

R&D, Patents and Productivity --- Evidence from Taiwanese Manufacturing Firms

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We investigate the relationship between knowledge and productivity levels and growth using firm-level panel data in Taiwan. In addition to R&D stock, we also employ patent counts to construct the output-side indicators of knowledge to explore the relationship between knowledge and productivity. The empirical results show that both R&D and patents have significant impact on the productivity level in Taiwan. The elasticity of patent stock is about five times larger than that estimated by R&D stock as a proxy of knowledge. We also find a very significant contribution of R&D and patents to productivity growth. This implies that R&D investment has been very productive in increasing output for Taiwanese manufacturing firms in the 1990s.

Keywords: R&D, patents, productivity

JEL classification: O47

Using Taiwanese firm-level data, we confirm that foreign direct investment and R&D have a positive impact, or spillover effect, on productivity. Furthermore, labour quality, firm size, market structure, and export orientation all affect a firm's productivity. By using a data set of 1334 firms in manufacturing industry in India for the periods 1967-1977 and 1980-1981, Kumar (1987) has illustrated adverse effect of FDI inflows on R&D expenditure. This paper has rejected the existence of complementary relationship between FDI inflow and R&D and to do this Lee (1996) has used Heckman's Two Stage Estimation method. R&D spillover and productivity growth: Evidence from Indian private firms. Article. Feb 1995. J dev econ. Lakshmi Raut. Complementarities of R&D strategies on innovation performance: Evidence from Taiwanese manufacturing firms. Vol 19 No 1 (2013): Supplement. DOI 10.3846/20294913.2013.876684. Additionally, we apply a two-step procedure to reduce the endogeneity problem caused by the firms' choices of strategies to obtain consistent estimators, which can be regarded as a combined method of adoption and productivity approaches. We show that the results of the estimation for R&D complementarities may be biased upwards or downwards if we do not include selection equations in the empirical models, thereby giving rise to endogeneity problems. (2014). Complementarities of R&D strategies on innovation performance: Evidence from Taiwanese manufacturing firms. Volume Title: Growth and Productivity in East Asia, NBER-East Asia Seminar on Economics, Volume 13 Volume Author/Editor: Takatoshi Ito and Andrew K. Rose, editors Volume Publisher: University of Chicago Press Volume ISBN: 0-226-38680-5 Volume URL: http://www.nber.org/books/ito_04-2 Conference Date: June 20-22, 2002 Publication Date: June 2004. Title: Productivity Growth and R&D Expenditure in Taiwan's Manufacturing Firms Author: Jiann-Chyuan Wang, Kuen-Hung Tsai URL: <http://www.nber.org/chapters/c10750>. Kuen-Hung Tsai is an assistant professor in the Department of Shipping and Transportation Management at National Taiwan Ocean University. R&D, spatial proximity and productivity at firm level: evidence from Italy. 1. Introduction. An often cited remark by Paul R. Krugman states that "Productivity isn't everything, but in the long run it is almost everything." Moreover, Lamieri and Sangalli (2013) evaluated the impact of patents on the total factor productivity (TFP) of Italian manufacturing firms by allowing for spatial dependence in both TFP and error terms across firms. In both contributions, results show that productivity spillovers matter. 3. Using a sample of Italian manufacturing firms observed over the period 2004-2006, in this paper we investigate the effect of R&D on TFP by employing a spatial econometric model to take into account productivity spillovers. However, despite evidence of such spillover effects in terms of productivity and wages (Sarkar and Lai, 2009; Girma et al., 1999) along with the benefits of FDI are some undesirable effects upon the labour market. Reference Chen, S. H Taiwanese IT firms offshore R&D in China and the connection with the global innovation network, Research Policy, 33(2), Girma, S., D. Greenaway, and K. Wakelin Who benefits from foreign direct investment in the UK? DEPARTMENT OF ECONOMICS WORKING PAPERS 18 JAANA RAHKO Market Value of R&D, Patents, and Organizational Capital: Finnish Evidence VAASA 2013 ISBN 978 952 476 451 3 (print) ISBN 978 952 476 452 0 (online). Offshoring and ICT - Evidence for German manufacturing and service firms...