

# Micro-firms' productivity growth in Poland before and during COVID-19.

## Do the industry and region where they operate matter?

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### Abstract

This study proposes a novel empirical analysis of the total factor productivity (TFP) growth for microenterprises in Poland. We employ firm-level data from Statistics Poland covering enterprises with fewer than ten employees to evaluate micro-firms productivity performance in Polish regions and sectors in 2009-2020. We apply control function methods to estimate the production function and determine individual enterprises' TFP. Between 2010 and 2020, average TFP growth followed an upward trend from 1.2% in the first periods to 10% in 2020. We observe substantial heterogeneity between sectoral and regional TFP growths during COVID-19. Productivity of microenterprises from the following sectors construction, wholesale and retail trade and professional, scientific and technical activities, which jointly produced about 60% of gross value added, was influenced considerably by the lockdown. Microenterprises from regions with the highest GVA shares displayed outstanding productivity during the COVID-19 pandemic concerning weighted TFP levels and TFP growths. We also employ the Olley-Pakes decomposition of TFP growth to confirm that the efficiency of resource allocation (measured by the between effect) was the crucial component of TFP growth in 2020. By applying econometric panel data models for TFP levels, we confirm that the age, size, investment outlays, profit margin, sector competitiveness (measured by the HHI index), and the decision on R&D investment are essential drivers of micro-firms TFP in Poland. In addition, regional, sectoral and time effects are a source of heterogeneity in micro-enterprises productivity.

*Keywords:* total factor productivity of microenterprises, production function estimation, control function methods, the Olley-Pakes decomposition, TFP determinants, dynamic panel data models

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