

研究發展外溢之產出成長效果與 動態調整過程 ——台灣電力電子業之實證研究

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本文以動態要素需求模型檢視研究發展外溢之產出成長效果及其動態調整過程，實證對象為台灣 1987-1995 年電力電子機械業小分類之廠商。實證結果發現：一、台灣電力電子業之產業間與產業內外溢效果對產出成長之影響顯著，外溢效果因產業結構不同，須取決於各要素投入與外溢間交互影響之總效果；二、廠商在準固定要素—物質資本及 R&D—的動態調整上，調整速度相對高於國外高科技產業，顯示台灣電力電子業廠商在面對環境衝擊時有較彈性的調整；三、台灣電力電子業在本研究期間存在顯著的規模報酬遞增，並處於穩定成長。

關鍵詞：研究發展、外溢效果、產業動態模型、台灣電力電子業

Dynamic Adjustments of the Intra- and Inter-Industry R&D Spillovers: Evidence from Taiwanese Electronics Plant Level Data

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ABSTRACT

This paper studies the dynamic adjustments of the intra- and inter-industry R&D spillovers and exogenous technical change effects on output growth and cost structures for Taiwanese electronics industries. A dynamic production modeling is built up to estimate R&D spillover effects among and within electronics industries to study the dynamic effects of intra- and inter-industry R&D spillovers and exogenous technical changes on output growth for Taiwanese electronics industries. The analysis is performed using the Taiwan government's industrial census of technological activities at the micro level with 2340 plants for the period 1987-1995. The empirical evidence shows the following. 1) Both intra- and inter-industry spillovers have more important contributions on the electronics industry output growth than its own R&D. And the inter-industry R&D spillovers have greater contribution on output growth than intra-industry R&D spillovers. 2) The adjustment speeds in quasi-fixed inputs—R&D and physical capital—are faster than in other high-technology industries in other studies, reflecting Taiwanese electronic industries may have better performance in facing environmental shocks. 3) All six electronics industries are showing significant increasing return to scale and progressing steadily in the growing stage during 1987-1995.

Key Words: R&D spillovers, adjustment speed, industry dynamic model, Taiwanese electronics industry