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Received: 10 July 2023 | Revised: 11 March 2024 | Accepted: 18 April 2024

DOI: 10.1002/bse.3792

RESEARCH ARTICLE

Business Strategy and the Environment

WILEY

Greening in the spotlight: How public inquisitiveness shapes European SMEs' actions in response to climate concerns

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Abstract

We examine greening activities among European small and medium-sized enterprises (SMEs) in the product and process domains, and argue that greater public climate concern in an SME's home country environment primarily associates with greening in the inherently more visible product domain. Moreover, we introduce the concept of public inquisitiveness and propose that greater inquisitiveness prompts SMEs to also pay attention to less visible process greening activities as a response to public climate pressures. We test our ideas using multilevel regression models on a large representative sample of SMEs from 18 European Union (EU) countries. The study's main ideas are supported by the findings, which point to possible trade-offs between product and process greening among resource-constrained SMEs, and suggest the general public's inquisitiveness indeed plays a key role in preventing under engagement in less outwardly visible greening strategies. We discuss our study's implications for discourse on how and under which conditions normative institutional forces shape firm-level sustainable behavior, as well as for SMEs' pro-environmental stakeholders.

KEYWORDS
greening visibility, institutional theory, process greening, product greening, public climate concern, public inquisitiveness

1 | INTRODUCTION

In the past few decades, public concern for climate change and environmental degradation has increased significantly, as have stakeholder pressures on business—as a major contributor to pollution and natural resource depletion—to play a more proactive role in mitigating the negative environmental externalities of their activities (Cadez et al., 2019; González-Benito & González-Benito, 2010; Kassinis & Vafeas, 2006). A recent survey among European Union (EU) citizens reveals that about nine in ten believe climate change is a serious problem, and more than one in three think responsibility for tackling climate change lays with business and industry (European Commission, 2021). A substantial body of research has looked into the drivers of pro-environmental practices by companies (for reviews, see Assmann et al., 2023; Bansal & Song, 2017; Barbieri et al., 2016), and with growing societal concern and attention, such research has further intensified in recent years (e.g., Ardito, 2023; Bammens & Hünermund, 2023; Chen et al., 2024). In the management literature on sustainability, institutional theory (DiMaggio & Powell, 1983; Meyer & Rowan, 1977) has emerged as one of the dominant theoretic lenses for investigating company responses to green societal pressures (Adu et al., 2022; Bansal & Clelland, 2004; Berrone et al., 2013; Roxas, 2022; Zhao et al., 2021).

The core argument of institutional theory is that firms that experience green institutional pressures, including from the general public,

Abbreviations: EU, European Union; GDP, gross domestic product; NACE, Statistical Classification of Economic Activities in the European Community; OECD, Organisation for Economic Co-operation and Development; SMEs, small and medium-sized enterprises; US, United States; VIF, variance inflation factor.

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tend to succumb to these in order to protect their legitimacy, which is deemed critical for their long-term success and survival (Bammens & Hünermund, 2020; Jiang & Bansal, 2003; Meyer & Rowan, 1977). Accordingly, several studies have observed a positive association between green institutional pressures and ecological practices by companies (e.g., Bammens & Hünermund, 2023; Berrone et al., 2013; Horbach & Rammer, 2018; Lee & Lounsbury, 2015). As institutional theoretic work on sustainable firm behavior continues to mature, a more fine-grained understanding develops of the variety and nuances of green institutional pressures and possible company responses (Berrone et al., 2013; Delmas & Toffel, 2004; Jennings & Zandbergen, 1995; Roxas, 2022). Recent advances in this field include, for instance, the development of deeper insight into how firms may vary in their green responses to similar institutional pressures, and how they can loosen their institutional embeddedness (or "green prison") through international venturing (e.g., Bammens & Hünermund, 2023; Zhao et al., 2021). While developments in the institutional sustainability literature are fast-paced, some areas remain underresearched and require more scholarly work.

Specifically, whereas the distinction between symbolic and substantive company reactions received ample attention in earlier institutional research (Durand et al., 2019; Meyer & Rowan, 1977), other distinctions such as those pertaining to the level of greening visibility remain relatively underexplored. Since a long time, institutional work has distinguished between symbolic and substantive responses, arguing that many firms opt for symbolic responses that are decoupled from actual firm activities (Meyer & Rowan, 1977). Within the category of substantive responses, however, there is value in differentiating between those that are more or less visible to external stakeholders (Jiang & Bansal, 2003; Shrivastava & Tamvada, 2019). We position product and process greening as substantive response to green institutional pressures, with the former usually being more visible to outsiders like the general public (Gilley et al., 2000; Shrivastava & Tamvada, 2019). Moreover, our understanding of how particular attributes of the public as a key stakeholder influence green company responses is underdeveloped. We propose that public inquisitiveness—that is, the quality of having an active desire to know more, to ask questions, and to investigate (Facione et al., 1995; Watson, 2015)—plays a critical role in shaping firms' responses in terms of greening visibility. We thus aim to advance the institutional sustainability literature by examining (a) how country-level public climate concern, as a normative institutional pressure (Scott, 2003), relates to firm-level greening activity in the product and process domains, and (b) how the public's inquisitiveness may direct responses to these normative pressures toward the less visible process domain.

Our research question is particularly relevant in the setting of small and medium-sized enterprises (SMEs) which, in spite of their modest individual dimensions, have a significant aggregate environmental footprint, together contributing to at least 50% of greenhouse gas emissions produced by the global business sector (OECD, 2022). Specifically, due to their inherent resource constraints (Berthon et al., 2008), SMEs may face more severe trade-offs between greening activities of varying visibility. Additionally, focusing greening efforts on more visible business aspects at the expense of inherently more hidden, firm-internal activities may be a more viable strategy for privately held SMEs that tend to face less stringent formal sustainability reporting requirements compared to their larger, publicly traded counterparts (European Parliament and the Council of the European Union, 2022). We therefore focus on the SME setting in our empirical study. We test our ideas on a large sample of around 8000 SMEs from 18 EU countries by combining firm-level data from a Eurobarometer on greening activities in SMEs, with country-level data from, among others, the European Commission, the Organisation for Economic Co-operation and Development (OECD), and the World Bank. Our multilevel regression analyses reveal that public climate concern, as a country-level green institutional pressure, associates with higher levels of firm-level product greening. Interestingly, public climate concern turns out to even negatively associate with greening activities in the less visible process domain. We also find evidence that public inquisitiveness moderates the association between public climate concern and greening activities in the process domain.

Our study makes several contributions to the institutional research stream on sustainable company behavior. First, we introduce the concept of public inquisitiveness as a moderator in the relationship between public climate concern and greening activities. Prior work has differentiated between broad stakeholder types (e.g., primary vs. secondary; Madsen & Ulhøi, 2001) stakeholder roles (e.g., proactive vs. reactive roles; Goodman et al., 2017) and highlighted stakeholder attributes such as their power and legitimacy (Durand et al., 2019; Mitchell et al., 1997). We advance this line of inquiry on stakeholder characteristics by looking into their inquisitiveness[1] as a relevant yet overlooked attribute capable of explaining significant variation in firm greening responses to normative pressures. Second, with respect to the nature of company responses, the dominant differentiation in institutional theoretic work thus far has been that between symbolic and substantive reactions (Durand et al., 2019; Meyer & Rowan, 1977). We distinguish between more and less visible greening activities in the product and process domains, respectively, and reveal that the level of inquisitiveness as manifested by the focal stakeholder group strengthens the link between climate concerns and greening activities in the less overt process domain. Taken together, our study advances the institutional sustainability literature by offering novel insights into how particular stakeholder attributes shape different types of green company responses.

2 | THEORY AND HYPOTHESES

2.1 | Public climate concern and greening visibility

Institutional theory posits that organizations, in varying degrees, act according to norms, standards and expectations prevailing in their social context to safeguard their legitimacy and the associated support

[1]Stakeholder inquisitiveness is the more general term as it may apply to other types of stakeholders, while public inquisitiveness represents the application of that term to our focal stakeholder, namely the general public.

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and endorsement from key stakeholders, including the general public (Meyer & Rowan, 1977; Scott, 1987). Firms are subject to multiple types and forms of institutional pressures (DiMaggio & Powell, 1983; Greenwood et al., 2011; Scott, 2013), with normative pressures for greater ecological sustainability constituting one of the most powerful current forces (Bammens & Hünermund, 2023; Flammer, 2013). Such normative pressures for greater environmental sustainability encourage many firms to devise corporate greening strategies (Bansal & Roth, 2000; Berrone et al., 2013; Lee & Lounsbury, 2015). In this study, we concentrate on the normative green institutional pressures that emanate from the general public's social expectations, as evidenced in their expressed climate concerns (European Commission, 2015). Combining institutional theory with the notion of greening visibility (Shrivastava & Tamvada, 2019), we expect firms to concentrate their greening efforts in operational activities likely to be more visible to, and thereby generating greater legitimacy gains among stakeholders exerting those normative pressures (Bowen, 2000; Shrivastava & Tamvada, 2019; Yu et al., 2017). In other words, to reap the legitimacy benefits of green behavior that is compliant with public normative pressures, firms likely prefer greening actions in domains that are more easily visible to the pressure-exerting public (Jiang & Bansal, 2003).

The relationship of external stakeholders with a firm is often based on their interaction with the firm's products offered and advertised in the market. Hence, as normative pressure towards corporate environmental sustainability emanating from the public's preoccupation with the climate and natural environment (*public climate concern* as a country-level variable) increases, firms can be expected to respond to such pressures in the more visible product-related domain to gain greater external recognition for their actions (Bowen, 2000; Jiang & Bansal, 2003; Shrivastava & Tamvada, 2019). On the other hand, the general public tends not to have much insight into firms' internal processes, especially regarding small privately held SMEs facing limited transparency requirements (Baumann-Pauly et al., 2013; European Parliament and the Council of the European Union, 2022). Hence, greening initiatives in this domain may not be visible enough to warrant substantial process greening efforts in response to public climate concern (Bowen, 2000; Shrivastava & Tamvada, 2019). We therefore propose that

> **H1.** Public climate concern in the firm's home country will associate more positively with product greening than with process greening.

2.2 | The moderating role of public inquisitiveness

In addition to its influential core idea of companies responding to institutional pressures in order to preserve their legitimacy and long-run survival capability (DiMaggio & Powell, 1983; Meyer & Rowan, 1977), institutional theory has been in continuous development and integrated various novel and more nuanced ideas to enhance its explanatory power (Alvesson & Spicer, 2019; Greenwood et al., 2011; Scott, 1987, 2008). Beyond differentiating between company response types as outlined above, recent developments include looking into different attributes of the responding firms such as their size and ownership structure (e.g., Bammens & Hünermund, 2023; Chen et al., 2024) as well as different attributes of the stakeholders exerting institutional pressures which, in turn, affect issue salience (e.g., Durand et al., 2019). In this section, we will advance insight into these stakeholder attributes by introducing the notion of stakeholder inquisitiveness, which represents an interesting attribute to explore in the context of greening visibility (Watson, 2015). We argue that higher levels of stakeholder inquisitiveness, in our case the inquisitiveness of the general public (*public inquisitiveness* as a country-level variable), strengthen the association between public climate concern as a normative institutional force and firm-level greening activities in the less visible process domain.

Inquisitiveness refers to people's disposition to engage in intellectual exploration by expanding their knowledge and understanding, and to critically investigate issues through further information search and probing queries (Facione et al., 1995; Watson, 2015). It is considered an epistemic virtue that is related to, yet distinct from, one's general and oftentimes more passive curiosity, in that it involves a proactive habit of sincere questioning (Watson, 2018). Inquisitive stakeholders are more difficult to satisfy with shallow responses or surface-level outward-oriented activities, and instead tend to poke deeper and to seek more extensive and fundamental improvements on issues that have their interest. This stakeholder quality of being inquisitive relates to big five personality traits such as openness to experience (e.g., being reflective and curious) and conscientiousness (e.g., being methodical and dutiful) (Zhao & Seibert, 2006), which have been analyzed at the country level to profile national personalities and appear to correlate with environmental engagement indicators (Markowitz et al., 2012; Milfont & Sibley, 2012). Stakeholder inquisitiveness also relates to a proactive environmental stance, which has been shown to promote sustainable company behavior across a wider set of domains (Goodman et al., 2017). In brief, although the concept of stakeholder inquisitiveness constitutes a novel contribution to the institutional sustainability debate, it is tied to more established concepts which have been demonstrated to affect pro-environmental patterns (Goodman et al., 2017; Markowitz et al., 2012; Milfont & Sibley, 2012).

In settings where stakeholders, in our case the general public, display little inquisitiveness, companies may choose to concentrate their greening efforts in those domains that are most clearly visible to these stakeholders without them needing to exert much additional investigative effort, and to refrain from greening efforts in domains thar are less visible in order to save on investments. This may be particularly true for SMEs which have been shown to face severe resource constraints and trade-offs (Baker & Nelson, 2005; Berthon et al., 2008) and, therefore, may be inclined to compensate for increased greening efforts in the more visible product domain by underinvesting in the less visible process domain. This may be different for companies facing more inquisitive stakeholders, who are likely to engage in more critical information seeking and to more deeply investigate issues (Facione et al., 1995; Watson, 2015, 2018). In settings characterized by a more inquisitive and proactive approach among stakeholders, companies may be pushed to extend their

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greening effort beyond the more visible product domain to also include the less visible process domain (Goodman et al., 2017; Watson, 2015). That is, as stakeholders like the general public become more inquisitive, they are more likely to investigate company matters more deeply, to seek additional information on underlying processes, and to also appreciate company greening efforts in the less visible process domain, thereby positively affecting the legitimacy benefits the firm receives from process greening (Bammens & Hünermund, 2023). As a result, we propose that public inquisitiveness, as the general public's manifestation of stakeholder inquisitiveness, moderates the baseline association between public climate concern and company greening activities, such that the association with process greening becomes more favorable:

> **H2.** The association between public climate concern in the firm's home country and process greening will be positively moderated by public inquisitiveness.

3 | METHODOLOGY

3.1 | Data and sample

To test our hypotheses, we combine firm- and country-level data. The firm-level data come from the Flash Eurobarometer Small and Medium-Sized Enterprises, Resource Efficiency and Green Markets Survey (European Commission, 2017). The full dataset contains information regarding the corporate greening activities of 15,019 privately owned firms from 38 countries (37 European countries, plus the United States) from multiple sectors (NACE codes B through N),[2] collected through phone surveys in September 2017. Recent work demonstrates the usefulness of these data for studying issues related to, for instance, resource efficiency and the circular economy (Darmandieu et al., 2022; Moreno-Mondejar et al., 2021; Özbuğday et al., 2020). Country-level data—all of which available in Table 1—were obtained from a number of sources, among which the European Commission's statistical office (Eurostat), the OECD, Wikimedia, and the World Bank. To ensure appropriate temporal separation of the used measures, all country level indicators and variables refer to the year 2015, unless otherwise indicated in Table 1. As not all of the used country-level variables are available for every country and some firm-level variables have more missing values than others, after merging firm- and country-level data, we are able to estimate our product greening (process greening) models on a final sample of 7297 (8449) firms representing 18 EU countries: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Netherlands, Poland, Portugal, Slovakia, Spain, Sweden, and the United Kingdom.[3]

3.2 | Measurement

3.2.1 | Corporate greening in product and process domains

To capture firms' corporate greening efforts in the product domain, we combine responses to questions Q9 and Q10 in the Eurobarometer survey. Q9 asked respondents whether, after being given a definition,[4] their company provides green products or services. Only those respondents that answered Q9 in the affirmative were then asked in Q10 "how much these green products or services represent in [the firm's] annual turnover of the latest available fiscal year". Answer options were "up to 5%", "6–10%", "11–30%", "31–50%", "51–75%", "more than 75%", and "don't know/no answer". Cases answering "don't know/no answer were coded as missing and as such dropped from our product greening analysis. We then construct an ordinal variable labeled *green product revenue share* that takes value 0 for respondents answering 'no' to Q9 and thus logically having a zero *green product revenue share*, and takes progressive integer values 1, 2, 3, … for Q10 responses "up to 5%", "6–10%", "11–30%", etc.

To capture firms' corporate greening efforts in the process domain, we create a count variable labeled *resource efficiency actions* based on responses provided to Eurobarometer question Q1, "what actions is your company undertaking to be more resource efficient?".[5] Respondents were asked to indicate (yes/no) whether the firm was currently undertaking each of the following actions: "saving water"; "saving electricity"; "using predominantly renewable energy"; "saving materials"; "minimizing waste"; "selling your scrap material to another company"; "recycling, by reusing material or waste within the company"; "designing products that are easier to maintain, repair, or use"; and "other". The *resource efficiency actions* variable counts the total number of actions taken among the first seven answer options. We did not count the "designing products …" option, as it conceptually overlaps more with the product than the process domain and also excluded the "other" option as it is ambiguous. The resulting count variable thus ranges between 0 and 7.

[2] See https://ec.europa.eu/competition/mergers/cases/index/nace_all.html for details on the industry classification system of the European Commission.

[3] Although the Brexit referendum was held in 2016, the United Kingdom would not formally leave the European Union until 2020.

[4] Specifically green products or services were defined in the Eurobarometer survey as "… those with a predominant function of reducing environmental risk and minimize pollution and resources. For the purpose of this survey, this may also include products with environmental features (e.g., organically produced, eco-labeled, with significant recycled content, or eco-designed…)". Importantly, eco-labels are attached to individual products, not to a business's entire product offering (see https://environment.ec.europa.eu/topics/circular-economy/eu-ecolabel-home_en). Moreover, while the production processes underlying products with eco-labels may be comparatively environmentally friendly, firms tend to use the "third-party authentication" of eco-labels primarily as an outwardly oriented product branding tool (Atkinson & Rosenthal, 2014). In that regard, "eco-labels"' being included in the product greening measure does not invalidate our conceptually important distinction between firm-internal process greening initiatives and externally oriented product greening initiatives. We further control for our process greening measure in the product greening models to be even more certain to tease out the product-centered greening dynamics we are after.

[5] Of course improving efficiency of resource use does—at least conceptually—not per se imply a reduction of firm-level emission of pollutants (i.e., the main industrial contributor to climate change and thereby presumably of interest to those members of the public with climate concern, see https://climate.ec.europa.eu/climate-change/causes-climate-change_en). Waste reduction efforts such as those captured in the different items of the resource efficiency actions measure however often reflect replacement of old capital goods with cleaner production facilities and/or technology (Brinkerink et al., 2019).

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TABLE 1 Country-level data.

Country	*N* (product greening model)	*N* (process greening model)	Public climate Concern	Green voting: percentage of EU parliament seats held by green party (2014 EU elections)	Regular green practices[a]	Proactive media usage for getting informed about environment[b]	Public inquisitiveness[c]	GDP per capita (in US Dollars)	International property rights index	Environmental policy stringency[d]	Wikipedia usage: page views per person per month
Austria	406	486	53	16.67%	48.86	15.0	3.594	$44,178.05	7.554	2.95	10.2
Belgium	410	467	51	9.52%	46.57	13.0	1.910	$40,991.81	7.364	2.47	7.2
Czech Republic	409	465	29	0.00%	38.57	16.6	−0.228	$17,715.62	6.274	2.38	6.8
Denmark	419	478	73	7.69%	37.29	13.4	−0.113	$53,254.86	7.894	3.85	9.5
Finland	436	487	63	7.69%	46.43	15.2	2.281	$42,811.21	8.327	3.43	16
France	436	487	52	8.10%	47.00	14.4	1.404	$36,613.38	7.209	3.58	8.5
Germany	421	485	65	13.54%	47.14	13.2	2.292	$41,139.54	7.607	3.13	11
Greece	412	480	48	0.00%	35.29	18.0	−0.975	$18,167.77	5.279	2.13	5.3
Hungary	401	428	49	9.52%	37.71	13.2	−0.913	$12,651.57	5.826	2.63	5.7
Ireland	390	472	50	0.00%	42.43	12.4	−0.337	$61,995.42	7.431	2.05	12.4
Italy	370	408	37	0.00%	33.14	13.8	−1.972	$30,230.23	5.589	3.28	8.8
Netherlands	413	489	54	7.69%	42.29	13.6	1.653	$45,175.23	7.905	3.63	16.2
Poland	418	476	27	0.00%	29.71	14.4	−2.348	$12,572.31	5.904	2.58	6.5
Portugal	373	474	27	0.00%	38.29	9.2	−2.693	$19,242.37	6.556	2.13	4.3
Slovakia	392	466	41	0.00%	35.86	15.2	−1.029	$16,309.07	5.874	2.99	4.2
Spain	414	468	41	7.40%	44.86	12.2	0.250	$25,732.02	5.730	2.22	5.9
Sweden	405	485	76	20.00%	46.71	14.8	3.528	$51,397.19	7.994	3.10	10.2
United Kingdom	372	448	46	8.22%	42.71	12.4	0.641	$44,966.10	7.690	3.83	11.3

Notes. All indices taken for the year 2015 unless otherwise specified.

[a]Average country score across seven green practices (details in Section 3.2), 2014.

[b]Average country score across five types of media (details in Section 3.2), 2014.

[c]*Public inquisitiveness* is the first principal component of the items used to compute the *green voting*, *regular green practices*, and *proactive media usage* measures in the three columns to its left.

[d]Values for 2012, as 2015 values not available for all countries.

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3.2.2 | Public climate concern

Our measure for *public climate concern* in the firm's home country comes from the European Commission's report on the aggregated results of Eurobarometer 435 on Climate Change (2015).[6] In particular, the measure gives the percentage of survey respondents from a country listing climate change among the four "most serious problems facing the world as a whole" in 2015. Other problems that could be chosen were "poverty, hunger and lack of drinking water," "international terrorism," "the economic situation," "armed conflicts," "the increasing global population," "spread of infectious diseases," "proliferation of nuclear weapons," and "other." The percentage figures have been transformed to proportions (i.e., divided by 100) to increase the number of significant digits in the presented regression output.

3.2.3 | Public inquisitiveness

As we are not aware of existing indicators explicitly measuring public inquisitiveness at the country level, in this first empirical test of our theory we evaluate an SME's home country population's inquisitiveness as manifested in multiple interrelated yet distinct ways, each of which should reflect a greater proactive desire to ask questions, to investigate, and to scrutinize businesses on matters related to the environment. Specifically, inquisitiveness is measured along three manifestations for which we were able to identify reliable secondary data: green voting, proactive media usage for getting informed about the environment, and regular green practices.

Green voting is measured as the proportion of a country's seats in the EU parliament taken up by the country's green party after the 2014 European Parliament elections (i.e., the last European election prior to our sampling window).[7,8] Higher levels of green voting should reflect a greater willingness of a country's population to scrutinize business activities for their environmental impact, as green political parties, among others, advocate to increase business transparency regarding and accountability for their environmental impact (e.g., Bammens & Hünermund, 2023; Horbach & Rammer, 2018). *Proactive media usage*, based on Special Eurobarometer 416 "Attitudes of European citizens towards the environment" (European Commission, 2014)[9] refers to a set of five items, each documenting the proportion of inhabitants that selected a specific media source as one of their "three main sources of information about the environment": "books"; "publications, brochures or information materials"; "the internet"; "conversations with relatives, family, friends or colleagues"; or "events (conferences, fairs, exhibitions, festivals, etc.)". Importantly, we include these five options as opposed to five other answer options ("television news," "newspapers," "films and documentaries on television," "the radio," and "magazines") that tend to be more commonly relied on as per the Eurobarometer. These alternative media sources, however, conceptually reflect more "passive" consumption of information that is "delivered" to the consumer. Instead, the five media sources selected require the consumer to proactively seek out environment-relevant information and thereby conceptually align better with the proactive nature of inquisitiveness. Finally, *regular green practices* refers to a set of seven items each documenting the proportion of a country's inhabitants that indicated having engaged in a specific regular practice for environmental reasons during the past month, and is based on data from the same Special Eurobarometer 416 (European Commission, 2014). Specifically, the different practices are "separated most of your waste for recycling," "cut down your energy consumption," "cut down your water consumption," "chosen a more environmentally friendly way of travelling," "chosen local products," "reduced waste," and "used your car less."[10] Making green practices a part of one's daily life requires an understanding of environmental issues and their implications (e.g., Hamzah & Tanwir, 2021; Masud et al., 2015), the development of which, in turn, relies on a certain degree of proactive inquisitiveness into such matters (Markowitz et al., 2012). The thirteen proportion-based items underlying the above three (sets of) measurements are entered in a principal component analysis, and the principal component (Eigenvalue 3.83; explaining ~30% of variance) is used as our *public inquisitiveness* measure. Higher scores for this resulting composite index indicate that an SME's home country population exhibits a combination of several distinct manifestations of public inquisitiveness, which fits well with our conceptual framework. We will present robustness analyses using each of the three underlying measures separately.

3.2.4 | Control variables

Although our analyses are all correlational and we can thus not make any causal inference, we still control for a number of factors that may confound the theoretical causal links, at both the firm- and the country level. At the firm level, *firm size* (based on Eurobarometer question scr10a) is the natural logarithm of the number of reported employees plus one. Firm size has often been used as a proxy for corporate visibility and thereby a trigger of firms' environmental practices. We therefore need to condition our analysis on the scale of the firm (Bowen, 2000; Brammer & Millington, 2006). *Firm age* (based on question scr12a) is the natural logarithm of the firm's age in years plus one. Because our argument conceptualizes the general public as our core stakeholder of interest, it is important to account for whether firms indeed directly interact with the general public in the market. To that end, we include a dummy variable *sells to end consumer* that takes

[6] See Table on page 71 of the report https://op.europa.eu/en/publication-detail/-/publication/84644279-fbba-11e5-b713-01aa75ed71a1/language-en

[7] We verified inhabitants of each of our 18 countries indeed had a "green" option to vote on in the 2014 European Parliament elections.

[8] https://www.europarl.europa.eu/elections2014-results/en/country-introduction-2014.html

[9] https://data.europa.eu/data/datasets/s2008_81_3_416?locale=en

[10] Respondents were also asked whether they "bought environmentally friendly products marked with an environmental label" and whether they engaged in "other" practices for environmental reasons. Both these options are disregarded in compiling our inquisitiveness measure, as the former overlaps too much with one of our outcome variables, and the latter is ambiguous.

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value 1 if a respondent indicated their firm sells products or services to "consumers" (question SCR15 in the Eurobarometer survey), and value 0 if it does not. In the product greening models, we further control for the geographic markets in which firms sell their green products as this will likely relate to the importance of institutional pressures in the firm's home country. Two dummies are added (based on question Q12 in the Eurobarometer survey), taking value 1 if a firm *sells green products in their national market* and if a firm *sells green products in foreign markets*, and taking value 0 if not. We also control for *resource efficiency actions* in the product greening models to be even more certain that the greening of products we are after should not be attributed to changes in the underlying production processes. In all regression models, we include 11 NACE sector dummies (NACE C-M, taking B as the baseline category).

At the country level, we proxy the level of welfare in a firm's home country by including the *GDP* per capita (in US Dollars). As it is of the upmost importance to sufficiently control for formal institutional pressures towards, and enablers of corporate greening, to tease out an accurate estimation of the association of normative pressures with corporate greening, we include two indices capturing cross-country formal institutional variation relevant to our research problem. *Environmental policy stringency* offers a direct measure of the degree to which environmental policies put an explicit or implicit price on polluting or environmentally harmful behavior compiled by the OECD[11] and thereby an explicitly relevant institutional quality measure with respect to our research setting. As not only institutional "sticks" but also institutional "carrots" may affect the degree to which companies engage in corporate greening, we include the *International Property Rights Index*, that is published annually by the Property Rights Alliance.[12] This index is a measure of the institutional conditions favoring the creation and appropriation of value through (also green) innovation efforts (e.g., the strength of intellectual property rights protection mechanisms), that have been shown to interact with other, less formal institutional conditions in shaping SME strategies across different European countries (Brinkerink & Rondi, 2021).

3.3 | Analytical procedure

Given the "limited" nature of both our dependent variables and the nested structure of our data, we employ multilevel Ordered Logit and Poisson models to test our hypotheses. Ordered Logit is an appropriate estimation technique for our product greening model, because it assumes an ordinal progression in subsequent values of essentially categorical dependent variables, while it does not assume the increments between ordinal categories are necessarily equal (O'Connell, 2006). Both these characteristics accurately describe our *green product revenue share* outcome variable because, even though progressive values (i.e., 0, 1, 2, 3, etc.) do capture ordinal progression in outcome categories, the increments between categories are not necessarily equal in terms of their practical meaning (i.e., 0%, up to 5%, 6–10%, 11–30%, etc.). On the other hand, a Poisson model best captures the properties of our *resource efficiency actions* dependent variable in the process greening model. As the outcome variable is a count (i.e., the number of resource efficiency actions undertaken, ranging from 0 to 7), two common count data estimation techniques—Poisson or Negative Binomial—could be applied. Importantly, the more efficient Poisson model assumes mean and variance of the outcome variable are equal, while a Negative Binomial model is more accurate when variance is a lot greater than the mean (Blevins et al., 2015). As can be seen in Table 2, in our case mean (3.570) and variance (i.e., the squared standard deviation or $1.929^2 = 3.721$) of the outcome measure are roughly equal, and as such the Poisson model is an equally accurate, yet more efficient choice. Both our Ordered Logit and Poisson models use maximum likelihood estimation to obtain values for our parameters that best fit the observed data.

Then, as firms in our data are embedded in countries, we cannot assume independence of standard errors from this nested data structure. Instead, it is appropriate to allow for statistical variability at the different levels (i.e., at the firm level and at the country level) in our estimations (Peugh, 2010). To that end, we employ multilevel specifications of both the Ordered Logit and the Poisson models, which estimate fixed effects of our firm- and country-level variables, and additionally allow for a random effect at the country level.[13] We report a likelihood-ratio test at the bottom of each model assessing whether there is enough variability at the country level to indeed favor a multilevel specification over a standard Ordered Logit or Poisson model.

H1 will be tested by assessing sign and significance of the *public climate concern* estimates in the *green product revenue share* model versus the *resource efficiency actions* model. H2 will be tested by assessing sign and significance of the interaction of *public climate concern* with *public inquisitiveness* in the *resource efficiency actions* model. We further inspect the range of (statistical and substantive) significance of a potential statistically significant interaction term by visualizing and comparing marginal effects of increases in *public climate concern* at relevant levels of the *public inquisitiveness* moderator (Hoetker, 2007). For the sake of completeness, we will also report the interaction coefficient for the product greening model. Upon mean-centering continuous variables entered in interaction terms (i.e., *public climate concern* and *public inquisitiveness*), variance inflation factors (VIFs) indicate multicollinearity is of no concern, with an average VIF of 2.27 (2.64) in the product (process) interaction model, and with all VIFs for the variables in our conceptual model and their interaction term below the commonly suggested threshold of 4 (Fox, 2015).

[11] https://www.oecd-ilibrary.org/environment/data/oecd-environment-statistics/environmental-policy-stringency-index_2bc0bb80-en#:~:text=The%20OECD%20Environmental%20Policy%20Stringency,polluting%20or%20environmentally%20harmful%20behaviour

[12] https://www.internationalpropertyrightsindex.org/

[13] In practical terms, we estimate our models in Stata 17, using the mixed-effect Ordered Logit (*meologit*) and Poisson (*mepoisson*) commands (StataCorp, 2023).

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TABLE 2 Descriptive statistics and correlations.

		Product model ($N = 7297$)		Process model ($N = 8449$)		Pair-wise correlations										
	Variable	Mean	SD	Mean	SD	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1.	Green product revenue share	.580	1.162	-	-											
2.	Resource efficiency actions	3.520	1.920	3.577	1.929	**.18**										
3.	Firm size (ln)	2.683	1.777	2.733	1.807	**.04**	**.25**									
4.	Firm age (ln)	2.997	0.910	2.998	0.922	**.04**	**.19**	**.33**								
5.	Sells to end consumer	0.591	0.492	0.588	0.492	**.06**	−.00	**−.12**	**−.04**							
6.	Sells green products in national market	0.239	0.426	-	-	**.75**	**.19**	**.04**	**.03**	**.10**						
7.	Sells green products in foreign markets	0.075	0.263	-	-	**.44**	**.15**	**.14**	**.07**	**−.07**	**.24**					
8.	Public climate concern	49.28	13.89	0.494	0.140	**.12**	**.15**	**.03**	**.14**	**−.09**	**.12**	**.03**				
9.	Public inquisitiveness	.426	1.842	0.446	1.862	**.13**	**.17**	**.02**	**.16**	**−.05**	**.14**	**.06**	**.63**			
10.	GDP per capita	34,240.45	14,918.23	34,392.47	14,960.17	**.12**	**.21**	−.01	**.16**	**−.04**	**.13**	**.04**	**.63**	**.70**		
11.	International property rights index	6.902	0.968	6.912	.964	**.13**	**.21**	**−.03**	**.14**	**−.05**	**.14**	**.08**	**.57**	**.74**	**.86**	
12.	Environmental policy stringency	2.914	0.590	2.910	.592	**.04**	−.01	−.02	**.03**	**−.04**	**.06**	.00	**.52**	**.39**	**.40**	**.55**
Sample breakdown by sector of activity (NACE)		Frequency	Percent	Frequency	Percent											
B: Mining and quarrying		39	0.53%	45	0.53%											
C: Manufacturing		1640	22.47%	1953	23.12%											
D: Electricity, gas, etc.		41	0.56%	58	0.69%											
E: Water supply, sewage, etc.		95	1.30%	134	1.59%											
F: Construction		1117	15.31%	1266	14.98%											
G: Wholesale, retail trade; vehicle repair		2194	30.07%	2495	29.53%											
H: Transportation and storage		359	4.92%	414	4.90%											
I: Accommodation and food service activities		431	5.91%	511	6.05%											
J: Information and communication		255	3.49%	297	3.52%											
K: Financial and insurance activities		231	3.17%	262	3.10%											
L: Real-estate activities		143	1.96%	160	1.89%											
M: Professional, scientific, technical activities		752	10.31%	854	10.11%											

Notes: Pair-wise correlations in **bold** are significant at $p < .05$.

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4 | RESULTS

4.1 | Descriptive statistics and correlations

Table 2 presents descriptive statistics and correlations, as well as sector breakdown, for the cases included in each model. Average values of our covariates are very similar between the samples used in the product and process models, attesting to the comparability of our findings presented in the succeeding text. We further see that more than half of the sampled businesses are active in either the manufacturing or the wholesale and retail sector.

4.2 | Hypothesis testing

Tables 3 and 4 document results of our analyses regarding corporate greening in the product and the process domain, respectively. Specifically, from left to right, each table first presents a model with only

TABLE 3 Institutional pressures and corporate greening in the product domain.

Dependent variable	Green product revenue share					
	Controls		Main effect (H1)		Interaction	
Model (hypothesis)	Coeff.	SE	Coeff.	SE	Coeff.	SE
Firm level (N = 7,297)						
Resource efficiency actions	0.070**	0.023	0.073**	0.023	0.072**	0.023
Firm size (ln)	−0.067**	0.024	−0.068**	0.024	−0.068**	0.024
Firm age (ln)	−0.033	0.044	−0.035	0.044	−0.034	0.044
Sells to end consumer	0.099	0.087	0.110	0.088	0.110	0.088
Sells green products in national market	5.794***	0.117	5.789***	0.117	5.787***	0.117
Sells green products in foreign markets	3.078***	0.118	3.088***	0.118	3.088***	0.118
Country level (N = 18)						
GDP per capita	0.000	0.000	0.000	0.000	0.000	0.000
Intellectual property rights index	0.108	0.119	0.077	0.106	0.032	0.126
Environmental policy stringency	−0.171	0.114	−0.230*	0.105	−0.201	0.112
Public climate concern			1.164*	0.540	0.984	0.631
Public inquisitiveness					0.007	0.041
Interactions						
Public climate concern × Public inquisitiveness					0.134	0.193
NACE sector[a]						
C: Manufacturing	−0.039	0.537	−0.044	0.535	−0.044	0.535
D: Electricity, gas, etc.	1.432*	0.638	1.420*	0.637	1.418*	0.637
E: Water supply, sewage, etc.	0.320	0.603	0.313	0.602	0.319	0.602
F: Construction	−0.008	0.537	−0.004	0.536	−0.005	0.535
G: Wholesale, retail trade; vehicle repair	−0.417	0.535	−0.417	0.532	−0.417	0.533
H: Transportation and storage	−0.477	0.574	−0.476	0.573	−0.476	0.573
I: Accommodation and food service act.	−0.553	0.551	−0.542	0.550	−0.542	0.550
J: Information and communication	−0.355	0.587	−0.356	0.587	−0.355	0.586
K: Financial and insurance activities	−0.634	0.577	−0.629	0.576	−0.631	0.576
L: Real-estate activities	−0.389	0.613	−0.395	0.612	−0.397	0.612
M: Professional, scientific, technical act.	−0.299	0.547	−0.298	0.545	−0.298	0.545
Log likelihood	−3624.013		−3622.009		−3621.750	
Wald chi sq.	2950.48***		2958.13***		2958.14***	
Chi sq. LR[b] test two- vs. single-level model	5.54**		1.91		1.68	

Notes: All models use a mixed effect Ordered Logit specification.
[a]Baseline sector is A: Mining and quarrying.
[b]LR = Likelihood ratio.
*Statistically significant (two-tailed) at the 5% level.
**Statistically significant (two-tailed) at the 1% level.
***Statistically significant (two-tailed) at the 0.1% level.

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TABLE 4 Institutional pressures and corporate greening in the process domain.

Dependent variable	Resource efficiency actions					
	Controls		Main effect (H1)		Interaction (H2)	
Model (hypothesis)	Coeff.	SE	Coeff.	SE	Coeff.	SE
Firm level (N = 8449)						
Firm size (ln)	0.072***	0.003	0.072***	0.003	0.072***	0.003
Firm age (ln)	0.024***	0.007	0.024***	0.007	0.024***	0.007
Sells to end consumer	0.072***	0.013	0.072***	0.013	0.071***	0.013
Country level (N = 18)						
GDP per capita	0.000	0.000	0.000	0.000	0.000***	0.000
Intellectual property rights index	0.057	0.054	0.079	0.043	0.013	0.042
Environmental policy stringency	−0.061	0.052	−0.027	0.044	0.007	0.037
Public climate concern			−0.722**	0.225	−0.954***	0.212
Public inquisitiveness					0.017	0.015
Interactions						
Public climate concern × public inquisitiveness					0.194**	0.069
NACE sector[a]						
C: Manufacturing	0.096	0.077	0.095	0.077	0.095	0.077
D: Electricity, gas, etc.	−0.021	0.102	−0.020	0.102	−0.023	0.102
E: Water supply, sewage, etc.	0.107	0.088	0.106	0.087	0.106	0.087
F: Construction	−0.010	0.078	−0.011	0.078	−0.011	0.078
G: Wholesale, retail trade; vehicle repair	−0.010	0.077	−0.010	0.077	−0.010	0.077
H: Transportation and storage	−0.120	0.081	−0.121	0.081	−0.122	0.081
I: Accommodation and food service act.	0.070	0.080	0.069	0.080	0.069	0.080
J: Information and communication	−0.252**	0.084	−0.253**	0.084	−0.253**	0.084
K: Financial and insurance activities	−0.122	0.084	−0.123	0.084	−0.123	0.084
L: Real-estate activities	−0.143	0.089	−0.143	0.089	−0.144	0.089
M: Professional, scientific, technical act.	−0.156*	0.079	−0.156*	0.079	−0.157*	0.079
Constant	0.615*	0.266	0.286	0.241	0.507*	0.223
Log likelihood	−17,108.456		−17,104.354		−17,100.584	
Wald chi sq.	958.92***		977.13***		1,003.08***	
Chi sq. LR[b] test two- vs single-level model	264.43***		164.27***		91.44***	

Notes: All models use a mixed effect Poisson specification.
[a]Baseline sector is A: Mining and quarrying.
[b]LR = Likelihood ratio.
*Statistically significant (two-tailed) at the 5% level.
**Statistically significant (two-tailed) at the 1% level.
***Statistically significant (two-tailed) at the 0.1% level.

control variables, then a model that adds our independent variable *public climate concern*, and finally presents a model that adds the interaction of *public climate concern* and *public inquisitiveness*. H1 predicted a more positive association of *public climate concern* with corporate greening in the product versus the process domain. As can be seen in the main effect model in Table 3, *public climate concern* relates positively to *green product revenue share* (coeff. = 1.164, $p = .031$). Meanwhile, the main effect model in Table 4 documents an association between *public climate concern* and *resource efficiency actions* that is not only less positive (cf. H1) but even significantly negative (coeff. = − .771, $p = .001$). When combined, these estimates support H1.

To test H2, which predicted the association between *public climate concern* and corporate greening in the process domain to be positively moderated by *public inquisitiveness*, we look at the interaction model in Table 4. The coefficient for the *public climate concern* × *public inquisitiveness* interaction is positive and significant (coeff. = 0.194, $p = .005$). To further investigate both (the range of) statistical and substantive significance of this interaction, Figure 1 displays the average marginal effect of a percentage point increase in *public climate concern*[14] on the predicted mean number of *resource*

[14]For ease of interpretation, *public climate concern* has been re-transformed from proportion figures to percentages for the construction of this plot.

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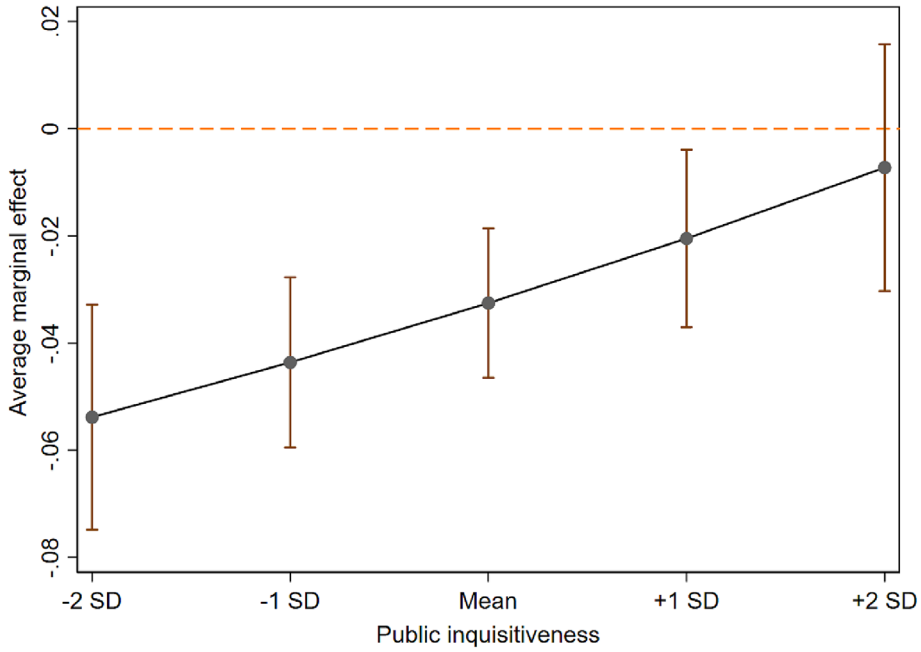

FIGURE 1 Average marginal effect of a percentage point increase in *public climate concern* on mean of *resource efficiency actions* at different levels of *public inquisitiveness*.

efficiency actions at different levels of the *public inquisitiveness* moderator (Hoetker, 2007). Here one can see that the negative association between *public climate concern* and *resource efficiency actions* found in relation to H1 reduces in size and significance as *public inquisitiveness* increases, where a percentage point increase in *public climate concern* associates with changes in the predicted number of *resource efficiency actions* ranging from −0.054 at levels of inquisitiveness 2 standard deviations below the mean ($p < .001$) to a nonsignificant −0.007 at 2 standard deviations above the mean ($p = .537$). We can also see in Figure 1 that the 95% confidence intervals at these low and high levels of public inquisitiveness do no longer overlap.[15] Taken together, these findings support H2.

Finally, our theorizing implied a particular importance of *public inquisitiveness* in stimulating the less visible process versus product greening practices. We would therefore ex ante expect to find no (or at least less) significant coefficients of the above reported interactions when included in the *green product revenue share* Ordered Logit models. Indeed, the *public climate concern* × *public inquisitiveness* interaction term in Table 3 is nonsignificant (coeff. = .134, $p = .486$).

4.3 | Alternative specifications of public inquisitiveness

Our findings testify to the potential of stakeholder inquisitiveness—in our case with reference to the general public in a firm's home country—for explaining variation in firms' greening responses to pro-environmental institutional pressures. Given the concept's novelty, however, we scrutinize the robustness of our findings to our operationalization of the construct.

First, due to a lack of direct measures, we resorted to a composite index of a number of proxies in which a country's population's inquisitiveness should be manifested: the population's green voting, regular green practices, and proactive media usage for getting informed about the environment. We reran our process greening interaction models (cf. H2) using the measures separately instead to assess their independent associations. Specifically, rather than using the principal component of the 13 individual items underlying these measures, we estimated separate interaction models for (1) the *green voting* item, (2) the principal component of the seven *regular green practices*, and (3) the principal component of the five *proactive media usage* items. Second, our composite public inquisitiveness index relied on three proxies that all explicitly relate to inquisitiveness manifestations in the pro-environmental domain. As we conceptually consider inquisitiveness, a trait that describes stakeholders' more general desire to know more, to ask questions, and to investigate—that is, also concerning matters outside the pro-environmental domain—we were interested in assessing whether also a general inquisitiveness operationalization would result in similar findings. To do so, we obtained a measure for a country's population's level of *Wikipedia usage* from Wikimedia.[16] Wikipedia is widely acknowledged as the user-curated encyclopedia of the digital age, and Wikipedia traffic data have been demonstrated to be a useful proxy of cross-country differences in general inquisitive knowledge-search behavior (Stephany & Braesemann, 2017). The variable measures the number of Wikipedia views per month per inhabitant of a country.

The outcomes of these additional tests are presented in Table 5. To ensure comparability, the leftmost model reports the *public inquisitiveness* interaction model using the composite measure estimated before.[17]

[15]The point estimate of the average marginal effect turns nonnegative when *public inquisitiveness* is around 2.5 standard deviations above its mean value.

[16]https://stats.wikimedia.org/wikimedia/squids/SquidReportPageViewsPerCountryBreakdown.htm

[17]Model coefficients slightly differ from the interaction model in Table 4 due to estimates being based on the same—slightly smaller—underlying sample used to compute our robustness tests (see note below table for details; interaction coefficient practically equivalent at 0.193, $p = .006$).

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TABLE 5 Robustness tests: alternative specifications of public inquisitiveness.

Dependent variable	Resource efficiency actions									
	Pub. inquisitiveness		Green voting		Reg. green practices		Proact. media usage		Wikipedia usage	
Interaction model	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Firm level (N = 8034)										
Firm size (ln)	0.072***	0.004	0.072***	0.004	0.072***	0.004	0.072***	0.004	0.072***	0.004
Firm age (ln)	0.028***	0.007	0.028***	0.007	0.028***	0.007	0.028***	0.007	0.028***	0.007
Sells to end consumer	0.068***	0.013	0.067***	0.013	0.068***	0.013	0.068***	0.013	0.068***	0.013
Country level (N = 18)										
GDP per capita	0.000***	0.000	0.000***	0.000	0.000***	0.000	0.000**	0.000	0.000***	0.000
Intellectual property rights index	0.011	0.066	0.022	0.055	−0.002	0.071	0.120	0.063	0.060	0.067
Environmental policy stringency	0.013	0.040	0.003	0.034	0.017	0.041	−0.011	0.040	0.024	0.046
Public climate concern (PCC)	−1.004***	0.217	−1.219***	0.197	−0.993***	0.205	−0.711***	0.204	−1.909**	0.595
Public inquisitiveness	0.018	.015								
Green voting			1.165*	0.397						
Regular green practices					0.046*	0.019				
Proactive media usage							−0.019	0.018		
Wikipedia usage									−0.020	0.011
Interactions										
PCC × public inquisitiveness	0.193**	0.070								
PCC × green voting			0.036*	0.018						
PCC × regular green practices					0.221*	0.108				
PCC × proactive media usage							0.268*	0.135		
PCC × Wikipedia usage									0.119*	0.058
Constant	0.486*	0.238	0.449*	0.202	0.597*	0.247	0.502*	0.239	0.321	0.264
Log likelihood	−16,235.221		−16,232.235		−16,235.301		−16,235.661		−16,236.615	
Wald chi sq.	982.68***		1,011.82***		981.73***		978.76***		971.67***	
Chi sq. LR[a] test two- vs single-level model	87.84***		58.95***		93.27***		94.28***		107.34***	

Notes: All models use mixed effect Poisson specifications. All models include 11 NACE sector dummies. All models include the 2015 strength of legal system index (Frasier Institute) and firms' turnover change over the past 2 years (question scr13 in the microdata) to enable convergence of estimations. Both additional controls are nonsignificant across models.

[a]LR = Likelihood ratio.

*Statistically significant (two-tailed) at the 5% level.

**Statistically significant (two-tailed) at the 1% level.

***Statistically significant (two-tailed) at the 0.1% level.

When looking at the middle three models in Table 5, we see that, also when estimated separately, *public climate concern* significantly and positively interacts with *green voting* (coeff. = 0.036, $p = .041$), with *regular green practices* (coeff. = 0.221, $p = .040$), and with *proactive media usage* (coeff. = 0.268, $p = .048$). Finally, also regarding our more general public inquisitiveness measure—*Wikipedia usage*—we observe a significant positive interaction with *public climate concern* in the process model, as documented in the rightmost model (coeff. = .119, $p = .041$).[18]

Taken together, these analyses generally confirm our finding that public inquisitiveness positively moderates the association of *public climate concern* and greening in the process domain along with our identified measures, and irrespective of whether we consider inquisitiveness as manifested in a strictly pro-environmental or in a more general sense.

4.4 | Sector-based sample breakdown

As firms' greening strategies and their institutional determinants may differ across industrial settings, Table 6 below presents our interaction models using a sample breakdown for the four largest NACE sectors represented in our data (see Table 2 for full sample breakdown by

[18]For completeness: none of the four alternative measures significantly moderate the role of *popular climate concern* in the product greening model. Specifically, the interactions of *green voting* (Coeff. = 0.047, $p = .391$), *regular green practices* (Coeff. = 0.031, $p = .913$), *proactive media usage* (Coeff. = 0.418, $p = .231$), and *Wikipedia usage* (Coeff. = 0.143, $p = .326$) are all nonsignificant in the *green product revenue share* model.

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TABLE 6 Results breakdown: interaction models for four largest NACE sectors.

Sector	Manufacturing		Construction		Wholesale, retail		Prof., scient., tech. act.	
Model	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Dependent variable	Green product revenue share[a]							
Firm level								
Resource efficiency actions	0.033	0.052	0.069	0.057	0.077	0.040	0.065	0.074
Firm size (ln)	−0.123*	0.053	−0.084	0.067	−0.092*	0.043	−0.054	0.083
Firm age (ln)	−0.028	0.100	−0.120	0.111	−0.071	0.075	0.070	0.181
Sells to end consumer	0.457**	0.173	0.367	0.262	−0.281	0.147	−0.239	0.295
Sells green products in national market	4.713***	0.208	7.700***	0.440	5.948***	0.213	6.454***	0.450
Sells green products in foreign markets	3.652***	0.218	2.679***	0.449	2.681***	0.201	2.725***	0.395
Country level (N = 18)								
GDP per capita	0.000	0.000	0.000	0.000	0.000	0.000	−0.000*	0.000
Intellectual property rights index	0.105	0.212	−0.314	0.273	−0.213	0.196	1.473**	0.452
Environmental policy stringency	−0.222	0.193	−0.382	0.273	0.049	0.173	−1.010*	0.422
Public climate concern (PCC)	−0.245	1.126	3.888**	1.385	1.020	0.962	2.135	1.964
Public inquisitiveness	−0.030	0.075	0.058	0.084	0.044	0.064	−0.005	0.118
Interactions								
PCC × public inquisitiveness	0.302	0.333	−0.292	0.381	0.195	0.288	−1.510*	0.620
No. of firms	1640		1117		2194		752	
Dependent variable	Resource efficiency actions[b]							
Firm level								
Firm size (ln)	0.070***	0.007	0.063***	0.010***	0.071***	0.007	0.082***	0.011
Firm age (ln)	0.025	0.014	0.015	0.019	0.000	0.013	0.063*	0.025
Sells to end consumer	0.027	0.024	0.122***	0.035	0.079	0.024	0.016	0.042
Country level (N = 18)								
GDP per capita	0.000*	0.000	0.000***	0.000	0.000***	0.000	0.000***	0.000
Intellectual property rights index	0.066	0.035	−0.022	0.064	0.029	0.048	−0.128	0.074
Environmental policy stringency	0.001	0.031	−0.013	0.054	0.003	0.041	0.026	0.065
Public climate concern (PCC)	−0.661***	0.181	−0.987**	0.328	−0.972***	0.236	−1.637***	0.375
Public inquisitiveness	0.003	0.059	0.014	0.022	0.019	0.016	0.055*	0.026
Interactions								
PCC × public inquisitiveness	0.127*	0.059	0.078	0.100	0.226**	0.077	0.354**	0.117
No. of firms	1953		1266		2495		854	

[a]Mixed effect Ordered Logit specifications.
[b]Mixed effect Poisson specifications.
*Statistically significant (two-tailed) at the 5% level.
**Statistically significant (two-tailed) at the 1% level.
***Statistically significant (two-tailed) at the 0.1% level.

sector): Sectors C (Manufacturing), F (Construction), G (Wholesale, retail, and vehicle repair), and M (Professional, scientific, and technical activities). Specifically, the top panel presents the results for the product greening models, while the bottom panel presents the outcomes for the process greening model. While—in line with our aggregate findings—also in the "Manufacturing"; the "Construction"; and the "Wholesale, retail, and vehicle repair" sectors, we find no evidence of a moderation of *public climate concern* by *public inquisitiveness* when it comes to product greening, we find a significant negative interaction when looking at the "Professional, scientific, and technical activities" sector (coeff. = − 1.510, $p = .015$). In the same sector, we once more see the same significant positive interaction found at the aggregate level (coeff. = 0.354, $p = .002$) in the process greening model, while also in the 'Manufacturing' (coeff. = 0.127, $p = .030$) and the "Wholesale, retail, and vehicle repair" (coeff. = 0.226, $p = .003$) sectors, the positive interaction in the process greening model is replicated. We, however, observe a nonsignificant interaction term in the "Construction" subsample process greening model (coeff. = 0.078, $p = .436$).

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These ex-post analyses suggest that the implications of the conceptualized normative institutional pressure dynamics for firms' greening responses may indeed vary to some degree across industry settings.

5 | DISCUSSION AND CONCLUSIONS

This study considered the idea that, to protect their social legitimacy, SMEs will concentrate their greening activities in those operational areas that are most clearly visible to outsiders exerting normative environmental pressures. As a baseline, we positioned product and process greening as substantive ways in which SMEs can respond to green public pressures, and argued that SMEs should be particularly likely to respond to such pressures with greening in the product as opposed to the process domain, as the former is intrinsically more visible to organizational outsiders like the general public than the latter (Gilley et al., 2000; Shrivastava & Tamvada, 2019). We then proposed that public inquisitiveness—the degree to which the general public in an SME's home country has an active desire to know more, to ask questions, and to investigate— could enhance scrutiny in the intrinsically less visible process domain and thereby encourage SMEs to also engage in process greening.

5.1 | Implications for theory and practice

This study advances the academic debate on how normative institutional forces shape firm-level sustainable behavior (Bammens & Hünermund, 2023; Berrone et al., 2013; Delmas & Toffel, 2004). First, by differentiating between more and less visible greening activities in the SME context, we offer a more fine-grained understanding of the types of responses that companies can devise to accommodate green pressures. This extends prior institutional research which, to date, mainly distinguished between symbolic and substantive company responses (Durand et al., 2019; Meyer & Rowan, 1977). While symbolic responses will generally be visible to ensure their inherent symbolic value, substantive responses can in principle vary in their degree of visibility to outside stakeholders. As societal pressures for ecological sustainability continue to mount, companies may no longer have the luxury of limiting themselves to symbolic measures and will be increasingly forced to adopt more substantive pro-environmental activities. A relevant question then is whether they largely concentrate such substantive greening efforts into highly visible or also less visible application domains. In line with the legitimacy argument of institutional theory (Durand et al., 2019; Meyer & Rowan, 1977), our study reveals that resource-constrained SMEs are on average more inclined to respond to normative pressure, such as prevalent climate concerns, with greening activities in more visible product domains, and this even at the expense of greening in the process domain which tends to be less visible to the general public. This differentiation between more and less visible greening activities, and the notion that SMEs face a trade-off in this regard, constitutes a valuable contribution to the institutional sustainability literature.

Second, we look into inquisitiveness as a relevant stakeholder attribute. Institutional theory has a long tradition, and over the years has been infused with concepts and ideas from the closely related stakeholder theory (Durand et al., 2019). Accordingly, scholars have argued for the integration of stakeholder theory with institutional theory (Laplume et al., 2008; Luoma & Goodstein, 1999; Parmar et al., 2010). While institutional theory is at heart instrumental in nature (i.e., firms adopt green activities to preserve their own legitimacy; Berrone et al., 2013; Meyer & Rowan, 1977), stakeholder theory adopts a more normative view, arguing that companies should treat their stakeholders ethically, which likely also leads to favorable firm outcomes (Donaldson & Preston, 1995; Jones et al., 2018; Parmar et al., 2010). Prior institutional and stakeholder research has differentiated between various stakeholder types (e.g., primary vs. secondary; Madsen & Ulhøi, 2001), stakeholder roles (e.g., proactive vs. reactive roles; Goodman et al., 2017), and salient stakeholder attributes such as their power and legitimacy (Durand et al., 2019; Mitchell et al., 1997). In keeping with the core tenet of institutional theory that companies adopt green practices to preserve their legitimacy, we explained how increasing levels of stakeholder inquisitiveness make greening activities in the less visible process domain more rewarding. Indeed, as stakeholders become more inquisitive and thus more critical and investigative, they are more likely to appreciate greening activities in the less visible process domain. This, in turn, should increase the legitimacy benefits the firm receives from such process greening actions (Bammens & Hünermund, 2020), thereby positively moderating the association between public climate concern and process greening. As such, by introducing the stakeholder attribute of inquisitiveness, we are better able to explain when firms, and SMEs in particular, are more or less likely to focus on apparent visibility as a criterion in deciding what greening responses to implement.

This study also has practical implications. Our findings reveal a strong positive association between green public pressures and product greening, whereas a negative association between such pressures and process greening was found. These findings are especially meaningful given our focus on smaller firms, as they suggest that resource-constrained SMEs face an environmental trade-off, and may respond to the normative green pressures laid upon them by sacrificing process greening for more visible product greening. Because the sustainability practices of SMEs have substantial environmental implications (Klewitz & Hansen, 2014), these results should encourage pro-environmental stakeholders to move beyond the monitoring of clearly visible greening activities in the product domain. Instead, stakeholders also need to inquisitively look into the less visible process domain and verify whether company greening efforts are diverted away from potentially important process operations. Relatedly, company managers need to monitor potential changes in the public's inquisitiveness level and be prepared to step up greening efforts in less visible domains when faced with an increasingly inquisitive audience. Policymakers also have a role to play here by stimulating greater transparency across application domains through environmental reporting requirements, and further supporting SMEs

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in their greening efforts through instruments like subsidies and tax incentives in a way that maximizes impact rather than visibility. Simultaneously, our findings point policymakers at the general importance of cultivating the epistemic virtue of inquisitiveness in the general public, for instance, through educational approaches (Watson, 2019), as doing so seems to encourage socially and/or environmentally desirable conduct across a broader range of economic actors.

5.2 | Limitations and future research

As all empirical work, also our study is not free from limitations, many of which open up avenues for future work. First, an area of improvement can be found in the development of effective alternative, direct measures for stakeholder inquisitiveness. Psychometrically validated, widely used scales are available for cognitive constructs that either highly overlap with inquisitiveness (e.g., curiosity, a core precondition for inquisitiveness; Watson, 2018; for a scale, see, for instance, Kashdan et al., 2018) or contain an inquisitiveness subcomponent (e.g., critical thinking; Facione, 2000; Sosu, 2013), and that could conceivably be adapted for use in cross-country primary data collection efforts. Second, because in practice product greening initiatives will sometimes also involve a process greening component or vice versa, it is difficult to empirically disentangle greening in process and product domains using secondary data. Still, we separated product and process greening as much as possible—for example, by excluding one of the underlying items of our process greening measure that explicitly referred to product design and by controlling for process greening in the product greening model. Nevertheless, considering data limitations, our work should perhaps be considered a first attempt at disentangling product and process greening that in practice taps into "more" product focus versus "more" process focus in firms' greening efforts rather than a clear-cut separation. Future work could try to devise more dedicated measures for identifying strategic greening foci at the firm level. For product greening, future authors can also assess greening efforts more directly instead of using a green product sales indicator, which may be driven by market forces beyond the firm's deliberate greening efforts. Third, we successfully addressed two conditions for causality: *reliable correlation* as established in our analyses, and *temporal precedence* by ensuring the measurements underlying our independent and moderator variables were taken prior to those underlying our dependent variables (Kenny, 1979). As for the third condition—the correlations must not be explained by other causes (Antonakis et al., 2010; Kenny, 1979)—with the data at hand, we are obviously not able to go much beyond controlling for those potential confounding factors for which appropriate firm- or country-level measures are available. We have therefore refrained from making any causal claims about our findings (Antonakis et al., 2010). That being said, we recognize that our theoretical argument is inherently causal in nature (i.e., stakeholder concerns cause firms to respond with different kinds of greening strategies depending on core characteristics of those stakeholders), and emphasize the importance for future work to further scrutinize our initial correlational findings on this matter with better identified, causal designs.

Beyond addressing these limitations, future work can pursue several interesting research avenues. As a first suggestion, multiple categories of institutional forces exist, which are referred to by different names and definitions. These include normative, coercive, and mimetic forces as described by DiMaggio and Powell (1983), or normative, regulative, and cultural-cognitive forces as outlined by Scott (2003, 2008). Public climate concern represents a normative pressure in the sense that it reflects a prescriptive social expectation concerning appropriate firm behavior (Scott, 2003). It would be interesting to explore the role of other types of institutional forces in the context of our study. For instance, future work can examine whether the role of public inquisitiveness is dependent on the prevalence of regulative pressures such as environmental laws, rules, and sanctions. To the extent that such regulative forces dictate process greening, the role of public inquisitiveness as a soft stimulator may be weakened. In this regard, as the direct implications of environmental regulations in Europe for firms' internal processes differ across industrial environments (e.g., Franco & Marin, 2017), our sector breakdown results provide some tentative evidence that the role of public inquisitiveness may indeed not be independent from other, perhaps regulative or coercive institutional pressures. Likewise, cultural-cognitive forces leading to shared conceptions and common beliefs regarding the importance of ecological sustainability may encourage spontaneous process greening initiatives by company managers, thereby lowering the need for an inquisitive public to guide efforts toward this less visible domain. In short, future research may investigate interactions between public inquisitiveness and other institutional forces beyond normative ones. Second, we framed product greening as being more visible and process greening as being less visible to stakeholders; yet, this may depend on the type of stakeholder under consideration. We concentrated on the general public at the national level as stakeholder, and for them product greening as manifested in goods sold in the open market will indeed be more visible. However, the local community in which a company operates may experience, first and foremost, process greening initiatives (or lack thereof) affecting issues like local air, soil, and water pollution (Bammens & Hünermund, 2023). Accordingly, stakeholders like activist neighborhood groups may not need to exhibit elevated levels of inquisitiveness to perceive and assess the process domain, which they experience first-hand through their local vicinity and interactions. For these local stakeholders, process greening may be further subdivided into processes with and without external local ramifications, with only the latter still requiring more pronounced levels of inquisitiveness to get on the radar of local stakeholders pressuring company managers for pro-environmental change. In conclusion, we hope that our study inspires more research on how institutional forces and stakeholder characteristics shape company activities in the pursuit of a greener future.

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How to cite this article: Brinkerink, J., & Bammens, Y. (2024). Greening in the spotlight: How public inquisitiveness shapes European SMEs' actions in response to climate concerns. *Business Strategy and the Environment*, 1–18. https://doi.org/10.1002/bse.3792

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