Enterprise Research Centre

EXECUTIVE SUMMARY

ADVANCED TECHNOLOGY ADOPTION IN UK SMES: WHAT IS THE EFFECT OF EXTERNAL KNOWLEDGE SOURCES AND WHAT ARE THE PRODUCTIVITY OUTCOMES?

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1. Executive Summary

Advanced and emerging technologies (AET), including artificial intelligence (AI), robotics, automation, and virtual and augmented reality (VR/AR), have considerable potential to support firm innovation and productivity. Yet, adopting these technologies can be particularly challenging for small- and medium-sized enterprises (SMEs) due to greater resource constraints. External information and advice may therefore play an important role in helping SMEs understand, evaluate, and adopt these new technologies. This research paper examines the relationship between the use of external information/advice and AET adoption among a sample of UK SMEs. In particular, this report investigates whether firms using external information/advice are more likely to adopt AET, whether the motivations for using such advice and its sources matter for adoption, and whether AET adoption is associated with higher levels of labour productivity. The analysis draws on the UK Longitudinal Small Business Survey (LSBS) between 2018 and 2021 and an analytical sample of 8,732 firm-year observations, using regression analysis and propensity score matching.

The following findings emerge from this research. First, between 2018 and 2021, only a small share of UK SMEs adopted AET, roughly 6.8% of the sample. Second, firms using external information/advice had an approximately 2.8 percentage-point higher predicted probability of AET adoption than non-users after accounting for other firm-level characteristics. Third, this statically significant positive relationship remains in the propensity-score-matched sample, where firms using external information/advice had an approximately 3.9 percentage-point higher predicted probability of AET adoption than non-users. Fourth, among firms using external information/advice, AET adoption was particularly associated with using advice for innovation and efficiency/productivity purposes and with obtaining advice from professional services and business/education sources. In contrast, government support (chamber of commerce, GOV website and local council/authority) was not significantly associated with AET adoption. Finally, AET adoption was initially associated with higher labour productivity, but this significant association diminished after matching. External information/advice remained positively associated with labour productivity across all models.

Overall, the analysis highlights the potential importance of external information and advice in the adoption of AET among UK SMEs. Based on the findings, policy efforts to encourage technology diffusion may want to consider the wider external knowledge and advisory environment of SMEs. Strengthening their access to relevant professional, business and education-based sources of advice, and ensuring that support is sufficiently focused on firms' innovation and efficiency needs, may help firms navigate the uncertainties associated with AET. Simultaneously, the productivity findings caution against the assumption that AET adoption alone necessarily translates into productivity gains, but further empirical research on more recent data is required in this regard.

Key Findings at a Glance

- Finding one: Between 2018 and 2021, only a small share of UK SMEs adopted AET, roughly 6.8% of the sample.
- Finding two: Firms using external information/advice had an approximately 2.8 percentage-point higher predicted probability of AET adoption than non-users, after accounting for other firm-level characteristics.
- Finding three: Firms using external information/advice had an approximately 3.9 percentage-point higher predicted probability of AET adoption than non-users in the propensity-score-matched sample.
- Finding four: Among firms using external information/advice, AET adoption was particularly associated with using advice for innovation and efficiency purposes, and with obtaining advice from professional services and business/education sources.
- Finding five: AET adoption was initially associated with higher labour productivity, but this association was no longer statistically significant after matching, while external information/advice remained positively associated with labour productivity.

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