

Green technology and firm growth

Supervisor: Dr Alberto Marzucchi

A wide consensus is emerging on the economic opportunities related to the protection of the environment. This latter often implies a departure from doing “business as usual” and may trigger innovative technological, managerial and organizational solutions, which result in new ways of generating and/or capturing value (Porter and van der Linde, 1995; Ambec and Lanoie, 2008).

However, robust evidence on whether “going green” affects the firm growth potential is still scarce, and still scant is the analysis of the specific mechanisms that facilitate a green-based firm growth. In particular, although some studies investigate specific cases, it is not clear whether the possibility to grow from green technology and strategies is a regularity or rather an exception of few companies (Etsy and Winston, 2006).

Existing works in the field of innovation and entrepreneurship have extensively analysed the relation between innovation investments or technology on firm growth (e.g. Coad and Rao, 2008; 2010). However the adaptation of these findings to the green realm is not so trivial, because of the specificities of green technologies. For instance: specific barriers can hamper their exploitation (Marin et al., 2015); they are characterized by higher uncertainty and complexity (Ghisetti et al., 2015) and costs (Gagliardi et al, 2015) which could be particular problematic for newly created companies that are facing the hurdles of the liability of newness (Freeman et al., 1983).

Gaining in-depth knowledge on the relation between green technology and firm growth is of high relevance for business practice and policy making. Identifying the specific circumstances that ease the translation of green technology into firm growth can help to devise actions that are aimed not only at capturing value or increasing business performance, but also at creating wealth and jobs in the whole economy, while protecting the environment.

To achieve this deeper understanding, specific research questions may be addressed:

- To what extent green technologies drive firm growth, compared to non green technologies? Which are the characteristics of growth-driving green technologies (e.g. in terms of maturity, radicalness, complexity and cost)?
- How green technology is translated into higher growth? (e. g. role of signaling, management practices, policy inducement, market for technology and vertical integration)

- Do the mechanisms that facilitate the exploitation of green technologies vary depending on the type of firms (e.g. young *vs* mature, fast *vs* slow growing, operating in sectors with high environmental regulations)

The research is intended to be carried out through econometric methods applied on firm level datasets

Essential requirements: solid micro-econometric skills, background in economics, entrepreneurship or management.

If you wish to discuss the project, please contact Dr Alberto Marzucchi (a.marzucchi@sussex.ac.uk)

References

Ambec, S., and Lanoie, P., 2008. Does It Pay to Be Green? A Systematic Overview. *Academy of Management Perspectives* 22 (4): 45–62.

Coad, A. and Rao, R., 2008. Innovation and Firm Growth in High-Tech Sectors: A Quantile Regression Approach. *Research Policy* 37 (4): 633–48

Coad, A. and Rao, R., 2010. Firm Growth and R&D Expenditure. *Economics of Innovation and New Technology* 19 (2): 127–45.

Freeman, J., Carroll, G. R. and Hannan, M. T., 1983. The Liability of Newness: Age Dependence in Organizational Death Rates.” *American Sociological Review* 48 (5): 692-710

Gagliardi, L., Marin, G. and Miriello, C., 2016. The Greener the Better? Job Creation Effects of Environmentally-Friendly Technological Change. *Industrial and Corporate Change*, January. doi:10.1093/icc/dtv054.

Ghisetti, C., Marzucchi, A. and Montresor, S., 2015. The open eco-innovation mode. An empirical investigation of eleven European countries. *Research Policy* 44(5): 080-1093.

Marin, G., Marzucchi, A. and Zoboli, R., 2015. SMEs and barriers to Eco-innovation in the EU: exploring different firm profiles. *Journal of Evolutionary Economics*, 25(3), 671-705.

Porter, M. and Van der Linde, C., 1995. Toward a Conception of the Environment-Competitiveness Relationship. *Journal of Economic Perspectives* 9 (4): 97.

