The role of cultural and creative industries in optimizing industrial structure under low-carbon emission constraint

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Abstract: In the post-financial crisis era, China is facing dual pressure from reducing carbon emissions and external demand stagnation. The industrial structure changing is in urgent needs. The cultural and creative industries can expand China’s markets through creating and stimulating demands, and can reduce carbon emissions at the same time. By producing both demands and supplies, cultural and creative industries may lead the development of other industries. Since innovation plays a quite important role in the value chain, cultural and creative industries can promote the industrial upgrading and the industrial structure optimization by industrial convergence.

Keywords: Cultural and creative industries; Low-carbon constraint; Industrial convergence; Industrial structure

1 Introduction

China is facing the dual pressures of both reducing its carbon dioxide emissions and the stagnation of external demands in the post-financial crisis era. On the one hand, the demands of developed countries are still insufficient, which makes China's exports shrink sharply. On the other hand, China is under more and more severe carbon dioxide emission constraints. Due to its industry structure, China has become the world's largest emitter of carbon dioxide. China has announced its schedule for carbon dioxide reduction. During the UN’s summit on climate change on Sept. 22, 2009, China announced that it would try to make significant reduction of carbon dioxide emission per capita in 2020 than in 2005. In Copenhagen summit, China officially committed to reduce 40%-45% carbon dioxide emissions per capita in 2020 than in 2005 [1].

The target of carbon emission reduction makes low-carbon economy an inevitable choice for China. However, the high energy consuming industries are still popular under present industry frame-work. Therefore, the current model of economic development and industrial structure needs urgent adjustment. Low-carbon economy can improve energy efficiency by reducing fossil fuels' depletion, and can optimize industrial structure by technology innovation. Creative and cultural industries have also been quite powerful and useful during the economic crisis. Lipstick Effect is a convincing example. From the experience of crisis of 1929 and 1997, it seems that creative and culture industries may even benefit from the crisis. USA, Japan and Korea all take the creative and cultural industries’ development strategy as the treatment to financial crisis. Nowadays, 20% of USA’s GDP comes from creative and cultural industries. The creative and cultural industries should be the direction of industrial structure optimization.

2 Literature review

The definition of creative and cultural industries is gradually improved with the creative economic theories and practices development. In 1994, Australia announced its first cultural policy report, in which it took “Creative Nation” as its target. Creative industries, as a formal terminology in the literature, can be dated back to the CIMD (Creative Industries Mapping Documents) released by UK Ministry of Culture, Media and Sport in November 1998. The report formally defined the
concept and catalog of specific industrial sectors of Creative Industries. Caves defined Creative Industries as to provide broad products and services associated with cultural, artistic and entertainment value. In his view, the economic activity of creative and cultural industries can affect the supply-demand relation and the price of cultural products and service [2]. John Hawkins explicitly put forward the concept of creative industries and its connotation and extension, in which he believed creative industries should include copyrights, patent, trade mark and design industries, the most significant character of which are that the products are under the protection of the Intellectual Property Law [3]. Richard Florida further improved the theory of the creative economy. He thought technology, talent and tolerance to innovation are three essential elements for the development of creative economy [4].

The discovery of creative and cultural industries’ influence on economic development can be traced back to 1912. Schumpeter’s innovative theory believed that the fundamentally driving force of modern economic development is not capital and labor, but innovation. The most critical factor in innovation is the use of knowledge. In such sense, economic development is the alternation of prosperity and depression caused by innovation. Robert Lucas, the representative scholar of endogenous growth theory, argued that the economic growth is driven by endogenous factors rather than by external forces. Therefore, the economy can achieve sustainable growth. And the efficiency of production elements may not be marginal decreasing. Another representative scholar Paul Romer argued that special knowledge and human capital were the key factors in determining economic growth. He also took knowledge as an important factor in increasing marginal revenue. He believes that new idea would lead to new products, new markets and new opportunities. New idea is the primary force to promote economic development.

Scholars also deeply studied how the creative and cultural industries affect industrial structure and economic growth. By empirical research, Jason Potts and Stuart Cunningham pointed out that the economic value of the creative and cultural industries is over its contribution to production and employment. Its most important role is to promote the evolution of society and economy. From the industrial upgrading point of view, Allen studied the American 48 states’ cross-sectional data in 2001 and drew the conclusion that the development of copyright changes the investment style of corporation, and accelerates consumption structure upgrading [5]. Li Wuwei studied the relation between creative and cultural industries and the changing of economic growth mode [6].

This paper studies how the creative and cultural industries affect economic growth and industrial structure optimization.

3 Lack of demands and constraint by low carbon emission: what creative and cultural industries can do?

3.1 The creative and cultural industries being efficient and environment-friendly

Traditional ways of economic development depend on material resource, which leads the increasing environment degradation. To solve the population problem, China must maintain a certain developing speed. But in the current industrial structure, the manufacturing sector is too heavy, so that the energy consumption can hardly be reduced. Under the dual constraints of reducing carbon dioxide emission and external demands stagnation, China is urgent to find a new way of economic development. Creative and cultural industries focus on exploring the use of intangible resources, such as the advanced human capital. The intellectual property and technology are the key elements to drive the economic development. Creative and cultural industries consume less energy than traditional industries and could earn more revenue.

Table 1 is a price-earning ratio of listed companies According to SFC industry classification. This paper selects monthly cross-sectional data from listed companies in Shenzhen and Shanghai stock market from 2005 to 2010. Because price
earning ratio is relatively stable in short time, this paper selects the record of last day of each month as the representative data of the month for the PE data. From the table, we can find that profitability of creative and cultural industries is much higher than other industries.

Under the external constraints on carbon dioxide emission, the development of creative and cultural industries can avoid the carbon emission regulation and at the same time promote the enterprises’ profitability and the speed of economic growth.

3.2 Creating demands, increase market capacity

During the post-financial crisis era, China is facing the problem of external demands stagnation partly because of the reduction of demands under financial crisis, and at the same time because production renovation cannot keep up with the change of customers' need. The major function of creative and cultural industries is to replace the product-oriented business with customer-oriented business. The creative and cultural industries concern about the value of consumer and thus create new products and new market demands [7]. Different from traditional industries, creative and cultural industries make innovation in the production and sales process according to customer's value rather than just focusing on products' function. Thus, the desire of purchase arouses, the potential customers become real customers, and the new market forms. On the other hand, analysis and research about customer can contribute to build a more segments of the consumer groups and cultivate a more loyal end consumer [8]. The customers' interests changing can directly change the structure and capacity of market, which makes it easy to stretch the industrial chain and boost economic growth.

Lu Linxin's study shows that there is a co-integration relationship (long term stable equilibrium relationship) between investment in creative and cultural industries and economic growth. Each additional percentage of investment in creative and cultural industries will lead GDP increase 0.2375 percentages [9]. Also, the Grange Causality Test in his paper also shows that there is a one-way causality between investment in creative and cultural industries and economic growth in short term.

In fact, creative and cultural industries do not only boost the economic growth but also play an active role in optimizing industry structure.

Table 1
Price-earning ratio of listed companies by industry (2005-2010)

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<tbody>
<tr>
<td>Agriculture</td>
<td>22.20</td>
<td>38.86</td>
<td>75.94</td>
<td>67.43</td>
<td>53.48</td>
<td>65.49</td>
<td>53.90</td>
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<tr>
<td>Mining industries</td>
<td>12.59</td>
<td>19.32</td>
<td>65.53</td>
<td>53.63</td>
<td>24.90</td>
<td>24.48</td>
<td>33.41</td>
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<tr>
<td>Manufacturing</td>
<td>14.20</td>
<td>27.98</td>
<td>77.07</td>
<td>53.27</td>
<td>38.82</td>
<td>44.46</td>
<td>42.63</td>
</tr>
<tr>
<td>Power and gas</td>
<td>14.86</td>
<td>21.02</td>
<td>68.26</td>
<td>47.91</td>
<td>44.63</td>
<td>45.91</td>
<td>40.43</td>
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<tr>
<td>Engineering and construction</td>
<td>23.47</td>
<td>35.04</td>
<td>69.70</td>
<td>43.97</td>
<td>55.45</td>
<td>58.82</td>
<td>47.74</td>
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<tr>
<td>Transportation</td>
<td>20.25</td>
<td>29.40</td>
<td>53.29</td>
<td>37.41</td>
<td>24.18</td>
<td>28.88</td>
<td>32.23</td>
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<td>IT industry</td>
<td>28.00</td>
<td>39.75</td>
<td>92.88</td>
<td>66.35</td>
<td>28.26</td>
<td>34.50</td>
<td>48.29</td>
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<tr>
<td>Wholesale and retail</td>
<td>22.25</td>
<td>43.09</td>
<td>80.20</td>
<td>54.01</td>
<td>38.24</td>
<td>46.58</td>
<td>47.39</td>
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<tr>
<td>Finance and insurance</td>
<td>21.32</td>
<td>53.20</td>
<td>109.80</td>
<td>53.65</td>
<td>38.07</td>
<td>35.40</td>
<td>51.90</td>
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<tr>
<td>Real estate</td>
<td>19.83</td>
<td>43.81</td>
<td>102.58</td>
<td>68.23</td>
<td>39.19</td>
<td>34.42</td>
<td>51.34</td>
</tr>
<tr>
<td>Social services</td>
<td>24.81</td>
<td>35.19</td>
<td>100.75</td>
<td>62.69</td>
<td>43.97</td>
<td>51.18</td>
<td>53.09</td>
</tr>
<tr>
<td>Cultural industries</td>
<td>47.86</td>
<td>84.65</td>
<td>186.83</td>
<td>121.46</td>
<td>103.47</td>
<td>104.72</td>
<td>108.16</td>
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<tr>
<td>Miscellaneous</td>
<td>33.02</td>
<td>63.66</td>
<td>59.89</td>
<td>38.46</td>
<td>62.25</td>
<td>70.09</td>
<td>54.56</td>
</tr>
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Data source: China Info bank.
4 What the creative and cultural industries can do in optimizing industrial structure?

4.1 The role of two-way association between creative and cultural industries and other industries

The creative and cultural industries can advance the development of other related industries. The leading role can be divided into forward linkage and backward linkage.

According to Hirschman’s explanation (The Strategy of Economic Development, 1958), forward linkage relation concerns about supply. The creative and cultural industries enable other industries to develop rapidly by offering innovation service. For example, creative and cultural industries can accelerate manufacturing industry's upgrading by offering industrial design, brand planning, marketing and promotion [10]. The creative and cultural industries could offer essential service for different parts of industrial chain, so that individual enterprises could strengthen their competitive advantages.

Backward linkage between creative and cultural industries and other industries mainly concerns about demand. Typical backward linkage industries of creative and cultural industries are construction and real estate industry. We can see that many cultural and creative industry parks have been built in the recent years. The creative and cultural industries can change the regional economic situation and urban planning, which can directly influence the real estate markets [11].

4.2 Industrial integration and industrial upgrading

Smiling Curve put forward by Acer Group in 1992 proposed an opening up parabola to describe the added value in different PC manufacturing processes. Afterwards, this concept is extended to other industries and mainly referred to the different added value in different levels of industrial chain. The highest added value accompanies with research and marketing while the lowest added value accompanies with low-end manufacturing. In a global aspect, manufacturing industry in China is in the low end of the whole industrial chain. The creative and cultural industries can play a positive role in industrial upgrading.

First of all, the creative and cultural industries can extent the industrial chain. Technological innovation can change the model of manufacture and sale and can also help traditional industries extend itself to upstream and downstream in the industry chain. Iphone and Ipad are the perfect examples of the integration of technology, culture, manufacture and marketing.

Secondly, creative and cultural industries can contribute to the upgrading of industrial structure. Culture can add value to the commodity. The economic value of commodity is not only determined by its functional and technical quality, but also by its cultural content. Moreover, creative and cultural industries could reengineer production and sales process.

Thirdly, creative and cultural industries could encourage emergence and development of new industries. The integration of industries can promote innovation which favors the emergence of new products and new business. We can list the digital film industry, internet retailing and agriculture tourism as examples.

4.3 Reshaping the industrial structure

The development of creative and cultural industries makes the research focus of industries change from production chain to value chain. The basic elements such as idea, capital and intelligence constitute the value chain system of creative industries [12]. The system includes content industry, distribution industry, and supporting industry, which provides elements for production and marketing. The merit of creative and cultural industries is that it is an open system rather than a self-sufficient and closed system. On the other hand, in the interaction with creative and cultural industries, traditional industries will complete their reconstruction process through which creation and creative technology innovation could play a very important role.

The creative and cultural industries can also reshape the traditional industrial structure. Traditional industry is a collection of similar enterprises
which form a vertical chain structure. Separated from traditional industries, creative idea is an independent input factor. Thus, productive creative industries could reshape the industrial structure by offering creative service. With the appropriate cultural background and creative environment, creative and cultural industries could be in the core of the whole industrial structure with manufacture and marketing around. The competition to gain creative idea of market could stimulate the resources flow in different sectors. Thus, the development of creative industries could facilitate the adjustment and optimization of industrial structure.

5 Conclusion

Development of creative and cultural industries can create demands, expand markets and promote economic growth, which can also reduce carbon emissions. Moreover, cultural and creative industries can help other industries’ upgrading and accelerate the optimization of industrial structure. China’s economic growth will find a better way in this direction. Industry planning should pay much attention to the status of cultural and creative industries and give more favorable policies to support the development of creative and cultural industries.

References