F. Crespi: Policy complexity and the green transformation of the economies: the role of transition systems

The analysis of transition towards the green economy, the issues related to the emergence and diffusion of environmental technologies and of the co-evolving socio-economic, institutional and policy contexts are gaining growing relevancy in the current academic and policy debate. In particular, the role of public policies and governance systems is under scrutiny so as to understand how to ensure the conditions for fostering economic development while protecting the environment (OECD, 2010, 2011). In this context, environmental goals are increasingly intertwined with economic goals as the concept of sustainable development itself implies. The notion of sustainable development in fact looks simultaneously in different directions: development on the one side and environment on the other, something that can appear as inherently contradictory and irreconcilable (Kates et al., 2005). The introduction of more stringent environmental regulations has been in fact traditionally seen as potentially harmful for productivity and competitiveness of industries as it leads to higher costs faced by firms (Brock and Taylor, 2005; Copeland and Taylor, 2004). Only if environmental policies are capable of inducing firms to generate innovations in products and processes that positively affect the dynamic efficiency of the economy, environmental goals may become compatible with growth promotion and competitiveness (Porter and van der Linde, 1995).

Despite these potential contradictions, the ongoing economic and financial crisis has engendered increasing attention towards a broadly defined transition to the green economy as a powerful mechanism to escape from the current downturn, especially in the European Union context. This implies that not only environmental objectives should be achieved without harming economic competitiveness, productivity and economic growth, but that the framework of policies designed to promote environmental sustainability should be able to sustain economic recovery and employment growth. To reach these objectives, a roadmap for the development and diffusion of environmental-friendly technologies combined with a coherent and effective governance framework for the achievement of both environmental and economic goals is widely acknowledged as necessary (EC, 2011, EEA, 2013). In this respect, within an international policy framework that suffers from lack of coordination, the EU has led the way in setting targets – such as the Lisbon agenda and the 20-20-20 strategy on energy, CO2 and renewable energies. Moreover, the launch of Horizon 2020 is expected to provide new stimuli for the transition towards a resource efficient, low carbon and more competitive and inclusive economy (EC, 2011).

Though such steps are important, the real outcome of this process is far from being clear for several reasons. First, the compliance with the Lisbon agenda has been poor and although the Kyoto targets have been achieved, this was mainly due to the ongoing crisis (Borghesi, 2011), and it is not clear whether the 20-20-20 targets will be achieved when the economy eventually recovers from the recession. Second, the link between environmental policy and eco-innovation is still at the centre of economic debate which showed that the drivers of innovations in environmental technologies are multifaceted and touch upon various spheres of society and policy making (Horbach et al., 2012; Costantini and Crespi, 2008 and 2013). Only properly designed policies can spur eco-innovations when firms believe that innovation offsets are greater than regulatory costs (Costantini and Mazzanti, 2012). Third, the interpretation of environmental and economic consequences due to the introduction and adoption of new environmental technologies is not unambiguous. With respect to the former issue, for instance, on the one hand new technologies can favour the reduction of carbon emissions and the usage of energy, on the other hand, gains in the efficiency of energy consumption will result in an effective reduction in the per unit price of energy services, leading to increasing consumption of energy services (i.e., “rebound” effect), partially offsetting the impact of the efficiency gain in fuel use (Greening et al., 2000). Regarding the economic effects, the actual dimension of the macroeconomic impact of eco-innovations is still unclear. In particular, the net employment effects of new environmental technologies and sustainable transition is currently under scrutiny as the outcome of a process of creative destruction in which both job creation and job destruction are jointly operating (Horbach et al., 2012).

These considerations draw attention to the complexity of the issues at stake and to the need for developing a broad analytical and policy framework for governing the transition towards the green economy by achieving both environmental and economic goals. The aim of this paper is then to highlight such complexity and the importance of adopting a systemic perspective for the analysis of sustainable transition to better identify the challenges related to the transition governance and possibly identify useful tools to deal with this complexity. In particular, the paper tries to elaborate on the notion of transition policy and puts forward the concept of transition system, suggesting the importance of activating learning and adaptive mechanisms involving private agents, stakeholders, policy makers and scholars interested and involved in the transition process.