The influence of institutional pressures on climate mitigation and adaptation strategies

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The context of the paper: institutional theory

Institutional theory addresses the central question of why all organisations in a field tend to look and act the same (DiMaggio and Powell, 1983)

Because **institutions** exert a *constraining influence* over organisations, called *isomorphic pressures*.

Coercive isomorphism refers to pressures from entities who have resources on which an organisation depends.
Mimetic isomorphism refers to the imitation or copying of other successful organisations
Normative isomorphism refers to following professional standards and practices

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Why this paper? Literature gaps

Some scholars have highlighted that climate change management **studies are mainly adopting a practical approach** and only few papers contributed to organizational management theories (es. Goodall, 2008)

They justified her critical appraisal by stating that "climate change is a practical problem not a conceptual one" and "there is a time lag between the discovery of scientific knowledge and its interpretation in the social sciences"

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Why this paper? Literature gaps

According to a recent literature review entitled: "A Systematic Review of the Use of Organization and Management Theories in Climate Change Studies» (Daddi et al., 2018):

- In the field of climate change and management theories have been published mainly qualitative studies (i.e. case studies)

- The (few) quantitative studies are based on data obtained by the Carbon Disclosure Project (CDP), while the use of survey data is rare;

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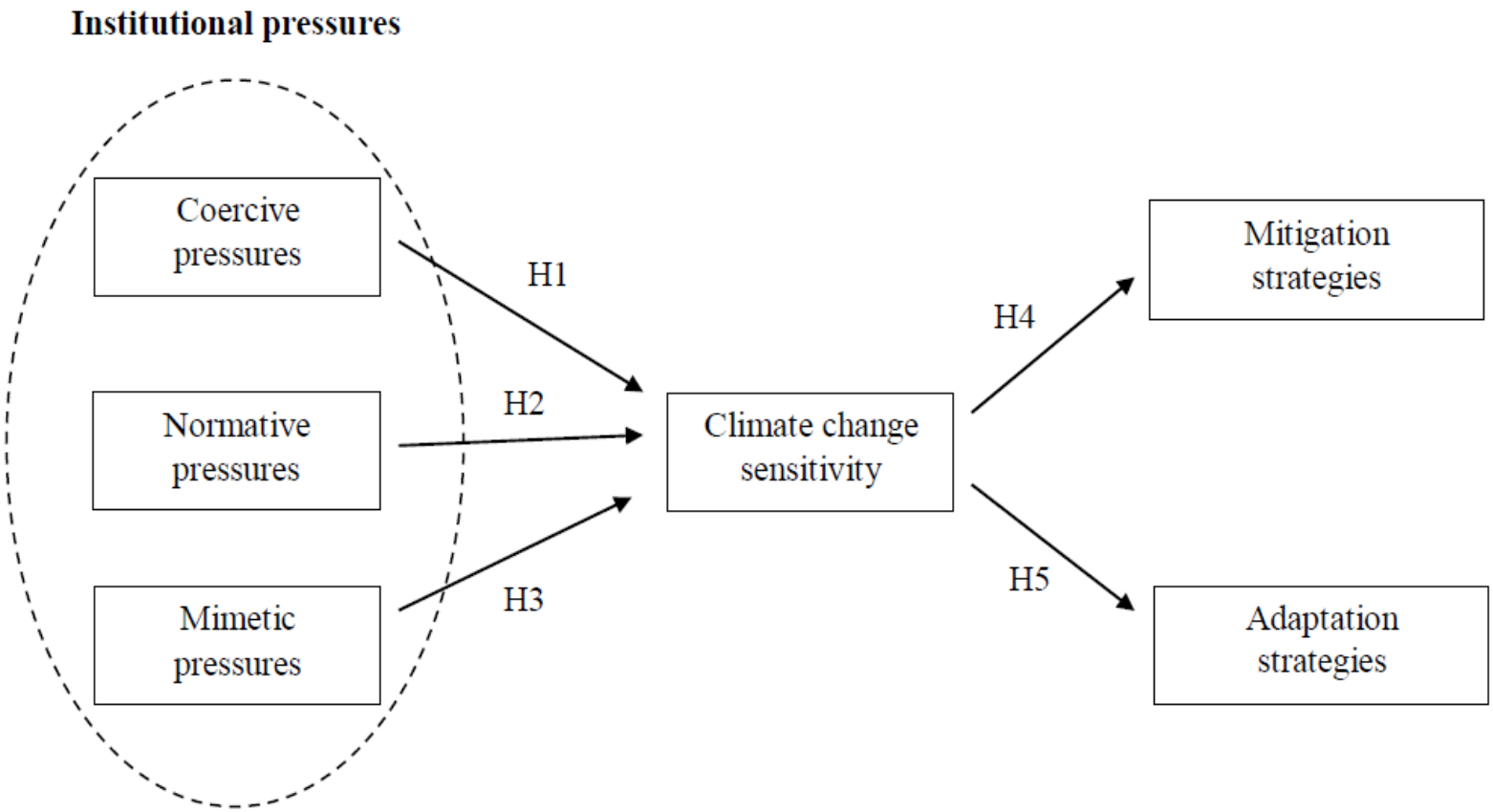
Theoretical model



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Hypotheses

Hypothesis 1: coercive pressures are negatively related to firms' climate change sensitivity.
Hypothesis 2: normative pressures are positively related to climate change sensitivity
Hypothesis 3: mimetic pressures are positively related to climate change sensitivity

Hypothesis 4: companies with higher climate change sensitivity adopt more ambitious climate mitigation strategies
Hypothesis 5: companies with higher climate change sensitivity adopt more ambitious climate adaptation strategies

Data and sample

The data used in this article were collected between July and September 2016, using a questionnaire survey developed in collaboration with the Italian Ministry of Environment.

The questionnaires filled in and used in this study were 487 manufacturing Italian companies.

44% big companies, 50% medium, 6% small and micro enterprises.

Most represented manufacturing sectors:

Sector	% of respondents	Sector	% of respondents
Food & Manufacturing	8%	Eletronics	11%
Textile & Clothing	6%	Machine industry	23%
Paper	4%	Plastic & Non-metal	10%
Chemical & Petroleum	6%	Metallurgy	15%

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Research method

We developed several variables applying multivariate regression to verify the relations among them

$$\{CLIMCHSENS = \beta_0 + \beta_1 COERCPRESS + \beta_2 NORMPRESS + \beta_3 MIMETPRESS + \beta_4 CONTROL + \pi_1 \quad (1)$$

$$\{MITIGSTRAT = \varphi_0 + \varphi_1 CLIMCHSENS + \varphi_2 CONTROL + \pi_1 \quad (2)$$

$$\{ADAPTSTRAT = \lambda_0 + \lambda_1 CLIMCHSENS + \lambda_2 CONTROL + \pi_1 \quad (3)$$

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Variables development

How much have the following motivations influenced or could influence your decision to reduce the emissions of greenhouse gases or to further safeguard your business continuity from potential environmental risks and ecological emergencies"?

to estimate **COERCPRESS** we used the item: "**The law requires me, or it will impose on me soon, to adopt such initiatives**";

to estimate **MIMETPRESS** we used the item: "**My competitors are adopting or have already taken similar initiatives**";

to estimate **NORMPRESS** we used the item: "**The implementation of these measures is functional to the adoption of the most recognized international environmental management standards**"

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Variables development: climate change sensitiveness

Variable abbreviation	Question included in the questionnaire	Items used in the estimation
CLIMCHSENS	How much is your organization aware of the possible consequences of global weather conditions on their production activities in the long run?	The global weather conditions will have consequences on the operations of production activities in the long term
		Emissions of greenhouse gases from production activities have a real impact on global warming
		Global warming will change the habits and lifestyles of people
		Ecological emergencies and extreme weather events can have important consequences on production activities and capital.
		The future rise in the Earth's temperature and the increase in the frequency and intensity of extreme weather events could lead to serious implications for the company's activities its the supply chain.

Table 2 Items used to build the variable climate change sensitivity

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Variables development: mitigation and adaptation strategies

Variable abbreviation	Question included in the questionnaire	Items used in the estimation
MITIGSTRAT	What is the level of adoption and development of the following measures in response to global warming or potential extreme weather events (eg floods, droughts, heat waves, etc.) in your organization?	Measures aimed to improve the energy efficiency of production activities
		Research and development activities
		Modernization and modification of machinery and plants in order to reduce greenhouse gas emissions
		Involvement of partner companies, suppliers and customers in collective measures to reduce emissions at the supply chain level
ADAPTSTRAT		Business continuity plans
		Insurance coverage of capital, machinery and plants
		Research and development activities
		Modernization and modification of machineries and plants in response to potential extreme weather events
		Delocalization of plants and machineries
		Changes in the procurement strategy
		Involvement of partner companies, suppliers and customers in collective adaptation measures

Table 3 Items used to build the variables of mitigation strategies and adaptation strategies

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Variables development: Alpha Cronbach coefficient

Variables	Average inter-item covariance	items	Alpha coefficient	Number of obs
CLIMCHSENS	0.29578	5	0.834	624
MITIGSTRAT	1.02946	4	0.702	528
ADAPTSTRAT	0.81394	7	0.760	528

Table 4 Alpha Cronbach coefficient of variables

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Results

Climate change sensitivity (CLIMCHSENS)		
	Coefficient	Standard deviation
COERCPRESS	0.0301	0.0415
NORMPRESS	0.2107***	0.0596
MIMETPRESS	0.1008***	0.0376
EMPLOY	-0.1070	0.0793
TURNOV	0.0228	0.0776
ISO14001	0.1294*	0.0760
Number of observations	409	
R2	0.112	

*, **, and *** indicate the significance at 10%, 5%, and 1%, respectively

Table 6 Results about the influence of Institutional pressures on climate change sensitivity

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Results

Mitigation strategies (MITIGSTRAT)		
	Coefficient	Standard deviation
CLIMCHSENS	0.1888***	0.0467
EMPLOY	0.758	0.0781
TURNOV	0.182**	0.0765
ISO14001	0.2358***	0.0729
Number of observations	409	
R2	0.125	

*, **, and *** indicate the significance at 10%, 5%, and 1%, respectively

Table 7 Results of the influence of climate change sensitivity on mitigation strategies

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Results

Adaptation strategies (ADAPTSTRAT)		
	Coefficient	Standard deviation
CLIMCHSENS	0.2031***	0.0519
EMPLOY	0.0870	0.0870
TURNOV	0.1308	0.0852
ISO14001	0.0876	0.0812
Number of observations	409	
R2	0.055	

*, **, and *** indicate the significance at 10%, 5%, and 1%, respectively

Table 8 Results of the influence climate change sensitivity on adaptation strategies

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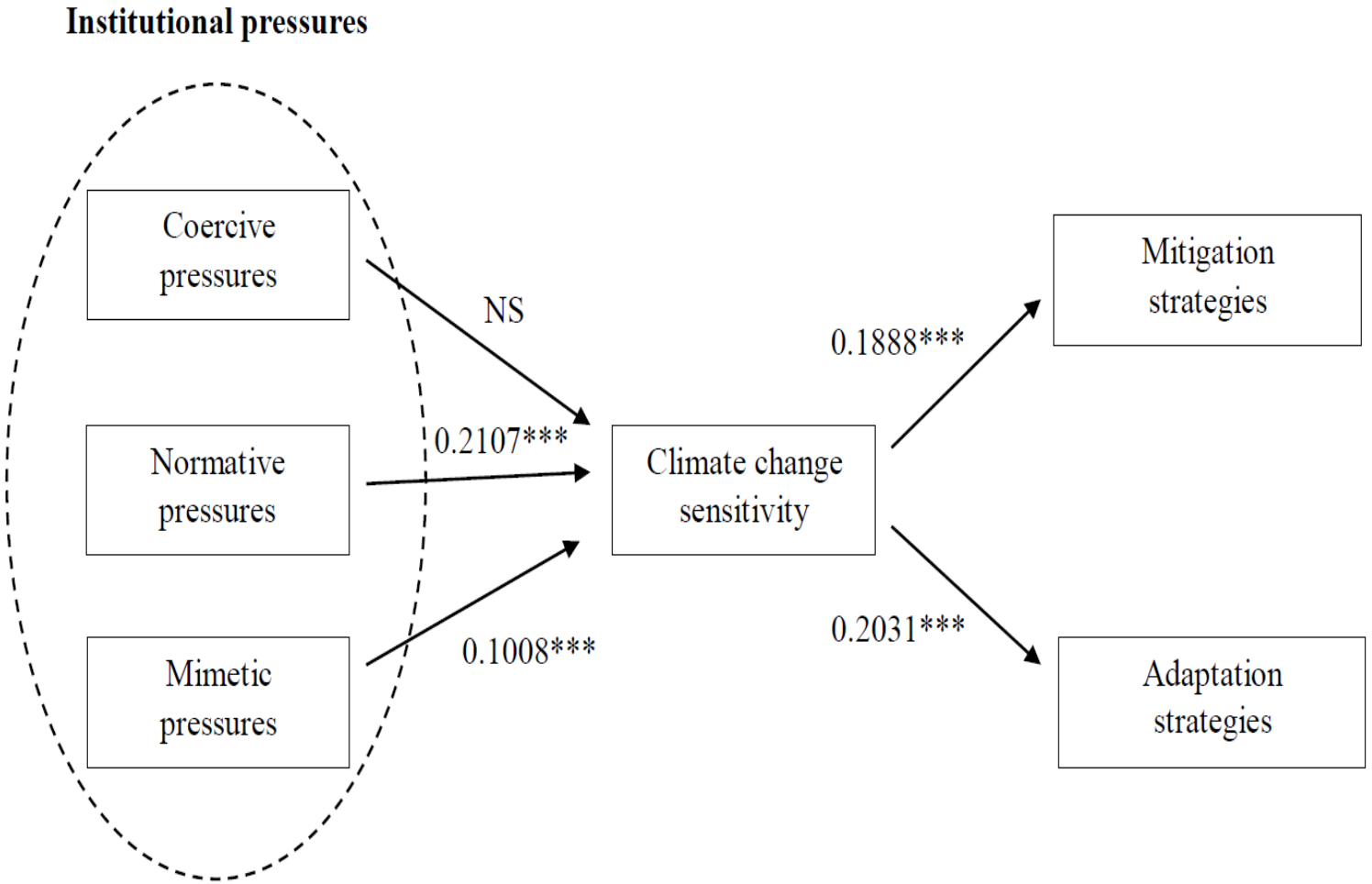
Results



Conclusions

- Proactive climate change strategies (both mitigation and adaptation) originate from companies' sensitivity and readiness to act on climate issues in response to normative and mimetic, rather than coercive, pressures;

- In terms of policy implications, normative approaches should be encouraged, as they are more effective in incentivizing voluntary environmental practices;

- In additions incentives and regulatory relief could be foreseen in order to stimulate key players in the adoption of relevant mitigation and adaptation strategies in order to trigger mimetic mechanisms in the market, thus encouraging followers to also adopt climate-friendly practices in their own respective sectors.

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Thank you!

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