in local settlement through getting local hukou. No example of migrants getting local hukou is recorded, though few cases exist probably. Only a limited number of migrant workers settled successfully through buying apartment or marriage with local people. A whelming majority of the workers come to work in Fenghua at young age as 18-20, and finally have to return back to rural home, when they are to get married, to have baby, or too old to live away from family. For a single and young person, the benefit associated with hukou does not matter too much, because they does not need use and rely on the benefit so frequently and so heavily when they share apartment with friends or colleagues, are young and healthy enough not to use medical benefit so often, have no children to feed and educate. During the employment of 5-10 years, even longer, they are work in factories in Fenghua, learn about basic and advanced techniques, management skills and knowledge about pneumatics, and get familiarized and assimilated with the Fenghua society and communities. That is a process of investment in and growth of human capital of Fenghua pneumatics. However, after that growth curve, most the migrant employees will have to leave and return back home. Except a limited number of workers who come from inland provinces where related or similar industry are emerging and growing, most are close to the fastest developing areas like Yangtze River Delta and Pearl River Delta, and are lucky in finding jobs which would put in use the skills accumulated in Fenghua pneumatics, most will end in opening an ordinary grocery using the accumulated money through working in

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Fenghua, or even getting back to farming. Not only for the individual migrant employees, but for the enterprises that employed them, even for the whole national human resource pool, this is an invaluable waste.

In fact, Fenghua has been the bridgehead for the hukou system reform in China (Zhejiang News 2008). In 2000, Fenghua government introduced the hukou system which pioneered the country and kept on till now. But the reform failed to relax the restriction on migrant employee settlement, because it has several fatal limitations. First, granting Fenghua hukou requires possessing housing in Fenghua locally, which has been prohibitive for migrants from inland. Second, the related policies by Fenghua government to guarantee the immigrants retaining some benefits earlier tailored and favorable to rural areas nearly do not apply to other areas inland. Those policies includes retaining the right to have second or third baby which is denied to urban residents and keeping the use right of the land already allocated to the rural residents till next reallocation. The population migrating to Fenghua by getting Fenghua hukou registration since 2000 totals 25,000, but most is from near villages. The reform does not benefit the ordinary migrant employees successfully who, in contrast, comprises most of Fenghua private sector.

In order to remove the hukou system and relax restrictions on labor mobility, there are two fundamental approaches: remove complete or reduce substantially the urban entitlements like housing, education and medical services completely, or remain the benefit and grant them also to migrants as soon as they arrive in cities. The two approaches both would affect the future migration to high degree. Firstly, complete elimination of urban entitlement would reduce the local government fiscal burden and the potential migration flows, since the perceived future benefit is reduced and risks increased in contrast. So even the migrants would keep family members back home in order to keep ties to their rural communities, in case they have to return back, which would effectively prevent the emergence of shanty towns in or circling cities (Wang 2004). In comparison, remaining urban hukou benefits and extend them to new comers from rural areas would encourage the rural migrant to sell their farmlands and move whole family to settle in cities.

As a major obstacle to labor mobility in China, hukou system must be reformed. It seems that it should also be an incremental and experimental process, as the whole Chinese economic reform is. In order to also contribute both to economy growth and reduction of inequality between regions and sectors, at final and critical stages, hukou system reform has to be in coordination with actions in other administrative and economic areas. Governments' role in taxation and

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service offering needs to be reassessed. Additionally, reallocation of fiscal resources among governments of different levels to better be in tandem with population redistribution from rural to urban regions is needed (Yusuf and Nabeshima 2006).

6.1.2 Inefficiency of Financing System

Based on interviews conducted in this study, all pneumatics factories in Fenghua are hungry for financing, throughout all the stages of company development, from starting-up, early development, new product launch, exporting expansion, production expansion, establishing and upgrading R&D system, etc. However, despite that the governments have dismantling discriminatory financing as an entrenched public policy; in fact, many problems remain for private businesses to achieve access to financing. As most the respondents state, lack of access to financing still ranks number one in issues for most Chinese private firms, especially for small and medium sized enterprises who are unable to gain bank credit or access equity and bond markets.

According to the respondents, most the pneumatics firms rely, to very large extent, on self-financing, for both start-up and expansion. Their funds mostly come from household (family and friends) and retained earnings. They say that all banks require collaterals for lending which comprise mainly of land, machinery, building, receivable, and inventory. All these are simply what the enterprises lack. In comparison, they complain, it is much easier for state owned enterprises to borrow, which put them at a disadvantaged position. Meanwhile, they also admit that lack of transparency in private firms' financial reports represents also an important factor. As the author finds, most private enterprises undertake activities which are illegal or violating the regulations, in order to reduce fiscal pressures such as tax pressure. These activities include understatement and misreport of financial flows, sales, costs, stock of assets, etc. Such opaque financial reporting simply deters financial institutions and investors.

The reasons most widely mentioned by the respondents include (1) no credit guarantees or collateral; (2) lenders' unwillingness to lend to small-scale private businesses; and (3) lack of financial transparency.

The financing system in China is still the most central controlled sector by the government. The state banking system still dominates the industry. However, State Owned Commercial Banks (SOCBs) are not adequately market-oriented yet. In 2000, only 7% of the national loan assets were offered by private sector; in contrast, 68% by SOCBs (Asian Development Bank 2003). Meanwhile, access of private firms to the domestic stock markets is highly limited, because the

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core goal of establishing the market is to finance the state sector, and then diversify their ownership, which is part of the process of state sector reforming. Though there are no explicit rules as laws or regulations to prohibit private firms from seeking a public listing, the quota system and such requirements as size and years of operation which are unreasonable and intentionally favorable to state sector limit the access of private sector to stock market. Though the notorious quota system was eliminated by the China Securities Regulatory Commission (CSRC) in March 2000, other implicit rules malign to private sectors still remain (Asian Development Bank 2003).

On the other hand, required by the China People's Bank of China (PBOC), all banks implement a policy called Responsibility to Individual" which keeps credit officers personally accountable for loans. This limits the incentive for bank credit officers to lend to private enterprises, because they view a bad loan to an SOE less serious than that to a private enterprise. Local governments are active in encouraging banks to lend to SOEs which grant local fiscal revenues by extending explicit or implicit guarantees or through other means. Thus financing state sector remains the priority of state banks (Harner 2000).

In addition, the lack of transparent financial statements aggravates the difficulties of private sectors in borrowing. Credit analysis of Chinese domestic firms, especially private firms, based on financial performance is a challenge. Private companies' financial statements are not consistent with international standards on transparency, most not maintaining transparent and authentic audited records (Guo and Liu 2002). As admitted by several respondents, illegal accounting is quite normal in Chinese private enterprises. Consequently, without reliable financial data about the performance of the company, financial institutions would have to resort to asset-based loans instead of looking cash flow. Further in turn, most companies spend heavily in fixed assets, e.g. building, land, and machinery, which can be mortgaged for bank funding but not so important for core business competitiveness development sometimes. This inevitably harms private companies' competitiveness by expending the investment that could otherwise be in intangible assets much of which constitutes the competitiveness like technologic innovation, brand building, and distribution network (Cai 2001).

Though based on the basic background of lack of incentive of state controlled sector to lend to private sector, no measures can change the main traits of Chinese financing system at present, even in near future, except radical revolution such as ownership reforming of state owned banks, free entry to financing market and intensified rivalry in this industry in result, some proper

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actions can also be taken to improve the functioning of the system to some extent. These measures include: 1) removal of the interest rate ceiling which has been discouraging banks from lending to private firms; 2) establishment of departments in existing banks which are to be specialized in evaluation of private sector credit; 3) specialized independent financial institutions oriented towards private SME credit including regional stock markets, regional banks, small credit guarantee companies, and small leasing companies; 4) a social-credit environment and private SME credit-rating system which represent the mechanisms for efficient SMEs to build credit reputation and secure funds for expansion; 5) improvement of financial information systems for private sector, especially SMEs, which bolsters transparency and upgrades preparation of companies' financial information (Asian Development Bank 2003).

6.1.3 Lack of Routinized Innovation

Innovation is still quite sparse in Chinese domestic pneumatics industry, most respondents state, and most domestic enterprises do no more than imitating leading competitors, if they do undertake any innovation. What they do for innovation the most frequently is copying the product design totally and reducing the risk of being accused of piracy by modifying some minor specifications like color and dimensions. The past 2 decades, in the Chinese pneumatics industry, there have been only three lines of air preparation units, one is copy of SMC's worldwide well known design; one is copy of Airtac's bestseller in Mainland China market; the third was legally technology transfer from Herion Company , Germany in 1982. All the three products have been produced by Chinese factories for 20-30 years. New designs for this produce line have been introduced by Chinese factories. The same goes to other products such as flow direction controlling valves and air cylinders. In fact, imitation is a routinized activity for Chinese companies.

They explain, they know the importance of innovation, but they do not do, because there are several impediments:

- Lack of intensified intellectual property right protection, which is the most important. They are afraid that they would be copied just as they did to the foreign competitors. Pioneering in designing is in some sense a waste of resource. Your new design probably would appear in the show room of the neighboring factory. So while the Chinese firms are active investing in equipments, but not in innovation. They prefer waiting to copy

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others'. It is common that the Chinese factory receives and copies a product the client send and want interchanges made in China.

- Insufficient capacity of individual private companies, in terms of capital, human resource skills, knowledge about basic technology, application, technology in related industries. All the Chinese pneumatics factories are small-medium sized, and cannot afford expensive R&D. To develop a new produce line, the investment would be very high, including tool costs for die casting, plastic injection, forging and stamping, raw material cost for pilot production, stock cost for raw material, components, half finished parts, and final products. This is prohibitive for most of the factories, notwithstanding the cost for research and designing, if they are based on self-sufficient R&D. Moreover, few of them could resort to the inefficient capital market mentioned in previous section. Another weakness is lack of human resource skills and knowledge pool needed for R&D. Chinese pneumatics industry is mainly at labor-intensive stage, short of skilled human resource. Few of the employees have higher education with fluid mechanics and fluid dynamics. Most of them did not go to high school, even general physics theory about square and pressure is beyond their capability. It is not infrequent to find that new products produced based on copy from foreign product do not work at all, because the Chinese imitator change the material of some critical component parts in order to reduce cost, or because they modify some key specifications so as to reduce material consumption. In addition, lack of sufficient knowledge of wide applications also reduces the opportunities of developing new products and grasping business chance.

Actually, this is not unique for many other industries in China, with these two traits present widely, because of the lack of a well-functioning National Innovation System (NIS).

However, many steps have been taken in assembling Chinese NIS. As early as 1999, after the National Technological Innovation Conference in Beijing, China recognized the role of innovation in economic reforming, and embraced a systemic approach that acknowledges the importance of enterprises, technology markets, and efficient linkages between the producers and users of innovations (Sun 2002). Many government laboratories were transferred to state-owned enterprises; incentives were developed to encourage research institutes to commercialize their findings; numerous technology-trading organizations emerged. These actions are reflected in growing R&D expenditures (China ranks third in the world, after USA and Japan) (OECD 2005). Despite the endeavor made, the links between research organizations and firms remain sparse,

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with few innovations being commercialized. Furthermore the weak enforcement of intellectual property protection hampers the innovation activities as well.

Direct fiscal incentive for enterprises is another measure most policy advisors advocate. Most widely examples are grants for patent approval and enterprise research center construction, designed to stimulate firms to engage in self-sufficient R&D. But the respondents tell me quite different and discouraging stories. For example, Fenghua government granted one firm some money for having one patent approved, however, the firm's owner, one of the respondents, admitted that the patent has no value, notwithstanding commercial value. He just utilized the loose patent examination in China, and got inviting money from the government. It was good business for him, because he did not invest anything, simply changed some specifications of a product drawing which already existed. Of course, for this, he did need offer the local government officials gifts. In this activity, the officials and firm are beneficiaries, the taxpayers the victim, without innovation at all. No benefit results for anybody in long run.

6.2 Domestic Demand

Regarding domestic demand, all respondents are optimistic, citing the sustainable growth in market size, segmentation, and sophistication. With the development of the automation trend of machineries, as one of the advanced means of automation, pneumatics is being used in an increasing number of applications. Furthermore, demanded by the upgrading of existing industries which use pneumatic systems, and new applications in newly emerging industries such as semiconductor, pharmaceutical production and food industry, demand sophistication has been grown steadily. Especially, a large number of foreign invested manufacturing facilities constitute a demanding market for domestic pneumatics industry, because they are usually more advanced ahead of Chinese domestic manufacturing industries which domestic pneumatics factories have been used to. Thus there is still a huge room for domestic pneumatics industry to improve. The sustained growth of wholesale Chinese economy underpins the bright forecast of the growth of manufacturing sector which account for a predominating share of China economy output, which in result ensure the pneumatics enterprises investment in long term development.

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6.3 Rivalry

Pneumatics industry is definitely one of the industries of the toughest competition in China, because of the high degree of being private owned and. Competition exists not only between local companies, but between Chinese and foreign competitors in Chinese market. Furthermore, Chinese and foreign companies also rival in international arenas. Though competition hurt the short term interest for Chinese companies, it facilitates development of competitive advantage in long run.

Almost all the Chinese pneumatics companies are private owned. Even the companies established by the state in the time of central planned economy have been privatized, or have ownership diversified by absorbing private investment, for example, in 2007, the former Jinan Huaneng Pneumatics Company, one of the largest Chinese pneumatics company and used to be state owned, was purchased by 100% share by FESTO from Germany (Qilu Evening News 2007). Many Taiwanese pneumatics companies started manufacturing in Mainland China in the past two decades, such as Airtac in Fenghua, Chelic and Tonab in Shanghai. In addition, one of the largest pneumatic manufacturers, SMC, from Japan, opened factory in Beijing as early as 1994. The most recent FDI happened in 2008, when Bosch Rexroth acquired major stock share of one of the biggest Chinese pneumatics company Easun (AutomationWorld 2008). The entry of foreign competitors into Chinese market further intensifies the competition in China pneumatics industry, pushing domestic firms to develop by learning and emulating. Moreover, by effect of spill-over, domestic firms benefit from the foreign competitors manufacturing in China, through means such as hiring former employees of foreign firms and sourcing to their Chinese suppliers.

Not only at home by entry of foreign competitors, but overseas is the pneumatics industry also internationalized by exporting. To meet demanding requirements of foreign customers in developed countries, Chinese pneumatics manufacturers make great efforts to improve, through almost all manufacturing procedures, from raw material procurement till final product packing.

6.4 Government

Basically speaking, China is increasingly getting to be a market oriented economy, with active private business activities in most industries. Enterprises are free to determine the prices for most products, and consumers enjoy freedom to choose what to buy. But central planning still exists

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widely; entry barriers still prevent private business's participation of large scale, in many sectors such as oil, railway, airline, telecommunications networks, banking, insurances, and education. SOEs are still dominating the state controlled industries, but also are granted biased policies, even not in monopolized industries, in terms of financing, hukou quota and research funding. All these inevitably leads to unfair competition, which harms competitive advantage of the private sector, reduce incentives for SOEs to improve, and in the end, sacrifice the total productivity and competitiveness of China as a whole.

Less government intervention is strongly recommended by most respondents. As the public ownership share in the whole economy shrinks, the issue of state intervention in the economy operation comes to the fore. First of all, the widely known Five Year Plan is of hot debate. Based on Porter's argument, China, as a developing economy, is anxious to catch up, which induce official involvement in economy development directly. Many huge projects in previous Five Year Plan proved to be failure. A failure rate of 42% for medium- and large-scale projects during the 8th Five Year Plan period (1991-1995) was reported, by Zhang Hanya, secretary general of the China Investment Association (Perkins and Rawski 2008). Failed investment often derives from the officials' personal ambition to invest in 'image projects' to improve their performance record (Zhang 2010). It is self-evident that reductions in state ownership and official intervention in the economy have unpredictable potential to upgrade the productivity of the whole economy.

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CHAPTER 7 RECOMMENDATIONS

7.1 Chinese Private Owned Firms

7.1.1 Opportunities

With the sustained growth of Chinese wholesale economy, the domestic market has been growing steadily. Moreover, along with the widening Chinese product awareness in foreign markets, the export volume of private sector will keep the trendy growth. So the total output of the Chinese private owned firms will increase.

On the other hand, demand sophistication also has been rising, due to wholesale economy upgrading including rise of high-tech industries such as pharmaceutical, semiconductor and booming auto making. All these industries directly exert substantial pressure on traditional labor intensive sectors for improving product and service quality. Meanwhile, the huge number of employees in these traditional sectors benefit from the growth of these sectors with more disposable income. With the rising consuming power, the employees will consume more, then in turn, lead to the development of market size and demand sophistication. Therefore, the manufacturers, both from traditional labor intensive and high tech industries, will expand in investment in innovation and production, in order to meet the evolving market. So that, a benign cycling of development comes into being.

In the macro process of size growth and upgrading of economy, Chinese private sector is endowed with opportunities.

7.1.2 Threats

Along with opportunities always crouches threats. Production expansion necessitates investment, which leads to more employees, complicated management hierarchy, and more risk, etc. The expansion calls for improving management style by introducing advanced management such as separation of ownership and management, which represents a considerable challenge to family enterprises who account for a substantial share of the private sector.

Economic upgrading, another widely cited opportunity for Chinese economy growth, also constitutes high risk to private owners. To upgrade, the private owners need invest in higher

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skilled labor, more advanced equipment, and even vertical or horizontal merger or acquisition, etc. Generally speaking, upgrading is riskier than expansion, because it means more new areas to explore. A good example is OEM supplier versus global competitor. Most Chinese private firms are OEM suppliers, engaging in just production as a workshop, rather far away from participating in more advanced activities such as research, design, marking, sales service, etc. That is exactly why China is worldwide viewed as a world workshop. Chinese used to be proud of it, but now, more experts are concerned about the negative image of it. To transit from being simply confined in manufacturing to higher level, Chinese private sector needs to convert from OEM supplier to global competitor with their own brand, by engaging more in other processes in the value chain which build up more value. But it is risky, time taking, and patience taking.

7.2 Role of Chinese Governments

7.2.1 Less Intervention in Economic Activities

Though through 30 years of economic reforming, Chinese economy is increasingly market oriented, more economic liberty is in desperate urgent need. Much government intervention typical of central planned economy still remains. Excess role of government in investment has wasted a lot of public capitals, resulting in countless ‘image projects’ all over China. The existence of SOEs in an excessive number of industries is also a form of over-intervention of government. First, the SOEs monopolize some industries, prohibit participation private enterprises, and lead to low productivity. Second, they use up/waste a majority share of public capitals, causing unfair competition against private sector, in terms of bank loans (because banking system is also controlled by state), skilled and higher educated human resource (because the hukou grants offered by the local governments favor SOEs) and large scale government procurements such as big project contracts.

7.2.2 More Actions in Public Sector

As explained in Chapter 3, government role is very important in the national economic system, much more than just sitting back and leaving the four competitive determinants working by themselves. Public sectors are the main ground where governments should concentrate, including income redistribution, education, healthcare, and legal system, etc.

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Unfortunately, along with the economic reform of 30 years, income inequality exists with severity, geographically and demographically. The income gaps between coastal cities and inland areas, and between urban and rural residents, have been widening. The low level of income prevents the rural market growth. Moreover, much evidence shows that the income inequality between eastern and western areas tends to cause social instability.

In order to upgrade Chinese human resource, education (and training) and healthcare must improved to high degree. Though privatization in those two industries is important and vital in the long run, government participation is indispensible as well, because education, especially elementary ones, and healthcare, are closely related to equality. Meanwhile, as mentioned in Chapter 6, public benefits like education, healthcare and insurance is highly involved in settling the problem of hukou system, which is hampering the Chinese labor mobility in large scale and scope.

An independent and well functioning legal system is in urgent need as well. The current legal system is heavily controlled by the central and local governments, in processes both of law making and enforcement. Replacement of direct government control over economic decisions by the rule of law is necessary to protect private property and contract rights. More participation of the public, experts and business sector in the drafting process would help improve the soundness of the law and its feasibility in the future. Governments' intervention in law enforcement is still quite rife in China, always favoring SOEs against private firms, favoring special interest groups against the public, etc.

To keep the healthy function of the dynamic diamond of Chinese economy, Chinese government need to reform in an approach of privatization, market orientation and social equality.

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CHAPTER 8 RESEARCH LIMITATIONS

Though this study is conducted with great effort, limitations still exist. This paper attempts to investigate the means to improve the competitive advantage of Chinese private sector, by taking Chinese pneumatics industry as case study, collecting and analyzing the data mainly from pneumatics industry in Fenghua Zhejiang area. Actually, different private industries tend to represent varying situation to large or small extent, with different histories, ownerships, and inbound and outbound FDI activities, etc. Moreover, the geographic focus on Fenghua tends to lead to misinterpretation of the problems the enterprises are facing too. Investigations in other private industries in other areas would improve our understanding of the status quo of Chinese private sector as a whole, and contribute to better solutions to boosting Chinese private sector's competitive advantage.

In addition, politics is not the scope of this paper. Nevertheless, politics also has indispensible effect on China's economy, especially the private sector, because Chinese private sector has been and is still under discriminatory treatment. In fact, the Chinese economy reform of the past 3 decades is in essence a political revolution with rising status and role of private sector in the economy. At present, looking forward to further development of Chinese economy, experts, including economists and politicians, rest the fueling energy on Chinese private sector. But politics appears to be the bottleneck; further breakthrough needs be taken, especially when a worrying nationalization intendancy has been evident in some industries including steel and coal industries recent years (Tao et al 2006, ChinaStakes 2009). All these clearly show us that politics in China is an important element anyone can never ignore while considering economy.

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