

ABSTRACT

Science, Technology and Innovation policies can be more effective when they are based on a more comprehensive understanding of the nature of both the low-tech and high-tech industries. Low and medium-tech industries, however, have received little attention from policymakers as well as researchers compared to the more prestigious high-tech industries. This study aims to explore the significant trends of technological innovation activities in Malaysia's furniture industry. Malaysia's furniture industry warrants an in-depth analysis as it is among the very few full-fledged home-grown low and medium-tech industries that have successfully penetrated the global market.

This draws on the theoretical works of Pavitt, Hirsch-Kreinsen, von Tuzelmann, Kaplinsky and other innovation scholars who have characterised the low and medium-tech industries as supplier dominated and small and medium-sized enterprises centred. Also, drawn upon the framework of Sectoral Innovation Systems, this study goes beyond the existing literature on low and medium-tech industries, particularly in the case of developing countries by exploring the innovation patterns of furniture industry in terms of three perspectives, namely knowledge and technological domain, actors and linkages, and institutions. In this regard, two research methods are used to elicit empirical evidence from the industry, namely the structured research questionnaire and the case study of the Muar furniture cluster in Malaysia.

The main findings from the study indicate that one unique characteristic of Malaysia's wooden furniture industry is that its success depends mainly on the collective efforts of industry practitioners and they do not rely much on public supports. The study confirmed the importance of social capital in providing a great and sustainable source of competitive advantage for the industry. More importantly, the findings have highlighted several important issues pertaining to the development of technological capabilities in the low and medium-tech industry, particularly the issue of inconsistent foreign workers policy by the various government agencies. The major contribution of this study is that it acknowledges the significance of the furniture industry as one of the innovation actors for Malaysia, despite its status as a low and medium-tech industry. The study finished with a presentation of several policy recommendations to strengthen the industry further.

ABSTRAK

Pemahaman yang menyeluruh mengenai ciri-ciri asas industri-industri berteknologi rendah dan berteknologi tinggi akan menyumbang kepada pembentukan polisi Sains, Teknologi dan Inovasi yang lebih berkesan. Akan tetapi, industri berteknologi rendah dan sederhana jarang mendapat perhatian daripada para penggubal dasar dan penyelidik jika dibandingkan dengan industri berteknologi tinggi yang dianggap lebih berprestij. Penyelidikan ini bertujuan untuk meninjau kecenderungan aktiviti-aktiviti inovasi teknologi yang signifikan di kalangan industri perabot di Malaysia. Industri perabot di Malaysia membuka ruang kepada satu analisis yang mendalam dalam penyelidikan ini memandangkan industri tersebut adalah di antara segelintir kecil industri berteknologi rendah dan sederhana tempatan yang berjaya menembusi pasaran antarabangsa.

Penyelidikan ini berpandukan sumbangan teori daripada Pavitt, Hirsch-Kreinsen, von Tuzelmann, Kaplinsky dan sarjana-sarjana inovasi lain yang menyifatkan industri berteknologi rendah dan sederhana sebagai industri yang didominasi oleh pembekal dan memusatkan kepada perusahaan-perusahaan kecil dan sederhana. Juga, berdasarkan kerangka Sistem Inovasi Sektoral, penyelidikan ini melampaui literatur industri berteknologi rendah dan sederhana yang sedia ada, khususnya dalam konteks negara-negara membangun. Pola inovasi perabot ditinjau menerusi tiga perspektif yang utama, iaitu pengetahuan dan domain teknologi, pelaku dan hubungan, dan institusi. Dalam hal ini, dua kaedah telah digunakan untuk mengumpul bukti-bukti empirikal penyelidikan

ini, yakni borang soal selidik berstruktur dan kajian kes di kelompok perabot di Muar, Malaysia.

Dapatan utama kajian ini menunjukkan bahawa salah satu ciri unik industri perabot kayu di Malaysia adalah kejayaan industri tersebut lebih bergantung kepada usahasama para pengamal industri sendiri jika berbanding dengan sokongan sektor awam. Penyelidikan ini turut menegaskan kepentingan modal sosial sebagai sumber berterusan dalam menerajui kelebihan kompetitif industri. Dapatan-dapatan kajian telah menyoroti beberapa isu penting yang berkaitan dengan perkembangan kemampuan teknologi dalam industri teknologi rendah dan sederhana, khususnya masalah polisi pekerja asing yang tidak konsisten di kalangan agensi kerajaan. Sumbangan utama dari kajian ini adalah ia mengakui kepentingan industri perabot sebagai salah satu pelaku inovasi negara walaupun statusnya sebagai satu industri berteknologi rendah dan sederhana. Kajian ini diakhiri dengan pembentangan beberapa cadangan polisi penting untuk tujuan mengukuhkan industri perabot di Malaysia.

ACKNOWLEDGEMENTS

It would not have been possible to complete this doctoral thesis without the guidance and the helps of several individuals and organisations. First and foremost, my utmost gratitude to my supervisor, Associate Professor Dr. K. Thiruchelvam, who has supported me throughout my research with his patience and knowledge whilst allowing me the room to work in my own way. His encouragement, guidance and assistance from the initial to the final level enabled me to develop an understanding of the research topic.

Warm appreciation goes to the informants and interviewees from Muar Furniture Association, Malaysian Furniture Promotion Council, Muar Municipal Council, Wood Industry Skills Development Centre Banting, Furniture Testing Laboratory FRIM, Ledang Industrial Training Institute, Pei Hwa High School Muar, and United Chinese School Committees' Association of Malaysia (*Dong Zong*), who provided me with valuable inputs and critical views throughout my research. Also, I am particularly indebted to all the survey respondents. Without their helps the research would not have been possible.

I gratefully acknowledge the study leave granted by University of Malaya and Ministry of Higher Education, Malaysia. My sincere thanks also go to my colleagues in the Department of Science and Technology Studies, University of Malaya for their supports throughout this research. Last, but certainly not least, I would like to thank my family for all their love and encouragement.

NG BOON KWEE
JUNE 2011