台灣半導體產業群聚核心之調查與研究

學生：蘇文彬　　指導教授：黃玉霖
國立交通大學工學院專班營建技術與管理組
碩士論文

摘　要

「經濟發展會議」兩岸組之分組會議達成台灣優先、全球佈局、互惠雙贏、風險管理等四大原則；在「積極開放，有效管理」的政策方向下，我國高科技產業發展如何能有效轉型因應，對台灣未來產業發展是一大考驗。台灣智庫（Taiwan Thinktank）在台灣經濟戰略政策建言具體提出「南北雙核心發展方案」及「強化北核心科技走廊，提升產業聚落效應」，引發各界思考台灣如何透過持續的重新工業化（Reindustrializes），帶動台灣邁向多核心的產業地理群聚戰略，尋求台灣產業的永續發展途徑。

台灣半導體產業產值於2004年破兆元，同時也是我國第一個破兆的產業，本研究藉由台灣半導體產業群聚核心之調查與研究，觀察台灣半導體產業鏈結構分工中廠商設置時間演變及空間分佈為出發，以區位商數衡量台灣區域計畫範圍之北、中、南區域及各縣市半導體製造業專業化程度，顯示台灣北部區域之半導體製造業呈現明顯的區域集中現象，屬區域的重要基礎產業。

然後，針對各區域進行空間自相關分析，以全域空間自相關(global spatial autocorrelation)Moran’ｓI公式，配合鄉鎮市之空間關聯矩陣計算北、中、南區域半導體製造業之空間關聯，得知北部區域半導體產業已明顯呈現群聚分佈狀態（I=0.3533）；以地域空間自相關(local spatial autocorrelation)Gi＊（d），分別計算北部區域各地域聚集指標，得知半導體製造業於北部區域之群聚核心「聚集點(hot spot)」位於新竹科學園區，Gi＊(d)值高達11.5882，其次為台北縣新店市、台北市內湖區及桃園縣中壢市。進一步以新竹科學園為中心點分別計算直徑5、10、20、30、40、60、80、100公里範圍之Gi ＊(d)比例值，得知依現況分佈，新竹科學園為中心點之密集群聚約為10公里範圍。

關鍵詞：產業群聚、空間自相關、聚集點

Investigation of the Issues of IC Industrial Cluster Development in Taiwan

Student：Wen-Bin Su Advisor：Yu-Lin Huang

Master Degree Program of Construction Technology and Management
College of Engineering
National Chiao Tung University

Abstract

We have already reached a common understanding about four major principles, such as Taiwan first, global arrangement, mutually beneficial, risk management, etc. in the groups meeting of 'Two sides' group of「Economic Development Meeting」. Under the policy of "Positive and open, manage effectively", how Hi-Tech industry of our country makes the transition and answers effectively is a great test of the industry development of Taiwan in the future. The domestic industry environment has no longer suited the competition of labour's intensive industry. It is the greatest subject that the industry faces how to protect competition advantage of Hi-Tech industry and improve high additional value.

Taiwan Thinktank proposed two advices :「north and south double-core develop scheme 」 and 「strengthen north core scientific and technological corridor, raise industry gather effect of setting」in Strategic policy suggestion of the economy of Taiwan, which cause all circles to think how to drive Taiwan to march toward central industry's geographical clustering strategy more through the lasting another industrialization (Reindustrializes), and to seek the approach to develop industry of Taiwan forever.

The output value of semiconductor industry of Taiwan broke one trillion NT dollars in 2004, and it is the first industry that broke one trillion NT dollars in our country. If we strengthen the geographical clustering core of the regional economic industry with the preliminary successful experience of IC industry of Hsinchu Science Park and re-examine closely from「the science park」to the「scientific and technological city」(From technopole to technopolis) and even through 「the Scientific and technological corridor of west」, we should learn the industry core in Taiwan and regional development trend tentatively.

This research analyses the spread phenomenon and clustering phenomenon of IC industry by observing the development of set-up time and the space distribution of the manufacturer in the industry's chain structure of the semiconductor of Taiwan in order to weighing the specialization degree of semiconductor manufacturing in the areas of north、middle、south, and all counties and cities in Taiwan. Then we want to find out the「hot spot」and its intensive clustering range in the northern area of manufacturing industry of the semiconductor by the methods of 「global spatial autocorrelation」 and 「local spatial autocorrelation」.

Furthermore, we want to analyze the situation of the space chains between the up-stream and down- stream related industries of the industry of the semiconductor, and discuss the space relationships between the designing, making, encapsulation and testing industries of IC and the industry's clustering factor of the semiconductor. And finally we will propose the essence suggestion of territory and industry development.

Key words：**Industrial Cluster、spatial autocorrelation、hot spot**