

Does Sector-Level AI Diffusion Predict Enterprise Survival in Emerging Europe? An OECD-Based Analysis

Sihem Djidjik¹, Yusuf Çakmakçı²

¹ Department of Marketing, Faculty of Economics and Administrative Sciences, OSTİM Technical University, 100. Yıl Boulevard 55/F, 06374 Yenimahalle, Ankara, Türkiye

² Eriş Gıda R&D Center, Erişler Gıda A.Ş., Yenice, Ali Osman Çelebi Boulevard No. 227, 59850 Çorlu/Tekirdağ, Türkiye

Abstract

This study examines whether sectors with greater artificial intelligence adoption show higher one-year enterprise survival in five emerging European economies. OECD ICT Access and Usage by Businesses data were matched with OECD Business Demography statistics for Bulgaria, Hungary, Poland, Romania and Türkiye. The unbalanced dataset contains 76 country-sector-year observations for 2020 and 2023. AI adoption is the percentage of enterprises with at least ten people employed that use AI; the outcome is the one-year survival rate for enterprises in the same size class. Pooled models, country, sector and year fixed effects, and a balanced country-sector fixed-effects specification were estimated. A 2023 subset of 35 observations tested whether reported ICT security incidents alter the AI-survival relationship. AI adoption was not significantly associated with survival in any specification. The country-sector fixed-effects estimate was -0.008 percentage points (SE 1.442, $p = .996$). The AI by ICT-incident interaction was also non-significant ($b = -0.022$, SE 0.054, $p = .685$). These findings do not imply that AI lacks value for individual firms; rather, sector-level AI diffusion alone is not a reliable predictor of young-enterprise survival in the available official data. Firm-level adoption, implementation quality and organizational capabilities remain unobserved.

Keywords: Artificial intelligence adoption, enterprise survival, emerging markets, business demography, cybersecurity, OECD