



Analysis

Towards a green economy through innovations: The role of trade union involvement[☆]Davide Antonioli^a, Massimiliano Mazzanti^{b,*}^aDepartment of Management and Business Administration, University of Chieti-Pescara, Italy^bDepartment of Economics and Management (DEM), University of Ferrara and SEEDS, www.sustainability-seeds.org, Italy

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ABSTRACT

In this paper, we address the overlooked issue of whether and how industrial relations might play a role in the process of greening the economy, primarily through the levers of innovation adoption and organisational change. We address our objective econometrically, assessing the quality of industrial relations as a driver of environmental innovation adoption, through the use of micro-data on manufacturing firms. The results yield two interesting main findings: being a unionised firm is not associated with the adoption of environmental innovation; however, when we consider the industrial relations climate, we observe a positive relationship between a cooperative industrial relations climate (union involvement) and the propensity to introduce environmental innovation. Two models are relevant: a managerially oriented model (unions are informed) and a participatory model (unions bargain on innovation adoption). The contents of environmental innovations are also important: union involvement is more relevant for adopting more complex and radical innovations to abate CO₂ and EMS and ISO practices.

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1. Introduction

The XXI Conference of the parties of United Nations Framework on Climate Change (UNFCCC) ended in December 2015 with some new directions for countries and economic agents that might be taken to cope with Green House Gases (GHG) emissions. Though the very diversified static and dynamic benefits/costs assessments across countries prevented the Conference from reaching a global/country based agreement on emission reductions, the

architecture is framed around 'Intended nationally determined contributions': it identifies governments actions towards medium-long term commitments. These actions may include innovation-oriented actions and strategies (for updates see climateobserver.org/open-and-shut/ind). As for the implementation of climate policies (e.g. mission trading), the climate policy architecture will be more and more based upon bottom up efforts by countries and regions. This framework, which needs a good enforcement and monitoring effort, is possibly the only feasible outcome. We note it gives more chances and room for actions to countries, regions – and to various agents and stakeholders – to flexibly define abatement strategies in order to minimise costs and enhance economic/innovation outcomes. The role of industries, unions and other institutions and networks is widened, as well as their responsibility towards climate strategies. The role of regional entities is further enhanced in 'federal' countries.

Within this framework the challenges faced by trade unions in recent years, primarily due to the economic crisis that continues to impact EU labour markets (there are about 21.5 million unemployed men and women at present in the EU-28), have likely diverted some union 'energy' away from green issues, through the diffusion of collective bargaining on environmental topics, towards issues concerning the adverse effects of the economic crisis on labour markets

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and workers, e.g., the Framework for Action on Youth Employment (<http://www.etuc.org/r/20>). The Italian case is an example. The disruptive power of the crisis could also have undermined the well-established and structured social dialogue that has matured in recent decades among EU social partners¹ Unions are among those crucial actors in the implementation of reforms and measures to cope with the challenges imposed by the crisis (Eurofound, 2009). Moreover, when green arguments and industrial relations are jointly considered, the main challenge for unions² becomes how to integrate green and labour issues in the post-recession scenario (Uzzell et al., 2011).

Because unions play a relevant role in shaping both the EU policy agenda and, at the micro level, in influencing firms' adoption of environmental innovations (EIs, henceforth), we are interested in investigating the capacity of unions to influence the adoption of EIs (see Cainelli et al., 2012, for analyses on internal and external firm factors), which is a critical issue concerning the deployment of actual and future policies intended to fulfil the 2050 energy roadmap objectives. EIs are crucial for decoupling economic growth from environmental pressures (Borghesi et al., 2015a,b; EEA, 2014). We distinguish the effect of union involvement in firms' decisions with respect to the type of EI pursued, namely the degree of 'public good' content in the EI. Corradini et al. (2014) and Gili et al. (2014) stress that CO₂-abating innovations are characterised by a larger share of public good output with respect, for example, to energy efficiency, the 'rents' of which are generally much more appropriable by firms. In addition, regarding the 'radicalness' of an innovation, it is worth assessing the differences among more radical EIs, e.g., CO₂ abatement, EMS/ISO, and end-of-pipe innovations (Carrillo-Hermosilla et al., 2010) (emission abatement). We disentangle innovations oriented at reducing global public bads (CO₂) and innovations that increase 'environmental efficiencies', which provide more appropriable rents in production (Mazzanti and Zoboli, 2009). Energy and materials feature a larger share of appropriable economic returns (Corradini et al., 2014). Regarding public goods such as CO₂, it is inherent a strong role played by spillovers and cooperation with other agents: the lower the private component in public goods, the more difficult to find solutions relying on internal resources. External sources of innovation/information play a stronger role. In addition, it is worth stressing that CO₂ is not reduced by end of pipe technological solutions. The reduction of CO₂ emissions and of GHG is more complex and implies a full restructuring and reorganisation of firm's assets and aims (Marin and Mazzanti, 2013). The involvement of other firms, stakeholders and unions capabilities could then be more relevant. Hence, unions involvement might be more relevant and necessary when EIs are highly radical and complex.

This work is structured as follows. The next section provides a review of the extant literature. In the third section, we specify the main research hypotheses and the applied methodology. The following section is devoted to the results description. The final section provides concluding remarks.

¹ Here, we refer to trade unions and employers or their representative organisations. The social partners are involved in the social dialogue, which can also be considered a tripartite dialogue involving a third partner: the government. Although a promising topic for future research, we are not strictly interested in the tripartite social dialogue, as our focus will be on union involvement in managerial decision-making processes, focusing our attention on the micro-level dialogue between management and workers through the mediation of firm-level union representatives.

² A series of unstructured interviews to union members belonging to different union confederations, both at European and Italian levels were conducted. From these interviews to union representatives and policy advisers we were able to extract highlights and considerations of interest for the comprehension of the complex phenomenon represented by the relation between green and labour market issues in a context of a (Just)transition towards a low carbon economy.

2. Background Literature

Do unionised firms, and among them those with good industrial relations (firm level unions involvement), provide more environmental benefits through the EIs adoption?

From a theoretical side, the usual assumption made on the linkage between unions and innovation is to regard unions as an element of the economic system that may, positively or negatively, influence a firm's innovative capacity. The positive or negative impact can be due, in the words by Freeman and Medoff (1979, 1984), to the 'two faces of unionism'. Unions act both in accordance to their 'monopoly face', which is usually associated to the negative effects of unionism, and in accordance to their 'collective voice', which highlights the value enhancing role of unions (Hirsch, 2004). The 'monopoly face' label stands for the possibility, for unions, to exploit their monopoly power on labour in order to rise wages and extract rents from firms' extra-profits, while the 'collective voice' label stresses the role of unions as a labour market institution that may favour innovation adoption, supporting firm development. Hence, on the one hand, unions may generate misaligned incentives, according to the conceptual framework depicted by several scholars from the Freeman and Medoff works onwards, which are analysed using conceptual tools belonging to (neo)classical economic theory.

2.1. The Potential Negative and Positive Impact of Unions on Innovation Activities

Bradley et al. (2016) put forward three main reasons underpinning the 'monopoly face' of unions. First, they could generate hold up problems (Grout, 1984). The rent-seeking behaviour of the union has the aim of capturing returns from investment in tangible and intangible capital, but also from investments in innovation, reducing management's incentive to invest. As Hirsch (2004) clearly illustrates, if unions 'tax' investments in long-lived capital, R&D and other innovative activities, then the firms, internalising this unions behaviour, tend to reduce investment in such activities and capital. In particular, as innovative activities are concerned, the degree of appropriability of the quasi-rents associated to the innovation investments will guide the firms investments decision. Second, because unionisation may reduce the probability of dismissal, even in the presence of shirking, the latter would be 'encouraged' to some extent, thereby reducing productivity and lowering the innovation propensity of workers. Finally, as unions tend to reduce the gaps in wages among workers, the most talented workers would choose non-unionised firms to maximise the wage gains secured by their abilities. More generally, the wage premium causes distortions in relative factor prices, which in turn produce a dead-weight welfare loss (Hirsch, 2004).

The 'collective voice' (or institutional response face) of unions has positive implications for the firm performance to the extent that the management is responsive and supportive to union voice (Freeman and Medoff, 1984). Unions, as an element of the governance structure of firms, may positively influence innovation activities because, protecting workers against dismissal, trigger innovation activities, since employees are less concerned by any risky and uncertain innovation processes that the management intends to pursue. Moreover, unions are receptive towards organisational changes that aim to ameliorate the workforce well-being and help retain trained staff (Doucouliagos and Laroche, 2013), which represent firms specific human capital asset that may improve the absorption capacity of the firm towards new technologies.

2.2. The Role of Unions Involvement on Innovation Activities

Although the above arguments on the effect of unionisation on innovation are insightful, we contend that in empirical works there is a missing link between unionisation and innovation that is too often neglected: the firm-level dialogue between management and

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