

The Drivers of Private and Public Eco-Innovations in Six Large Countries

Tobias Häggmark^a and Katarina Elofsson^b

a Department of Economics, Swedish University of Agricultural Sciences, Box 7013, 750 07 Uppsala, Sweden.

b Department of Environmental Science, Frederiksborgvej 399, 4000 Roskilde, Denmark.

The purpose of this paper is to examine and compare the contributions to environmental innovation of the public sector and private sector, respectively, and to compare their determinants. We analyze the development over time of triadic patents, classified as environmental technological innovations, for six major patenting countries from 1990 to 2014. This is done using a factor decomposition analysis framework. The analysis is done at both country aggregate level, and for a set of specific technological topics: alternative energy production, energy conservation, agriculture and forestry, and waste management. Results indicate that there has been a shift at an aggregate level towards environmentally sustainable technologies. In the private sector, the shift can be attributed to changes in research priorities and an increased scale of R&D. In the public sector, increased patenting of environmentally sound technologies can be attributed to efficiency gains. The largest difference between the public and private sector is observed in R&D efficiency, where in the private sector, reductions in efficiency have contributed negatively to patent growth, whereas the opposite is true for the public sector. In both sectors, research focus has shifted towards energy-related technologies.