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Tiivistelmä-Referat-Abstract

In this paper, we study whether the implementation of new technologies has increased the relative demand for highly skilled workers. We use data on Finnish manufacturing plants over the years 1986-2002. Our rich plant-level data set covers basically all manufacturing plants which employ at least 25 persons.

To empirically tests the hypothesis of skill-biased technical change (SBTC), we apply the general index approach proposed by Baltagi and Rich (2005). This approach has the advantage of allowing for an unconstrained time path of SBTC. It also avoids the problem of omitted technology variables in the prevalent proxy variable approach.

Our paper contributes to the empirical literature on SBTC in several ways. First, we take into account the problems caused by a fractional response variable, a cost share bounded between 0 and 1. In our analysis, we use logit transformation to solve this problem. As logit transformation excludes boundary observations, we check the robustness of our regression estimates by the Bernoulli quasi-maximum likelihood method. Second, because the effect of technology on the factor intensities is presumably different across industries, we allow for different time paths of SBTC across industries.

Third, we calculate the bootstrap estimates of the standard errors and confidence intervals for the labour demand elasticity estimates.

Our main findings are the following. There is evidence on SBTC in six out of

twelve two-character NACE industries. We find indications against the skill-bias hypothesis for one industry. Thereby, our results support the view that there have been some technology-induced changes in labour demand that favour more skilled workers.

However, the pattern of SBTC is different across industries. Strong evidence supporting the capital-skill complementarity is also found. Finally, our results show that research and development (R&D) intensity and our index of SBTC correlate negatively,indicating that R&D intensity is one of the sources of skill-biased technical change.

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