

人力資本與技術效率： 臺灣製造業之實證研究

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本文係以 1998 至 2003 年的臺灣製造業廠商與勞工合併資料做為實證基礎，利用 Battese and Coelli (1995) 所提出的隨機邊界模型，估計製造業 23 個二欄位產業的生產函數與技術效率，並進一步探討人力資本對技術效率的影響。實證結果發現：1. 各產業的平均技術效率約介於 0.59~0.83 之間。當中，以皮革、毛皮及其製品製造業最高，化學製品製造業最低。2. 大部分產業之廠商規模擴張，將有助於技術效率的提升。3. 受僱員工之平均教育程度對廠商的技術效率有顯著的正向效果，尤以資訊及電子產業的效果更為強烈，但該效果將隨著員工平均教育程度的增加而遞減。此外，外籍勞工的僱用對所有產業廠商的技術效率有所助益。

關鍵字：技術效率、廠商與員工合併資料、人力資本、外籍勞工

The Impact of Human Capital on Technical Efficiency: Evidence from Taiwan's Manufacturing Industry

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ABSTRACT

This paper investigates the relationship between human capital and technical efficiency using a unique employer—employee matched data set of Taiwan's manufacturing plants during 1998 to 2003. Specifically, we apply the stochastic frontier production function proposed by Battese and Coelli (1995) to estimate the level of technical efficiency and examine the determinants of technical efficiency simultaneously for 23 two-digit industries. Our results suggest that the estimates of average technical efficiency are distributed from 0.59 to 0.83, with the highest in the leather products industry and the lowest in the chemical product industry. Moreover, technical efficiency increases with the human capital index (measured by the education composition of the workforce) at a diminishing rate, especially for the electronics industry, which suggests there is a positive concave relationship between technical efficiency and human capital. Finally, for most industries in our sample, increases in plant size and employing foreign workers would both help to improve the technical efficiency.

Key Words: technical efficiency, employer-employee matched data, human capital, foreign worker