

摘要

我國政府 1999 年通過科學技術基本法，此法不僅對於政府科技創新政策產生重要影響，對於促進大學參與產業創新活動是重要的體制因素，促使大學在國家創新系統的角色轉換。本研究以臺灣高科技產業技術發展為觀察對象，試圖透過 1988-2017 年近 30 年的 9 個高科技產業發明專利追縱資料進行 PMG 共整合估計，藉以了解大學在科技基本法立法前後參與產業創新活動與其他創新系統參與者的關係。研究結果，大學技術創新與我國自主研發技術發展呈現同向發展，顯示大學確實亦是國家創新系統的參與者。立法前國科會代理大學參與技術創新對短期關係不明顯；立法後大學自主參與刺激短期關係發展。再者，大學與企業技術創新發展立法前有時間落差，立法後兩者同步發展；大學與政府的技術發展關係，立法前後，長期皆為正向關係，短期關係從不顯著轉為正向關係，顯示立法後政府橋接者的角色有助於連結兩者短期技術發展；大學與個人技術創新發展不論立法前後短期關係都不明顯，長期關係由正向關係轉為無關係，顯示科技基本法後可能降低了大學發明人的 Bypassing 行為。最後，個別產業部分可以發現科技基本法對於成熟產業的正向影響較佳，年輕產業的影響較薄弱。綜合上述，本研究認為科技基本法確實引導大學角色的轉換，促使大學參與高科技產業創新的發展，提升我國在高科技產業技術能耐，但是個別產業的差異，仍需要政府利用不同政策工具，促進其產業創新的發展。

關鍵詞：科學技術基本法、大學、國家創新系統、高科技產業、共整合分析

Abstract

Since the Taiwan government enacted the Fundamental Science and Technology Act (STBL) in 1999, it has a significant influence on the universities' engagement in industrial innovation, which makes the universities integrate into the national innovation system's operation (NIS). For investigating the impact of STBL, this study employs PMG cointegration estimation by the panel data of Taiwanese utility patents in 9 hi-tech industries from 1999 to 2017. In the results, the technological innovation between the universities and the domestic have cointegration, which means that the universities are one of the actors in NIS. For the universities and industrial firms, it has a change from a time lag to concurrent after STBL. For the universities and the government, it stays a long-term cointegration. Still, it has a shift from irrelevant into growth in the short-run after STBL, which shows a bridge function of the government in NIS. For the universities and the individuals, it changed from positive to irrelevant in the short-run, and it stayed no cointegrating in the long term, which means that the STBL may facilitate to low the bypassing of the university's inventors. Down to individual industries, we find that the STBL has a more substantial influence on growing or mature industries than to emerging ones. In conclusion, this study confirms that STBL could lead to the transition of universities in NIS, promoting the universities' engagement in technological innovation of hi-tech industries and enhancing the technological competence in domestic. Facing the difference in various industries, the government must provide appropriate policy instruments to promote industrial innovation.

Keywords: Fundamental Science and Technology Act, University, National Innovation System, Hi-tech Industries, and Cointegration Analysis