

# **8 WTO and Sustainable Competitiveness of China's Textile and Clothing Industry**

## **8.1 INTRODUCTION**

Globalization and emergence of new players have intensified the competition in the world clothing markets. China has been a major player of world clothing and textile trade in the last decades. In the past years, high concerns have been generated on how the competitiveness of China textile and clothing (TC) industry will be influenced by WTO and trade globalization.

If we take trends of export values as one of the key indicators for measuring competitiveness, the competition is intensive and highly concentrated among the top ten exporting countries. The total export value in world clothing trade was US\$180 billion in 1998, with 62.5% shared by the top ten exporting countries. China was the world leader, accounted for 16.7% of global export market share, followed by Hong Kong as the second leader with 12.3% market share, and the Italy, US, Germany, Turkey, Mexico, France, UK and Korea. Among the top 10 exporting countries/regions, Mexico had the highest growth as a result of Outward Processing Trade (OPT) with the US [1]. In world textile trade, the total export value of textiles was US\$ 151 billion in 1998, with the top ten countries accounted for 69.3% of the global export market share. The leader was Germany, followed by Hong Kong, Italy, China, Korea, Taiwan, USA, France, Belgium-Luxembourg and Japan. In 1998, the total export values from Germany, Hong Kong, Italy and China were US\$ 13.3 million, US\$ 13.0 million, US\$ 13.0 million and US\$ 12.8 million respectively. On a compound basis, the total export from China increased by 6.8% annually from 1992 to 1998. USA enjoyed the highest compound growth rate of 7.8% from 1992 to 1998 due to the establishment of the North American Free Trade Agreement [1, 2].

After China's entry to WTO and the world trade globalize, the competition among the major players will be intensified. How to sustain competitiveness in a more open and free business environment is a major concern. This paper aims to explore this issue by developing a model to evaluate the sustainable competitiveness of China textile and clothing (TC) industry against the major competing countries/regions in various scenarios with China's entry or non-entry to WTO.

## **8.2 SUSTAINABLE COMPETITIVENESS OF THE TC INDUSTRY**

The competitiveness of the TC industry in a country or region is not only dependent on the level of core competence of individual enterprises in the industry, but also on the integration of the whole supply chain and relevant supporting industries, as well as internal and external business environments.

The core competencies of individual enterprises are the fundamental elements for the sustainable competitiveness of an industry. Prahalad and Hamel [3] pointed out that the current competitiveness of a company derived from the price/performance of existing products. Future competitiveness derives from the ability to build, at low cost and more speedily than competitors. A corporation is a large tree. The trunk and major limbs are core products, the smaller branches are business units, the leaves, flowers and fruit are end products. The root system that provides nourishment, sustenance and stability is the core competence, which involves harmonizing streams of technology, organization of work and delivery of value. Core competence has the following features: (1) does not diminish with use, (2) provides potential access to a wide variety of markets, (3) makes a significant contribution of the perceived customer benefits of the end products, (4) is difficult for competitors to imitate. At the level of core competence, the goal is to build world leadership in the design and development of a particular class of product functionality. To sustain leadership in their chosen core competence areas, the company seeks to maximize the world-manufacturing share in core product [3].

Javidan further discussed the hierarchy of competencies and defined the terms. Resources, at the bottom level, are the inputs into the organization's value chain, including physical resources such as plant and equipment, human resources such as manpower and management team and organizational resources such as culture and reputation. Capabilities, at the second level, are the ability of an organization to exploit its resources, which is functionally based and consists of a series of business processes and routines to transform inputs to outputs including marketing capabilities, production capabilities, distribution and logistics capabilities and human resource management capabilities. A competence, at the third level, is a cross-functional integration and co-operation of capabilities such as a set of skills and know-how resulting from interfaces and integration of functional capabilities. For instance, the competence of developing new products may consist of integrating MIS capabilities, marketing capabilities, R&D capabilities and production capabilities. Core competencies, at the highest level, are skills and areas of knowledge that are shared across the corporation as collections of competencies. Core competencies require collective organizational learning, involvement and commitment to cross-SBU (sub-business unit) integration. In above example, new product development is a core competence if it goes beyond one SBU [4].

Javidan also argued that each level in the hierarchy is resulted from integration of elements in the lower level. Each level encompasses a higher level of value added to the corporation. Core competencies add the highest value since they exploit resources and capabilities at the broadest level across the corporation as a whole. Also, the higher levels in the hierarchy have broader scope and are more difficult to achieve.

In terms of regional competitiveness, Porter [5, 6] pointed that the enduring competitive advantages in global economy lie increasingly in local things, which distant rivals cannot match, including knowledge, relationships and motivation. Modern economic map of the world is considered dominated by clusters, which is

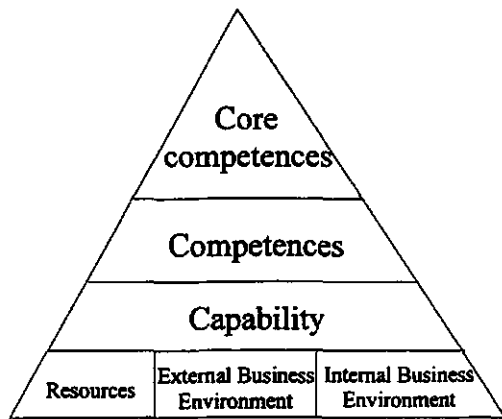
defined as geographic concentrations of interconnected companies and institutions that achieve unusual competitive success in a particular field. Porter and other researchers further argued that productivity, not exports or natural resources, determines the competitiveness and prosperity of any state or nation. Birth and growth of clusters are highly dependent on their productivity growth that is largely determined by the local competition and innovation. This highlights the importance of industrial supply chain integration, support of relevant industries as well as general business environment.

Storper [7] pointed out that in growing world trade; export specialization based on specific products becomes increasingly important. Export specialization is largely due to product-based “absolute” technological advantages, which is renewed through learning in a variety of dynamic economies. Such export-oriented absolute advantage industries tend to be organized into production and distribution networks combining the advantages of specialization and flexibility, called as “technology districts”. The features of such technology districts are: (1) trade specialization is achieved by obtaining absolute technological scarcity of the products; (2) the technological scarcity is gained through technological dynamism in product through continuous learning; (3) production networks are organized on the basis of elaborated shifting division of labor between firms or between units of a single firm, for achieving technological dynamic flexibility; (4) key collections of physical, capital, labor, and information resources for the production network are highly geographically concentrated in one or a few sub-national regions of the host countries; (5) the technological learning rests on the conventions of the regional production system, which guide the mobilization and maintenance of resources in mutual engagement between firms. The conventions are rooted in local political, cultural and other non-economic forces, which determine the quality of the technology districts.

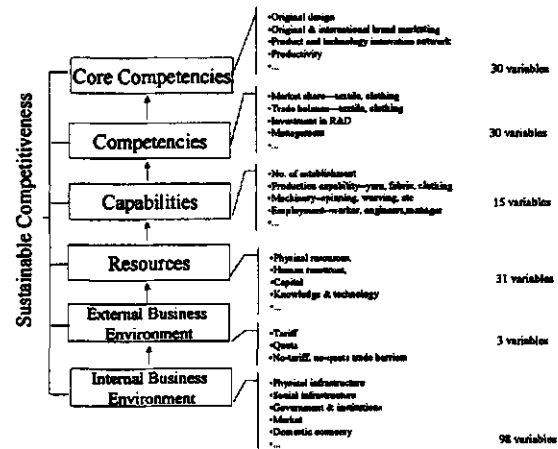
The theory of core competence focuses on the competitiveness of individual enterprises, while the theory on competitiveness of a nation or region highlights the effects of integration and dynamic interaction across the industry, relevant industries and environment (called clusters). Both theories are equally important for developing intellectual understanding of the competitiveness and sustainable developments in specific areas of a nation or region. Sustainable competitiveness of an industry in a nation or/region shall be determined by the levels of competencies in individual enterprises and the collective national/regional learning, involvement and commitment to cross industry integration of their competencies.

### **8.3 DEVELOPMENT OF SIMULATION MODEL**

On the basis of this understanding, we assume that a hierarchy of six factors (dimensions) determines the sustainable competitiveness of an industry in a nation or region, as shown in Figure 8.1. Resources, internal business environment and external business environments are at the bottom level of the hierarchy. Resources are the inputs into the industry supply chain, including physical resources such as materials, plant and equipment, human resources such as manpower and knowledge and technology, financial resources such as capital and social resources such as culture and reputation. Internal business environment is a variable representing the impact of the conventions rooted in local economical, political, cultural and other non-economic forces on the competitiveness of the industry. This variable includes factors such



8.1 Hierarchy of the sustainable competitiveness of an industry



8.2 Roots of competitiveness

as political environment, domestic economy, market opportunities, taxation, policies for private enterprises, foreign investment and foreign currency, capital market, labor market and physical infrastructure. External business environment is a variable indicating the influence of external (international) trading environment on the industry, including factors such as tariff, quotas and non-tariff barriers to TC products.

Capabilities, at the second level of the hierarchy, are the abilities of an industry to exploit its resources. Capability is functionally based and consists of a series of business processes and routines to transform inputs to outputs including marketing capabilities, production and machinery capabilities, number of establishments of companies and human resource management capabilities.

Competencies, at the third level of the hierarchy, are the cross-functional integration and co-operation of capabilities such as a set of skills and know-how resulting from interfaces and integration of functional capabilities in the industry. This variable includes factors such as international trade and export capacities, R&D and new product development abilities, as well as marketing and management abilities. The competencies of an industry may consist of the core competencies in individual enterprises. Core competencies of an industry, at the highest level of the hierarchy, are skills, abilities and areas of knowledge that are shared across the industry as collections of competencies. Core competencies require collective industrial/ regional learning, involvement and commitment to cross enterprise integration, including factors such as design culture, creativity and network, flexible production network, trading and merchandising clusters, technology and product innovation learning network, original branding and international marketing culture and capability.

Mathematical description of this model can be represented as follows:

$$SC = f(x_1, x_2, x_3, x_4, x_5, x_6) = W X^T, \quad (1)$$

Where SC is the sustainable competitiveness,  $x_1$  = core competencies,  $x_2$  = competencies,  $x_3$  = capabilities,  $x_4$  = resources,  $x_5$  = internal business environment,  $x_6$  = external business environment,  $X = [x_1, x_2, \dots, x_6]$  and  $W = [w_1, w_2, \dots, w_6]$ . These six variables (dimensions) are functions of many sub-variables (factors):

$$x_1 = f_1(\alpha_{1j} y_{1j}) = A_1 Y_1^T, \quad j = 1, 2, \dots, m_1 \quad (2)$$

$$x_2 = f_2(\alpha_{2j}y_{2j}) = A_2Y_2^T, \quad j = 1, 2, \dots, m_2 \quad (3)$$

$$x_3 = f_3(\alpha_{3j}y_{3j}) = A_3Y_3^T, \quad j = 1, 2, \dots, m_3 \quad (4)$$

$$x_4 = f_4(\alpha_{4j}y_{4j}) = A_4Y_4^T, \quad j = 1, 2, \dots, m_4 \quad (5)$$

$$x_5 = f_5(\alpha_{5j}y_{5j}) = A_5Y_5^T, \quad j = 1, 2, \dots, m_5 \quad (6)$$

$$x_6 = f_6(\alpha_{6j}y_{6j}) = A_6Y_6^T, \quad j = 1, 2, \dots, m_6 \quad (7)$$

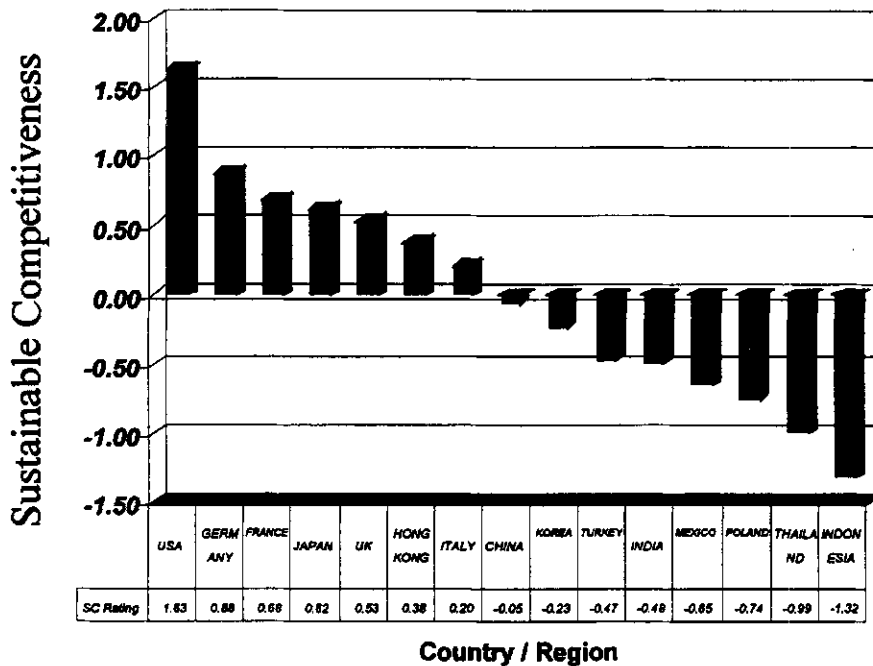
$$A_i = [A_{i1}, A_{i2}, A_{i3}, \dots, A_{mi}] \quad j = 1, 2, \dots, m_i$$

$$Y_i = [Y_{i1}, Y_{i2}, Y_{i3}, \dots, Y_{mi}] \quad j = 1, 2, \dots, m_i$$

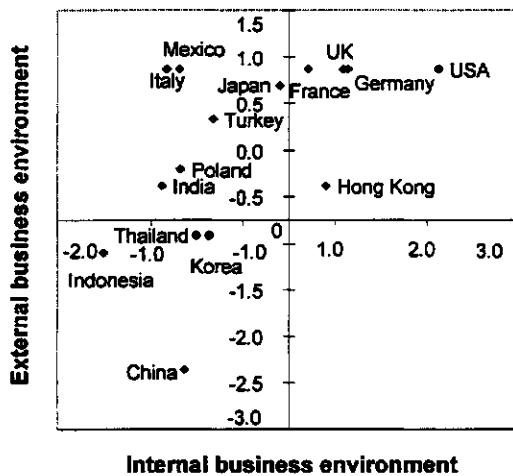
Where,  $y_{ij}$  and  $\alpha_{ij}$  are the sub-variables and their weights respectively. Figure 8.2 shows the structure and specifications of the model and the number of sub-variables in each of the dimensions, in which a total of 207 variables are included in the model. According to this model, extensive research has been carried to obtain relevant quantitative data and qualitative information. Majority of the data are obtained from *The world competitiveness yearbook* [8], *Asia Pacific Market Handbook* [9], *Consumer Asia 1999* [10], *Consumer Europe* [11] etc. for the dimensions of internal business environment and resources. For the dimensions of capabilities, competencies and core competencies, the data are obtained or estimated also from *The World Competitiveness Yearbook* [8], *Almanac of China's textile industry* [12], and some professional institute reports [1, 2, 13] [14]. The data for individual variables are standardized. Ratings on the six dimensions, including internal business environment, external business environment, Resources, capability, competencies and core competencies, are calculated then according the model. The values of these six dimensions are further standardized for the calculation of the overall sustainable competitiveness with specification of weights according to the levels of individual variables in the competence hierarchy. The overall ratings of sustainable competitiveness of clothing industry are generated for fifteen countries (regions) that are the major players in the global clothing markets.

#### 8.4 SIMULATION RESULTS AND DISCUSSIONS

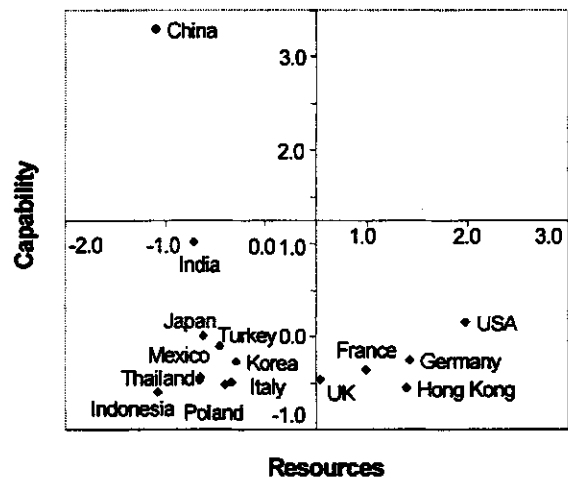
Figure 8.3 shows the positions of overall sustainable competitiveness of TC industry in 15 nations / regions. USA TC industry has the highest sustainable competitiveness, followed by German, France, Japan, UK, Hong Kong, Italy and China. Indonesian and Thailand are at the low end of the list. The reasons of the ranking can be illustrated by analyzing the strength and weakness of individual countries/regions in the six major dimensions.



8.3 Sustainable competitiveness of clothing industry in the fifteen countries/regions



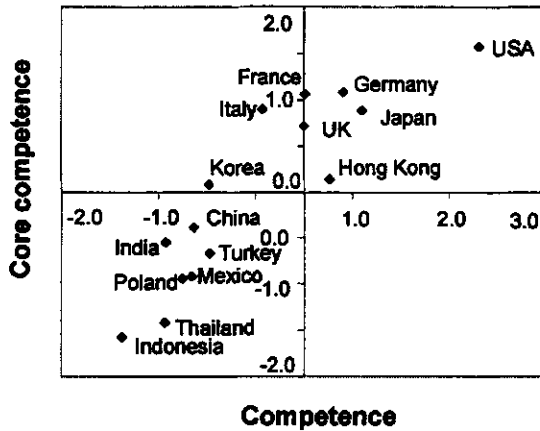
8.4 Internal and external business environment



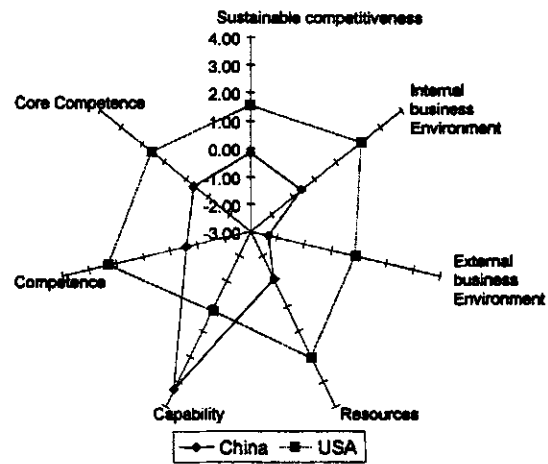
8.5 Capability and resources

Figure 8.4 shows position of individual countries in the dimensions of internal and external business environments. USA has the best position in internal business environment. UK, Germany and France have the good positions in upper corner of the figure, showing good internal and external business environments. Hong Kong owns very good internal business environment but relatively less favorable external business environment. Japan has very good external business environment and good internal business environment as well. Italy, Korea, Poland, Turkey and Mexico are positioned in the left upper corner of the figure with very good external business environment but less favorable internal business environment. Thailand, Indonesia, Korea and China are positioned at the left lower corner of the figure, showing less favorable external and internal business environment.

In Figure 8.5, positions in the dimensions of capability and resources are shown for TC industry of individual countries. China has extraordinary capability but



8.6 Competence and core competence



8.7 Comparison between USA and China textile-clothing industry

relatively low resources. India has the similar position with relatively high capability but low resources. USA, Germany, Hong Kong, France and UK are positioned in the right lower corner of the figure, showing very good resources but less strong in capability. Japan, Italy, Turkey, Korea, Mexico, Poland, Thailand and Indonesia are positioned at the left lower corner of the figure with weaker resources and lower capability.

Figure 8.6 shows that the positions of individual countries in the dimensions of core competence and competence. USA has superior position in the dimensions of competence and core competence. Germany, France, Japan, UK and Hong Kong are positioned at the upper right corner with very good competence and core competence. Italy and Korea are positioned at the left upper corner with very good core competence (especially Italy) but weaker competence. China, India, Turkey, Mexico, Poland, Thailand and Indonesia are positioned in the left lower corner, showing weakness in both competence and core competence.

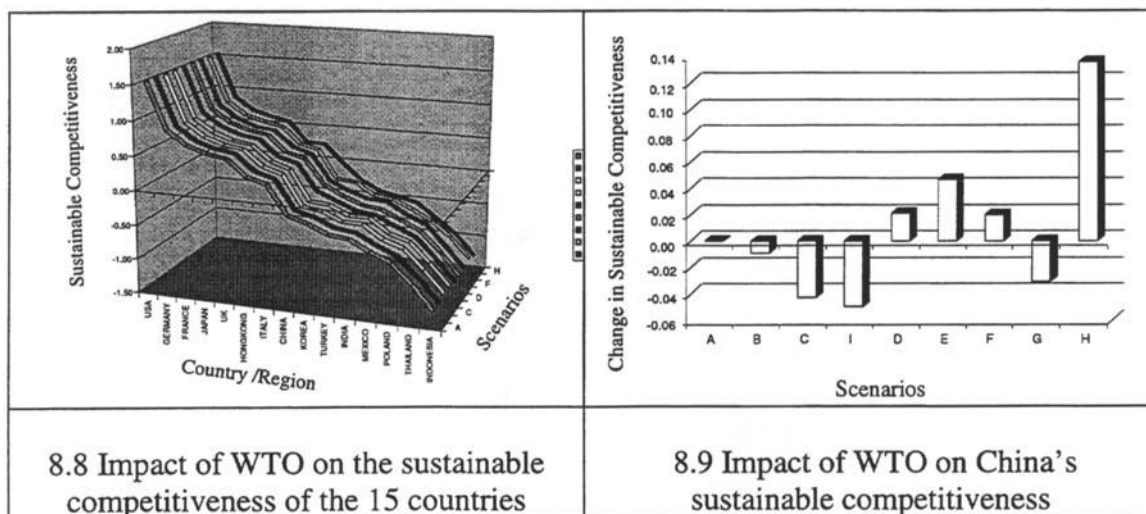
In Figure 8.7, China TC industry is compared with USA in the six dimensions and the overall sustainable competitiveness. USA textile and clothing has excellent strength in the six dimensions of internal and external business environments, resources, capability, competence and core competence, as well as the overall sustainable competitiveness. China TC industry is weak in the dimensions of business environment, resources, competence and core competence, but much higher capability; its overall sustainable competitiveness is significantly lower.

### 8.5 CHINA'S TEXTILE AND CLOTHING INDUSTRY AND WTO

In order to investigate the impact of WTO on the sustainable competitiveness of China TC industry, we carry out a systematic study of the scenarios on China's entry or non-entry to WTO and the conditions on quota, tariff and non-tariff barriers. Nine scenarios of two categories are considered in the simulation, as shown in Table 8.1. The two categories include (1) The Uruguay Round (UR) excluding China (Scenarios

Table 8.1 Scenario study of China and WTO relationships

| Scenario | China entry to |     | Uruguay Round Agreement |           |             |                 |           |             |
|----------|----------------|-----|-------------------------|-----------|-------------|-----------------|-----------|-------------|
|          | WTO            | RTB | China                   |           |             | Other countries |           |             |
|          |                |     | TC Quota                | TC Tariff | NTBs        | TC Quota        | TC Tariff | NTBs        |
| A        | No             | No  | Stay                    | Stay      | Stay        | Stay            | Stay      | Stay        |
| B        | No             | No  | Stay                    | Stay      | Stay        | Stay            | Reduction | Stay        |
| C        | No             | No  | Stay                    | Stay      | Stay        | Elimination     | Stay      | Stay        |
| I        | No             | No  | Stay                    | Stay      | Stay        | Elimination     | Reduction | Stay        |
| D        | Yes            | No  | Stay                    | Reduction | Stay        | Stay as it is   | Stay      | Stay        |
| E        | Yes            | No  | Stay                    | Reduction | Stay        | Stay as it is   | Reduction | Stay        |
| F        | Yes            | No  | Elimination             | Stay      | Stay        | Elimination     | Stay      | Stay        |
| G        | Yes            | No  | Elimination             | Reduction | Stay        | Elimination     | Reduction | Stay        |
| H        | Yes            | No  | Elimination             | Reduction | Elimination | Elimination     | Reduction | Elimination |



8.8 Impact of WTO on the sustainable competitiveness of the 15 countries

8.9 Impact of WTO on China's sustainable competitiveness

A, B, C and I) and (2) The UR including China (Scenarios D to H). Besides WTO, the impact of regional trade blocks (RTB) such as EU and NAFTA are also considered.

Figure 8.8 shows the impact of WTO on the sustainable competitiveness of TC industry of the 15 countries. For the 9 scenarios, the rankings of the sustainable competitiveness are affected only by the change in external business environment. The position of China relative to other countries/regions in sustainable competitiveness is not effected by WTO in general. This conclusion is derived on the basis of the assumption that the other five dimensions on internal business environment, resources, capability, competence and core competence do not change, indicating that WTO as a factor influencing external business environment has limited impact on the overall sustainable competitiveness of TC industry. Improvements in other aspects such as competence and core competence are at least as important as or even more important than accession to WTO.

Further, Figure 8.9 shows that non-entry to WTO does have negative impact on the sustainable competitive of China TC industry if UR agreements on tariff reduction and elimination of quotas take into effect in among WTO members. With entry to WTO, China TC industry will increase its sustainable competitiveness in general when the UR agreements take into effect, except the case where some non-tariff barriers are imposed on China (Scenario G).

## SUMMARY

The simulation results have shown that the sustainable competitiveness of China TC industry will decrease without entry to WTO and will increase with entry to WTO.



The impact of WTO on China TC industry depends on the UR agreements on deduction tariff and elimination of quotas as well as non-tariff barriers imposed on China. However, WTO is only a factor influencing the external business environment and does not have significant impact on the position of the sustainable competitiveness of China TC industry. To increase sustainable competitiveness significantly, China TC industry needs to improve internal business environment, resources, competencies and core competencies. Particularly, core competencies of collective industrial/regional learning, involvement and commitment to cross enterprise integration need to be enhanced in the key areas of design culture and creativity network, flexible production network, trading and merchandising clusters, technology and product innovation learning network, original branding and multinational marketing capability.

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