An Investigation of the Chinese Textile Manufacturers' Research and Development Strategies

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Abstract
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Keywords
China, textile, research, development

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Comments
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China is the world largest supplier of textiles (Leseure, Hurreeram, & Bennett, 2009). However, the industry now faces several challenges, including rising cost of raw material, labor, and energy (Leseure, et al, 2009). In the face of these challenges, the Chinese textile manufacturers must develop new strategies to remain competitive and responsive to the intensified global competition (Lane & Probert, 2006). One imperative is to move away from the price competition and develop firm-level R&D capabilities, which can contribute to highly differentiated production, realization of superior product quality and design, and timely response to rapidly changing market demands (Eusebio, Andreu, & Belbeze, 2007). In comparison to developed countries, R&D are relatively novel practices among the Chinese textile manufacturers (Leseure, et al., 2009), and very little information is available regarding the intensity and structure of their R&D operations (Barrios, Gorg, & Strobl, 2003). Yet, it is important to capture this rising trend in the sector for an enhanced understanding of the existing trends in the Chinese textile sector, as well as predicting its future competitiveness.

The purpose of this study was to investigate R&D strategies among the Chinese textile manufacturers. In particular, we wanted to know what R&D strategies had been adopted by the Chinese textile producers. Because firms’ R&D may vary in intensity, process of knowledge production, obstacles, and type of R&D alliance (Barrios, et al., 2003), it was important to identify existing patterns among the Chinese textile manufacturers’ R&D strategies. Finally, we examined the relationship between R&D operations and firm’s performance. In line with Barrios (2003), this study adopted a broader definition of R&D, which includes two types of firm-level R&D: (1) the firm’s activities of acquiring new technology and knowledge through external sources (e.g., purchasing existing technologies), and (2) in-house R&D with or without alliance. Both of these two types of R&D were investigated in this study.

The data for this study was extracted from a larger dataset that was collected by a county government in order to gain an overview of the current operations of the county’s textile and clothing (TC) companies. A total of 2,500 questionnaires were distributed to TC manufacturers in one county in southeastern China. The county is known for its well developed TC industry and a high concentration of small and medium TC companies. A total of 1,086 companies returned the questionnaire. Four hundred and nine companies were textile manufactures and constituted the sample for this study. Eighty-three percent of the sample was small to medium size, ranging from 20 to 500 employees. Three sets of variables were extracted from the survey, including: (1) company background information, (2) profit change in 2008 in comparison to the previous year, which was expressed as an increase or a decrease, and (3) key factors related to R&D operations (investment amount, sources of new knowledge, R&D alliance, technology level, and R&D
obstacles). General linear regression was employed to investigate relationship between the R&D factors and profit change, which was the dependent variable. The aforementioned R&D factors were independent variables.

The results indicate that R&D strategies currently adopted by the Chinese textile manufacturers are at a relatively low level, as compared to textile companies in developed countries. First, the manufacturers re-invested less than 1.5% in average of their revenues in R&D, which is considerably lower than 3-4%, which is considered to be necessary for a firm to remain competitive in manufacturing industries (Hall & Orian, 2006). Furthermore, 80% of the manufacturers acquired new knowledge and technology through the processes of purchasing production equipment and relying on spillovers (e.g., free ridings from other firms' technologies that are made available in the industry), whereas only 20% used the more sophisticated processes of new knowledge acquirments, such as technology licensing and purchasing patents to acquire new technology and knowledge. Finally, nearly a third of the manufacturers conducted their R&D without any form of cooperation, which is considered being less effective than a joint R&D activity (Barrios et al., 2003). The regression coefficients indicated that alliance with suppliers/customers was more effective (than those with other businesses or universities). When acquiring technology through external sources, purchasing patents was found to be more effective to increase the Chinese textile manufacturers’ profit than technology licensing. Finally, the results suggested that higher R&D investment lead to a greater profit increase among the Chinese textile manufacturers. There was no significant relationship between the manufacturers’ current technology level and their profit increase, which deserves further investigations. The research findings may assist a textile manufacture in allocating resources and investments to optimize the effectiveness of its R&D strategies. Cautions should be applied when generalizing the findings here to a national level, as our sample was from a group of TC manufactures that were leading in the industry.

References: