Kees Haasnoot & Albert de Vaal (Radboud University)

“Survival of the inept: how R&D spillovers may worsen cluster productivity”

Abstract

We argue that geographical clustering helps the weakest firms to survive, affecting cluster productivity negatively. We model this negative externality of clustering by adapting the heterogeneous firms model of Melitz (2003) to include an R&D decision for firms. Separating the chance of post-entry market exit into a system risk that is exogenous to all firms and a firm-specific risk that can be reduced by doing R&D, we find that only the most productive firms will invest in R&D. When clusters involve knowledge spillovers, the benefits from these R&D investments spill over to other firms, including the least productive firms. When spillovers benefit the most innovative firms, innovation and cluster productivity both increase. By contrast, spillovers benefiting the less innovative firms reduce innovation and cluster productivity. Combining these two cases into a hybrid model, we find that the negative effects on innovation and cluster productivity dominate. These theoretical outcomes are supported by an extensive numerical assessment based on realistic parameter values.