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The Competitiveness of China in the 21st Century:
Analysing China's Human Capital

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Declaration of Authorship

I hereby declare that I am the sole author of the thesis entitled ‘The Competitiveness of China in the 21st Century: Analysing China’s Human Capital’. I duly marked out all quotations. The used literature and sources are stated in the attached list of references.

In Prague, 9th December 2015

Student’s signature

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*'Truly, the most distinctive feature of our economic system is the growth in human capital. Without it there would be only hard, manual work and poverty except for those who have income from property.'*¹

Theodore W. Schulz, American Economist and Nobel Laureate

¹ Schultz, Theodore W. Investment in Human Capital. *The American Economic Association*, Vol. 51, No. 1, March 1961, pp. 1-17, p. 16.

Introduction

The international economic order has been dynamically changing since the 21st century began. On the one hand, the world has been facing the unparalleled rise of emerging markets like Brazil, Russia, India or China. On the other hand, developed countries have been struggling with crises² and the need for reforms.³ As one of the means how to compare a country's position in the international economic system, the concept of competitiveness (competitive advantage of nations) has been developed. Although it has not been a new theory, competitive advantage of nations has gradually gained more importance along with the intensifying globalisation, and has deeply influenced national policy making. Countries have been vividly seeking innovative ways to improve their own position in the world, and to foster domestic welfare via international trade.

China's development, triggered by the successful yet on-going transformation toward the market economy of its own kind⁴ and opening up to the rest of the world, has induced appraisal as well as worries that China may overtake the role of the global economic leader. There is no doubt that China's economy has immensely improved, starting from Deng Xiaoping's 邓小平 reforms to the current Xi Jinping's 习近平 attempt to pursue the rule of law, nevertheless, there are still many areas left to be reformed and enhanced, e.g. hukou 户口 system, environment, social services and health care. Many researches have already examined the origins of China's success in the late 1970s and 1980s, however, the discourse commonly lacks the consideration of current issues, and only selective quantitative measures such as GDP growth have been widely discussed.

Based on the author's academic field, International Trade and Chinese Studies, as well as her deep interest in China, the author decided to examine China's competitiveness in the 21st century according to Michael Porter's diamond model, and specifically to focus on human capital. The thesis intends to answer the research question: *How has the competitiveness of China developed in the 21st century, with a special focus on human capital?* The main objective thus is to analyse the development of China's competitive advantage and its human capital in the 21st century. The area of human capital has been chosen since it represents the key factor of production with large consequences for competitiveness of a country as well as the overall

² E.g. the dotcom crisis in 2001, the financial crisis and recession since 2008/9.

³ E.g. fighting the long-term deflation in Japan, reforming social systems in aging countries.

⁴ The socialist market economy with Chinese characteristics.

state of an economy. The author tests following hypotheses in order to provide a reliable result, and to answer the research question:

- H1: External factors, government and chance, have enhanced China's competitive advantage.
- H2: The four determinants of China's Porter's diamond have improved.
- H3: China has been gradually strengthening the quality of its human capital.
- H4: Generation Y's career-oriented approach to life has contributed to the development of skilled human capital.

For the purpose of the thesis, the definition of competitiveness formulated by the Institute for Management Development, a leading institution for competitiveness research, will be applied: *'Competitiveness of Nations is a field of economic knowledge, which analyses the facts and policies that shape the ability of a nation to create and maintain an environment that sustains more value creation for its enterprises and more prosperity for its people.'*⁵

The methodology of the research is based on an analysis that follows Michael Porter's model of national competitive advantage and the theory of human capital. The research on China's diamond is supplemented by case studies on *the next generation IT technology*,⁶ which has been introduced as one of the seven strategic emerging industries in the Twelfth Five-Year Plan. The author does not intend to provide an exhaustive answer as the extent of the thesis is limited, but aims to deliver an analysis of main changes and challenges of China's competitiveness, and trends in human capital development in the 21st century.

The thesis research uses both qualitative and quantitative information and data from primary and secondary references. The literature review includes books, journals, academic papers, and publications written by international institutions and renowned consulting companies. Furthermore, government policies are discoursed, and statistical data are applied as a source of precise quantitative information, which indicates values as well as trends. The core literature recherche comprises pieces by economists such as Adam Smith, Michael E. Porter, and Theodore W. Schultz; reports on competitiveness by the World Economic Forum and the World Bank; and research papers by McKinsey & Company, KPMG, Deloitte, and the Boston Consulting Group. For the current development, newspaper articles and internet resources are

⁵ Institute for Management and Development. *Competitiveness of Nations: The Fundamentals* [online]. 2006. Available at: <http://www.imd.org/uupload/www01/documents/wcc/content/fundamentals.pdf>. p. 2.

⁶ It includes next-generation mobile communication, next-generation core Internet equipment, smart devices, cloud computing, high-end software, etc.

surveyed. The selected literature serves to create a theoretical framework as well as to answer the research question. To remain objectivity, the author uses diverse resources from Western and Chinese scholars and institutions.

To explain trends in China's human capital and to predict the future development, the author has carried out a survey targeted on the so-called *generation Y*, i.e. Chinese youngsters born between 1985 and 1995. The questionnaire was conducted via a Chinese website www.sojump.com with 135 of respondents between the 11th and 20th October 2015. The survey has included questions on both education and skill building, and attitudes to work life. The author also applies valuable insights on China's competitiveness gained during her exchange semester at the Chinese University of Hong Kong in the summer semester 2013/2014 and as a Chinese Government Scholarship awardee at Xiamen University in the winter semester 2014/2015.

The thesis is divided into three chapters. The first chapter serves as a theoretical framework for the research part of the thesis. It reviews the concept of competitiveness, Michael Porter's diamond, and the theory of human capital. The second chapter discourses China's competitive advantage according to Porter's diamond. It examines China's external factors, factor conditions, demand conditions, related and supporting industries, and firm strategy, structure and rivalry on case studies from the information and communication industry. Finally, the third chapter analyses China's human capital, its cultivation, current trends and challenges, and specifically researches the generation Y.

1. Theoretical Framework

*'The theory that can absorb the greatest number of facts, and persist in doing so, generation after generation, through all changes of opinion and detail, is the one that must rule all observation.'*⁷

Adam Smith, Scottish Economist and Philosopher

The first chapter reviews classical economic literature on competitiveness, discourses Michael Porter's model of national competitive advantage, and introduces human capital. The concept of competitiveness is reviewed in terms of its historical development set in a chronological order. The model of Michael Porter provides a base for the analysis of China's diamond. Human capital theory supports the discourse on China's human capital in the third chapter.

1.1 Concept of Competitiveness

The discourse on competitiveness has become commonly conducted since the world became interconnected via international trade in the era of European naval exploration in early 15th century (the Age of Discovery), when nations attempted to measure their power in terms of trade for the first time. As the world has been opening up and multinational companies have been established, classical economics has included more and more variables related to competitiveness of nations, evolving the theory from the purely macroeconomic perspective of absolute gains toward an inter-field hybrid analysis, which also includes qualitative measures such as policies, government stability or factor conditions. Scholars have gradually shifted their focus from simple gains of export toward a more complex country's economic environment that constitutes one's competitiveness.

Using the terminology of the game theory, there has been an extensive debate on whether nations compete against each other – *a zero-sum game* – or cooperate – *a positive-sum game* – throughout literature on international trade. The earliest classical economic theory encompasses a very realistic approach to competitiveness of countries by claiming that international trade is a *zero-sum game*, one country wins and the other loses. Nevertheless, when a country specialises in the production of goods in which it has an *absolute advantage*, a mutually beneficial positive sum game can be achieved. Scholars have further come to the conclusion that even if a state does not have any absolute advantage, it can earn a *relative advantage*.

⁷ BrainyQuote. Adam Smith Quotes [online]. 2015. Available at: <http://www.brainyquote.com/quotes/quotes/a/adamsmith118635.html>.

Advanced theories that support the win-win scheme in international trade, consider factor endowment, product cycle, country similarity, and trade based on economies of scale as the sources of competitive advantage.⁸

As the first classical economic theory, *mercantilism* was developed during the Age of Discovery by Jean-Baptiste Colbert, the minister of finance under Louis XIV in the 17th century, and it vigorously spread among European powers, such as England. '*Mercantilism is economic nationalism for purpose of building a wealthy and powerful state.*'⁹ Mercantilism assumes international trade to be beneficial for only one party, which pursues its own business interests at the expense of the others, and protects its own industry through imposing taxes and tariffs at the same time. The more wealth is accumulated in a country, the richer and the more competitive a country is: '*the mercantilists realized that the power of the state was to be promoted by the general increase in the total national income.*'¹⁰ The model considers consumption to be of no value in itself; just a surplus over consumption was believed to be equivalent to an increase in wealth.¹¹

Adam Smith's *absolute advantage* theory from the 18th century refused international trade to be a zero-sum game, on the contrary, he claimed that it is a positive-sum game, in which all trading parties can benefit (although not equally), applying natural law, i.e. the invisible hand.¹² He believed in free trade and individualism, as '*each man is more understanding than any other as to his own needs and desires.*'¹³ and viewed international trade as a mean for more efficient division of labour¹⁴ and a way for specialisation of states.¹⁵ The absolute advantage of a nation is basically determined by a comparison of labour productivity across countries. '*It is the maxim of every prudent master of a family never to attempt to make at home what it will cost him more to make than to buy.*' ... '*What is prudence in the conduct of every private family can scarce to*

⁸ Cho, Dong-Sung & Moon Hwuy-Chang. *From Adam Smith to Michael Porter: Evolution of Competitiveness Theory*. Singapore: World Scientific, 2000. ISBN 981-02-4662-5. p. 1.

⁹ LaHaye, Laura. Mercantilism [online]. In: *The Concise Encyclopedia of Economics*. Library of Economics and Liberty, 2014. Available at: <http://www.econlib.org/library/Enc/Mercantilism.html>.

¹⁰ Haley, Bernard F. Heckscher, Mercantilism. *Quarterly Journal of Economics*, Vol. 2. No. 472. London: George Allen and Unwin, 1935, pp. 347-354. doi: 10.2307/1885028. p. 348.

¹¹ Heckscher, Eli. Revisions in Economic History: V. Mercantilism. *The Economic History Review*, Vol. 7, No. 1. Willey, November 1936, pp. 44-54. doi: 10.2307/136807. p. 52.

¹² Cho, D. & Moon H. *op. cit.* p. 4.

¹³ *Ibid.*

¹⁴ He presumed labour to be the only input.

¹⁵ Schumacher, Reinhard. Adam Smith's theory of absolute advantage and the use of doxography in the history of economics [online]. *Erasmus Journal for Philosophy and Economics*, Vol. 5, No. 2, Autumn 2012, pp. 54-80. Available at: <http://ejpe.org/pdf/5-2-art-3.pdf>. p. 59.

*be folly in that of a great kingdom. If a foreign country can supply us with a commodity cheaper than we ourselves can make it, better buy it of them...*¹⁶

David Ricardo updated Smith's model in the early 19th century by assuming that even if one country holds an absolute advantage in both commodities, international trade should still be pursued. The superior country should specialise in a commodity where it has the greatest absolute advantage, and the inferior country where the superior country has the least absolute advantage.¹⁷ Ricardo named this rule of differences in labour productivity the theory of *comparative advantage*. It explains why countries do business together even if they do not have any absolute advantage, relativizing the importance of competitive advantage.

The imperfection of Ricardo's comparative advantage theory in explaining why labour productivity varies between countries, led economists Eli Heckscher and Bertil Ohlin to develop the *factor endowment* theory in the first half of the 20th century. They argued that comparative advantage lies in what factors of production countries possess, and in good difference based on the factors required in their production. *'[A] country will have comparative advantage in, and therefore will export, that good whose production is relatively intensive in the factor with which that country is relatively well endowed.'*¹⁸ The Heckscher-Ohlin model considers two factors of production, labour and capital, keeping the technology at the same level but production methods varying between countries.¹⁹

The Heckscher-Ohlin model was further extended in the second half of the 20th century by the factor price equalization theorem, which presumes that free trade helps to even out discrepancies in demand relative to supply of factors and makes factors of production equal between countries; the Stolper-Samuelson theorem, linking international trade to domestic income distribution and stating that free trade benefits the abundant factor and harms the scarce factor; and the Rybczynski theorem that states that an unbalanced increase in factor endowment at constant prices tends to generate larger asymmetric changes in outputs.²⁰

¹⁶ Smith, Adam. *The Wealth of Nations: Volume 1*. London: J. M. Dent & Sons Ltd., 1950. B004LY12IK. p. 401.

¹⁷ Cho, D. & Moon H. *op. cit.* p. 7.

¹⁸ *Ibid.* p. 10.

¹⁹ *Ibid.*

²⁰ *Ibid.* pp. 10-12; Jones, Ronald W. Heckscher-Ohlin Trade Theory [online]. *The New Palgrave Dictionary of Economics*. Palgrave Macmillan, 2008. Available at: http://www.econ.rochester.edu/people/jones/Palgrave_Jones_on_Heckscher_Ohlin.pdf. pp. 12-13; Leontief conducted an empirical study that surprisingly found the United States of America to export labour-intensive goods and to import capital-intensive ones. The explanation lies in the fact that the capital is allocated in people's knowledge. (Leontief, Wassily. Factor Proportions and the Structure of American Trade: Further Theoretical and

All of the above mentioned theories of classical economics on competitiveness basically focus on the macroeconomic point view, firstly justifying why states should get involved in international trade, secondly proposing explanations of benefits. Nevertheless, they almost fully omit the importance of the microeconomic roots of competitiveness. At the end of the 20th century, Raymond Vernon introduced the model of *product cycle*, proposing that innovation built up on entrepreneurial opportunities and effective communication between the potential market and the potential supplier of the market is the key determinant of country's competitive advantage. A new innovative product gives a country a chance to export, and stimulates other countries' entrepreneurs to rethink ways how to replace imports, which results in new innovations.²¹ Staffan Linder put the perspective on the similarity of customers' preferences and income levels in his theory of *country similarity*, assuming that a country exports goods that are successful on a domestic market.²² Krugman and Lancaster contributed to the theory of competitiveness through claiming that *economies of scale* can be achieved and countries thus should specialise.²³

Classical economic models still remain valid and help us to easily and clearly understand the concept of competitiveness, even though they have been facing criticism that they may oversimplify the reality, e.g. considering only two commodities, or that they artificially stimulate rivalry among nations.

1.2 Porter's Diamond

The theory of competitiveness has reached a higher level of complexity when Michael Porter²⁴ introduced his book *The Competitive Advantage of Nations* to public in 1990. The book analyses the origins of national competitive advantage in particular industries, and discourses its implications for firm strategy and for national economies. The research is based on a four-

Empirical Analysis. *The Review of Economics and Statistics*, Vol. 38, No. 4, November 1956, pp. 386-407. doi: 10.2307/1926500. p. 399)

²¹ Vernon, Raymond. International Investment and International Trade in the Product Cycle. *The Quarterly Journal of Economics*, Vol. 80, No. 2, May 1966, pp. 190-207. pp. 192-193, 198-200.

²² Cho, D. & Moon H. *op. cit.* p. 16.

²³ *Ibid.* p. 18.

²⁴ Michel E. Porter (*1947) is a renowned economist, researcher, author, advisor, speaker and scholar, currently teaching at Harvard Business School and leading the Institute for Strategy and Competitiveness. He is considered a founder of the modern strategic management and one of the global most influential business gurus, followed by governments, corporations, NGOs and academics.

year study of ten important trading nations: Denmark, Germany, Italy, Japan, Korea, Singapore, Sweden, Switzerland, the United Kingdom, and the United States.²⁵

*‘...The Competitive Advantage of Nations has transformed thinking about the basis of national competitiveness, and has had a massive impact on public policies toward regional and national economic development.’²⁶ Porter’s theory of determinants of national competitive advantage, commonly known as *Michael Porter’s diamond* (the Porter’s diamond or the diamond) newly incorporates both macroeconomic and microeconomic variables as sources of competitive advantage. The Porter’s diamond captures the dynamics of international economic relations, and combines the approach of strategic management with the theories of international trade, direct investment, and economic development.²⁷ *‘My theory seeks to be comprehensive and integrate many variables instead of concentrating on a few important ones... My aim is to help firms and governments, who must act, choose better strategies and make more informed allocations of national resources.’²⁸**

Porter denies the narrow point of view of cost differences and stresses the need to explain why one nation’s companies are more capable of differentiation than others. He points out that in present globalised environment, the role of a *home base* has increased since it is the place *‘where strategy is set, core products and process development takes place, and the essential and proprietary skills reside.’²⁹* It is thus the platform for global strategy. Furthermore, Porter assumes that innovation and improvement as well as early timing drive the competitive advantage.³⁰

The Porter’s diamond model of the home base includes four main attributes of a country that form a complex system in which domestic companies compete, and that promotes or curbs the creation of national competitive advantage:

1. *factor conditions,*
2. *demand conditions,*
3. *related and supporting industries,*

²⁵ Porter, Michael. *The Competitive Advantage of Nations*. New York: The Free Press, 1990. ISBN 0-02-925361-6. p. 21.

²⁶ Grant, Robert M. National economic development and The Competitive Advantage of Nations. In: Huggings, Robert & Izushi, Hiro (eds.). *Competition, Competitive Advantage and Clusters: The Ideas of Michael Porter*. Oxford: Oxford University Press, 2012. ISBN 978-0-19-966042-1. p. 111.

²⁷ *Ibid.* p. 112.

²⁸ Porter, M. *op. cit.* p. 30.

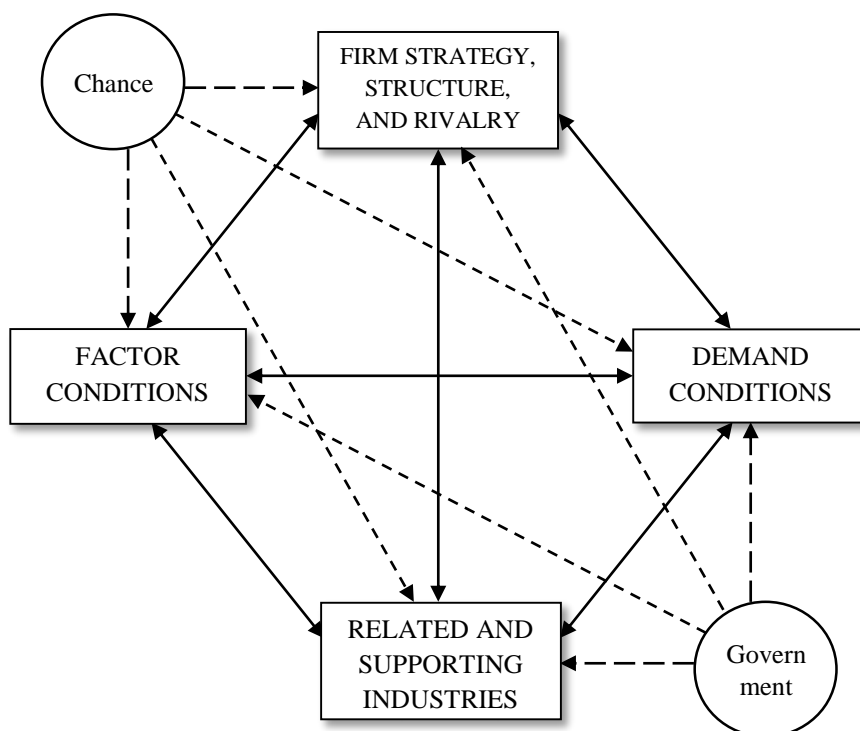
²⁹ *Ibid.* p. 69.

³⁰ *Ibid.* p. 70.

4. *firm strategy, structure, and rivalry.*³¹

At the same time, the four determinants of home base competitiveness are externally influenced by *government* and *chance*.

Figure 1. Michael Porter's Diamond: The Complete System



Source: Porter, M. *The Competitive Advantage of Nations*. p. 127.

Government holds the exclusive power over forming the country's business environment through policies that can either enhance or undermine each of the determinants. '*Antitrust policy affects domestic rivalry. Regulation can alter home demand conditions. Investment in education can change factor conditions. Government purchases can stimulate related and supporting industries.*'³² Given various economic systems, government tends to play more important role in command economies and mixed economies than in market economies, where the market and its invisible hand decides. E.g. the Chinese government has a greater impact on its business environment than the government of the United States of America, and it can quickly react to

³¹ *Ibid.* p. 71.

³² *Ibid.* p. 73.

potential threats without public agreement, but it can also be quite inflexible when it comes to private interests of officials.

Chance includes events that happen outside the firms' control and usually the government's control, such as wars, external political developments, and change in foreign market demand, pure inventions or breakthrough in basic technologies. Chance events '*create discontinuities that can unfreeze or reshape industry structure and provide the opportunity for one nation's firms to supplant another's*'.³³ Porter especially points out:

- *'Acts of pure invention*
- *Major technological discontinuities (for example, biotechnology, microelectronics)*
- *Discontinuities in input costs such as the oil shocks*
- *Significant shifts in world financial markets or exchange rates*
- *Surges of world or regional demand*
- *Political decisions by foreign governments*
- *Wars*'³⁴

Historically, China has come up with great inventions during the Song dynasty, such as gunpowder, the compass, or paper money. Its economic development has been curbed by expansions of 'barbarians' (Mongols, Manchu, Europeans, etc.) and inner uprisings (the White Lotus Rebellion 川楚白莲教起义, the Taiping Rebellion 太平天国起义, etc.) overtime, causing a decline of the country. On the other hand, the large global demand for cheap production has driven China's growth since Deng Xiaoping's reforms were implemented.

Porter's *factor conditions* relate to factors of production grouped into categories: human resources, physical resources, knowledge resources, capital resources, and infrastructure. '*A nation's firms gain competitive advantage if they possess low-cost or uniquely high-quality factors in a particular industry.*' In addition, competitive advantage of factors depends on their effective allocation considering not only *why* but also *where*. Porter points out that: '*Factor availability in a nation is not an advantage if the factors leave.*'³⁵ Moreover, he claims that

³³ *Ibid.* p. 73.

³⁴ *Ibid.* p. 124.

³⁵ In terms of human resources, it is commonly known as a 'brain drain'. *Ibid.* p. 75.

*advanced factors*³⁶ contribute to competitiveness more than *basic factors*³⁷, and the same intuition is relevant for *specialised*³⁸ and *generalised factors*.³⁹ Factors are in general created and cultivated through investments of public and private entities as well as individuals.⁴⁰ Selective factor disadvantages, such as harsh weather or lack of natural resources, can drive innovation and therefore contribute to country's competitiveness. For example, the lack of steel and high transportation costs pushed Italian private steel producers to pioneer mini-mill technology. Similarly, a steady increase of nation's exchange rate can enhance competitive advantage.⁴¹

In the first stage of the opening-up in the 1980s and 1990s, China definitely benefited from its low-cost basic factors, especially those located within so-called special economic zones⁴² 经济特区, where foreign investors could easily access the factors without any concern of undeveloped infrastructure as in the western and central China. Nevertheless, firms have been limited by state/collective⁴³ ownership of land that can be only rented out and not bought. The unfortunate Tiananmen incident 六四事件 and the reunification with Hong Kong and Macau have caused emigration flows of local intelligence and specialists to western countries, i.e. China faced a brain drain in the late 1980s and 1990s.

Home demand influences competitive advantage principally through the character and composition of home buyer needs and wants. Domestic demand teaches firms to be sensible and to relevantly respond. Porter believes that the segment structure of demand, the level of sophisticated and demanding buyers, and anticipatory buyer needs built up competitiveness of a nation. In general, countries tend to be more competitive in industries, which account for a large share of home demand but are less represented in other countries. The more pressure domestic customers put on companies to innovate, the larger and the more sophisticated competitive advantage can be achieved in comparison to their foreign counterparts. Porter confirms the country similarity theory by the argument that the core and design of a product

³⁶ Modern digital data communications infrastructure, highly educated personnel, and university research institutes in sophisticated disciplines.

³⁷ Natural resources, climate, location, unskilled and semiskilled labour, and debt capital.

³⁸ Narrowly skilled personnel, infrastructure with specific properties, knowledge bases in particular fields.

³⁹ Highway system, a supply of debt capital, well-motivated employees with college education.

⁴⁰ *Ibid.* pp. 77-78, 80.

⁴¹ *Ibid.* pp. 81-82.

⁴² Special economic zones have been areas established by the Chinese government to attract and utilize foreign investment. The first ones were founded in 1980 in coastal cities Xiamen, Shantou, Zhuhai and Shenzhen and on the island Hainan. The zones stand as the incubators of economic reforms, which later spread all over the country.

⁴³ State ownership has been traditionally connected to urban areas, collective ownership to rural areas.

usually reflect home market needs. The country achieves competitive advantage if the demand of home customers anticipate those of other countries. Furthermore, demand size and pattern of growth significantly contribute to competitiveness of a nation. The larger home market is, the higher economies of scale can be pursued. Porter stresses the importance of home buyers' diversity, the rate of growth of home demand, early demand, and early saturation. Mobile or multinational local buyer and their impact on needs and wants of foreign buyers enhance internationalization of products, therefore national competitive advantage.⁴⁴

The long-term discrepancy between China's domestic demand and supply, created by Mao Zedong's 毛泽东 planned economic system from the 1950s to 1970s, and widespread poverty of Chinese marginalised the role of domestic demand in competitive advantage forming in the past. Chinese customers used to be not so important, as the country capitalised mainly on its cheap exports to developed countries. However, there has been a positive trend in diminishing poverty and in wage growth. The structure of Chinese demand has been diverse since there are 56 nationalities that constitute the large home market with the potential of high economies of scale.

The third determinant *related and supporting industries* proposes that a country has a bigger advantage, when internationally competitive supplier and related industries are present. *'Competitive advantage in some supplier industries confers potential advantages on a nation's firms in many other industries, because they can produce inputs that are widely used and important to innovation or internationalization.'*⁴⁵ Porter uses the example of the Swiss success in pharmaceuticals that was closely connected to previous success of dye industry, or the Italian footwear industry, shown in figure 2. Internationally competitive supplier industries create advantages in downstream industries via efficient, early and fast access to the most cost-effective inputs; via linkages between the value chains of firms and their suppliers, as well as via the process of innovation and upgrading.⁴⁶

Related industries, the industries where companies can share and coordinate activities in the value chain when competing or which involve complementary products, can be another source of competitiveness. In case there is an internationally successful related industry present, it provides opportunities for lively information and technical interchange that is eased by mutual cultural values; it increases the likelihood that new opportunities in an industry will be

⁴⁴ *Ibid.* pp. 86-98.

⁴⁵ *Ibid.* p. 100.

⁴⁶ *Ibid.* pp. 101, 103.

perceived, and signs that new entrants bring a new way of competing (see the example of Japanese fibres and fabrics industries in figure 3).⁴⁷ Nevertheless, it must be kept in mind that benefits of both suppliers and related industries are dependent on the rest of the diamond. *'Without access to advanced factors, home demand conditions that signal appropriate directions of product change, or active rivalry, for example, proximity to world-domestic suppliers may provide few advantages.'*⁴⁸

In China, cluster building has been a significant part of government policies aimed to the growth of Chinese economy, which have been inspired by the Japanese *keiretsu*.⁴⁹ The official documents encouraged state-owned enterprises to form business groups in the 1980s and since private enterprises were allowed in 1993, the private sector has vigorously integrated into clusters,⁵⁰ especially in Guangdong 广东, Zhejiang 浙江 and Jiangsu 江苏 province.⁵¹ However, there have also been traditional areas for industry concentration, e.g. Jingdezhen 景德镇 for porcelain or Suzhou 苏州 for silk. Manufacturers have tended to locate in special economic zones, with limited interconnections as they usually do not invent anything but provide cheap labour and follow instructions of foreign investors.

⁴⁷ *Ibid.* p. 106.

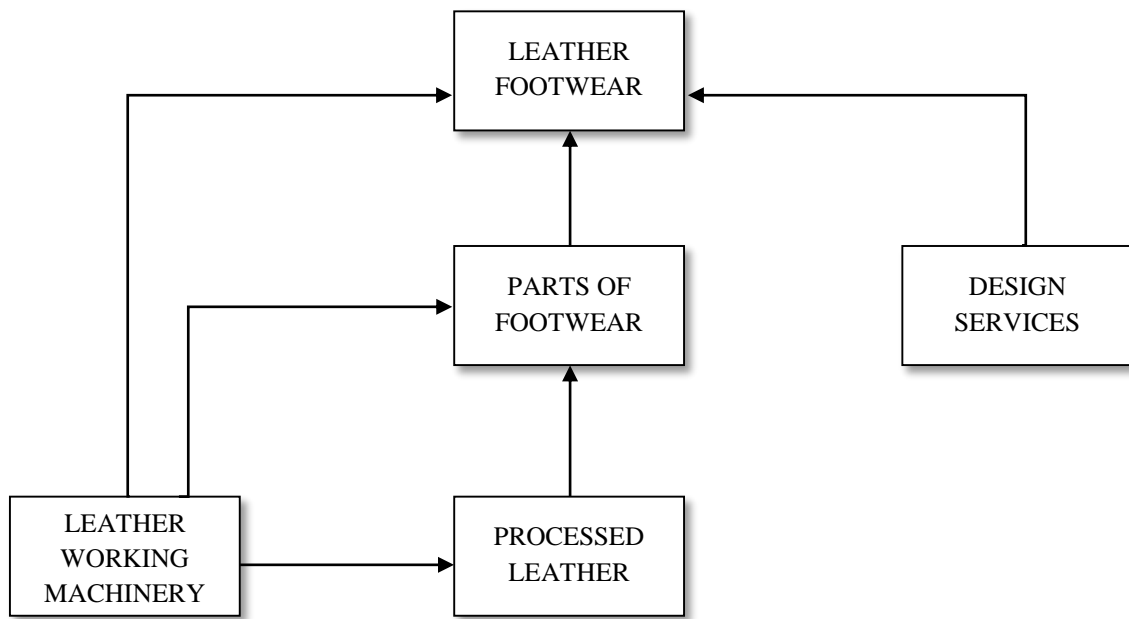
⁴⁸ *Ibid.* p. 107.

⁴⁹ *Keiretsu* is a Japan's corporate governance system that dates back to the 1600s and was propelled during the Meiji Restoration in 1866. *Keiretsu* means vertical or horizontal integration of companies, e.g. the vertical *keiretsu* of Toyota, its suppliers, manufacturers, real estate, wholesalers, etc.; the horizontal *keiretsu* of Mitsubishi where the Bank of Tokyo-Mitsubishi functions at the top, followed by the core Mitsubishi Motors and Mitsubishi Trust and Banking. (Twomey, Brian. Understanding Japanese Keiretsu [online]. *Investopedia*. 25 October 2009. Available at: <http://www.investopedia.com/articles/economics/09/japanese-keiretsu.asp>)

⁵⁰ Ma, Xufei. The Critical Role of Business Groups in China [online]. *Ivey Business Journal*. May/June 2005. Available at: <http://iveybusinessjournal.com/publication/the-critical-role-of-business-groups-in-china/>.

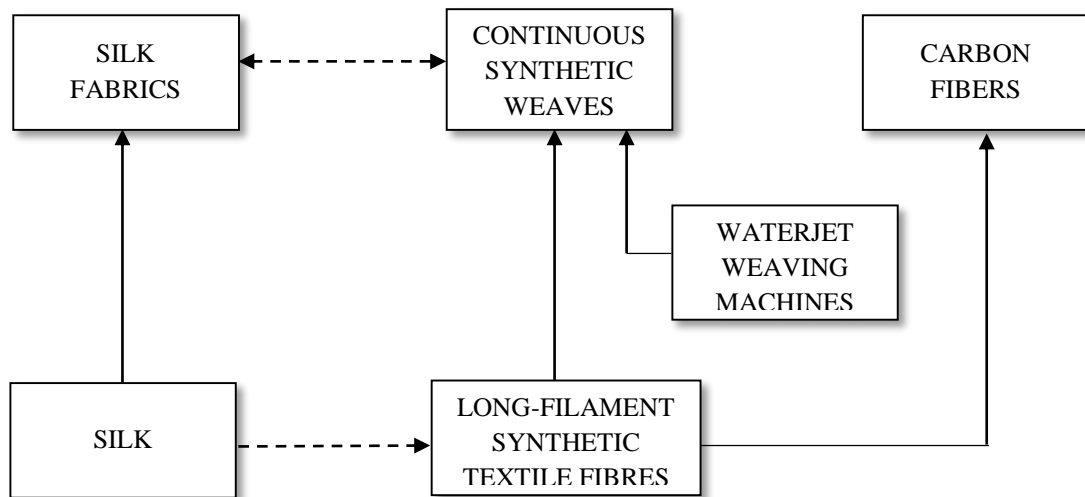
⁵¹ Li, Jiangtao. Policy Restructuring for Industrial Cluster Upgrade in China. In: Mishra, R. K. & Zhou, Shaopeng (eds.). *Economic Reforms in India and China*. New Delhi: Allied Publishers, 2011. ISBN 9788184246834. p. 174.

Figure 2. Related and Supporting Industries: Italian Footwear Industry



Source: Porter, M. *op. cit.* p. 101.

Figure 3. Related Industries: Japanese Fibres and Fabrics Industries⁵²



Source: Porter, M. *op. cit.* p. 106.

⁵² Broken lines refer to related industries, solid lines indicate supplier relationship.

Finally, *firm strategy, structure and rivalry* relate to *'the context in which firms are created, organized and managed as well as nature of domestic rivalry.'*⁵³ This determinant is deeply influenced by national and cultural features. In general, there is no universal managerial system, nations usually succeed in industries, which are based on *'the management practices and modes of organization favoured by the national environment are well suited to the industries' sources of competitive advantage.*⁵⁴ National management practices approaches spread through diverse areas of training of leaders, hierarchical style, decision-making procedure, attitudes toward customers, ability to coordinate across functions, an approach to international expansion, or relations between labour and management.⁵⁵ Porter points out *'attitudes toward authority, norms of interpersonal interaction, attitudes of workers toward management and vice versa, social norms of individualistic or group behavior, and professional standards'*⁵⁶ as the most important attributes.

The desire to expand and compete on international markets is correlated to managerial attitudes,⁵⁷ saturation of a home market, or local rivalry and the pull through of international demand.⁵⁸ Additionally, there is an immense difference among nations when it comes to goals; nations tend to be successful in industries where goals are aligned with the sources of competitive advantage. Company's goals are defined by *'ownership structure, the motivation of owners and holders of debt, the nature of corporate governance, and the incentive processes that shape the motivation of senior managers'*⁵⁹ and supplemented by goals and motivations of individuals⁶⁰. Porter further includes national prestige and sustained commitment. The empirical research has shown that domestic rivalry with one or two 'national champions' essentially relates to the creation and persistence of competitive advantage in an industry. Not only it contributes to innovation, but it also stimulates new business formation, as there might be established new businesses as the result of internal diversification, or frustrated employees may set up new firms, in which there implement creative ideas.⁶¹

⁵³ *Ibid.* p. 107.

⁵⁴ *Ibid.* p. 108.

⁵⁵ *Ibid.* pp. 108-109.

⁵⁶ *Ibid.* p. 109.

⁵⁷ Including work experience abroad, language skills and attitude toward learning new languages.

⁵⁸ *Ibid.* p. 109.

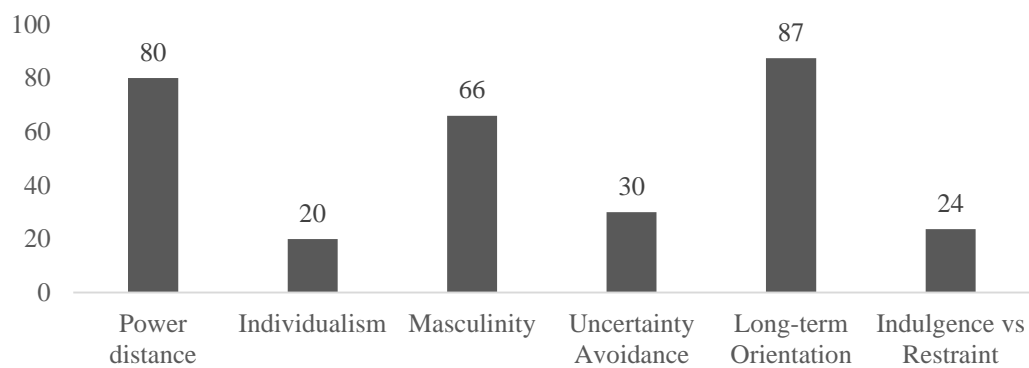
⁵⁹ *Ibid.* p. 110.

⁶⁰ Reward systems, attitude toward wealth and risk, relationship between managers and employees.

⁶¹ *Ibid.* pp. 117, 118, 123.

Traditional Chinese culture is based on the dynamic cosmologic principle of *dao* 道⁶² and interconnectivity and conditionality of all things that arise and vanish in the combat of two opposite powers of *yinyang* 阴阳.⁶³ The strict social hierarchy founded by Confucius 孔夫子 theory of five relationships with collectivism determines the structure and decision-making procedure of Chinese companies, where a CEO plays the role of a father to employees. According to Geert Hofstede's dimensions of national value systems, China is a country with large power distance, low level of individualism, masculine values, high uncertainty avoidance, long-term orientation and tendency to restraint rather than indulgence.⁶⁴ Moreover, a proper *guanxi* 关系 network including local and central authorities can set a company on a road to success. Rivalry in China differs greatly from that in the West, a competitor commonly overtakes a rival by a trick or deceiving, as direct fight is traditionally considered inferior and humiliating.⁶⁵ After the so-called 'century of humiliation'⁶⁶ China has stressed nationalism and supported establishment of national champions, usually SOEs or private companies under hidden state control.

Figure 4. China's National Value Dimensions



Source: Hofstede, G. *Dimension Data Matrix* [online]. 2010. Available at: <http://www.geerthofstede.nl/dimension-data-matrix>.

⁶² Commonly translated as the way, path, route or method. *Dao* is a core paradigmatic element of Daoism, philosophy created by Laozi 老子.

⁶³ *Yinyang* 阴阳 consists of a female and male element, each of them includes a rudiment of the opposite one. These elements are constantly moving, contrasting, transforming into each other. Nothing can be absolutely perfect, because there are negative features in everything; Lehmanová, Zuzana. *Paradigma kultur*. Plzeň: Aleš Čeněk, 2010. ISBN 978-80-7380-297-4. p. 266.

⁶⁴ Hofstede, Geert. *Dimension Data Matrix* [online]. 2010. Available at: <http://www.geerthofstede.nl/dimension-data-matrix>.

⁶⁵ See Sunzi 孙子 strategems.

⁶⁶ I.e. the period of time from the Opium Wars until the end of the Second World War when China was under the influence of western powers and Japan.

Porter states that countries are most likely to become successful in industries where the diamond is the most favourable. The determinants are usually interconnected and a change in one of them influences the state of others. In natural resource-dependent countries or industries requiring a low sophisticated technology or skills, competitive advantage based on only one or two determinants is possible, although it is typically unsustainable. On the other hand, the knowledge-intensive industries demand advantages throughout the diamond to be competitive and successful.⁶⁷

Porter's model has raised a broad discussion that has led to development of complementary theories, such as Dunning's diamond extension, which stresses the role of transnational business activities, defined by foreign direct inward and outward investment, which has an impact on resource allocation and usage;⁶⁸ or Moon, Rugman & Verbeke's model that incorporates both domestically owned and foreign owned firms, and multinational activity relates to value added creation, they thus double the diamond.⁶⁹ The complex analysis of competitiveness faces critique actually for its complexity that loosens its accuracy when measuring and comparing competitive advantage of countries. There has yet been another branch of research methodology that stresses purely measurable narrow factors, such as labour costs or labour productivity. Porter has been also criticised for choosing just developed countries, so that the theory may not be relevant for less developed countries or transition economies.

1.3 Human Capital

Human capital plays an unparalleled role in every economy. It is a driver for economic growth and it crucially enhances competitive advantage of a country. Human capital keeps its very special role within the concept of competitiveness, as it does not only account for present competitiveness but also for future competitive advantage of a country. When institutions are well established and human capital is properly cultivated, it can even overcome lack of other factors. Peter Drucker argued: '*Changes in society have a deeper impact on companies today than changes in management.*'⁷⁰

⁶⁷ *Ibid.* pp. 72-73.

⁶⁸ Dunning, John H. The Competitive Advantage of Countries and the Activities of Transnational Corporations. *Transnational Corporations*, Vol. 1, No. 1, February 1992, pp. 135-168. ISSN 1014-9562. pp. 165-166.

⁶⁹ Cho, D. & Moon H. *op. cit.* p. 111.

⁷⁰ Garelli, Stephane. *Top Class Competitors: How Nations, Firms and Individuals Succeed in the New World of Competitiveness*. Chichester: John Wiley & Sons Ltd., 2006. ISBN 9780470032800. p. 89.

The modern theory of human capital⁷¹ was pioneered by Theodore W. Schultz in the 1960s. In his article 'Investment in Human Capital,' Schultz introduced human capital as useful skills and knowledge people acquire. He considered investment in human capital to be the major explanation for the difference in the size of output and conventional capital invested, although it has longer return yield. He stressed the importance of *quality* of human effort that is created both by consumption, e.g. improving skills and knowledge in leisure, and (self-)investment, e.g. education or training. Gained knowledge and skills of economic value '*are in great part the product of investment and, combined with other human investment, predominantly account for the productive superiority of the technically advanced countries.*'⁷² Schultz argued that numerous puzzles on economic growth can be explained when human investment is taken into account. Human capital includes various investments ranging from (1) health facilities and services, (2) on-the-job training, (3) formal education, (4) study programs for adults, to (5) migration for better job opportunities.⁷³ In terms of importance, Gary S. Becker considered education and training to be of greatest influence on constituting human capital.⁷⁴ Moreover, formal education presents the most available and easily comparable data, thesis thus focuses mainly yet not exclusively on this area of human capital in the research part.

Even when discoursing economic theories, Bidisha Chakraborty came to the same conclusion as Schultz. Economic theory has introduced the concepts of exogenous and later endogenous growth. The exogenous growth theory presumes that '*the steady state growth equilibrium, of the economy is defined as a state where its aggregate capital labour ratio is time independent.*' On the other hand, the endogenous growth theory claims that growth can be achieved by technological progress, especially generated by research & development sectors. Technological progress can be equalised to the accumulation of human capital that is generated by '*the individual's utility maximizing allocation of resources between the production sector and the education sector.*'⁷⁵

Michael Porter has not used the term of human capital within the determinant of *factor conditions* but human resources and knowledge resources, defining them as: '*the quality, skills,*

⁷¹ People and their labour has been long discussed by economists, e.g. Adam Smith, John Stuart Mill, however, the discourse on human beings as capital goods has been avoided for moral and ethical reasons. (Schultz, T. W. op. cit. p. 2.)

⁷² Schultz, T. W. op. cit. p. 3.

⁷³ *Ibid.* pp. 1-9.

⁷⁴ Becker, Gary S. *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education*. Chicago: The University of Chicago Press, Third Edition, 1993. ISBN 0-226-04120-4. p. 17.

⁷⁵ Chakraborty, Bidisha. *Human Capital and Economic Growth: Theory and Policy*. Saarbrücken: VDM Verlag Dr. Müller, 2010 ISBN 978-3-639-26848-5. pp. 2-3.

and cost of personnel (including management), taking into account standard working hours and work ethic. '... the nation's stock of scientific, technical, and market knowledge bearing on goods and services.'⁷⁶ Nevertheless, these definitions do not precisely explain the concept. Therefore for the purpose of the research Lin & Edvinsson's exhaustive definition is chosen as more appropriate: *'Human capital includes knowledge, wisdom, expertise, intuition, and the ability of individuals to realize tasks and goals. The focal area also includes the values encompassed within the culture and philosophy of the nation. Human capital constitutes a population's total capabilities as reflected in education, knowledge, health, experience, motivation, intuition, entrepreneurship and expertise; in addition, a highly skilled labor force, the availability of scientists and engineers, a female labor force, and health (life expectancy, physicians) are also good indicators. These elements represent key success factors in creating a competitive edge for a nation in the present and the future.'*⁷⁷

Veselý points out that human capital consists of *knowledge* that is in general transferable among individuals, and *abilities* that are specific just for certain people and are not easily transferable. He further stresses that compared to other forms of capital, it is necessary to invest in human capital from early age. The idea of the concept follows a simple scheme: *education + other sociocultural factors + specific abilities of an individual → better skills and abilities → better income*,⁷⁸ which is consistent with Becker's empirical study on human capital investment's correlation to earnings.⁷⁹

Some scholars argue that the effect of additional education on income might be overstated, because the models usually consider other variables equal – they are in fact very unlikely to be equal, e.g. people who are more intelligent, who have more discipline, and who are highly motivated are more likely to go to university.⁸⁰

As human capital is a broad concept with vast uneasily researchable variables, on the one hand, common macroeconomic research methods use education, health and wellness, workforce and employment, enabling environment as proxies,⁸¹ on the other hand microeconomists and

⁷⁶ Porter, M. *op. cit.* pp 74-75.

⁷⁷ Lin, Carol Yeh-Yun & Edvinsson, Leif. *National Intellectual Capital: A Comparison of 40 Countries*. New York: Springer, 2011. ISBN 978-1-4419-7376-4. p. 4.

⁷⁸ Veselý, Arnošt. *Teorie mnohačetných forem kapitálů. Veřejná politika a prognostika PPF – 014*, FSV UK, 2006. p. 11.

⁷⁹ Becker, G. S. *op. cit.* p. 53.

⁸⁰ McConnell, Campbell. R. & Brue, Stanley L. & Macpherson, David A. *Contemporary Labor Economics*. Sixth Edition. New York: McGraw-Hill Irwin, 2003. ISBN 978-0-07-242446-1. p. 118.

⁸¹ The World Economic Forum. *The Human Capital Report*. Geneva: 2013. ISBN 978-92-95044-52-5. p. 4.

business researchers focus on unit costs of labour or returns of investment in education/trainings. In this research, the main focus is targeted on the role of government and institutions in factor cultivation, access to education, level and quality of education, and development of skills relevant for qualified work.

2. China's Diamond

*'China is a sleeping giant. Let her sleep, for when she wakes she will move the world.'*⁸²

Napoleon Bonaparte, Emperor of France

The second chapter examines China's competitiveness in the 21st century according to previously introduced Michael Porter's diamond. Each subchapter provides an analysis of development and trends in the external factors, *government* and *chance*, and the determinants of national competitive advantage, *factor conditions*, *demand conditions*, *related and supporting industries*, and *firm strategy, structure, rivalry*. The analysis is supplemented by case studies on the *next generation IT technology*, one of the seven strategic industries in the Twelfth Five-Year Plan.

2.1 External Factors

The Communist Party of China has been leading China since 1949. It has not faced any significant threats⁸³ in the 21st century. The *government* thus has been stable although not popular,⁸⁴ and no unexpected takeovers have happened. The century began under the leadership⁸⁵ of Jiang Zemin 江泽民 and Zhu Rongji 朱镕基 (1998 – 2003), and the overall direction of the economy was captured in the Tenth Five-Year Plan (2001 – 2005). In general, the Plan has promoted economic growth, urbanisation, infrastructure development, investment in research and development (1.5% of GDP), sci-tech innovation, IT, and strengthening of China's international competitiveness.⁸⁶ At the beginning of the 21st century, China began to shift its focus also on western and central regions, introducing large incentive programs to attract investment and equalise wealth with the east. Narrowing disparities (between regions, rural and urban areas, minorities and Han) has become an integral part of China's policies.

⁸² Goodreads. *Napoleon Bonaparte: Quotes* [online]. 2015. Available at: <http://www.goodreads.com/quotes/875112-china-is-a-sleeping-giant-let-her-sleep-for-when>.

⁸³ There have been political uprisings and protests in Tibet and Xinjiang that have had marginal impact on the government. Otherwise, people would rather protest against environmental issues, legal rights, etc.

⁸⁴ The Party has been challenged by '*widespread alienation and cynicism in society about politics in general and the Party's leadership in particular*.' (Shambaugh, David. *Remainig Relevant: The Challenges for the Party in Late-Leninist China*. In: Finkelstein, David Michael & Kivlehan, Maryanne (eds.). *China's Leadership in the 21st Century: The Rise of the Fourth Generation*. New York: M. E. Sharpe, 2003. ISBN 0-7656-1115-5. p. 271.)

⁸⁵ For the purpose of the thesis, the leadership will be always presented by two leading men of China, a president and a prime minister.

⁸⁶ China.org.cn. *The 10th Five-Year Plan (2001-2005)* [online]. 2001. Available at: <http://www.china.org.cn/english/MATERIAL/157629.htm>.

The information & communication industry (ICT) has been marked as a pillar industry in the national economy in the Tenth Five-Year Plan: *'The Information industry, serves as the basic, pioneering, supporting and strategic industry of the national economy, and has an increasingly important role in promoting the domestic economy, national safety, the welfare of citizens and social development.'*⁸⁷ The Chinese government has since then widely supported development of ICT infrastructure and ICT-oriented R&D in order to keep up with the global trend of informatisation, to satisfy growing global demand for IT products and services, and to create new opportunities.⁸⁸ There have been many industry-specific policies developed by the government, including 'Circular on policies for the development of software and IC industries',⁸⁹ which contains wide range of themes – investment, financing, taxation, industrial technology, export, government procurement, etc.⁹⁰

Chinese business environment was crucially influenced by the establishment of normal trade relations with the USA in 2000, and the entry to the World Trade Organization (WTO) in 2001.⁹¹ China has had to comply with international trading rules; dramatically loosen trade barriers (over 7,000 tariffs, quotas and others in ten years after the entry, i.e. in 2011⁹²), permit foreign companies to sell directly in the Chinese domestic market, open the telecommunication and finance, and in general, foster transparency and legal assurance in business.⁹³ The fierce competition with foreign companies has pushed Chinese firms, especially SOEs and former state monopolies, to grow productivity and improve products. The accession to the WTO has changed structure of enterprises; the number of non-state and foreign firms has dynamically grown, and the share of SOEs on the market has decreased (see figure 5). The manufacturing

⁸⁷ United Nations Public Information Network. *China Summary of the Tenth Five-Year Plan (2001-2005) – Information Industry* [online]. 2001. Available at: <http://unpan1.un.org/intradoc/groups/public/documents/apcity/unpan022769.pdf>. p. 5.

⁸⁸ *Ibid.* pp. 5-6, 13-14.

⁸⁹ It was renewed in 2011 as 'Circular on the issuance of further encouraging the development of software and IC industry'.

⁹⁰ Atkinson, Robert D. ICT Innovation Policy in China: A Review [online]. *The Information Technology & Innovation Foundation*. July 2014. Available at: <http://www2.itif.org/2014-china-ict.pdf>. p. 2.

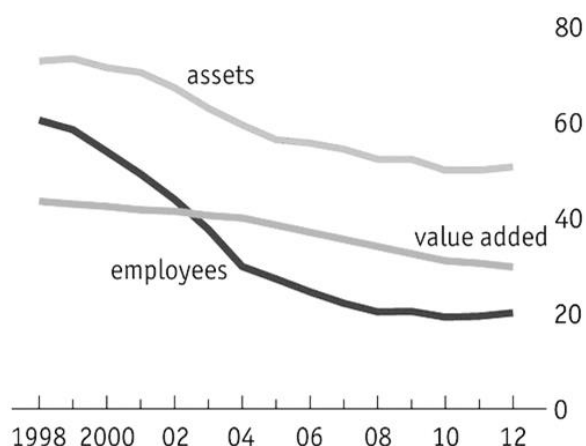
⁹¹ China already applied to the WTO already in 1986, the procedure of accession was very complicated and full of tough negotiations. When discoursing the reason why China finally entered the WTO in 2001, Wang came to the conclusion that *'the nature and transformation of bureaucratic politics has played a very important role'* and that China has strived for *'the path toward market-oriented reform.'* (Wang, Yong. China's Stakes in WTO Accession: The Internal Decision-making Process. pp. 20-40. In: Ash, Robert & Holbig, Heike. *China's Accession to the World Trade Organization*. London: RoutledgeCurzon, 2002. ISBN 0-700-71661-0. p. 39.)

⁹² The Economist. *China's economy and the WTO: All change* [online]. 10 December 2011. Available at: <http://www.economist.com/node/21541448>.

⁹³ Chow, Gregory C. The Impact of Joining WTO on China's Economic, Legal and Political Institutions [online]. *International Conference on Greater China and the WTO, 22.-24 March 2001, the City University of Hong Kong*. Available at: <http://www.princeton.edu/~gchow/WTO.pdf>. p. 3.

sector of China has become more competitive, contributing to 40% of China's GDP growth and more than 50% of government revenues just one year after the accession.⁹⁴

Figure 5. Chinese State-owned Enterprises' % Share of Assets, Value Added, and Employees



Source: The Economist. *Changing the Economy: The long weekend* [online]. 2 November 2013. Available at: <http://www.economist.com/news/china/21588899-chinas-leaders-will-soon-reveal-their-ambitions-economic-reform-long-weekend>.

Nevertheless, the special China's economic system must be reflected: '*China's economy has evolved faster than anyone hoped. But its economic philosophy has not. Long Yongtu, who helped China win admission to the WTO, recently said that China is now moving further away from the organisation's principles. To modernise its economy, it has remained wedded to industrial policies, state-owned enterprises, and a 'techno-nationalism' that protects and promotes home-grown technologies.*' Foreign companies have thus remained discriminated against since they have not really been competing with Chinese companies but the Chinese state, which owned more than 100,000 companies in 2011 and implicitly favours many more.⁹⁵

The second tandem of Hu Jintao 胡锦涛 and Wen Jiabao 温家宝 (2003 – 2013) have changed the direction of Chinese growth toward building up a *harmonious society*, using soft terminology of *peaceful development*. The constitution of China was amended in 2004 by enhancing individual rights and property rights: '*The State may, in the public interest and in*

⁹⁴ Chen, Aimin. China One Year After Its WTO Entry. pp. 17-32. In: Bao, Shuming, Lin, Shuanglin & Zhao, Changwen. *The Chinese Economy after WTO Accession*. Burlington: Ashgate Publishing Limited, 2006. ISBN 978-0-75464482-8. pp. 20-22.

⁹⁵ The Economist. *China's economy and the WTO: All change*.

accordance with law, expropriate or requisition land for its use and make compensation for the land expropriated or requisitioned. '... *'Citizens' lawful private property is inviolable.*'⁹⁶ Beside the above mentioned shift toward common prosperity and harmony, the Eleventh Five-Year Plan (2006 – 2010) has adopted the concept of the *scientific approach to development*. It has set up a goal rather to strengthen China's industry than to scale. The Plan has further focused on deepening reform and opening up, and improving environment (energy-saving, environmental protection). Science, innovation and education have been pointed out as crucial for future development.⁹⁷

The Twelfth Five-Year Plan (2011 – 2015) has stressed the quality of growth⁹⁸ and fostered domestic demand in order to invigorate domestic consumption, while other topics have remained similar, aiming at greater market orientation and growing national competitiveness. The Plan has introduced seven key strategic industries that have been supported by the state, consistent with the strategy of moving-up the value chain:

1. *'New energy: Nuclear, wind and solar power*
2. *Energy conservation and environmental protection: Energy reduction targets*
3. *Biotechnology: Drugs and medical devices*
4. *New materials: Rare earths and high-end semiconductors*
5. *New IT: Broadband networks, internet security infrastructure, network convergence*
6. *High-end equipment manufacturing: Aerospace and telecom equipment*
7. *Clean energy vehicles.*⁹⁹

The current leadership of Xi Jinping 习近平 and Li Keqiang 李克强 (from 2013) has emphasised the importance of the rule of law, and has driven anti-graft campaign against 'flies and tigers.'¹⁰⁰ If their effort were successful, China could become more transparent and provide equal business rules for everyone. The Third Plenum of the 18th Central Committee in 2013 announced the direction toward 'comprehensively deepening reform,' so that market would play a decisive

⁹⁶ The National People's Congress of the People's Republic of China. *Constitution: Amendment to the Constitution of the People's Republic of China* [online]. 14 March 2004. Available at: http://www.npc.gov.cn/englishnpc/Constitution/node_2826.htm.

⁹⁷ China.org.cn. *Key Points of the 11th Five-Year Guidelines* [online]. 2006. Available at: <http://www.china.org.cn/english/2006lh/160403.htm>.

⁹⁸ From an extensive economic model toward an intensive economic system.

⁹⁹ KPMG China. *China's 12th Five-Year Plan: Overview* [online]. March 2011. Available at: www.kpmg.com/CN/en/IssuesAndInsights/ArticlesPublications/Publicationseries/5-years-plan/Documents/China-12th-Five-Year-Plan-Overview-201104.pdf.

¹⁰⁰ Anticorruption campaigns have been quite common in China, however, this one has been unusually broad and sustained, even targeting top former Party officials or executives of SOEs.

role in resource allocation, modern financial system would be established, judicial system would better protect the rights and interests of people, and urban-rural relations would be reshaped.¹⁰¹ There have been cuts in required reserve ratios, tax relief for small and medium enterprises (SMEs), fiscal and infrastructure expansion.¹⁰² Upcoming reforms would probably follow successful experiments of the Shanghai Pilot Free Trade Zone 上海自由贸易试验区, such as negative listing of foreign direct investment, easier custom clearance or smoother access to credit.

Overall, the direction of governmental policies has seemed pro-reform and pro-market, and leaned toward improving China's business environment. According to the Doing Business Report (2003 – 2015) by the World Bank, the business environment of China has improved, standing approximately in the middle among the observed countries in 90th place in 2015. However, starting a business still includes 11 procedures and takes more than 31 days, and it is getting harder to get credit and the protection of minority investors worsens.¹⁰³ The Global Competitiveness Report (2004 – 2015) by the World Economic Forum elevates the consistency and cautiousness of the macroeconomic management of authorities, and the macroeconomic stability,¹⁰⁴ although institutional environment still needs to be improved, regulation reduced, property rights better protected, and the independence of the judiciary safeguarded. The World Economic Forum agrees on the inadequate financial market, which needs to be widely deregulated to enhance China's competitiveness. China achieved the 28th place in the pool of 144 countries in the report for 2014/2015.¹⁰⁵

China has faced both positive and negative *chance* events in the 21st century. The whole century has been marked by the rise of information and communication industry, so-called 'informatisation,' which has created new opportunities and rapid productivity growth.¹⁰⁶ The Internet and mobile telecommunication has become broadly available, easing the access to new market segments and remote areas. Even though the usage of the ICT has been limited to a

¹⁰¹ CCTV. *The Third Plenary Session of the 18th CPC Central Committee* [online]. 9-12 November 2013. Available at: <http://english.cntv.cn/special/18thpcsession/homepage/index.shtml>.

¹⁰² The International Monetary Fund. *People's Republic of China: 2014 Article IV Consultation—Staff Report; Press Release; and Statement by the Executive Director for the People's Republic of China*. July 2014. IMF Country Report No. 14/235. p. 5.

¹⁰³ The World Bank. *Doing Business*. 2015. Available at: <http://www.doingbusiness.org>.

¹⁰⁴ The cautious management leads to China's low inflation (except for 2008, 2010), high savings rate, and manageable levels of public debt.

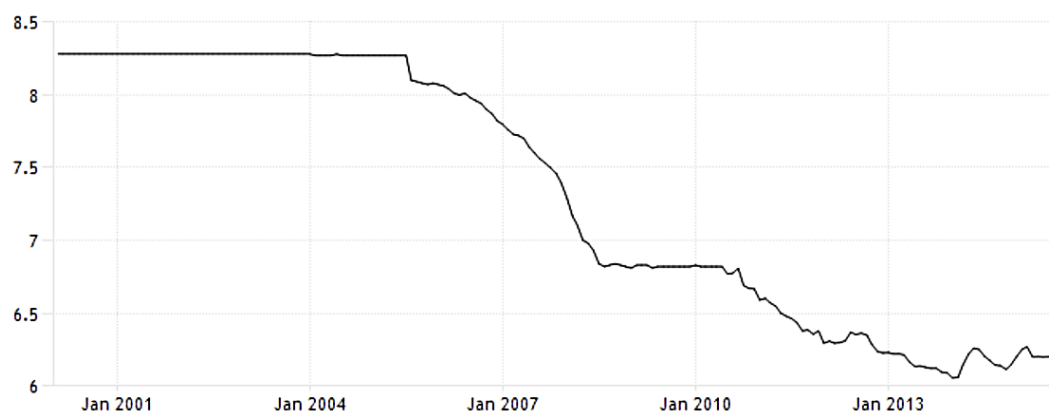
¹⁰⁵ The World Economic Forum. *The Global Competitiveness Report 2006-2015*. 2006-2014.

¹⁰⁶ See for example OECD. *ICT and Economic Growth: Evidence from OECD Countries, Industries and Firms*. 2003. ISBN 92-64-10128-4.

certain extent in China as there has been censorship.¹⁰⁷ Chinese industries can benefit from this fact since their foreign rivals may be blocked on the Internet in China.

The renminbi (RMB) has been appreciating over the observed period of time, which has brought new challenges to China's manufacturing industry that has taken advantage of the undervalued currency for quite many years. The International Monetary Fund eventually concluded that the renminbi is no long undervalued in the spring 2015 (see figure 6).¹⁰⁸

Figure 6. USDCNY Exchange Rate 2000 – 2015¹⁰⁹



Source: Trading Economics. *Chinese Yuan* [online]. 2015. Available at: <http://www.tradingeconomics.com/china/currency>.

Like the rest of the world also China has been influenced by the financial crisis that began in 2008. The crisis has immensely impacted the global demand and the global trade has greatly declined. Thanks to the isolation of China's financial market, toxic assets have not spread to China. Even though China has been affected by the slump in exports, it has managed to avoid a large economic downturn by a major fiscal stimulus, a credit expansion, and re-pegging the renminbi to U.S. dollar.¹¹⁰ China's industries have been challenged to refocus on new emerging

¹⁰⁷ Commonly known as the Great Firewall of China.

¹⁰⁸ Li, Fion. IMF Says Yuan No Longer Undervalued Amid Reserve-Status Push [online]. *Bloomberg*. 26 May 2015. Available at: <http://www.bloomberg.com/news/articles/2015-05-26/imf-says-yuan-is-no-longer-undervalued-amid-reserve-currency-bid>.

¹⁰⁹ Over-the-counter interbank.

¹¹⁰ The International Monetary Fund. *People's Republic of China: 2010 Article IV Consultation—Staff Report; Staff Statement; Public Information Notice on the Executive Board Discussion*. July 2010. IMF Country Report No. 10/238. p. 4.

potential purchase markets, e.g. Latin America or Africa, and to improve economic ties with its neighbours and regional partners.

There have been several regional tensions between China and Japan over Diaoyu 钓鱼岛/Senkaku Islands, China and Vietnam, and China and the Philippines in the South China Sea. All countries have called on boycotting their opponent's products. In Vietnam, Chinese factories have even been put on fire. However, there has not been a significant consequence for China's industry since China has learned how to diversify. The rivalry between China and the United States of America has rather been kept on the political level and has not interfered greatly to their economic relations.

The first hypothesis 'External factors, government and chance, have enhanced China's competitive advantage.' has been partially confirmed by governmental policies that have enhanced the power of market as the core determinant of rare resource allocation, supported the rule of law, and loosened regulation. However, Chinese financial market has stayed inappropriately underdeveloped, and the accessibility to credit has even worsened. Even China has been influenced by the plunge in western demand related to the financial crisis of 2008, followed by regional disputes and unfavourable RMB appreciation. On the other hand, China has created new business links to the developing world, and its own domestic demand has been supported.

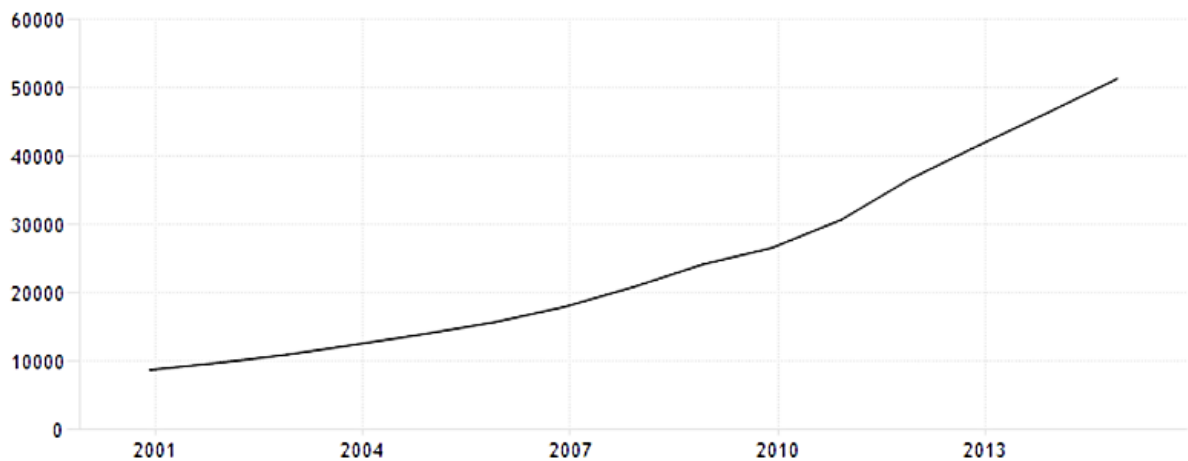
2.2 Factor Conditions

China has traditionally built its competitive advantage on extensive and low-cost labour, especially in manufacturing that has been widely available all over the country. Cheap labour relates to Porter's basic generalised factors, i.e. it does not create competitive advantage as large as advanced specialised factors would. Since 2000, average yearly wages have been soaring up to 51,369 RMB per annum in manufacturing industry (see figure 7), and China has been gradually losing its advantage to cheaper labour markets such as Thailand or Indonesia (see figure 8): *'the nation is losing its once-formidable comparative advantage as the world's lowest cost manufacturer, an important element of its initial spurt of economic growth.'*¹¹¹ The Boston Consulting Group even assumes that within five years *'rising Chinese wages, higher U.S. productivity, a weaker dollar, and other factors will virtually close the cost gap between the*

¹¹¹ Deloitte. *Competitiveness: Catching the next wave China* [online]. September 2014. Available at: <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/About-Deloitte/gx-china-competitiveness-report-web.pdf>. p. 1.

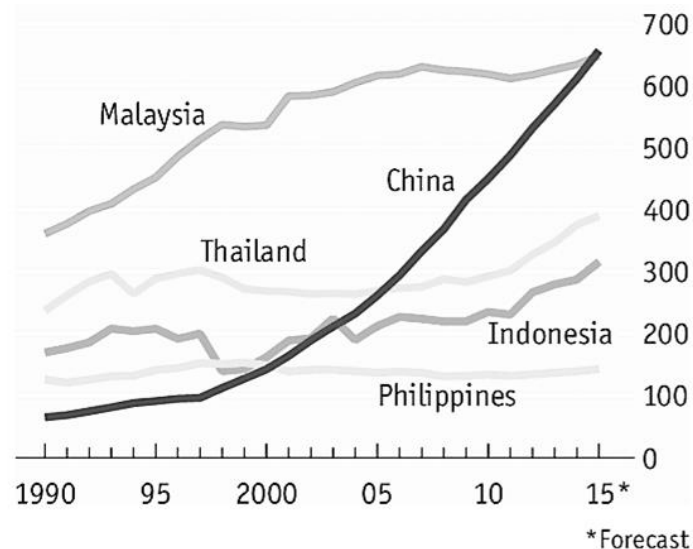
U.S. and China for many goods consumed in North America.’ (see figure 9).¹¹² Chinese industry should thus reshape toward knowledge utilisation, innovation, design, IT, software, and marketing,¹¹³ i.e. ‘next wave’ sectors.

Figure 7. China Average Yearly Wages in Manufacturing 2000 – 2015 (RMB/year)



Source: Trading Economics. *China Average Yearly Wages in Manufacturing* [online]. 2015. Available at: <http://www.tradingeconomics.com/china/wages-in-manufacturing>.

Figure 8. Average Monthly Wages in Manufacturing (2010 prices, USD)

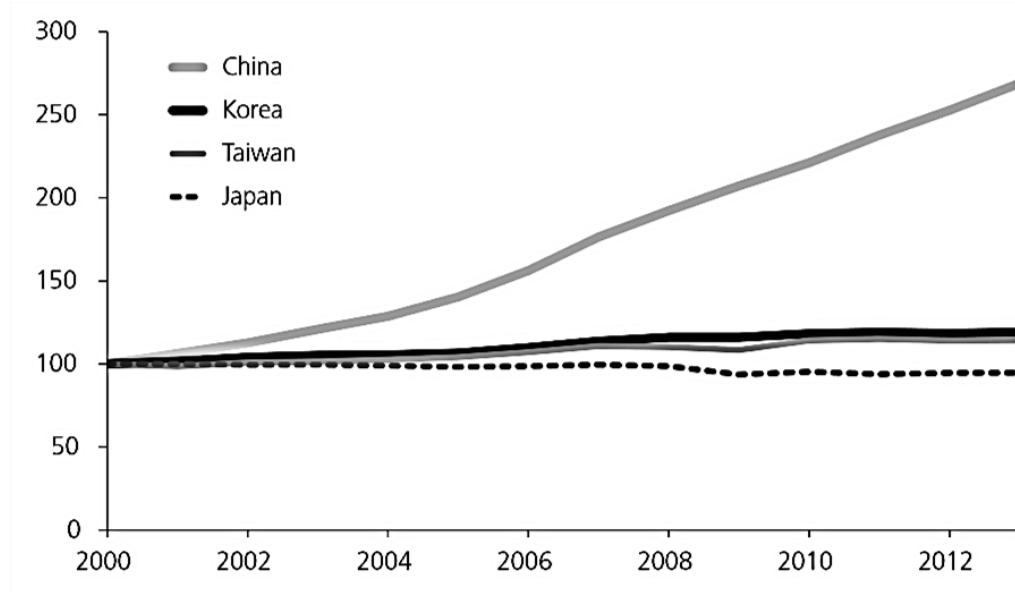


Source: The Economist. *The Future of Factory Asia: A Tightening Grip* [online]. 14 March 2015. Available at: <http://www.economist.com/news/briefing/21646180-rising-chinese-wages-will-only-strengthen-asias-hold-manufacturing-tightening-grip>.

¹¹² The Boston Consulting Group. *Made in America, Again. Why Manufacturing Will Return to the U.S.* [online]. August 2011. Available at: <https://www.bcg.com/documents/file84471.pdf>. p. 2.

¹¹³ Deloitte. *op. cit.* p. 1.

Figure 9. China Labour Productivity to the U.S. (2000 = 100)



Source: Deloitte. *Competitiveness: Catching the next wave China* [online]. September 2014. Available at: <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/About-Deloitte/gx-china-competitiveness-report-web.pdf>. pp. 5.

China has received an increasing¹¹⁴ amount of foreign direct investment inflow, which at the same time implies import of new technology (see figure 10).¹¹⁵ Domestic capital has remained limited yet more available than ever before, thanks to governmental policies aiming at financial market deregulation. The new dynamics on the Shanghai Stock Exchange (SSE) and the Shenzhen Stock Exchange (SZSE) can be seen in figure 11.¹¹⁶ The plunge on the Chinese stock markets in June 2015 caused by the bubble crash has created great concerns among shareholders and companies. Investors have invested extensively in stock shares using borrowed money while overrating the potential of the market and ignoring the real development in the market.

In terms of physical capital, there have been new high-potential natural resource reserves found, including natural gas and crude oil. Besides reserves located in the disputed areas of the East China Sea and the South China Sea, the CNOOC Limited discovered a mid-sized oil field Liuhua 20-2 in the Pearl River Mouth Basin in May 2015.¹¹⁷

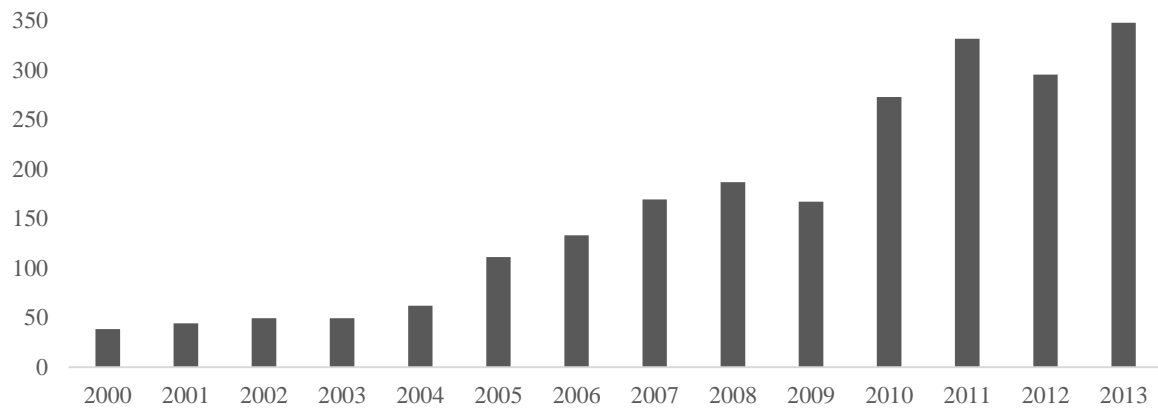
¹¹⁴ Except for 2009 and 2012.

¹¹⁵ Especially within obligatory joint ventures.

¹¹⁶ In 2005, there was a new policy in SOEs that aimed to improve corporate governance by transforming non-tradeable shares into tradeable.

¹¹⁷ CNOOC Limited. *A Mid-sized Liuhua 20-2 Made in Eastern South China Sea* [online]. 27 May 2015. Available at: http://www.cnoocld.com/art/2015/5/27/art_14041_1988751.html.

Figure 10. Foreign Direct Investment Inflows (current prices, billion USD)



Source: The World Bank. *World DataBank: World Development Indicators* [online]. 2015. Available at: <http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators>.

Figure 11. SSE and SZSE Composite Indices 2000 – 2015

SSE +188.38% SZSE +297.81%



Source: Google. *Finance: SSE Composite Index* [online]. 30 October 2015. Available at: <http://www.google.com/finance?cid=7521596>.

China's infrastructure has blossomed over the last 15 years. Just in Sichuan Province the total length of highways, navigable inland waterways and civic aviation routes increased from 91,000, 6,000, 230,000 km in 2000 to 293,000, 12,000, 488,000 km in 2012.¹¹⁸ There have been

¹¹⁸ Statistical Bureau of Sichuan (2001). *Sichuan Statistical Yearbook 2001* [online]. China Statistics Press, 2001. ISBN 7-5037-3516-3. Available at: <http://tongji.cnki.net/overseas/engnavi/YearBook.aspx?id=N2007080216&floor=1>; Statistical Bureau of Sichuan (2013). *Sichuan Statistical Yearbook 2013*. China Statistics Press, 2013. ISBN 978-7503769078.

many key projects such as the Qinghai-Tibet railway or the Three Gorge Dam built, and the regions of China have become more interconnected. Within the observed ICT, as stated in the previous subchapter, Chinese government supported development of the ICT infrastructure, making telecommunication and Internet network widely available via ‘national champions’ such as China Mobile or Huawei. China invested 4.3 trillion RMB in Internet infrastructure from 1997 to 2009. *‘By the end of 2009, Chinese basic telecom companies had 136 million broadband Internet access ports, and international outlet bandwidth was 866,367 Mbps, with seven land-submarine cables and 20 land cables, boasting a combined capacity of 1,600 Gb’...* *‘The infrastructure development ensured Internet access to 99.3 percent of towns and 91.5 percent of villages, and broadband to 96 percent of the towns.’*¹¹⁹ The concrete numbers of subscriptions are discussed in the following subchapter.

2.3 Demand Conditions

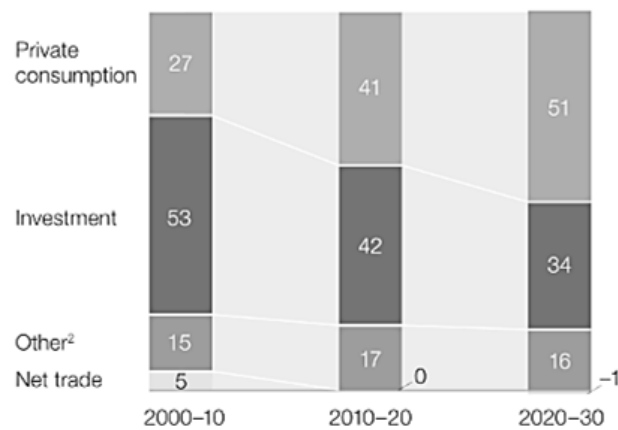
China has greatly benefited from its huge population that has enhanced size of the domestic market, which has been almost top ranked in the Global Competitiveness Report (2006 – 2014). The large market has provided many opportunities to explore and test business concepts. The power of domestic demand has been enhanced by both the recent reorientation to the consumption economy introduced by the government, and the immensely improved living standard of Chinese customers. However, it must be kept in mind that the positive trend in fighting poverty and wage growth has not been equally distributed within China, e.g. average annual income in Beijing was 93,006 RMB and in Henan Province 38,301 RMB in 2013.¹²⁰ McKinsey & Company estimates that private consumption will become the driver of China’s real GDP growth shortly (see figure 12).¹²¹

¹¹⁹ Xinhua. *China invests 4.3 trillion yuan in Internet infrastructure construction over past 13 years* [online]. 8 June 2010. Available at: http://news.xinhuanet.com/english2010/china/2010-06/08/c_13339080.htm.

¹²⁰ The Statistics Portal. *Average annual salary of an employee in urban China in 2013, by region (in yuan)* [online]. 2015. Available at: <http://www.statista.com/statistics/278350/average-annual-salary-of-an-employee-in-china-by-region/>.

¹²¹ McKinsey & Company. *What’s next for China?* [online]. January 2013. Available at: http://www.mckinsey.com/insights/asia-pacific/whats_next_for_china.

Figure 12. Real GDP Growth Decomposition 2000 – 2030



Source: McKinsey & Company. *What's next for China?* [online]. January 2013. Available at: http://www.mckinsey.com/insights/asia-pacific/whats_next_for_china.

Private demand in China has been formed by entities with various features. Not only Chinese consumers have differed in ethnic origins but there have been plenty of segments determined by income levels, city tiers, regions, age,¹²² or household registration. That has provided a great chance for diverse marketing strategies – mass production of low-cost products, exclusive niche products for luxury segment,¹²³ etc. There have recently been new topics in Chinese customer behaviour, Chinese have become more aware of product quality and safety, as there have been many cases of low-quality dangerous products and toxic food, e.g. milk powder case in 2008 that impacted up to 300,000 people. When it comes to the country similarity, low-income customer behaviour resembles the one of developing countries, e.g. India or African countries. The higher income-group behaviour has been most similar to Korea, Japan and Vietnam, which have the same cultural roots and the societies have all been very status oriented. The new trend of the quality importance has been alike of Europe.

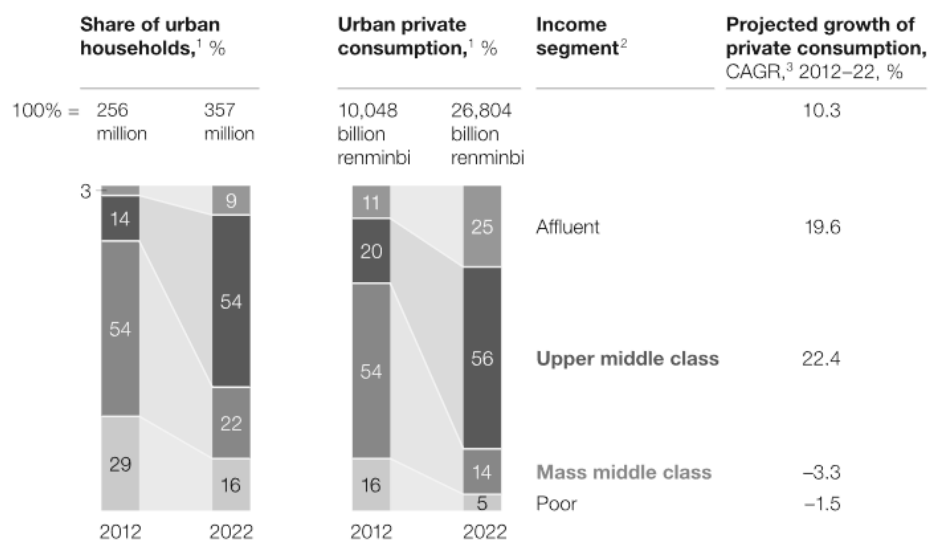
In the 21st century, China's emerging middle class has been widely discussed as a trigger of China's consumption, compared to the relatively small niche group of well-off urban customers who stood as the attractive target in the previous decades. In 2006, McKinsey & Company's analysts stated: *'During the next 20 years we expect a huge middle class, with enormous spending power, to emerge in China's cities, following two distinctive waves of growth.'* (see

¹²² As the demographic structure of Chinese population has been quickly changing toward larger share of people in post productive age, there have emerged a new segment that has not been fully covered yet.

¹²³ Luxury segment has remained challenging for Chinese companies, as western products are in general considered to be luxury. Therefore Chinese companies commonly use foreign brand names.

figure 13).¹²⁴ Chinese middle class has been characterised by annual income from 60,000 to 229,000 RMB,¹²⁵ urban hukou, tendency to spend more and save less money than previous generations, and willingness to take loans.¹²⁶ The middle class was enlarged by 203 million people in China from 2001 to 2011,¹²⁷ and further growth is expected. The core of the middle class has been lying on the wealthy east coast, tier 1 & 2 cities,¹²⁸ nevertheless, the inland's share and the share of lower-tier cities have been rising (see figures 14, 15).¹²⁹

Figure 13. Consumption Segment Prospects 2012, 2022



¹Figures may not sum to 100%, because of rounding; data for 2022 are projected.

²Defined by annual disposable income per urban household, in 2010 real terms; affluent, >229,000 renminbi (equivalent to >\$34,000); upper middle class, 106,000 to 229,000 renminbi (equivalent to \$16,000 to \$34,000); mass middle class, 60,000 to 106,000 renminbi (equivalent to \$9,000 to \$16,000); poor, <60,000 renminbi (equivalent to <\$9,000).

³Compound annual growth rate.

Source: McKinsey & Company. *The McKinsey Quarterly: Mapping China's middle class* [online]. June 2013. Available at: http://www.mckinsey.com/insights/consumer_and_retail/mapping_chinas_middle_class.

¹²⁴ McKinsey & Company. *The McKinsey Quarterly: The value of China's emerging middle class* [online]. 2006. Available at: <http://www.andrewleunginternationalconsultants.com/files/mckinsey-quarterly---the-value-of-chinas-emerging-middle-class.pdf>. pp. 60-61.

¹²⁵ McKinsey & Company. *The McKinsey Quarterly: Mapping China's middle class* [online]. June 2013. Available at: http://www.mckinsey.com/insights/consumer_and_retail/mapping_chinas_middle_class.

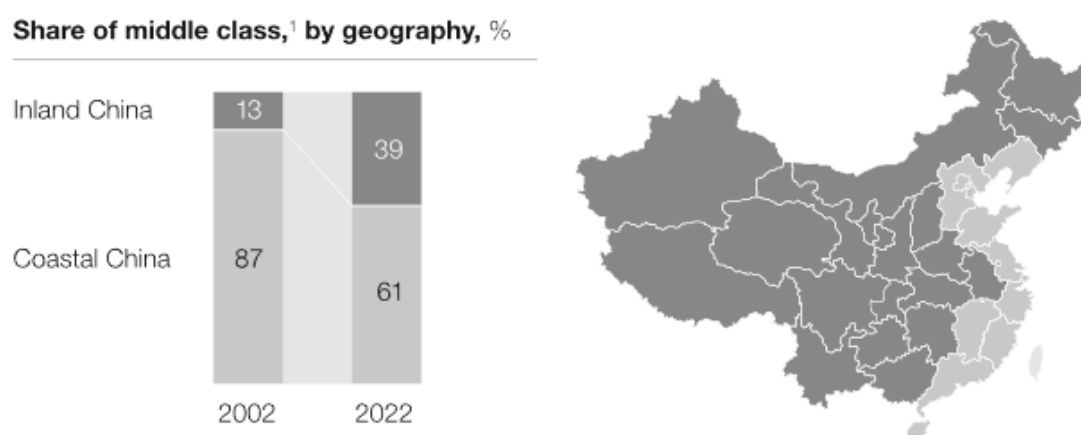
¹²⁶ This kind of consumer behaviour mainly relates to the so-called second generation of middle class.

¹²⁷ Pew Research Center. *A Global Middle Class Is More Promise than Reality* [online]. 8 July 2015. Available at: http://www.pewglobal.org/files/2015/07/Global-Middle-Class-Report_FINAL_7-8-15.pdf. p. 18.

¹²⁸ China's cities has been categorised in 5 tiers. 1st tier cities include largest and wealthiest cities such as Beijing, Shanghai, or Shenzhen. 2nd tier comprises provincial capital cities, e.g. Fuzhou, Chengdu. 3rd tier represents a large group of county level cities, for example Xiamen. 4th and 5th tier cities stand for various smaller towns across China.

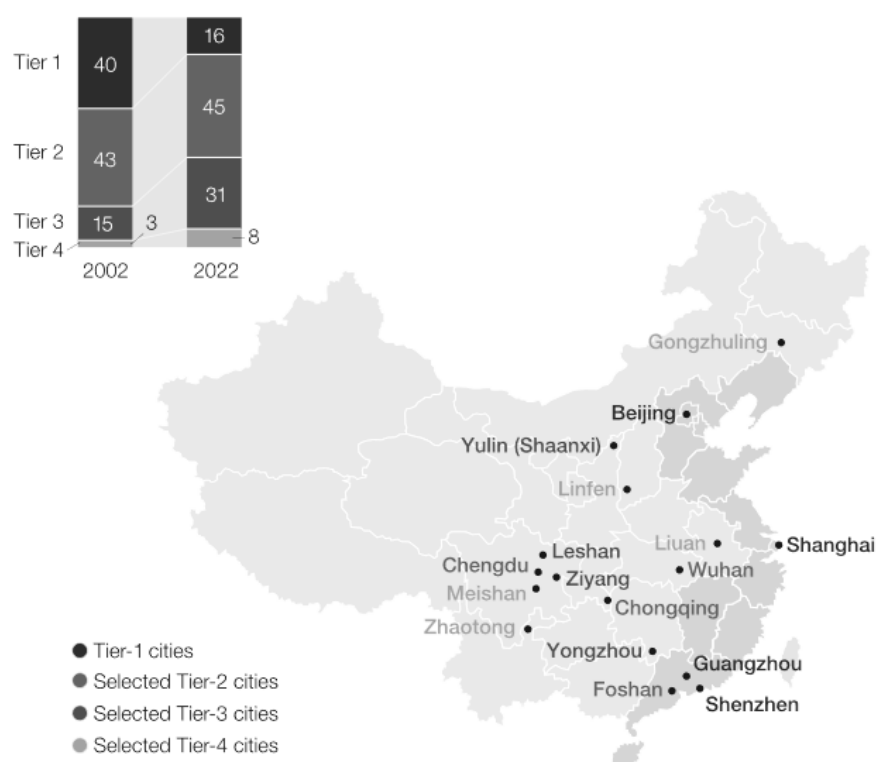
¹²⁹ McKinsey & Company. *The McKinsey Quarterly: Mapping China's middle class*. June 2013.

Figure 14. Geographic Distribution of China's Middle Class



Source: *Ibid.*

Figure 15. Municipal Distribution of China's Middle Class



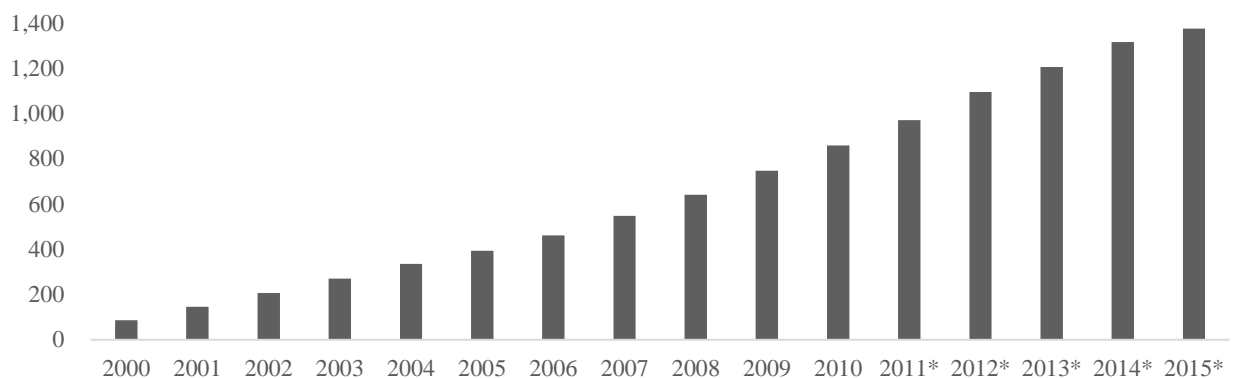
Source: *Ibid.*

Following positive trends in the ICT infrastructure development, the number of mobile subscriptions dynamically grew from 85 million in 2000 to 1.375 billion in 2015, i.e. almost

full penetration.¹³⁰ The share of mobile users that use a smartphone in China increased from 24% in 2011 to 45% in 2015.¹³¹ The Internet penetration rose from 1.8 per 100 people in 2000 to 49.8 per 100 people in 2014.¹³² In terms of the total number of Internet users, the number increased from less than 23 million in 2000 to almost 642 million in 2014.¹³³ The Boston Consulting Group even calls it a digital revolution: *'In a few short years, China has gone from being a minor player in the Internet era to a full-fledged participant, and now it is actually a front-runner. Internet and mobile-phone use, in particular, has skyrocketed.'*¹³⁴

Chinese customers have required websites to be adjusted to Chinese versions with characteristics such as many colours (red and yellow are important to signify money and wealth, which are extremely important in nowadays Chinese culture), aspirational pictures and mottos, and a common navigation tool bar. This fact prevents foreign companies from simply using their universal global website in China and gives Chinese companies an advantage. Compared to western customers, Chinese have not been worried about their personal data security very much, and have been willing to take more 'risks' concerning online/mobile payment.

Figure 16. Number of Mobile Subscriptions in China (million)



Source: The Statistics Portal. *Number of mobile subscriptions in China from 2000 to 2015 (in millions)* [online]. 2015. Available at: <http://www.statista.com/statistics/235454/number-of-mobile-subscriptions-in-china-since-2000/>.

¹³⁰ The Statistics Portal. *Number of mobile subscriptions in China from 2000 to 2015 (in millions)* [online]. 2015. Available at: <http://www.statista.com/statistics/235454/number-of-mobile-subscriptions-in-china-since-2000/>.

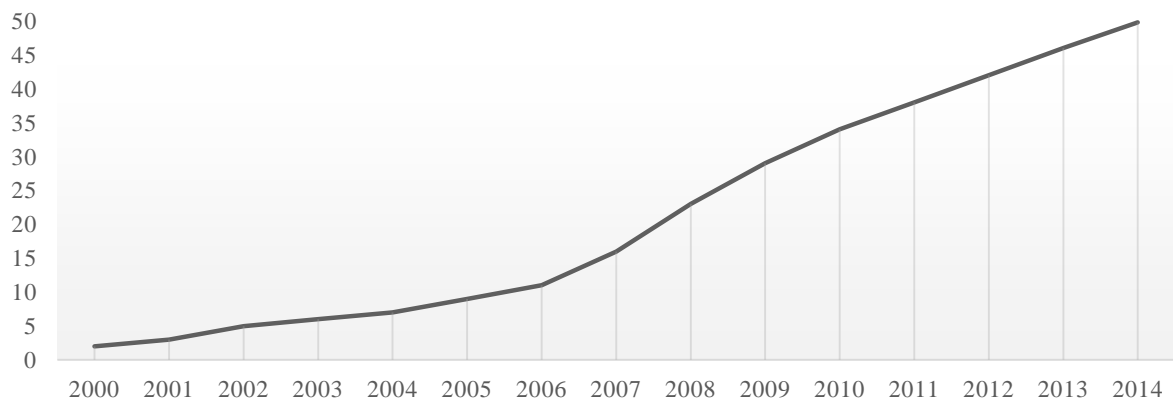
¹³¹ The Statistics Portal. *Share of mobile users that use a smartphone in China from 2010 to 2017* [online]. 2015. Available at: <http://www.statista.com/statistics/257045/smartphone-user-penetration-in-china/>.

¹³² The World Bank. *World DataBank*. 2015. Available at: <http://databank.worldbank.org>.

¹³³ InternetLiveStats. *China Internet Users* [online]. 2015. Available at: <http://www.internetlivestats.com/internet-users/china>.

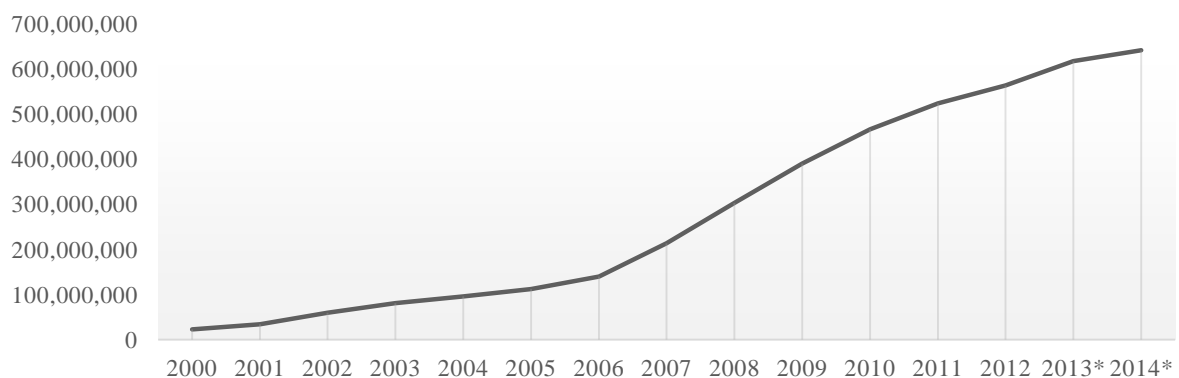
¹³⁴ The Boston Consulting Group. *China's Digital Generations: The 570-Million-Hour Opportunity* [online]. July 2008. Available at: <http://www.bcg.at/documents/file15296.pdf>. p. 6.

Figure 17. Number of Internet Users per 100 People in China



Source: The World Bank. *World DataBank* [online]. 2015. Available at: <http://databank.worldbank.org>.

Figure 18. Total Number of Internet Users in China



Source: InternetLiveStats. *China Internet Users* [online]. 2015. Available at: <http://www.internetlivestats.com/internet-users/china>.

Increasing ICT penetration together with Chinese curiosity and positive attitude toward new technologies, have led to rocketing usage of e-commerce and m-commerce platforms. The number of e-commerce rose to 140 million in 2010, and is expected to reach 520 million in 2015, i.e. two thirds of total user base.¹³⁵ M-commerce segment has grown in even faster rate, 490% in 2012, and is predicted to overtake e-commerce by 2018.¹³⁶

¹³⁵ Marketing China. *E-Commerce in China* [online]. 25 March 2013. Available at: <http://marketingtochina.com/e-commerce-china/>.

¹³⁶ iResearch. *China Mobile Shopping GMV Surges 239.3%* [online]. 11 March 2015. Available at: <http://www.iresearchchina.com/views/6285.html>.

2.4 Related and Supporting Industries

In present China, there have been related and supported industries integrated within business groups that have both historical and keiretsu-inspired origins. Chinese business groups have been state-owned and non-state-owned; it can be very difficult to recognise which ones are really non-state-owned as the state and the private sector has remained quite interconnected, e.g. Huawei. In the 21st century, China's state-owned business groups have become controlled by the State-owned Assets Supervision and Administration Commission of State Council (SASAC). The SASAC has been the only shareholder of 111 large state-owned enterprises/business groups, such as China National Petroleum Corporation, Sinopec or China Telecom.¹³⁷

State-owned business groups have been less diversified than is usual in other countries, and often affiliated completely unrelated industries, e.g. hospitals, restaurants or kindergartens. The reason behind is that in the past, *'Chinese planners viewed state-owned factories as both production and social welfare units.'*¹³⁸ The state-owned business groups have held a huge concentration of power and may easily acquire others.

Non-state-owned business groups have been established on entrepreneurial spirit and guanxi-based mindset. They have commonly started with a core product, later diversified their portfolio and created business groups. Nevertheless, business groups have entered just a handful industries such as real estate, ICT, and biotechnology.¹³⁹ To the most successful private business groups undoubtedly relate Alibaba Group, Dalian Wanda, or Lenovo.

We may also consider international joint ventures formed by foreign companies and local partners (state-owned or non-state-owned). This kind of grouping may create competitive advantage for both partners, a foreign company may enjoy smoother access to Chinese market, and a Chinese company can use foreign technology. Nevertheless, international joint ventures may be limited by inner conflict and cultural misunderstandings, as well as the division of roles – a technology provider and a manufacturer.

When considering the growing ICT market, manufacturing of most of related gadgets requires semiconductors. However, there has been a serious lack of this supporting industry in China –

¹³⁷ The State-owned Assets Supervision and Administration Commission of the State Council. 央企名录[online]. 9 February 2015. Available at: <http://www.sasac.gov.cn/n86114/n86137/c1725422/content.html>.

¹³⁸ Ma, Xufei. *op. cit.*

¹³⁹ *Ibid.*

90% of semiconductor consumption relied on imports in 2014,¹⁴⁰ and the existing one has been interlocked by facilities adjusted to its loyal customers' needs. The deficit in the supporting semiconductor industry has negatively influenced Xiaomi 小米, a mobile phone manufacturer, at the beginning of its business. Xiaomi has been initially rejected by 85 of top 100 global suppliers. Xiaomi has had to increase its credibility to close a contract with Qualcomm.¹⁴¹

The Alibaba Group, the largest e-commerce enterprise in the world, has begun as a simple platform that would serve as an international B2B marketplace for Chinese companies. Later on, the Alibaba Group has diversified and expanded to related industries. Currently, the group has been also involved in B2C and C2C e-commerce, m-commerce, group buying marketplace, marketing, financial services, e-payment, cloud computing, and logistics.¹⁴² Similarly, Lenovo has also evolved into a business group but rather via mergers and acquisitions, e.g. IBM's x86 server business.¹⁴³

2.5 Firm Strategy, Structure, and Rivalry

Chinese firm strategy has been significantly flexible. The 'strategic flexibility' has been correlated to the flexibility of resources available in China and the flexibility of managers in applying these resources. Chinese companies can quickly adjust to changes on the market, and follow trends. When some business model works companies tend to implement it, they have not been very concerned of intellectual property rights as there has not been sufficient enforcement.

The largest shareholder usually owns a sufficient number of shares to control a company, and the board of directors is supposed to implement resolutions agreed on during shareholders' meetings, i.e. the board follows the directives of the largest shareholder. There has not been a clear division of owners and management, and company and state representatives within a company yet. Even though Chinese public companies have implemented western-inspired

¹⁴⁰ McKinsey & Company. *Semiconductors in China: Brave new world or same old story?* [online]. August 2014. Available at: http://www.mckinsey.com/insights/high_tech_telecoms_internet/semiconductors_in_china_brave_new_world_or_same_old_story.

¹⁴¹ Yu, Howard. How Xiaomi wooed the best suppliers [online]. *The Financial Times*. 7 May 2014. Available at: <http://www.ft.com/cms/s/0/6a675fe2-a9c6-11e3-adab-00144feab7de.html#axzz3ja8PX56D>.

¹⁴² Alibaba Group. *Our Businesses* [online]. 2015. Available at: <http://www.alibabagroup.com/en/about/businesses>.

¹⁴³ IBM. *Lenovo Completes Initial Closing for Acquisition of IBM's x86 Server Business* [online]. 1 October 2014. Available at: <http://www-03.ibm.com/press/us/en/pressrelease/44997.wss>.

institutions, there have not been clear rules on directors' role, political goals have been preferred to profit maximisation, and the organs have not been supervised enough.¹⁴⁴

The rivalry among Chinese companies has been fierce since there has been large supply of almost any product, and customers generally have not tended to be loyal to brands and been rather price oriented.¹⁴⁵ Additionally, Chinese companies have faced foreign competition, which has dominated in luxury and automotive segments.

Chinese ICT market has been dominated by local companies that correspond both to customer wants and governmental policies, control respectively. According to Munich Innovation Group & Technische Universität München, Alibaba Group, Baidu, Inspur Group, Lenovo, Neusoft, Tencent, and ZTE have been the so-called 'Chinese champions' of the ICT industry.¹⁴⁶ They have constantly preceded foreign competition, e.g. daily use of the search engine Baidu exceeded that of Google China¹⁴⁷ by fourfold in 2008;¹⁴⁸ and some of them have successfully expanded to foreign markets, e.g. Alibaba Group's AliExpress.

Chinese ICT companies often compete with each other. Once there is a successful business model, the rest of firms wants to capitalise on it as well. Two years ago, Alibaba Group and Tencent were fighting over e-commerce and e-payment platforms. Alibaba Group limited access to its services from Tencent's WeChat accounts, and Tencent entered e-payment market where Alibaba Group dominates.¹⁴⁹ The growing e-commerce has recently attracted new competition for Alibaba Group. Two Internet giants, Tencent and Baidu, and a real estate conglomerate, Dalian Wanda, signed a cooperation agreement for establishing a new e-

¹⁴⁴ Yang, Hailan & Morgan, Stephen L. *Business Strategy and Corporate Governance in the Chinese Consumer Electronics Sector* [online]. Cambridge: Chandos Publishing, 2011. ISBN 978-1-84334-656-2. pp. 5-8.

¹⁴⁵ Except for luxury products where high price is important for social-status building.

¹⁴⁶ Munich Innovation Group & Technische Universität München. *Chinese Champions: A Decade of Growth and Innovation* [online]. February 2014. Available at: <http://www.chinese-champions.com/downloads/ChineseChampionsEN.pdf>. pp. 5-6.

¹⁴⁷ Access to Google China has been blocked since January 2015.

¹⁴⁸ Bhattacharya, Arindam K. & Michael, David. How Local Companies Keep Multinationals at Bay [online]. *Harvard Business Review*. March 2008. Available at: <https://hbr.org/2008/03/how-local-companies-keep-multinationals-at-bay>.

¹⁴⁹ Chen, Lulu Yilun. Alibaba vs. Tencent: China's Growing Internet Turf War [online]. *BloombergBusiness*. 22 August 2013. Available at: <http://www.bloomberg.com/bw/articles/2013-08-22/alibaba-vs-dot-tencent-chinas-growing-internet-turf-war>.

commerce platform in August 2014;¹⁵⁰ and the new O2O website Ffan was introduced to public just a year later.¹⁵¹

China's home base has undoubtedly transformed in the 21st century. The result of the second hypothesis 'The four determinants of China's Porter's diamond have improved.' is questionable. There have been negative trends in leaving the position of a low-cost labour provider, and in unpredictable changes on the China's stock exchange market. However, physical capital and infrastructure have immensely progressed. The size and diversity of China's customer base have contributed to expansion of a wide range of business models. Growing wages have stimulated large domestic demand, and the emerging middle class has presented a huge opportunity for business development. Related and supporting industries have been integrated within state-owned, non-state-own, and joint-venture business groups. Some of related and supporting industries have been interlocked by adjusting its facilities to loyal customers, and thus created obstacles for new entrants. Chinese firms have been flexible in their strategies but have not had a clear structure and decision-making procedures. The fierceness of rivalry on the market has pushed companies to innovate, and quickly adjust to new challenges. Overall, the positive trends for competitiveness have overtaken the negative ones, thus the hypothesis has been confirmed. China's home base has created a decent environment for stimulation of international competitive advantage of its firms. The ICT industry has been well cultivated, and properly prepared for global competition.

¹⁵⁰ Clover, Charles. Baidu and Tencent join Dalian Wanda in \$814m China ecommerce deal [online]. *The Financial Times*. 29 August 2014. Available at: <http://www.ft.com/cms/s/0/e1bb7154-2f3c-11e4-83e4-00144feabdc0.html#axzz3ja8PX56D>.

¹⁵¹ Lee, Emma. Tencent-Baidu-Wanda Unveil E-commerce Site Ffan To Compete With Alibaba [online]. *TechNode*. 5 August 2015. Available at: <http://technode.com/2015/08/05/tencent-baidu-wanda-ffan/>.

3. China's Human Capital

*'The key for the future of any country and any institution lies in the talent, skills and capabilities of its people.'*¹⁵²

Klaus Schwab, Executive Chairman
of the World Economic Forum

As discussed in the first chapter, human capital presents the factor of production of great importance. Not only human capital has been an essential complement to the other factors, but it can also overcome the lack of them. This chapter explores the development of China's human capital in the 21st century. The subchapters examine the cultivation of human capital, analyse China's human capital according to current researches conducted by the China Center for Human Capital and Labor Market Research, and McKinsey & Company, and competitiveness reports; and present the results of a survey focused on the generation Y.

3.1 Cultivation of Human Capital

Given the size of China's population,¹⁵³ China has been provided with a large labour force base that must be properly cultivated in order to enhance the country's competitive advantage. *'Policies that foster human capital are entirely in keeping with the Chinese philosophy of government that emphasizes the dignity of the human being and the value of the individual in promoting it.'*¹⁵⁴ Family planning policies together with the change of people's attitude to family life have caused the transformation of China's demographic pyramid (see figures 19, 20). Long-term below replacement fertility has signalled growth culmination, expected between 2025 and 2030.¹⁵⁵ Moreover, Chinese society has been aging at the same time, which has brought up new macroeconomic challenges such as health care or pension reforms. In 2000, there were 25% Chinese aged 0-14, 68% 15-64, and 7% over 65 years old. Already in 2025, the ratio of Chinese in post-productive age is expected to grow to 13%, and almost 23% in 2050.¹⁵⁶ Following the Solow growth model, the future potential decrease in population may contribute

¹⁵² The World Economic Forum. *The Human Capital Report*. Geneva: 2013. ISBN 978-92-95044-52-5. p. v.

¹⁵³ 1.36 billion people in 2013 according to National Bureau of Statistics of China. *China Statistical Yearbook 2014* [online]. 2014. Available at: <http://www.stats.gov.cn/tjsj/ndsj/2014/indexeh.htm>.

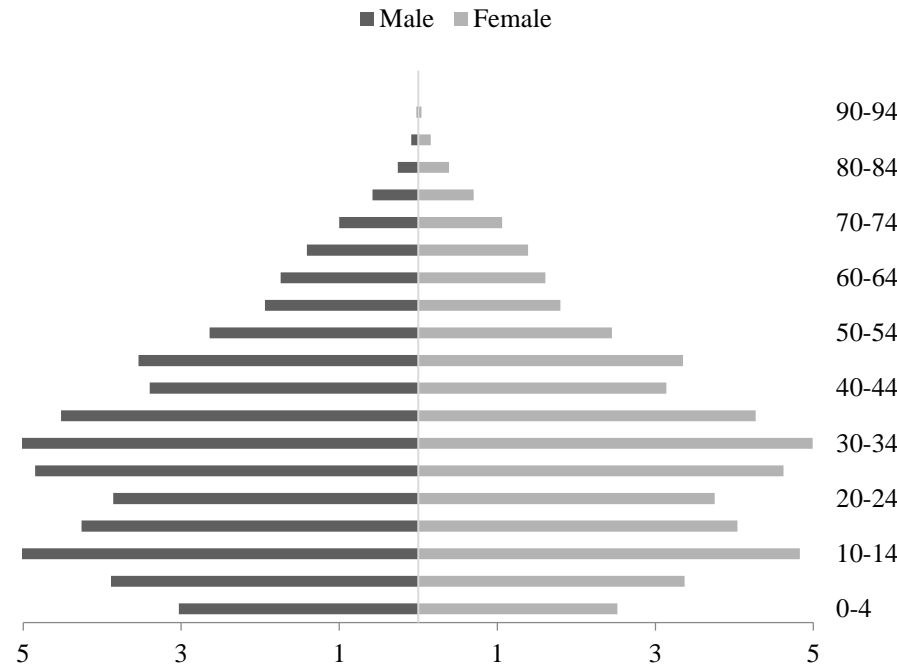
¹⁵⁴ Heckman, James J. China's Investment in Human Capital. *Economic Development and Cultural Change*. Vol. 51, No. 4, pp. 795-804. doi: 10.1086/378050. p. 803.

¹⁵⁵ Palit, Amitendu. Is China or India Ageing Better? [online]. *East Asia Form*. 29 June 2010. Available at: <http://www.eastasiaforum.org/2010/06/29/is-china-or-india-ageing-better/>.

¹⁵⁶ United Nations. *World Population Ageing 1950-2050*. New York: 2001. ST/ESA/SER.A/207. Available at: www.un.org/esa/population/publications/worldageing19502050/pdf/065china.pdf. p. 178.

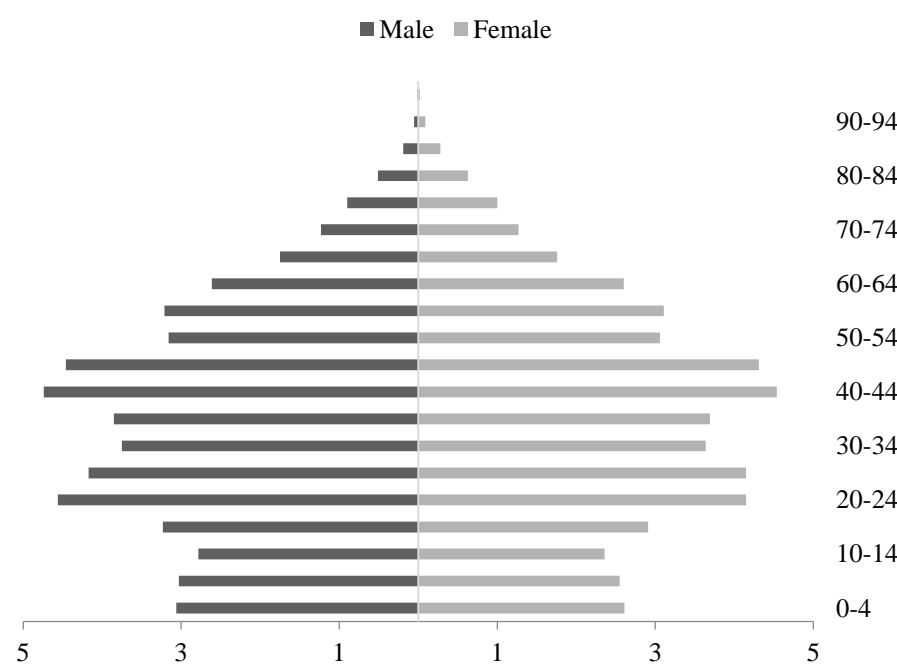
to an increase in capital stock per worker, and thus influence China’s human capital toward more advanced.

Figure 19. Demographic Pyramid of China in 2000 (percent)



Source: National Bureau of Statistics of China. *China Statistical Yearbook 2002* [online]. 2002. Available at: <http://www.stats.gov.cn/english/statisticaldata/yearlydata/YB2002e/ml/indexE.htm>.

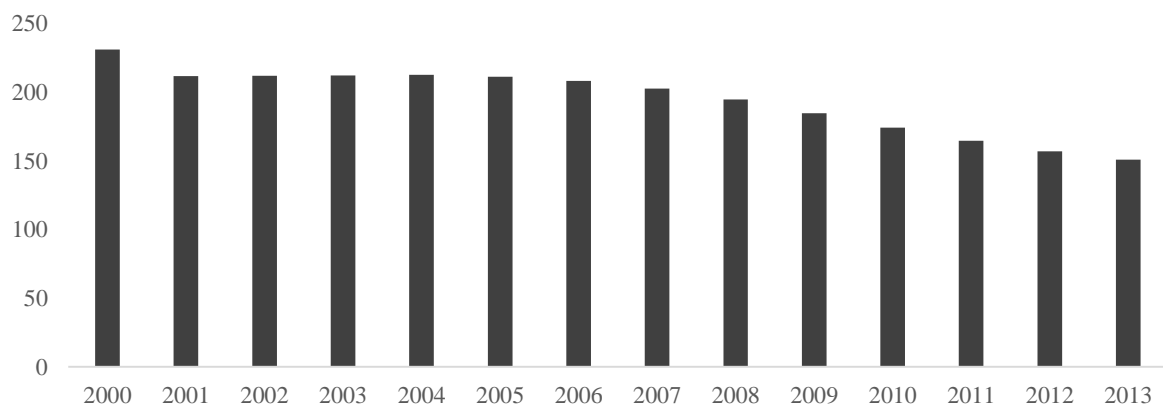
Figure 20. Demographic Pyramid of China in 2013 (percent)



Source: National Bureau of Statistics of China. *China Statistical Yearbook 2014*.

The cultivation of human capital fundamentally consists in nourishing environment, and education. Malnutrition in China has decreased in the 21st century,¹⁵⁷ although there have still been areas, especially rural areas with poor nourishment such as Hunan Province¹⁵⁸ 湖南省: ‘Widespread malnutrition still threatens to hold back a generation of rural Chinese.’ The Economist estimates that about 150 million Chinese,¹⁵⁹ i.e. 11% of the population remained endangered in 2013. Children malnutrition and anaemia could be further lowered by educating mothers, and providing children with a nutritional supplement *ying yang bao* 营养包, which has been subsidised by government.¹⁶⁰

Figure 21. Number of Undernourished People in China (million people)



Source: The World Bank. *World DataBank: Health Nutrition and Population Statistics* [online]. 2015. Available at: <http://databank.worldbank.org/data/reports.aspx?source=health-nutrition-and-population-statistics>.

China’s health care expenditures have been astonishingly growing, making China the third largest market for pharmaceuticals in the world. The accessibility of health care has become widespread all over the country, with 95% of population involved in insurance scheme in

¹⁵⁷ See for example The World Health Organisation. *Global Database on Child Growth and Malnutrition: China* [online]. 2015. Available at: <http://www.who.int/nutgrowthdb/database/countries/chn/en/>.

¹⁵⁸ Hunan Province is located in South Central China with the capital of Changsha 长沙. It has been known as a traditional rice and cotton grower, and has recently become manufacturing oriented. Hunan Province was a birthplace of Mao Zedong.

¹⁵⁹ It used to be about 300 million people before the Deng’s reforms.

¹⁶⁰ The Economist. *Malnutrition: The hungry and forgotten* [online]. 14 June 2014. Available at: <http://www.economist.com/news/china/21604220-growth-has-helped-millions-avoid-malnutrition-it-still-threatens-hold-back-generation>.

2011.¹⁶¹ However, Chinese hospitals have been known for antibiotic overuse¹⁶² and ranging quality of treatment. Insurance plans in many provinces have been quite basic and inefficient. Health care resources have been concentrated in wealthier cities, leaving rural areas lacking. Overall, China has been shifting from the country mainly affected by infectious illnesses (i.e. malaria, tetanus, tuberculosis, etc.), typical for developing countries, toward the one impacted by civilisation diseases (i.e. diabetes, cancer, asthma, etc.).¹⁶³

Health conditions of Chinese have also significantly been influenced by the ever-discussed pollution. Pollution has defected not only China's air but also soil and water, damaging directly and indirectly¹⁶⁴ people's health. However, the so-called 'cancer villages'¹⁶⁵ may gradually disappear thanks to new legal regulations within the 'war on pollution' proclaimed by China's policymakers that support citizens in the fight against polluters and set no limits to fines.¹⁶⁶

Education¹⁶⁷ has similarly become more available to Chinese, concentrating the best institutions in wealthier cities. The hukou system and the location of birth have determined one's opportunities to obtain good education to a large extent.¹⁶⁸ The proportionate structure of education has shifted toward higher levels of education; the primary educated part of population declined from 38% to 26%, the secondary educated share grew from 48% to 57% from 2000 to 2013, and finally 11% of Chinese were tertiary educated in 2013 compared to 4.5% in 2000 (see figure 22). Simultaneously, the share of illiteracy dropped by 3% to less than 5% of population in the observed period of time.¹⁶⁹ According to the Programme for International

¹⁶¹ McKinsey & Company. *Health care in China: Entering 'uncharted waters'* [online]. November 2012. Available at: http://www.mckinsey.com/insights/health_systems_and_services/health_care_in_china_entering_uncharted_waters.

¹⁶² It relates to improperly set financing scheme of hospitals. See Currie, Janet; Lin, Wanchuan & Meng, Juanjuan. *Addressing Antibiotic Abuse in China: An Experimental Audit Study* [online]. Princeton University, April 2014. Available at: <http://www.princeton.edu/~jcurrie/publications/Addressing%20antibiotic%20abuse%20in%20china.pdf>.

¹⁶³ McKinsey & Company. *Health International: China's health care reforms* [online]. 2010. Available at: www.mckinsey.com/~/media/mckinsey/dotcom/client_service/healthcare%20systems%20and%20services/health%20international/hi10_china_healthcare_reform.ashx china health care.

¹⁶⁴ E.g. via food.

¹⁶⁵ Cancer villages is a term used for places with high levels of pollution that cause a high ratio of ill cancer patients. For example, there have been many of them in Hebei Province 河北省, a major heavy metal producer, such as Xingtai 邢台.

¹⁶⁶ Kaiman, Jonathan. China strengthens environmental laws [online]. *The Guardian*. 25 April 2014. Available at: <http://www.theguardian.com/environment/2014/apr/25/china-strengthens-environmental-laws-polluting-factories>.

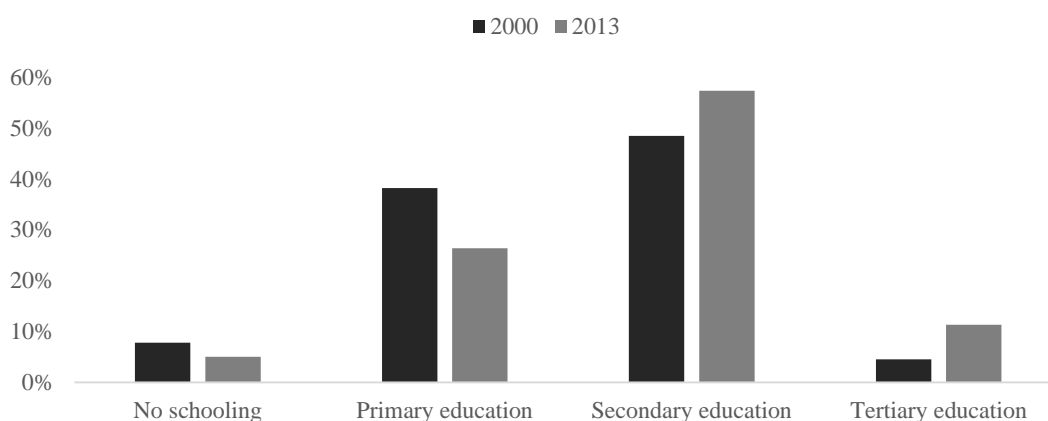
¹⁶⁷ See appendix 1.

¹⁶⁸ Heckman, James J. & Yi, Jujian. *Human Capital, Economic Growth, and Inequality in China* [online]. National Bureau of Economic Research, May 2012. Available at: <http://www.nber.org/papers/w18100>. p. 5.

¹⁶⁹ National Bureau of Statistics of China. *China Statistical Yearbook 2014*; National Bureau of Statistics of China. *China Statistical Yearbook 2002*.

Student Assessment, which measures quality of education in terms of knowledge and skills of 15 years-old pupils in 65 countries/regions, Shanghai ranked first in all mathematics, reading, science and financial literacy; and achieved an excellent score in problem solving in 2012.¹⁷⁰

Figure 22. Education Level of China's Population Aged 6 and over in 2000 and 2013



Source: National Bureau of Statistics of China. *China Statistical Yearbook 2014*; National Bureau of Statistics of China. *China Statistical Yearbook 2002*.

China's educational institutions have become one of the targets of governmental policies, aimed at stimulating China's growth and transformation toward a modern competitive state. The government has introduced the concept of key schools, and special investment projects to education such as the Project 211 211 工程 or Project 985 985 工程, originating in the late 1990s. The projects have included specific tertiary schooling institutions that have been supposed to become the centres of knowledge and the very best education in the country, as well as in the world in the 21st century. Even though it has been a very ambitious goal, it has already come partially true. According to the QS World University Ranking 2015, the Tsinghua University 清华大学 ranked 25th, the Peking University 北京大学 41st, and the Fudan University 复旦大学 51st, and the Shanghai Jiao Tong University 上海交通大学 70th in the international comparison of universities all over the world.¹⁷¹

¹⁷⁰ OECD. *PISA 2012 Results in Focus: What 15-year-olds know and what they can do with what they know* [online]. 2014. Available at: <http://www.oecd.org/pisa/keyfindings/pisa-2012-results-overview.pdf>. pp. 3, 5, 31, 37.

¹⁷¹ QS Top Universities. *QS World University Ranking® 2015/2016* [online]. 2015. Available at: <http://www.topuniversities.com/university-rankings/world-university-rankings/2015>.

On the other hand, there have been more than 2,400 colleges and universities all over China,¹⁷² and most of them particularly lack quality and objective approach to knowledge & science.¹⁷³ The quality of study programmes has varied within one university as well, e.g. the School of Economics and Wang Yanan Institute for Studies in Economics provide much better education than the School of Journalism & Communication at Xiamen University.

The globalising world of the 21st century has brought new opportunities for Chinese students outside China. Many of them have chosen to study abroad, aiming at top-notch prestigious Western universities that have promised good career propositions and preconditions for a successful family life.¹⁷⁴ Compared to Chinese education, Western approach has rather targeted self-development and critical thinking, giving more freedom for students. According to the Ministry of Education of China, 459,800 Chinese students studied abroad in 2014, almost 12 times more than in 2000 (see figure 23).¹⁷⁵ The growth rate has even overcome the steep decline of Chinese aged between 18 and 22 years since 2010, from 121 million to 89 million in 2015.¹⁷⁶

Outbound Chinese students have usually pursued higher education in the United States of America, Canada, Australia and the United Kingdom that are the most popular destinations (see figure 24). Nevertheless, young Chinese have changed their attitude to mainland European universities that sometimes provide education free of charge. There has been a favourable trend of educated Chinese returning to China; in 2014, there were 364,800 students coming back from overseas studies, compared to 20,000 in 2003.¹⁷⁷ Transferring knowledge and experience from

¹⁷² Badow, Doug. Transforming China From Within: Chinese Students Head To American Universities [online]. *Forbes*. 22 September 2014. Available at: <http://www.forbes.com/sites/doughbandow/2014/09/22/transforming-china-from-within-chinese-students-head-to-american-universities/>.

¹⁷³ There has been a long-term discussion on Chinese traditional subjective approach to knowledge and science, based on apprenticeship and memorising. Some institutions have implemented western-like educational models with western professors or Chinese educated in the USA or Europe. However, common Chinese teachers tend to expect students to memorise and repeat their own ideas.

¹⁷⁴ Chinese women or previously mainly their parents have been choosing future husbands fundamentally according to the social status, education, career, and wealth. Education plays such an important role that other factors may be marginalised.

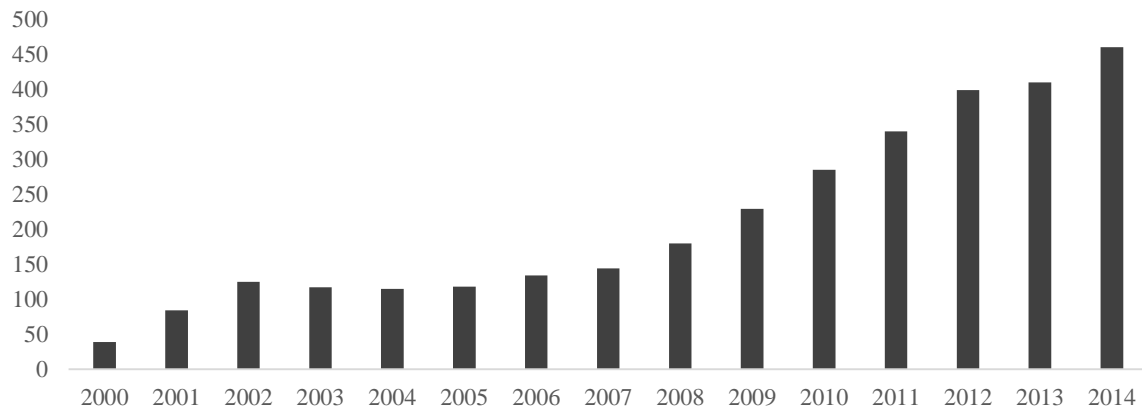
¹⁷⁵ China File. *Is Studying Abroad Worth the Cost?* [online]. 15 December 2014. Available at: <https://www.chinafile.com/multimedia/infographics/studying-abroad-worth-cost>; ICEF. *Number of Chinese outbound students up by 11% in 2014* [online]. 31 March 2015. Available at: <http://monitor.icef.com/2015/03/number-of-chinese-outbound-students-up-by-11-in-2014>.

¹⁷⁶ The Economist. *Georgia on their minds* [online]. 21 February 2015. Available at: <http://www.economist.com/news/china/21644222-yearning-american-higher-education-has-driven-surge-overseas-study-georgia-their>

¹⁷⁷ ICEF. *op. cit.* The Economist. *op. cit.* In addition, China has become an attractive destination for foreign students. In 2014, 377,054 international students, mainly from South Korea, the United States, and Thailand studied in China. (China Scholarship Council. *More than 377,000 International Students in China in 2014* [online]. 10 April 2015. Available at: <http://www.csc.edu.cn/laihua/newsdetailen.aspx?cid=124&id=4708>.)

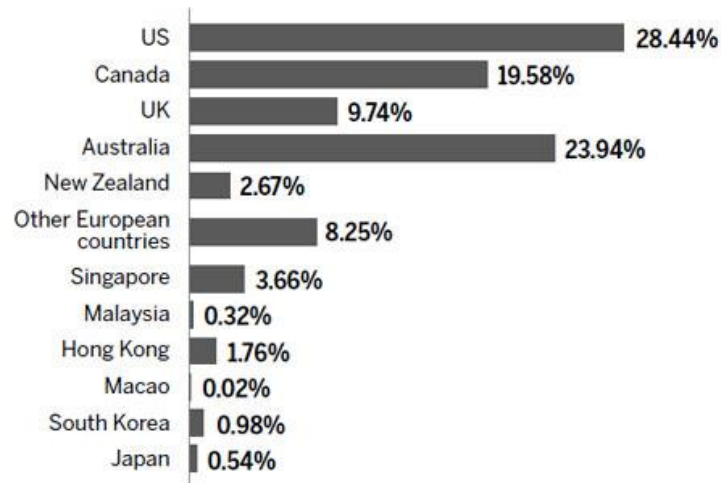
the very best educational institutions in the world has certainly fostered China's human capital toward advanced and specialised, and supported the overall competitiveness of China.

Figure 23. Number of Chinese Student Studying Abroad (thousand people)



Source: ICEF. *op. cit.*; China File. *op. cit.*

Figure 24. Where Young Chinese Go to Study



Source: China Daily. *Overseas study attractive at early age* [online]. 25 June 2014. Available at: http://www.chinadailyasia.com/news/2014-06/25/content_15144032.html.

According to the Global Competitiveness Report by the World Economic Forum, higher education and training as one of efficiency enhancers of China shifted from 77th place (score

of 3.7 out of 7) in 2006 to 65th (score 4.4) in 2014.¹⁷⁸ Even though there has been improvement, China has remained relatively low equipped with relevant higher education and training.

In summary, there has been a positive trend in the cultivation of China's human capital in the 21st century. Stagnating and later declining population may provide the country with higher capital stock per capita. China has managed to fight poverty, and to enable better access to both health care and education, although with varying intensities of success across the country. Health of Chinese has still been deeply influenced by enormous levels of pollution. The governmental policies on education and its key-school programmes have led to extensive improvement of China's educational system. Even though the quality of education has not been proportionate in all regions of China, promoting competitiveness in large wealthier cities. For the first time in history, foreign-educated Chinese have actually brought the very best knowledge back to China, compared to the past when they would prefer to stay abroad. Lastly, higher education and training have become more internationally competitive.

3.2 Analysis of China's Human Capital

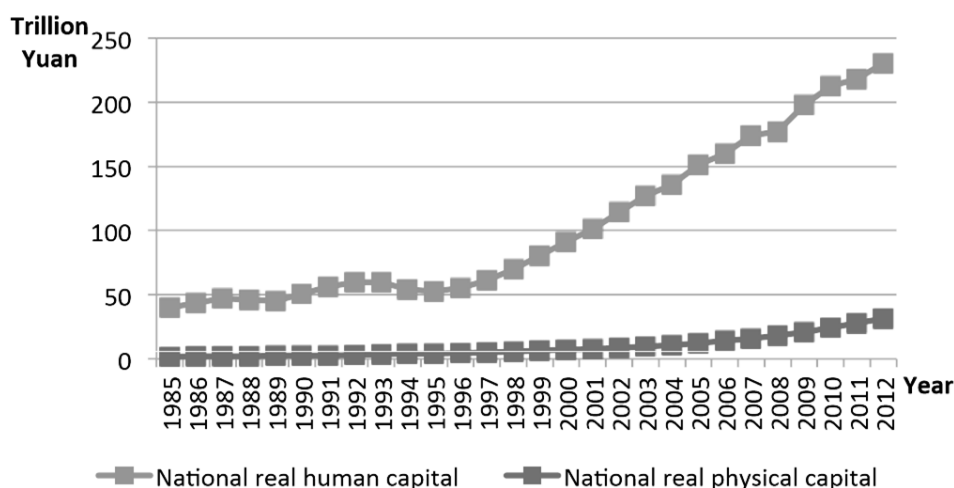
The China Center for Human Capital and Labor Market Research has carried out a research project 'China's Human Capital: Measurement and Index Construction' yearly since 2009, comparing 1985's data (a base year) with current years.¹⁷⁹ In 2012, the total real human capital of China reached 1,057.3 trillion RMB compared to 118.5 trillion RMB in 2008. The ratio of human capital to GDP has been improving based on growing efficiency of human capital in production. China has still essentially relied more on physical capital than human capital, which has attained just a small proportion compared to physical capital. In 2012, physical capital amounted approximately for fivefold value of human capital, and the gap seems to be widening (see figure 25). Moreover, there has been growing disparity between human capital in urban

¹⁷⁸ The World Economic Forum. *The Global Competitiveness Report 2006-2007*. Geneva: 2006. ISBN 978-1-4039-9636-7. The World Economic Forum. *The Global Competitiveness Report 2014-2015*. Geneva: 2014. ISBN 978-92-95044-98-2.

¹⁷⁹ The index intends to measure and evaluate human capital, its distribution, trend and dynamics. The China Center for Human Capital and Labor Market Research has applied the Jorgenson-Fraumeni lifetime income approach to the projection of human capital stock: '*An individual's human capital stock is equal to the present discounted value of all future income it can generate.*' Beside formal education, the report also includes on-the-job training; China Center for Human Capital and Labor Market Research. *China's Human Capital Project* [online]. Central University of Finance and Economics, Beijing, 2015. Available at: <http://humancapital.cufe.edu.cn/index.php?c=article&a=type&tid=86>.

and rural areas. Urban human capital became equivalent to four times the value of the rural one in 2012, with unfavourable pro-urban trend.¹⁸⁰

Figure 25. Human Capital vs Physical Capital 1985 – 2012



Source: China Center for Human Capital and Labor Market Research. *China Human Capital Index Report 2015* [online]. Central University of Finance and Economics, Beijing, 2015. Available at: <http://humancapital.cufe.edu.cn/uploads/2015/07/221936435702.pdf>. p. 92.

From the point of view of the labour market and especially employers, there has been a vast shortage of skilled labour. Furthermore, since China may have already reached the Lewis Turning Point, i.e. the moment when all extra unskilled agricultural labour is put to work and wages begin to rise, labour has become relatively expensive.¹⁸¹ China's market has developed need for talented and skilled labour (advanced and specialised human capital) that could serve the emerging consumption-oriented economy and its demanding customers.

Labour supply has not been properly adjusted to the new conditions yet. A small manufacturing company of Mr Wu Hao is constantly understaffed in spite of increasing pay and intensive search for new hires. The reason lies in the fact that university graduates commonly lack basic

¹⁸⁰ China Center for Human Capital and Labor Market Research. *China Human Capital Index Report 2009: Executive Summary* [online]. Central University of Finance and Economics, Beijing, 2009. Available at: <http://humancapital.cufe.edu.cn/index.php?c=article&a=type&tid=256>. China Center for Human Capital and Labor Market Research. *China Human Capital Index Report 2015: Executive Summary* [online]. Central University of Finance and Economics, Beijing, 2015. Available at: <http://humancapital.cufe.edu.cn/uploads/2015/07/131044384296.pdf>.

¹⁸¹ The Economist. *China approaching the turning point* [online]. 31 January 2013. Available at: <http://www.economist.com/blogs/freeexchange/2013/01/growth-and-china>.

computer, technical as well as social skills. From the other side, Xu Bo, a sports management graduate, has been unsuccessful in job hunting, and claimed his university not to be enough skill oriented.¹⁸² Willingness to work long hours may overcome low productivity of China's talent in manufacturing, but could be just very marginal in services where specific skills are needed.¹⁸³ Inadequately educated workforce and poor work ethic in national labour force have been two of the most problematic factors for doing business in China according to the Global Competitiveness Report in the 21st century.¹⁸⁴

The issue is that even though it seems like there has been, for instance, a sufficient number of graduated engineers, 600,000 in 2005, less than 10% was actually ready to work at a foreign company in the same year. Chinese educational system has rather focused on theory than practical skills, social and language competence building. Another negative aspect consists in cheating that has been a common practice in China. Even though students may have theoretically acquired high level education, in reality they might have bribed their way through; starting from national university entrance exams, language certificates, and university applications to final exams, and theses writing. For instance, it is estimated that 1 in 10 applications to U.S. universities may include fraudulent material,¹⁸⁵ and 8,000 Chinese students were expelled from American schools in 2014.¹⁸⁶

It is questionable whether talent from both top domestic and foreign universities has been properly utilised and allocated in China, given the traditional hierarchical management structure and the importance of *guanxi* in career life that prevents external entities from joining. At the same time, China's human capital has not been distributed appropriately all over the country. On the one hand, migrant workers, including university graduates, have left western and central regions for better job on the coast. The migration has made these regions lack advanced factors. On the other hand, in large coastal cities such as Beijing, Shanghai or Shenzhen, there has actually been even a surplus of high-skilled graduates. From a different point of view, the concentration of high-skilled workers has created a great opportunity for cluster building. The

¹⁸² McKinsey & Company. *The \$250 billion question: Can China close the skills gap?* [online]. May 2013. Available at: <http://www.mckinseychina.com/the-250-billion-question-can-china-close-the-skills-gap/>. p. 3.

¹⁸³ McKinsey & Company. *Addressing China's Looming Talent Shortage* [online]. October 2005. Available at: http://www.mckinsey.com/insights/china/addressing_chinas_looming_talent_shortage. pp. 6-7.

¹⁸⁴ The World Economic Forum. *The Global Competitiveness Reports 2006-2015*. Geneva: 2006-2014.

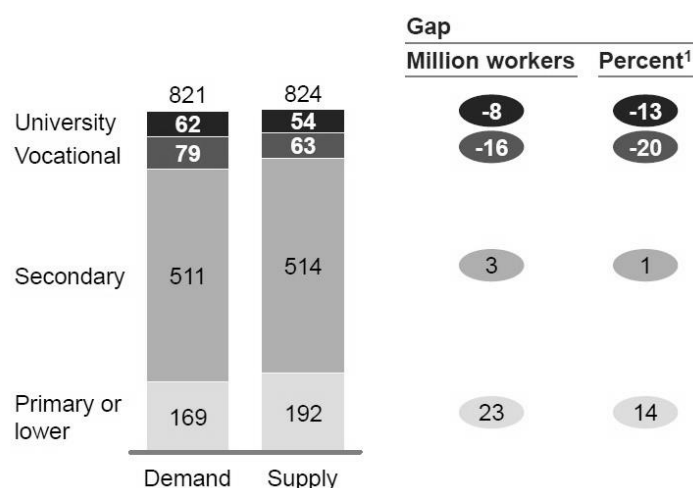
¹⁸⁵ Parents of Chinese students often pay high fees to various agencies to assure a place at a prestigious university abroad for their children. CNN. *Chinese students found cheating to get into U.S. colleges* [online]. 1 July 2014. Available at: <http://money.cnn.com/2014/07/01/pf/college/chinese-students-cheating/>.

¹⁸⁶ The Wall Street Journal. *U.S. Schools Expelled 8,000 Chinese Students* [online]. 29 May 2015. Available at: <http://blogs.wsj.com/chinarealtime/2015/05/29/u-s-schools-expelled-8000-chinese-students-for-poor-grades-cheating/>.

same is relevant when people migrate from rural to urban areas, where agglomeration effects can be achieved.

In the future, China will face 23 million extra low-skilled workers, and the absence of 24 million high-skilled professionals (see figure 25). If this gap will not be resolved in time, McKinsey & Company predicts that China may pay the opportunity cost of \$250 billion. Labour demand for tertiary-educated workers will particularly grow in health & social services, and manufacturing (see figure 26). McKinsey & Company proposes to implement industry-led programs to schools, intensive short skill-based trainings and to add industry-wide trainings with other players in the industry.¹⁸⁷

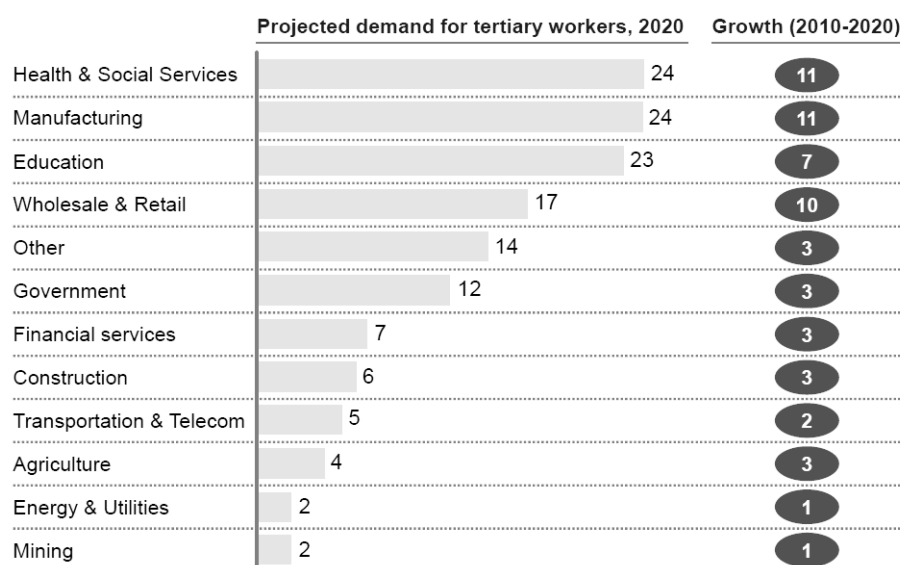
Figure 26. Estimated Disproportionality between Labour Demand and Labour Supply in 2020
(million people)



Source: McKinsey & Company. *The \$250 billion question: Can China close the skills gap?* p. 4.

¹⁸⁷ McKinsey & Company. *The \$250 billion question: Can China close the skills gap?* pp. 4-5, 8-9.

Figure 27. Estimated Demand Growth for Tertiary-Educated Workers in 2020 (million people)



Source: McKinsey & Company. *op. cit.* p. 10.

The Human Capital Index¹⁸⁸ of China ranked 43th place out of total 122 countries in 2013. China has achieved the best results in workforce and employment (26th), and enabling environment (47th) pillars. Education, and health and wellness pillars have ranked worse, around the middle of the tested sample – 58th place, 65th place respectively. Within the four pillars, China has been particularly successful in internet access in schools, primary education attainment, stunting and wasting children under 5 years old, labour force participation gap in the age group 15-64 years old, and unemployment rate. On the contrary, China has not scored very well at survival gender gap, and mobile users per 100 people.¹⁸⁹ After implementing a new more education- and employment-oriented research methodology, China's Human Capital Index ranking fell to 64th place in 2015. According to the report, China has been relatively strong at specialised training services, and quality of math/science education, and relatively weak at quality of business schools.¹⁹⁰ The ICT industry thus could be a perfect match.

In general, China has been gradually strengthening quality of its human capital, and the third hypothesis has been confirmed. China has properly cultivated its human capital, i.e. improved

¹⁸⁸ A research conducted by the World Economic Forum from 2013 that 'seeks to provide a holistic, long term overview on how well countries are leveraging their human capital and establishing workforces that are prepared for the demands of competitive economies.' The World Economic Forum. *The Human Capital Report*. p. v.

¹⁸⁹ The World Economic Forum. *The Human Capital Report*. pp. 138-141.

¹⁹⁰ The World Economic Forum. *The Human Capital Report 2015*. Geneva: 2015. ISBN 978-92-95044-49-4. p. 104.

health conditions of its people, and fostered development of good educational institutions although unequally within China's regions. Nevertheless, human capital has stayed far behind the value of physical capital that was about five times larger in 2012. Decreasing labour force may lead to the stimulation of factor advancement and specialisation. However, the shortage of human capital is expected to create gaps on the labour market that will require more high-skilled employees than will be supplied. Chinese students have had better access to high-quality education, both in China and overseas. They have transferred foreign knowledge to China as the ratio of returning students has increased. Although it is hard to estimate the real value of contribution of education to Chinese human capital as some of Chinese students may have corrupted their way to a university degree, and others may not be able to apply their knowledge and skills due to inflexible human resource management and the significance of *guanxi*.

3.3 Generation Y

The last subchapter focuses on the so-called generation Y's attitudes toward human capital development. The generation Y entails people born between 1985 and 1995, i.e. 20 – 30-years old in 2015. It has been known for openness toward new technologies, higher mobility, and endeavour for achievement and recognition. This generation has experienced globalisation, and has better related to foreign counterparts, building up global citizenship. To fulfil the goal of this chapter, the author has carried out an online survey¹⁹¹ that is complemented by remarks based on the author's observations in China.

The survey, written in Chinese, was conducted via a Chinese internet website www.sojump.com between the 11th and 20th October 2015 (see appendix 2 and 3), and shared on a popular Chinese social network Wechat 微信. The questionnaire consisted of 16 multiple choice questions, inspired by the previous secondary research. Closed-ended questions were selected in order to provide clear results, giving a neutral option of others. The survey examined respondents' social background, and their approaches to education and work life. The first question sorted unsuitable respondents, i.e. non-members of the generation Y, whose answers were removed during the survey evaluation. The author has collected 135 valid responses in total (see appendix 4 for pie charts).

The tested sample includes 63% female and 37% male respondents, coming from various regions of Mainland China. The largest group's hometown is located in the East China¹⁹² (44%),

¹⁹¹ Dvořáková, Markéta. *China's Human Capital 2015* [online survey]. 20 October 2015.

¹⁹² Shanghai, Jiangsu, Zhejiang, Anhui, Fujian, Jiangxi, Shandong.

and then in the North China¹⁹³ (19%). Similar shares come from the Southwest China¹⁹⁴ (11%), the South Central China¹⁹⁵ (11%), and the Northeast China¹⁹⁶ (10%). The smallest percentage is of the Northwest China¹⁹⁷ (5%). The territorial distribution resembles the real population dispersion in China, i.e. dense population on the east coast, and low inhabitation in the west.

Most of the respondents come from 2nd tier cities (30%), 4th and 5th tier towns (25%), and 3rd tier ones (24%). Slightly above one fifth is of 1st tier city origin (21%). The majority relates to the middle class income group as defined by the McKinsey & Company (66%), i.e. the annual household income of 60,000 – 229,000 RMB, of which more than 52% presents the upper mid-class income level, i.e. 106,000 – 229,000 RMB. 15% ticked the above-mid-class income, and 22% the one lower than 60,000 RMB.

The last demographic questions were oriented on respondents' occupation, and their highest achieved education. The surveyed group achieved a good level of diversity while collecting answers from both students (52%) and employed people (46%). The rest marked either stay at home or others. 97% of the sample has attended a university as their highest educational institution, and 3% graduated from a secondary school (1% from a senior high school, and 2% from a junior high school).

Overall, the sample represents highly educated young Chinese with mainly middle-class income from all city tiers in diverse areas of China, and includes both students and employed people. The following questions aimed at their attitudes toward human capital development, specifically the importance of knowledge and skill building, using education and orientation toward work life as proxies. The author also incorporated questions concerning foreign experience and future plans.

96% of respondents believe that education is important, which corresponds with the significance of education & knowledge in Chinese culture. Hundreds of years ago as well as now, education has presented one of few ways how to diversify and achieve competitive advantage on the Chinese labour market and attain prestigious positions.¹⁹⁸ The interest in education means great predisposition for human capital cultivation, as everyone tries to achieve

¹⁹³ Beijing, Tianjin, Hebei, Shanxi, Inner Mongolia.

¹⁹⁴ Chongqing, Sichuan, Guizhou, Yunnan, Tibet.

¹⁹⁵ Henan, Hubei, Hunan, Guangdong, Guangxi.

¹⁹⁶ Liaoning, Jilin, Heilongjiang.

¹⁹⁷ Shaanxi, Gansu, Qinghai, Ningxia, Xinjiang.

¹⁹⁸ Traditionally in state bureaucracy.

the best they can. Moreover, the society measures success and prestige via education. E.g. local authorities and citizens cherish, even worship *gaokao* 高考 (university entrance exams) top scorers. This trend may lead to over focusing on education, i.e. that students become isolated, narrow-minded and lack informal education, social skills, have no hobbies, etc.

When applying to a school, specialisation has been the most important factor for 50% of the sample, followed by prestige with 37%, and practical orientation with 8%. The major is usually chosen already when signing up for *gaokao* when students can choose either science or humanities. Later on their applications to universities are evaluated by central authorities that used to absolutely decide one's major. Although nowadays the system has become more flexible with possibilities to switch majors, and to choose it as well.¹⁹⁹ Prestige is commonly correlated with specialisation in China, e.g. the Peking University is famous for its humanities, or the Nanjing University focuses on history, thus these subjects are prestigious. The clear vision of one's future incorporated in the study field that has achieved high employment rates and holds large potential, can increase one's human capital. According to China.org.cn, IT, economics, and engineering have been both top most employable majors, and top well-paid jobs for Chinese graduates in 2013.²⁰⁰ In the 21st century, *gaokao* top scorers have favoured management, engineering and economic-related majors, which has set a benchmark for the whole country.²⁰¹

The survey results prove the devotion of the Chinese generation Y to fulfil tasks and achieve good results by the willingness to study long. During their studies, a half of respondents have spent 4 – 7 hours studying a day, 27% 8 – 11 hours daily, and 5% of them even more than 12 hours. 18% have studied less than 3 hours per day. Long-hours studying has been widely spread among Chinese students, especially when preparing *gaokao*. Nevertheless, there have been symptoms of inefficiency since Chinese students sometimes tend to spend a lot of time memorising except to trying to understand and use logical reasoning, which does not contribute to their skills very much. The sample seems to spend reasonable time studying, i.e. it would correspond to normal working hours.

¹⁹⁹ China Daily. *Free choice of major at college comes no easy way* [online]. 28 April 2013. Available at: http://www.chinadailyasia.com/focus/2013-04/28/content_15073459.html.

²⁰⁰ China.org.cn. *Top most employable majors in China 2013* [online]. 20 June 2013. Available at: http://www.china.org.cn/top10/2013-06/20/content_29180520_5.htm; China.org.cn. *Top 10 well-paid jobs for Chinese graduates 2013* [online]. 19 June 2015. Available at: http://www.china.org.cn/top10/2013-06/19/content_29166925_4.htm.

²⁰¹ China Daily. *Top gaokao scorers dive into competitive work life* [online]. 11 June 2015. Available at: http://www.chinadaily.com.cn/china/2015-06/11/content_20968682.htm.

A special section of the questionnaire targeted foreign study experience as one of the key opportunities for both knowledge and skill enrichment. 37% of respondents have already studied abroad, and 8% plan to do so. Out of the 37% positive answers, i.e. 50 responses, 46% intend to return to China, 14% to stay abroad, and 40% do not know yet. The results confirm that young Chinese want to come back to China, and the chance of brain drain has decreased. Chinese students invest in studies abroad, i.e. their human capital, in order to improve their job prospects. They intend to acquire cutting-edge skills and knowledge, expect to benefit from progressive models of education, and wish to get an edge in the job market. Returnees usually receive more than twice a wage of ordinary graduates, and attain positions in middle and upper management, while ordinary graduates mostly become ordinary employees.²⁰² The social skills building abroad has yet been limited as Chinese tend to spend most time with their fellow nationals, who are commonly accommodated at the same dorms to actually avoid clashes between cultures.²⁰³ In addition to narrow intercultural experience, Chinese students do not achieve excellent academic results in general. Only 42% of Chinese in the UK graduated with a first or 2.1 in 2013.²⁰⁴

In terms of obtaining relevant practical skills during studies, 77% of the sample has done an internship, and next 10% plan to do so. 99% believe that beside good grades practical skills are also important. After graduation, 92% of young Chinese plan to work, began to work respectively. The generation Y thus has very positive attitudes toward skill building, and gaining practical experience from the real business environment, as well as to work. Chinese universities regularly organise career fairs, where local companies are presented. Moreover, Chinese students can immediately apply for internships/jobs, and take part in interview at a university campus. Commonly, theoretical and language skills are tested. Concerning an employer's origin, respondents are mainly indifferent between Chinese and foreign companies (56%), more than a third prefers Chinese companies (35%), and 7% foreign corporations.

The fourth hypothesis 'Generation Y's career-oriented approach to life has contributed to the development of skilled human capital.' has been confirmed. Young Chinese care about their human capital progress; they focus on both education and acquiring appropriate skills to succeed on China's labour market. The positive attitude of the generation Y to education and

²⁰² China File. *op. cit.*

²⁰³ The author has visited a dormitory of the University College of London that has widely accepted this model.

²⁰⁴ The Guardian. *Why aren't Chinese students at UK universities getting top degrees?* [online]. 15 April 2014. Available at: <http://www.theguardian.com/education/2014/apr/15/chinese-students-in-uk-poor-results>.

the determination to achieve excellent results, traditional in Chinese culture stimulates proper human capital cultivation. The overwhelming focus on education may lead, on the one hand, to hard knowledge building; on the other, to isolation and low attainment of informal education and social skill building. Chinese tend to choose schools according to offered specialisations and prestige, which are actually correlated in China. The most popular majors have been economics-related subjects, engineering and IT that have been very suitable for hard-skill-oriented nature of Chinese. Young Chinese have studied reasonably long, i.e. they have been ready to work fulltime job shifts. Moreover, significant number of respondent have experienced overseas education that immensely fosters one's human capital and position on the labour market, where returnees gain much larger wages and higher positions than ordinary graduates. However, intercultural competence may be limited due to relative isolation of Chinese students abroad, and attained knowledge may not be too good according to low scores of Chinese students at foreign universities. The generation Y has been very work oriented, since it has gained practical experience via internships during studies, and almost of the respondents intend to work after graduation. Chinese youngsters have been mainly indifferent when choosing to work for Chinese or foreign companies, yet about one third of respondents prefers to be employed at a Chinese company.

Conclusion

After years of unprecedented economic development, China has realised the significance of its international competitiveness in the 21st century, and has adjusted its business environment to become more competitive in the globalised interconnected world. The answer to the research question '*How has the competitiveness of China developed in the 21st century, with a special focus on human capital?*' is that China's competitiveness has overall improved. China has created greater value for its enterprises and larger prosperity for its people. China's human capital has begun to shift to more advanced and specialised. Nevertheless, the country has faced many challenges and new ones have been emerging.

China's diamond has ameliorated, and become more market driven. The development of external factors has confirmed the first hypothesis 'External factors, government and chance, have enhanced China's competitive advantage.' The government has supported more favourable business environment when relaxing regulations, and providing more equal opportunities for state-owned, non-state-owned, and foreign companies. Although the financial market has remained quite unstable, and not properly developed. The availability of credit has still been limited on the Chinese market. China has overcome the radical plunge in western demand by reorienting to emerging developing markets, and strengthening its own home demand. As for other negative chance events, China has faced the appreciation of RMB and regional disputes.

The four determinants of China's competitiveness within the home base have transformed rather positive than negative, and the second hypothesis 'The four determinants of China's Porter's diamond have improved.' has proved correct. On the one hand, China has been losing its advantage of low cost labour, and its stock market has gone through an inauspicious drop that grew uncertainty among investors. On the other hand, its infrastructure network has been dynamically widening across the country, and its physical capital has enlarged. The size and diversity of China's consumer market had provided vast opportunities for diverse business models. Furthermore, China's emerging middle class has created new business opportunities and more sustainable way of development in long term. Related and supporting industries have become greatly concentrated within business groups. Vibrant rivalry has stimulated companies to capitalise on others' business models as in the case of Ffan, although the access to suppliers is limited by loyalty to current customers. According to the case studies, China's next generation IT industry has been very competitive based on the four determinants. Thanks to the

competitive home base, the ICT industry can become, in some cases such as Alibaba Group or Huawei has already become, globally competitive.

China's human capital has been well cultivated in the 21st century, and the third hypothesis 'China has been gradually strengthening quality of its human capital.' has been confirmed. Chinese has obtained better access to health care and education. The number of undernourished, poor and illiterate has declined; and Chinese have acquired higher levels of education. Thanks to key school programmes and large investments into education, Chinese schools have immensely improved, reaching top global rankings. Although health care and education quality has greatly varied across the country. Additionally, the majority of Chinese students that have studied overseas, has returned and thus transferred foreign knowledge to China. The contribution of education to China's human capital is hard to estimate as fraudulent behaviour has not been uncommon. To avoid shortages of high-skilled human capital in the future, China should foster both hard and soft skills training within study programmes. The stagnating and later declining population may contribute to advanced factor building, as capital stock per capita would grow.

The primary research has verified the fourth hypothesis 'Generation Y's career-oriented approach to life has contributed to the development of skilled human capital.' Young Chinese consider human capital cultivation and development to be very important. They strive for acquiring both higher education and practical work experience. The traditional narrow focus on education may cause great knowledge acquisition, but also the shortage of soft skills. The tested sample has chosen schools according to specialisation and prestige: the more prestigious school and major, the better competitive advantage on the labour market. The popular specialisations of economics, engineering and IT may foster China's human capital toward specialised. More than a third of the sample has studied abroad in order to enhance their position on the market compared to ordinary graduates, who receive much lower wages and are accepted for inferior occupations. The generation Y has had a positive approach to work life, as they have done internships during their studies, and have planned to work right after graduation.

The study has been limited by the thesis extent, and could be conducted more deeply in the future. The research could either include a larger scale of variables, and more respondents with various backgrounds from Mainland China. The survey could include open-ended questions, and be complemented with interviews. The attitudes of young Chinese to education and work life could be further elaborated in comparison to other developing countries.

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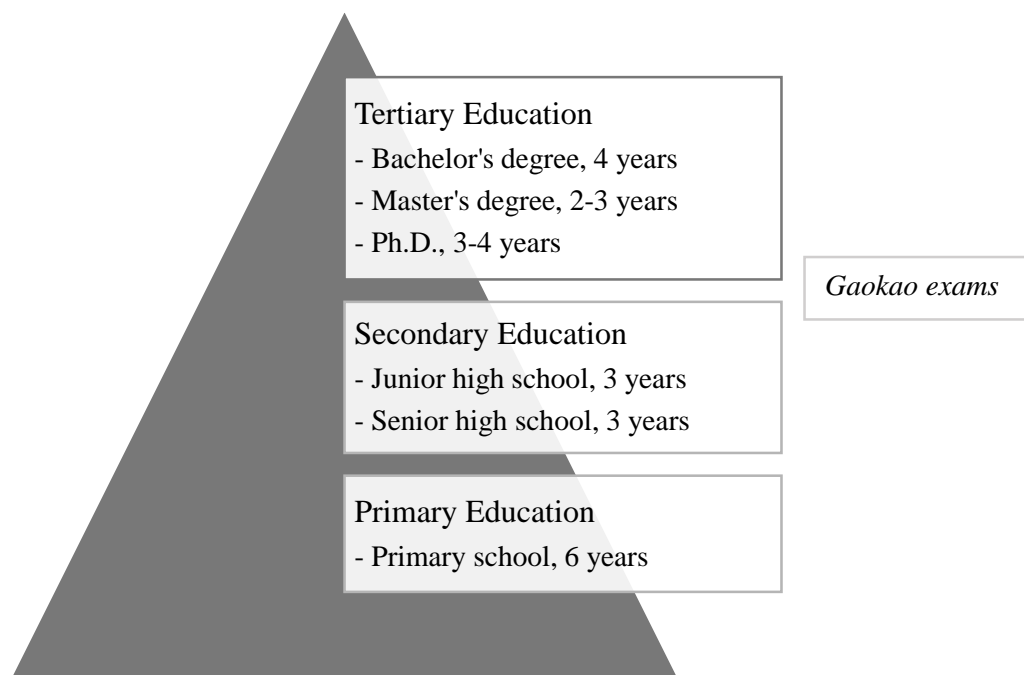
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Appendices

Appendix 1: China's Educational System



Source: UNESCO. *UNEVOC: Education System in China* [online]. 10 June 2011. Available at: <http://www.unevoc.unesco.org/go.php?q=China&context=>.

Appendix 2: Survey in Chinese (original)

中国人力资本 2015

如果您的年龄在 20-30 岁之间的话，请您帮我写完我的毕业论文，填写这张调查表。

谢谢您的合作！

1. 您的年龄在 20-30 岁之间吗？

☐ 对

☐ 否

2. 您的性别：

☐ 女

☐ 男

3. 您来自哪里？

☐ 东北地区（辽吉黑）

☐ 华北地区（京津冀晋内蒙）

☐ 西北地区（陕甘青宁新）

☐ 华东地区（沪苏浙皖闽赣鲁）

☐ 中南地区（豫鄂湘粤桂琼）

☐ 西南地区（渝川贵云藏）

4. 您的家城市是几线的？

☐ 一线

☐ 二线

☐ 三线

☐ 四线和五线

5. 您的家年收入：

☐ 60000 元以下

☐ 60000-105999 元

☐ 106000-229000 元

☐ 299000 元以上

6. 您的职业：

☐ 学生

☐ 工作

☐ 居家

☐ 其他

7. 您的最高学历是什么？

☐ 小学

☐ 初级中学

☐ 高级中学

☐ 大学

8. 您觉得教育很重要吗？

☐ 对

☐ 否

9. 申请学校的时候，您觉得什么最重要？

- ☐ 声誉
- ☐ 专业
- ☐ 技术向
- ☐ 其他

10. 您是学生的时候，学习多少小时一天？

- ☐ 3 小时以下
- ☐ 4-7 小时
- ☐ 8-11 小时
- ☐ 12 小时以上

11. 您曾留学过吗？

- ☐ 对
- ☐ 否
- ☐ 否，不过要留学

12. 如果您留学的话，毕业后您打算做什么？

- ☐ 回来中国
- ☐ 住在外国
- ☐ 不知道

13. 上学的时候，您实习吗？

- ☐ 对
- ☐ 否

- 否，不过要实习

14. 您觉得除了好考分以外，实用技术也很重要吗？

- 对

- 否

15. 毕业后，您安排：

- 工作

- 结婚，居家

- 其他

16. 您在哪里的公司想要工作？

- 中国

- 外国

- 中国和外国都可以

- 不安排工作

Source: Dvořáková, Markéta. *China's Human Capital 2015* [online survey]. 20 October 2015.

Appendix 3: Survey in English

China's Human Capital 2015

In case you are of age between 20 and 30 years old, please, help me finish my diploma thesis, fill out this survey. Thank you for your cooperation!

1. Is your age between 20 and 30 years?

- ☐ yes
- ☐ no

2. Your gender:

- ☐ female
- ☐ male

3. Where do you come from?

- ☐ Northeast (Liaoning, Jilin, Heilongjiang)
- ☐ North (Beijing, Tianjin, Hebei, Shanxi, Inner Mongolia)
- ☐ Northwest (Shaanxi, Gansu, Qinghai, Ningxia, Xinjiang)
- ☐ East (Shanghai, Jiangsu, Zhejiang, Anhui, Fujian, Jiangxi, Shandong)
- ☐ South Central China (Henan, Hubei, Hunan, Guangdong, Guangxi)
- ☐ Southwest (Chongqing, Sichuan, Guizhou, Yunnan, Tibet)

4. What tier is your hometown?

- ☐ 1st tier
- ☐ 2nd tier
- ☐ 3rd tier
- ☐ 4th and 5th tier

5. Your annual household income:

- a. less than 60,000 RMB
- b. 60,000 – 105,999 RMB
- c. 106,000 – 229,000 RMB
- d. more than 229,000 RMB

6. Your occupation:

- ☐ student
- ☐ employed
- ☐ stay at home
- ☐ others

7. What is your highest achieved education?

- ☐ primary
- ☐ secondary: junior high school
- ☐ secondary: senior high school
- ☐ university

8. Do you think that education is important?

- ☐ yes
- ☐ no

9. When applying to a school, what do you think is the most important factor?

- ☐ prestige
- ☐ specialisation
- ☐ skill-oriented approach
- ☐ others

10. How many hours have you spent studying daily during your studies?

- ☐ 1-3 hours
- ☐ 4-7 hours
- ☐ 8-11 hours
- ☐ more than 12 hours

11. Have you studied abroad?

- ☐ yes
- ☐ no
- ☐ no, but I plan to do so

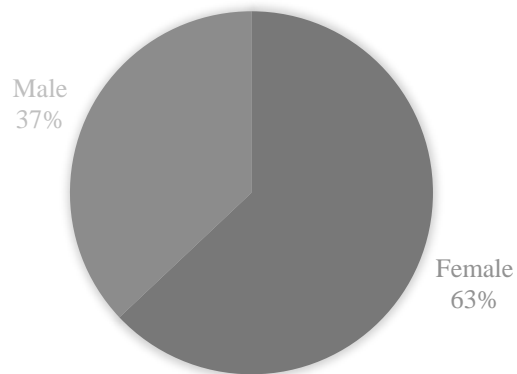
12. If you have studied abroad, what do you intend to do after your studies?
- ☐ return to China
 - ☐ stay abroad
 - ☐ I do not know yet
13. Have you done any internships during your studies?
- ☐ yes
 - ☐ no
 - ☐ no, but I plan to do so
14. Do you think that beside good grades practical skills are also important??
- ☐ yes
 - ☐ no
15. After graduation, you plan to:
- ☐ work
 - ☐ get married and stay at home
 - ☐ others
16. What company do you want to work for?
- ☐ Chinese
 - ☐ foreign
 - ☐ I consider both Chinese and foreign
 - ☐ I do not intend to work.

Source: Dvořáková, Markéta. *China's Human Capital 2015* [online survey]. 20 October 2015.

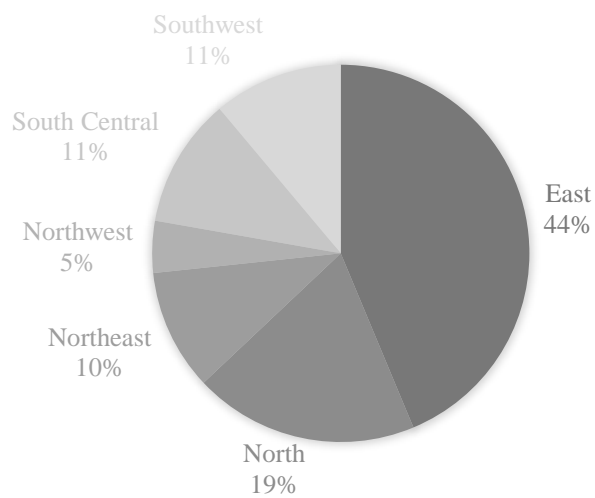
Appendix 4: Survey Results

The following pie charts do not include the first question as it was aimed just to sort valid answers, i.e. responses by the generation Y.

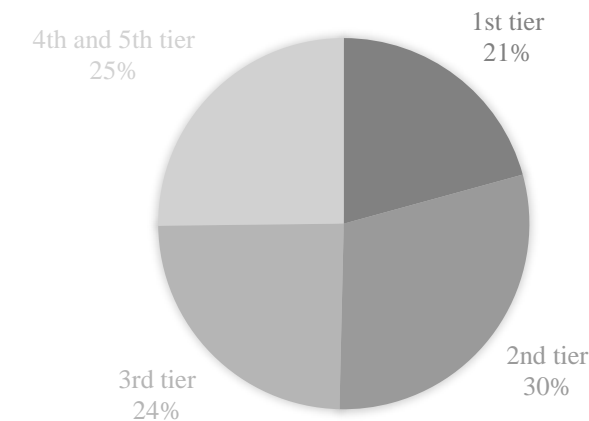
2. Your gender:



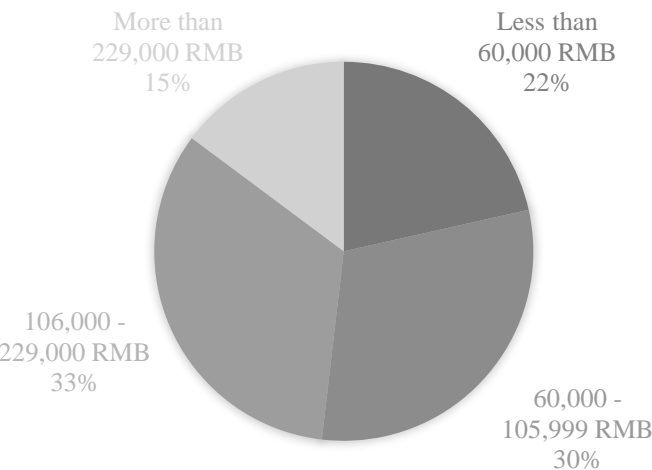
3. Where do you come from?



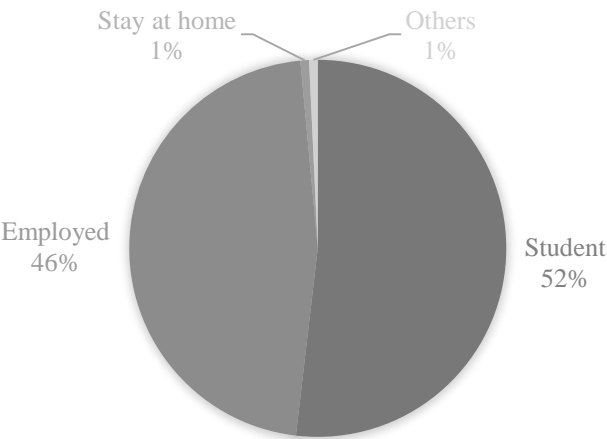
4. What tier is your hometown?



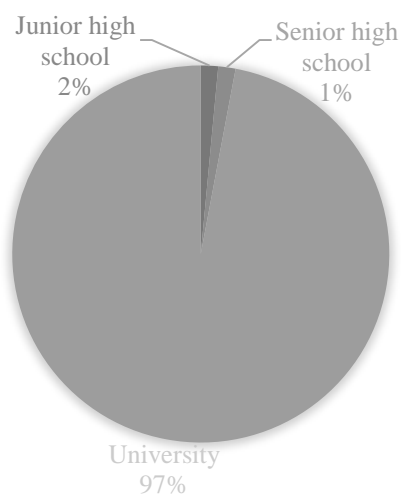
5. Your annual household income:



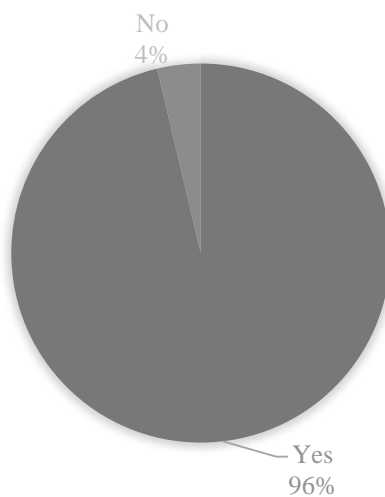
6. Your occupation:



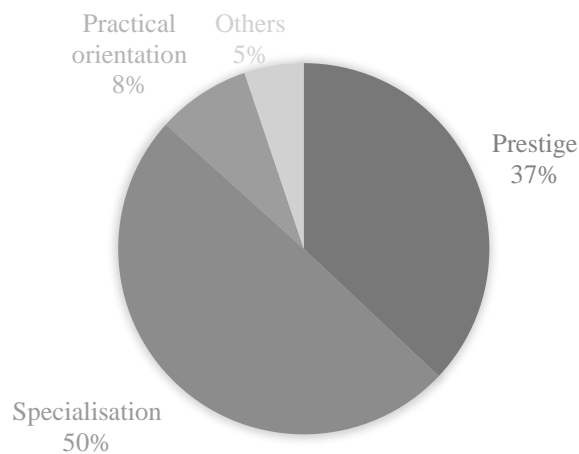
7. What is you highest achieved education?



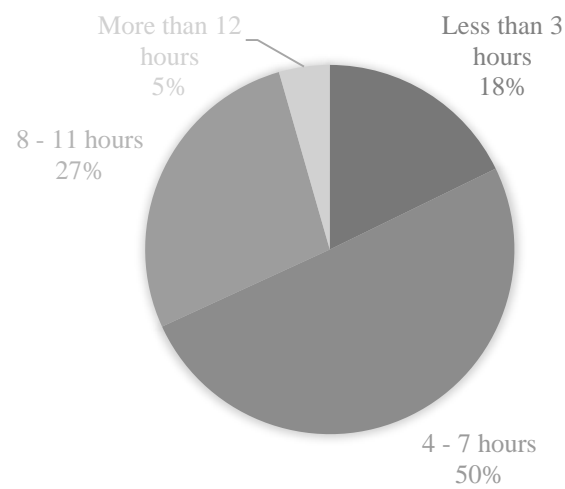
8. Do you think that education is important?



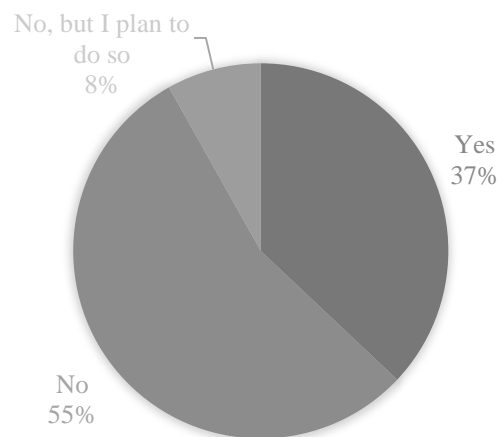
9. When applying to a school, what do you think is the most important factor?



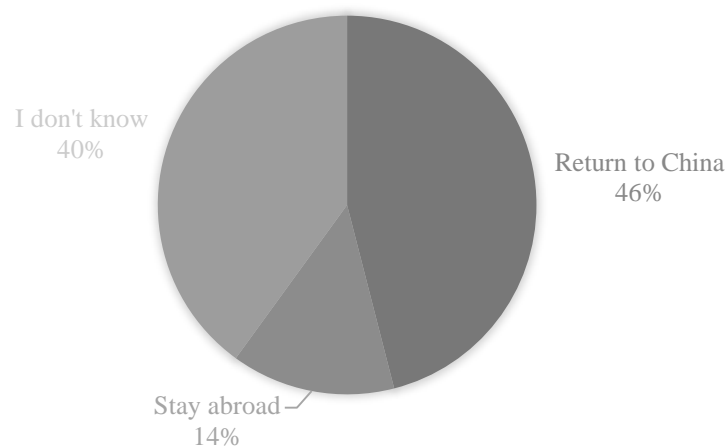
10. How many hours have you spent studying daily during your studies?



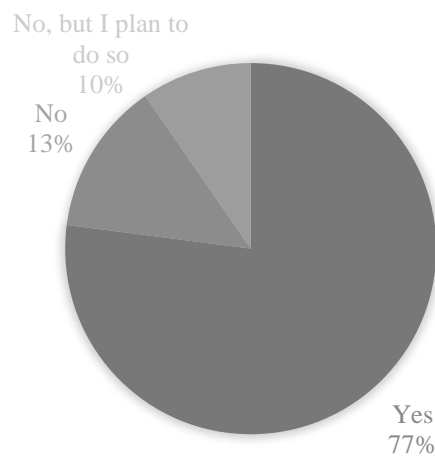
11. Have you studied abroad?



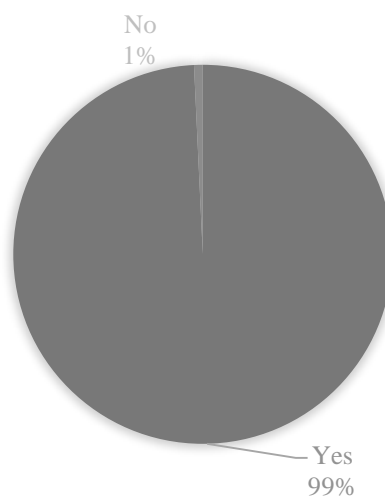
12. If you have studied abroad, what do you intend to do after your studies?
(50 respondents, who have studied abroad)



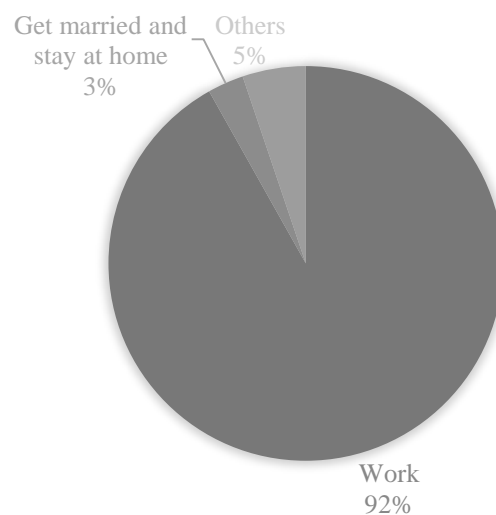
13. Have you done any internships during your studies?



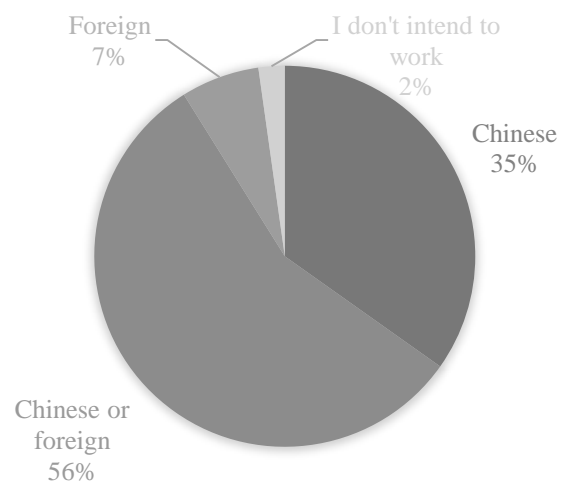
14. Do you think that beside good grades practical skills are also important?



15. After your graduation, you plan to:



16. What company do you want to work for?



Source: Dvořáková, Markéta. *China's Human Capital 2015* [online survey]. 20 October 2015.