

Entrepreneurship in Focus

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Digitalization activities in the small enterprise sector: an urban-rural issue?

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Summary

The concern that rural regions and their enterprises are at a disadvantage in the use of new digital technologies compared to urban areas due to a digital divide is a recurring theme in the political debate. Against this background, this paper presents the results of a study that empirically examines the different digitalization paths taken by small firms and how these are to be assessed from the perspective of the urban-rural dichotomy.

The challenges and opportunities of digitalization for rural regions are high on the current political agenda. At the same time, it is not yet entirely clear whether and to what extent rural enterprises – especially smaller ones – will be among the winners or losers of the digital transformation. The latter would seem to be the case if small firms from rural areas in particular are confronted with a number of barriers that make it difficult for them to reap the benefits of the digital age.

On the other hand, the use of digital information and communication technologies (ICT) could potentially reduce the disadvantage of spatial distance to densely populated urban areas, especially for small, resource-constrained enterprises from rural regions, by making geographical location – in the sense of the so-called *death of distance* postulate – less relevant for business success. As a result, the returns to digital transformation could be relatively high, especially for small rural firms.

Conceptual background

Regarding the urban-rural dichotomy, there are two possible explanations for differences in the use of digital ICT at the enterprise level. The first is that there could be an urban-rural divide in the context of digitalization, which is biased against rural enterprises (see Thonipara et al. 2022). In particular, it is often discussed whether enterprises from rural areas face a lack of internet connectivity and are at a disadvantage compared to their urban competitors in terms of the availability of certain socio-economic factors (e.g., digitally skilled employees).

Secondly, it can be assumed that when using new digital technologies, firms choose strategies that are adapted to the specific requirements of their business environment. Accordingly, a firm's decision to adopt and use digital ICT can be modelled as the result of a rational calculation that depends for example on the characteristics of the respective market and the local-regional industry context (Galliano / Roux 2008; Billon et al. 2016). One implication of this could be that not

every difference between urban and rural enterprises in the adoption and use of digital ICT is due to the fact that rural areas are disadvantaged in the context of digitalization.

Epidemic effects of digital ICT use are to be expected above all in densely populated urban areas, because the intensity of knowledge spillovers, the degree of networking and the rate of diffusion of new technologies are particularly high there – in the sense of "Whatever my competitor or customer is using, I have to master it too." The use of digital ICT by small rural firms, on the other hand, is likely to be strongly influenced by so-called *rank effects*. This refers to internal and external factors (such as the firm's internal resource base, the nature of customer relationship or the local industry structure) when deciding whether or not to use digital ICT.

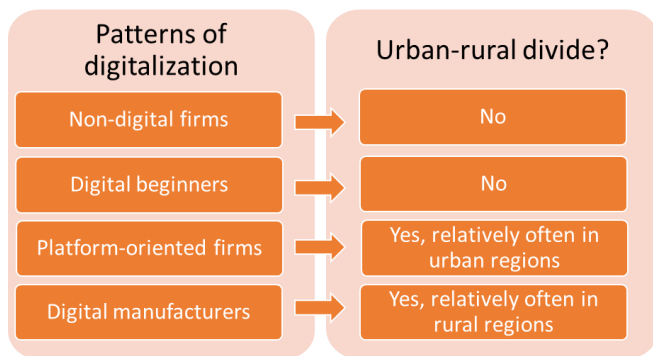
Empirical results

Against this background, Thomä (2023) uses the IAB Establishment Panel – an annual company survey in Germany – to examine the role that the location of a small firm (max. 49 employees) plays in its use of digital ICT. Four groups of small firms with different levels of digital maturity are identified: 1) Non-digital firms, 2) Digital beginners, 3) Platform-oriented firms and 4) Digital manufacturers.

While the small firms in the first two groups use digital technologies either not at all (non-digital firms) or only at a basic level (digital beginners), the third group of platform-oriented firms focuses on the use of social media for recruitment or communication purposes and on the use of digital sales channels (e.g., via internet platforms or online shops). The fourth group of digital manufacturers, on the other hand, relies heavily on program-controlled production equipment (e.g., industrial robots or CNC machines) and on data collection and digital transmission between equipment, production processes and products (e.g., smart factories, drones, cyber-physical systems).

Spatially, the members of the platform-oriented group are more likely to be located in urban areas than the other small firms in the sample – which, as expected, supports the role of epidemic effects for digitalization activities in urban business environments. On the other hand, small firms of the digital manufacturers' group are relatively often located in rural areas. This points to the relevance of rank effects associated with the industry structure in the respective regions. It is precisely in rural areas that there appears to be a relatively high proportion of small manufacturing firms for which the use of complex digital production technologies is an important factor influencing their innovation capacity and competitiveness.

Typology of small firms by geographical location and use of digital ICT



Source: Thomä (2023).

There is thus evidence of a double 'digital divide', albeit with different characteristics: On the one hand, small firms pursuing digital business models of the platform economy tend to be located in urban regions, while on the other hand, small firms engaged in Industry 4.0 are relatively often found in rural areas.

In contrast, there are no clear differences between urban and rural areas, neither for non-digital firms nor for digital beginners. In other words: Whether a small firm has not yet done anything in terms of digitalization or is only at the beginning of the digital transformation process does not crucially depend on geographical location. Only at more advanced stages of digital transformation does it seem to matter whether the company is located in an urban or rural area.

Policy implications

Even if the results presented do not prove that rural enterprises are at a disadvantage in digitalization, they do suggest that corresponding concerns about a digital divide between urban and rural areas should not be

exaggerated. At the same time, the study by Thomä (2023) underlines how important it is from a policy perspective to shape the framework conditions for entrepreneurial activity in rural and urban areas in such a way that the innovation potential of the advanced digitalization groups can unfold as optimally as possible in their respective locations.

At the same time, the fact that a number of small firms are not yet 'digitalized' at all or are only in the early stages of digital transformation, can be a starting point for support measures – even if this is not a matter of bridging an urban-rural divide. Showing these companies the opportunities and potential of digitalization and supporting them in their digital transformation process is therefore certainly a relevant starting point for policy makers, not only to transform non-digital firms into digital beginners, but also to support promising firms from the group of digital beginners in their transition to an advanced level of digitalization.

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