

Investigating the drivers of sustainability oriented innovation: the role of Corporate Social Responsibility

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The motivation

Much research has been conducted to analyse the effect of CSR activities on:

- economic performance (Allouche and Laroche, 2005; De Bakker et al., 2005; Margolis et al., 2007)
- social performance (Gond et al., 2008); Mahon, 2002)
- the behaviour of employees (Whetten and Mackey, 2002; Brammer et al., 2007; Hansen et al., Kim et al., 2010; Peterson, 2004; Turker, 2009).

Recently, a growing body of literature addresses the relationship between CSR and innovation.

In the global warming context, an increasing number of firms are taking into account their impact on the environment (Porter and Reinhard, . 2007)

New forms of innovation gained the attention of researchers : environmental innovation (Rennings, 2000).

More recently, environmental issues are more associated with social concerns

The term sustainable development has emerged (Faucheux et al., 2010)

Sustainable innovation and sustainability oriented innovation have become important subjects in the literature (Ketata et al., 2014).

Our research question :

Which CSR practice has a significant impact on the adoption of sustainability oriented innovation.

The agenda

1. The conceptual framework
2. Our empirical strategy
3. The results
4. Conclusion

1. The conceptual framework

New forms of innovation emerged:

Environmental innovation is associated with the resolution of environmental deterioration and degradation (Aghion et al., 2013; Veugelers, 2012; Ghisetti and Quatraro, 2014). Consider to be more complex than technological innovations (Renning and Rammer, 2009).

Social innovation: innovative activities and services that are motivated by the goal of meeting a social need and that are predominantly developed and diffused through organizations whose primary purposes are social (Mulgan, 2007).

Sustainable innovation takes into account both the ecological and the social dimension of innovation activities (Ketata at al., 2015).

Sustainability-oriented innovation: sustainability is a direction—a goal of the firm linked to a risk (Wagner and Llerena, 2008). The concept of SOI expresses only an individual declaration of intent.

		New environmental practices		
		Unadopted	Targeted	Realised
New social practices	Unadopted	TECHNOLOGICAL INNOVATION		ENVIRONMENTAL INNOVATION
	Targeted		SUSTAINABILITY ORIENTED INNOVATION	
	Realised	SOCIAL INNOVATION		SUSTAINABLE INNOVATION

Driver of environmental practices:

- Taxes,
- Regulation
- Incentives
- External factors (voluntary measure) → Corporate Social Responsibility

Because, environmental practices are a part of sustainability oriented innovation + sustainable innovation contributes to economic, ecological and social benefits, which defined the triple bottom line of CSR:

→ CSR has a positive impact on the adoption of sustainability oriented innovation by firms.

Our empirical strategy

CSR survey

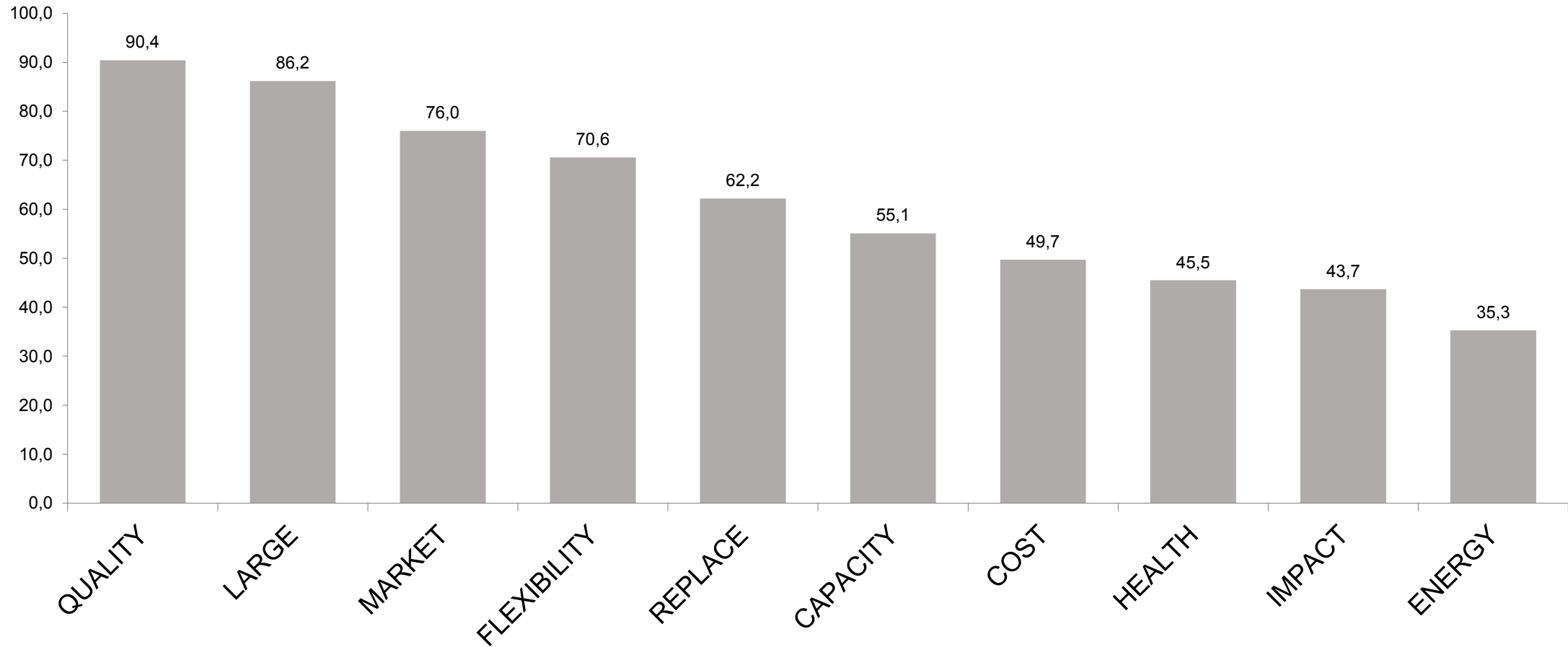
- conducted by LISER (Luxembourg) in 2008, snail mail
- Firms with 10 employees and more, belonging to all economic sectors.
- About the CSR activities of firms in 2008.
- Population 3.296 firms, sample 2.511, 1.114 responses.

Community Innovation Survey

- Conducted by LISER in 2012, face-to-face interviews
- Firms with 10 employees or more, in NACE Rev. 2 sections A to N (these sections include most market activities).
- Sample 958 firms, 652 responses.

→ final data set contains 286 firms

Sustainability oriented innovation variables



		Pursue sustainable oriented objective		TOTAL
		NO	YES	
Pursue market oriented objective	NO	5	0	5 (3.1)
	YES	126	33	159 (96.9)
TOTAL		131 (79.9)	63 (20.1)	164 (100.0)

Source: Community Innovation Survey 2010 and CSR 2008 survey (Luxembourg)

CSR variables

- A dummy variable when the firm is adopting CSR: CSR
- Three dummy variables are defined according to the three pillars of CSR: CSR_ENV, CSR_SOC, CSR_ECO
- The number of pillars in which the company is engaged : PILLAR (between 0 to 3).
- In line with Porter and Kramer (2006), two dummy variables, (STRATEGIC, RESPONSIVE) concern strategic and responsive CSR practices.

Other control variables

- Firm capabilities (Teece and Pisano, 1994) : EDUCATION = the presence of employees with a higher education degree
- The speed with which products and services become old-fashioned: PRODPER
- The effect of competitive intensity on firm innovation: MARCONC, which takes the value 1 when the competition of the market in which the firm is operating is very intense
- R&D practices have a positive effect on the creation of new processes and new products (Griffith et al., 2004): R&D is captured with a dummy variable (RD) equal 1 when the firm undertakes in-house research and development.
- Cost is a serious obstacle for implementing environmental practices (Min and Galle, 2001; Orsato, 2006; Revell et al., 2009): TURNOVER equal to 1 when the profits of the firms increase during the last three years.
- LEADER equal to 1 when the firm is the leader in its market.
- FOREIGN equal 1 when foreign countries constitute the largest market of the firms in terms of turnover during the last three years.
- The size: SMALL, from 10 to 49 employees; MEDIUM, from 50 to 249 employees; and LARGE, more than 249
- The sector of activity: INDUS
- Belonging to a group: GROUP

The results

Selection probit of the Heckman procedure. Dependent variable: innovate in product or in process. Coefficient, Standard error in parentheses.

Dependent variables	MARKET	MARKET_SUSTAIN	MARKET	MARKET_SUSTAIN	MARKET	MARKET_SUSTAIN	MARKET	MARKET_SUSTAIN
RD	0.723** (0.308)	0.798** (0.333)	0.721** (0.308)	0.801** (0.330)	0.743* (0.443)	0.796** (0.333)	0.722** (0.309)	0.798** (0.337)
PRODPER	-0.436 (0.417)	-0.445 (0.456)	-0.440 (0.417)	-0.443 (0.455)	-0.454 (0.459)	-0.447 (0.455)	-0.434 (0.418)	-0.445 (0.455)
EDUCATION	0.817** (0.339)	0.665 (0.461)	0.817** (0.337)	0.658 (0.467)	0.743* (0.419)	0.670 (0.441)	0.773** (0.342)	0.665 (0.444)
FOREIGN	-0.511* (0.271)	-0.620** (0.284)	-0.511** (0.273)	-0.619** (0.283)	-0.590* (0.318)	-0.621** (0.283)	-0.507* (0.273)	-0.620** (0.283)
SMALL	-0.180 (0.280)	-0.122 (0.285)	-0.175 (0.281)	-0.122 (0.285)	-0.125 (0.287)	-0.121 (0.285)	-0.180 (0.281)	-0.122 (0.284)
MEDIUM	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
LARGE	-0.268 (0.270)	-0.185 (0.272)	-0.266 (0.271)	-0.187 (0.273)	-0.206 (0.308)	-0.183 (0.271)	-0.264 (0.269)	-0.184 (0.271)
INDUS	0.199 (0.217)	0.155 (0.226)	0.199 (0.220)	0.159 (0.236)	0.146 (0.216)	0.153 (0.219)	0.188 (0.219)	0.155 (0.222)
GROUP	-0.100 (0.279)	-0.242 (0.339)	-0.096 (0.283)	-0.236 (0.342)	-0.193 (0.483)	-0.246 (0.325)	-0.096 (0.283)	-0.242 (0.327)
CONSTANT	-0.705** (0.350)	-0.605 (0.401)	-0.709** (0.351)	-0.602 (0.401)	-0.659 (0.405)	-0.606 (0.397)	-0.665* (0.348)	-0.605 (0.397)

Second step probit of the Heckman procedure.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Dependent variables	MARKET	MARKET_ SUSTAIN	MARKET	MARKET_ SUSTAIN	MARKET	MARKET_ SUSTAIN	MARKET	MARKET_ SUSTAIN
STRATEGIC	0.834* (0.467)	4.906*** (1.33435)	/	/	/	/	/	/
RESPONSIVE	0.550 (0.364)	0.603 (0.718)	/	/	/	/	/	/
CSR	/		0.616* (0.327)	0.681 (0.603)	/	/	/	/
NO_CSR	Ref.	Ref.	Ref.	Ref.	/	/	/	/
CSR_ENV	/	/	/	/	0.533 (0.480)	0.091 (0.852)	/	/
CSR_SOC	/	/	/	/	-0.355 (0.844)	0.963 (0.636)	/	/
CSR_ECO	/	/	/	/	0.724 (1.095)	0.292 (0.703)	/	/
PILLAR	/	/	/	/	/	/	0.306* (0.173)	0.393 (0.241)

Conclusion

- New forms of innovation emerge: eco-innovations, social innovations, sustainable innovation, sustainability oriented innovation.
- By focusing on sustainability oriented innovation, we contribute to a challenging type of innovation (Hall and Vredenburg, 2003) on which a little attention is given (Gilley et al., 2000; Paramanathan et al., 2004).
- Combining strategic management theory of CSR and the evolutionary approach of innovation, our findings confirm that strategic CSR has a significant and positive effect on the adoption of both market and sustainable oriented innovations and no effect on the adoption of market oriented innovations.

- We confirm the importance of CSR as a driver of the adoption of innovation.
- We find that it is more important to focus on the type of CSR strategy (strategic versus responsive) than on CSR practices (CSR, pillars, number of pillars).
- With CSR Survey 2008 and CIS 2010, we could explain the causal relationship between CSR and innovation

Limitations

- Test other CSR measures from case studies, reputation indices or perceptual scales (Waddock and Graves, 1997).
- The size of the sample
- Take into account non-technological innovations, such as marketing, organizational, or business model innovations, might pursue sustainable objectives.

Thank you for your attention.



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