

Firms' innovation behaviour to survive the crises.

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Abstract

Considerable government policy is based on the perspective that firms under-invest in R&D and innovative activity. These concerns are amplified by the strong negative shocks represented by the recent crises (the financial crisis 2007-10 and the Sovereign Debt crisis 2011-12). How have innovators fared throughout the crises? What are the benefits of various innovation behaviours (i.e. persistent vs occasional innovation) and innovation types (i.e. technological vs non-technological innovation)? How do these innovation patterns relate to heterogeneous exit routes: M&A, closure and failure? We address how the crises have forced firms to change their skills and behaviours with respect to innovation in order to survive through the crises. Existing research has scarcely addressed these topics, despite their clear importance.

We revisit the relationship between a firm's innovation behaviour and exit routes, using a rich dataset and state-of-the-art survival techniques. We analyze three waves of biennial Dutch CIS data (from 2006, 2008 and 2010) merged with monthly Dutch register data on exit routes. Technological innovation refers to either product or process innovation, while non-technological innovation refers to organizational or marketing innovation. We apply 'landmark analysis' – recently introduced into economics from the epidemiology literature – to combine high-frequency survival data with lower-frequency innovation survey data, presenting both unconditional graphs (Cumulative Incidence Functions, which are the theoretically correct method of depicting survival curves in the context of competing exit routes) as well as Cox regressions (that are estimated at different landmarks to address endogeneity bias).

Our results generally indicate that technological innovators are less likely to exit than non-innovators (in terms of closure and especially M&A), although the benefits of persistence over occasional innovative activities are negligible indicating a shift in the expected skills is required to survive. The benefits of innovation are stronger when evaluated at the 2008 landmark, with weaker, and sometimes insignificant, effects at the 2010 landmark. The crises seem to erode the previously found survival advantages of innovation, signaling that in times of crises firms need to change their innovative behavior.