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Composition and Determinants of Corporate Climate Lobbying: Evidence From Italy

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ABSTRACT

This study investigates the determinants of corporate climate-related lobbying in Italy, focusing on firm-level factors that influence lobbying expenditures and participation in European climate policy discussions. Given rising pressure from governments and stakeholders for sustainable practices, corporate lobbying plays a crucial role in shaping European climate policies. Using an unbalanced panel dataset of Italian firms from 2011 to 2023, we employ advanced econometric methods and AI-supported textual analysis to explore lobbying dynamics. The findings indicate that firm revenue is a key driver of lobbying intensity, with larger firms investing more in lobbying activities and engaging more frequently in climate-related discussions. Additionally, regional differences and company size significantly affect lobbying behaviors, highlighting the role of financial resources and institutional context in shaping firms' climate policy engagement. In this, the research contributes to the limited EU-focused literature on corporate lobbying, providing valuable insights into Italy's unique lobbying landscape and its implications for climate governance.

JEL Classification: D72, Q58, C23, Q51, L51, L22

1 | Introduction

The escalating impacts of climate change have increased pressure on firms to adopt sustainable and energy-efficient practices, driven by increasing pressure from governments, investors, and consumers to reduce carbon footprints, minimize environmental harm, and contribute to climate goals (Birindelli and Chiappini 2021). In this context, climate policy has become a critical driver of development pathways, aiming to reconcile economic growth with environmental protection (Lindvall and Karlsson 2024). Governments have implemented a range of climate policies—such as carbon pricing, emissions trading systems (ETSs), and renewable energy incentives—to recalibrate market dynamics and promote low-carbon transitions (Rizzati et al. 2025).

In the European Union (EU hereafter) climate policies are currently at the heart of intense competition between public and private interests. While initiatives such as the European Green Deal and the "Fit for 55" package represent ambitious efforts toward structural transformation and achieving climate neutrality, it is increasingly evident that their specific design, including

targets, timelines, and policy instruments, is significantly influenced by political processes in which corporate lobbying plays a crucial role.

This raises fundamental questions regarding the democratic transparency and substantive fairness of European environmental policies. The influence exerted by well-organized economic actors can lead to asymmetric regulatory outcomes, potentially delaying the green transition or favoring specific private interests. Understanding how this influence is exercised, who exercises it, and in what domains is therefore essential for assessing the EU institutions' genuine capacity to respond effectively to the climate crisis (Newell and Simms 2021; Plehwe et al. 2024).

Indeed, the effectiveness of these policies is often uneven, shaped not only by sectoral, institutional, and socioeconomic conditions (Barra et al. 2025) but also by the political economy of policy design and implementation.

In this landscape, the legal and regulatory framework plays a critical role in shaping firms' responses. Recent studies have highlighted the strategic importance of environmental and circular economy policies in shaping corporate behavior and reducing emissions, particularly, through mechanisms such as energy transition and foreign direct investment (Balsalobre-Lorente et al. 2025; Soto et al. 2025). At the same time, the lack of a coherent legal framework continues to generate tensions between environmental responsibilities and economic interests, calling for a more balanced approach to sustainable corporate governance (Rzayeva and Huseynova 2024). In particular, corporate lobbying plays a key role in shaping climate policy, as firms engage with policymakers to influence regulations to reduce compliance costs, safeguard existing business models, and delay costly technological transitions (Saz-Carranza 2024). Lobbying serves both as a defensive and strategic tool: negative lobbying aims to mitigate compliance burdens, delay stringent regulations, and protect business models, while positive lobbying seeks competitive advantages through policies that favor green technologies or carbon pricing (Dür and Mateo 2024). Corporate lobbying, therefore, plays a pivotal role in shaping the direction and pace of climate policy, often aligning with firms' economic interests (Curran and Eckhardt 2024). While lobbying can provide policymakers with valuable industry-specific insights, it also enables vested interests to steer policy outcomes toward private benefits (Lin 2021), sometimes at odds with broader public welfare or environmental goals (Dellis 2023). This tension is, particularly, evident in the climate sector, where the balance between industrial competitiveness and environmental integrity is contested (Roberts 2024). Despite the growing relevance of this issue, the literature on corporate lobbying has been predominantly focused on the United States, with extensive research investigating the determinants of lobbying activities in the US context (Girard et al. 2023a, 2023b; Hill et al. 2013). In contrast, studies examining determinants of lobbying dynamics within the EU remain comparatively limited. Existing EU-focused research has identified factors such as firm size, financial capacity, firm profitability, and sectoral exposure to regulation as key predictors of lobbying intensity (Chalmers and Macedo 2021; Coen et al. 2021).

Italy constitutes an especially compelling case for advancing this research agenda on a national scale (Bombardini and Trebbi 2020; Prencipe et al. 2025). As one of the EU's largest economies and a country with significant influence in shaping EU climate and industrial policy, Italy presents unique structural and institutional characteristics. Its economy is dominated by small and medium-sized enterprises (SMEs), which often have limited lobbying capacities relative to larger firms. Additionally, Italy's comparatively weak regulatory framework on lobbying exacerbates concerns about transparency and disproportionate influence by well-resourced incumbents and industry associations (Vannoni 2013). In fact, according to the European Commission (2018),[1] Italy lacks a unified national framework to regulate lobbying. This is confirmed by a 2021 European Parliament report[2] on the transparency of lobbying in the EU, which notes that lobbying in Italy remains governed by fragmented internal rules, limited to one parliamentary chamber, a few ministries, and certain regional authorities. More recently, the European Court of Auditors reports 2024[3] Italy among the EU countries with a voluntary lobbying registration system, alongside Belgium, the Netherlands, and Romania, as opposed to others, such as Germany, Ireland, and France, which have adopted mandatory systems. This highlights a persistent policy gap in lobbying transparency and regulatory enforcement. Additionally, existing scholarship has highlighted how institutional access, network dynamics, and organizational capabilities shape lobbying success in Italy (Montalbano and Pritoni 2022).

While this study focuses on the Italian case, its findings offer valuable insights into broader lobbying dynamics within the EU. Many of the patterns observed in Italy, such as the concentration of lobbying power among large firms, persistent regional disparities in political access, and a relatively weak regulatory framework, are not unique to the Italian context but reflect structural features that are also present in several other EU member states, especially in Southern Europe (Coen 1998; Greenwood and Dreger 2013). The Italian context therefore represents a valuable case study for understanding the mechanisms through which firms may influence the design of climate policies, offering useful insights to reflect on the transparency, effectiveness, and fairness of the decision-making process within the EU. Yet, empirical evidence on the firm-level determinants of climate-related lobbying activities in the Italian context remains fragmented and underexplored.

This study seeks to address this gap by offering a systematic analysis of corporate lobbying dynamics within Italy, with a particular focus on climate-related advocacy efforts. Specifically, this research aims to answer the following questions: *To what extent do Italian firms participate in climate-related lobbying activities, and which thematic areas dominate their advocacy strategies? What factors determine the lobbying expenditures of Italian firms in the context of climate-related policy engagement?*

To address these questions, we developed an unbalanced panel dataset of Italian firms engaged in lobbying activities, drawing on data from LobbyFacts and ORBIS covering the period from 2011 to 2023. Using a combination of descriptive statistics, textual analysis, and advanced econometric

modeling, we examine lobbying patterns and the firm-level determinants of both lobbying expenditures and participation in EU Commission meetings related to climate policy. Methodologically, we apply AI-supported textual analysis to identify climate-related lobbying activities and key advocacy themes. We implement fixed-effects models with generalized least squares (GLS) and to account for potential endogeneity, the generalized method of moments (GMM) estimators. Our findings suggest that higher revenues consistently lead to increased lobbying expenditures, stronger lobbying efforts, and greater participation in climate-related meetings, particularly among very large firms. Additionally, while financial stability indicators might reduce lobbying spending, company size and regional differences also shape the intensity and focus of lobbying activities.

The remainder of this paper is organized as follows: Section 2 provides a review of the relevant literature on corporate lobbying and climate policy engagement; Section 3 outlines the data; Section 4 details the methodological approach; Section 5 presents and discusses the empirical results; and Section 6 concludes by drawing out policy implications and avenues for future research.

2 | Literature Review

The study of corporate lobbying has attracted growing scholarly interest, with a focus on its underlying drivers, sectoral variations, and effects on regulatory outcomes. This section presents a systematic review of the literature, addressing key themes that underpin this research. We first explore the political economy of lobbying activities (Section 2.1), followed by an analysis of the determinants of lobbying expenditures, sector-specific lobbying strategies, and the influence of firm size on political advocacy. We also examine the distinctive characteristics of lobbying practices in the US, the EU, and Italy (Section 2.2). Finally, Section 2.3 highlights key gaps in the existing literature, clarifies this study's contribution, and introduces the testable hypotheses.

2.1 | The Political Economy of Corporate Lobbying

The political economy literature has long considered lobbying as a rational strategy adopted by firms aiming to influence policy outcomes that affect their profitability and market positioning. Classic theories, such as the logic of collective action (Olson Jr. 1971) and the private interest theory of regulation (Peltzman 1976), argue that firms engage in lobbying to secure favorable regulations, subsidies, and market protections. Within this framework, governments are arenas where competing interests vie for scarce resources, including fiscal benefits, regulatory advantages, and market access. The ability of states to shape markets through taxation, regulation, public procurement, and industrial policy generates incentives for firms to engage in rent-seeking behavior (Desai et al. 2008).

Grossman and Helpman (2008)'s influential model posits that governments balance social welfare against the political contributions received from organized interests, resulting in policies that reflect the bargaining power of these groups. Firms are, therefore, incentivized to lobby when the potential policy rents or protective barriers can secure competitive advantages or monopolistic positions (Horgos and Zimmermann 2009). Concentrated industries with fewer players are more likely to exhibit coordinated lobbying to preserve high-profit structures. Beyond pecuniary motivations, Klüver (2013) emphasizes that lobbying responds to the institutional context in which policymaking occurs. The likelihood of lobbying is heightened when policies are salient, regulatory in nature, or technically complex, as firms seek to shape rule-making processes in their favor. Furthermore, lobbying is not solely driven by individual firms but often by industry coalitions addressing the "public good problem" as collective action ensures that sector-wide benefits overcome the free-rider problem (De Figueiredo and Richter 2014). Recent evidence, particularly, in the context of climate and ESG-related regulation, confirms that firms engage in lobbying to respond to broader societal pressures and evolving policy environments (Klüver et al. 2015). The structure of political institutions influences the effectiveness of corporate political lobbying by shaping the "veto points" and "entry points" that lobbying firms encounter and require, respectively, when attempting to influence public policies (Choi et al. 2014).

2.2 | Determinants of Corporate Lobbying: From the United States to the EU, With a Focus on Italy

The determinants of corporate lobbying have been widely explored, particularly, in the United States where lobbying is deeply embedded in the political economy. The US literature identifies several channels through which lobbying activities can enhance corporate performance, including reducing effective tax rates (Richter et al. 2009), mitigating regulatory burdens (Cao et al. 2018), and securing privileged access to public contracts or bailouts (Faccio et al. 2006). Lobbying is viewed as a strategic tool for managing political risks (Blumentritt 2003) and shaping market entry barriers (Stigler 1971). Stewardship theory (Hillman 2005) positions lobbying as part of a firm's broader corporate strategy aimed at influencing the institutional environment and securing competitive rents. However, empirical findings are mixed. Some studies report positive links between lobbying and firm performance (Cooper et al. 2010), while others find either null (Hersch et al. 2008) or even negative effects (Aggarwal et al. 2012).

Corporate lobbying in the EU is often driven by the goal of influencing legislation to reduce regulatory costs. For example, banks lobbied heavily to weaken post-2008 financial crisis capital requirements, which threatened their profitability (Chalmers and Macedo 2021; Spendzharova et al. 2016). Similarly, large tech firms pushed back against strict General Data Protection Regulation provisions to protect their business models based on personal data (Atikcan and Chalmers 2019). Other industries, such as tobacco and alcohol (Costa et al. 2014; Savell et al. 2014) have lobbied to avoid stringent regulations on marketing and sales. Beyond cost avoidance, firms also lobby to secure market access and maintain competitiveness. UK financial firms lobbied against Brexit to retain EU market privileges (James and Quaglia 2019), while other

sectors have targeted trade agreements and regulatory harmonization to enhance global market opportunities (Dür and Mateo 2024).

Early research on climate lobbying often framed the debate as a binary contest between environmental NGOs and business interests. However, more recent studies highlight that lobbying behavior aligns more closely with the distribution of costs and benefits from regulation. In the United States, for example, businesses are not uniformly opposed to environmental policies; rather, preferences diverge between "winners" and "losers" of regulatory outcomes, with more exposed sectors lobbying against stringent measures (Brulle 2018; Kim et al. 2016; Vormedal 2008). Similar dynamics have been observed in Finland (Vesa et al. 2020) and among transnational corporations (Witte 2020), where firms in fossil fuel-dependent industries are more likely to resist climate regulation. Within the EU, energy-intensive industries, such as oil and gas, have resisted the tightening of the 2030 climate targets, while actors from the renewable energy sector have actively supported them (Fuchs and Feldhoff 2016). Interestingly, much of the corporate opposition does not take the form of outright resistance but rather "hedging" strategies aimed at softening or adjusting policy frameworks to minimize costs (Meckling 2015). Moreover, assumptions about resource disparities as drivers of lobbying strategies have been challenged, as financial capacity does not appear to systematically explain differences in advocacy approaches across different types of groups in the EU environmental domain (Junk 2016).

Recent scholarship has also documented a surge in climate-related lobbying by fossil fuel firms since 2013 (Lantushenko and Schellhorn 2023). Kang (2016) illustrates how lobbying by energy companies can influence the legislative process, while Meng and Rode (2019) and Delmas et al. (2015) show that such efforts reduce the likelihood of climate policy adoption. Notably, these studies reveal a U-shaped relationship between emissions and lobbying intensity, suggesting that both high- and low-emitting firms engage in strategic advocacy. Together, these findings underscore the complex, sector-dependent nature of corporate engagement in climate policy and highlight the need for further research into the determinants and consequences of differentiated lobbying behavior.

While large corporations tend to dominate lobbying activities due to superior financial resources, internal expertise, and established political connections, SMEs often encounter considerable barriers to political engagement (Vannoni 2013). Compared to their larger counterparts, SMEs typically lack dedicated public affairs departments and the financial capacity to sustain direct lobbying campaigns (Keller 2018). As a result, they are more likely to delegate representation to business associations or consortia, which aggregate interests and mediate access to policymakers (Götz 2019). Regarding economic performance variables (like Revenue, Profit, return on equity [ROE]) as determinants of lobbying expenditure, the literature on lobbying as a strategic investment (Bombardini 2008; Hillman et al. 2004) suggests that only firms with high economic performance have the margin to support lobbying activities. Revenue and profit are commonly used as direct proxies for a firm's ability to allocate resources toward influencing policy decisions.

Indicators of financial soundness, such as solvency, reflect a firm's ability to absorb regulatory risks and sustain non-core activities such as lobbying. More financially solid firms are less constrained by liquidity needs and are therefore more active in policy engagement (Hersch et al. 2008).

Structural variables such as the number of employees and the presence of employees dedicated to lobbying activity reflect the operational scale and could be a proxy for the firms' potential influence on policymakers, especially in areas related to labor regulation, energy transition, and sustainability. In Italy, this challenge is, particularly, pronounced given the predominance of SMEs in the country's economic fabric, accounting for over 90% of active enterprises (Montalbano and Pritoni 2022). The limited direct participation of SMEs in lobbying raises concerns about asymmetric influence and the potential exclusion of smaller actors from critical regulatory debates, including those concerning climate and environmental policies. Nonetheless, emerging evidence suggests a gradual shift toward increased lobbying among SMEs. Recent studies highlight that Italian SMEs have started to engage more actively in lobbying activities, particularly in response to growing regulatory pressures related to climate change and sustainability transitions (Gasbarro et al. 2018). This evolving engagement landscape underscores the need to reassess traditional assumptions about the lobbying capacity of firms and points toward an increasingly pluralistic field of corporate political activity in Italy.

2.3 | Research Contribution, Gap Identification, and Hypotheses Development

This study contributes to the existing literature in several ways. First, while an extensive body of research has explored the determinants and effects of corporate lobbying in the United States and EU, the specific drivers of climate-focused lobbying remain fragmented and underexplored. Notably, studies examining the determinants of climate lobbying are limited, both in number and in scope, often neglecting variations within individual countries. A critical gap lies in the lack of attention to subnational dynamics, particularly, regarding how economic structures at the regional level influence firms' lobbying activities. The existing literature predominantly focuses on institutional factors, firm-level characteristics (e.g., size, sectoral affiliation, and resource availability), and national political frameworks. However, the role of territorial economic heterogeneity, especially in countries with stark internal disparities like Italy, has received insufficient scholarly attention. Italy provides a compelling context due to its well-documented regional economic dualism. These internal asymmetries likely shape firms' incentives and capacities to engage in lobbying activities, particularly in the realm of climate and environmental regulation. The novelty of this paper lies in two main aspects. First, we leverage an original dataset that combines firm-level lobbying expenditure and participation in EU climate policy meetings with firms' financial data. Second, we adopt a mixed-method approach, integrating textual analysis of lobbying disclosures with econometric modeling to systematically assess the determinants of lobbying intensity across Italian firms. This dual approach enables us to respond to key research questions while accounting for Italy's distinctive industrial structure, where SMEs are pivotal actors in shaping the corporate landscape.

Based on the theoretical insights from the political economy of lobbying and empirical findings discussed in Sections 2.1 and 2.2, we formulate the following hypotheses:

Hypothesis 1. *Firm performance is positively associated with lobbying expenditure and lobbying intensity in the Italian context.*

Firms with higher revenues typically have greater financial capacity to allocate resources toward influencing public policy through lobbying activities. Larger firms often face more regulatory scrutiny and have more at stake when it comes to shaping legislative or regulatory outcomes that can impact their operations, profitability, and competitive advantage. In the Italian context, where lobbying is a growing but still relatively opaque phenomenon, high-revenue firms may be particularly motivated to engage more intensively in lobbying to secure favorable policy environments or to mitigate regulatory risks.

Hypothesis 2. *Regional economic heterogeneity in Italy influences lobbying patterns, with regions characterized by higher industrial concentration exhibiting more intense lobbying activity.*

Italy is marked by significant regional disparities in terms of industrial development, economic specialization, and institutional frameworks. Regions with higher industrial concentration—such as Lombardy, Emilia-Romagna, and Veneto—host dense networks of firms and sectoral clusters that foster collective action, including lobbying activities. Firms in these regions are more likely to engage in lobbying due to the presence of business associations, a tradition of industrial cooperation, and the potential for coordinated efforts to influence climate policy agendas.

By testing these hypotheses, the study highlights the critical role of firm-specific characteristics and subnational economic structures in shaping climate lobbying expenditure. This approach offers novel insights for both policy and academic debates on how regional disparities and corporate power dynamics influence climate policymaking in Italy.

3 | Data

This study employs firm-level data to analyze the composition of Italian lobbyists. This study specifically focuses on organizations headquartered in Italy that engaged in lobbying activities. To conduct the analysis, we constructed an unbalanced panel covering the period 2011 to 2023 by integrating data from two key sources—LobbyFacts and ORBIS databases. Italy was selected due to its weak lobbying regulation, its strategic role in EU climate negotiations, and the structure of its business landscape, which offers a relevant and illustrative case study that can be generalized to other European countries. Associations and organizations were excluded from the sample, as they are often not required to make their financial data publicly available and frequently rely on different and nonstandardized reporting formats (Migliaccio and De Luca 2018).

First, we used LobbyFacts,[4] a reliable database that compiles data from the EU Transparency Register, providing structured and verifiable records on lobbying activities. Second, we incorporated firm-level operational and financial data from ORBIS, one of the most comprehensive and internationally recognized corporate databases. ORBIS provides insights into corporate structures and financial performance across Europe, enabling an analysis of lobbying dynamics beyond national borders (Crispino and Conteduca 2024). While focusing on organizations headquartered in Italy, our dataset also captures firms with transnational operations. By combining lobbying data with firm-level financial indicators, we examine the operational and financial drivers of lobbying intensity, proxied by related expenditures. The timeframe is guided by data availability, as consistent information beyond this period is lacking.

3.1 | Panel Composition

The selected panel of Italian corporate lobbyists is predominantly composed of businesses (91.6%), followed by banks (4.86%), insurance companies (2.02%), financial companies (0.81%), and other entities[5] (0.71%). Figure 1 (on the left) shows that most companies engaged in lobbying are classified as "very large companies" according to the ORBIS classification, which categorizes firms as very large, large, medium-sized, or small. Although SMEs are present, given the structure of the Italian entrepreneurial landscape, many of them do not participate in lobbying activities.

Geography significantly influences lobbying dynamics, as regional disparities in consumption patterns, firm structures, and climate conditions shape local networks and services (Mattarello et al. 2024). As illustrated in Figure 1 (on the right), most Italian organizations engaged in lobbying are based in Lombardy, Veneto, Emilia-Romagna, Tuscany, and Lazio. Many of these firms, being large corporations, operate both nationally and internationally. A clear North–South divide emerges, with lobbying activity concentrated predominantly in the northern regions of Italy.

Table 1[6] provides an overview of the sectoral composition of Italian firms involved in lobbying and their associated expenditures. Sectoral differences across Italy's macroregions (North, Center, South and Islands) are shown in Table C1 in the Appendix C. Among the most represented sectors in each area, manufacturing appears consistently across all macroareas. "Professional, scientific and technical activities" is the second most prevalent sector in the Center and North, while in the South, the leading sector is "Information and communication". Moreover, Figure C1 in the Appendix C illustrates regional differences in lobbying expenditure across Italian regions. While the extent of variation depends on whether total or average values are considered, Lazio consistently emerges as the region hosting headquarters of firms with the highest lobbying expenditure.

The macroarea trends are confirmed observing the entire Italian sample; manufacturing (24.09%) and Professional, Scientific, and Technical Activities (24.49%) account for nearly half of the lobbying firms in the sample, reflecting the strong presence of industrial and service-oriented sectors in lobbying efforts. Sectors such as Information and Communication (13.97%) and Financial and Insurance Activities (10.32%) also show significant participation. In terms of expenditure, Professional, Scientific, and Technical Activities lead with over €42 million

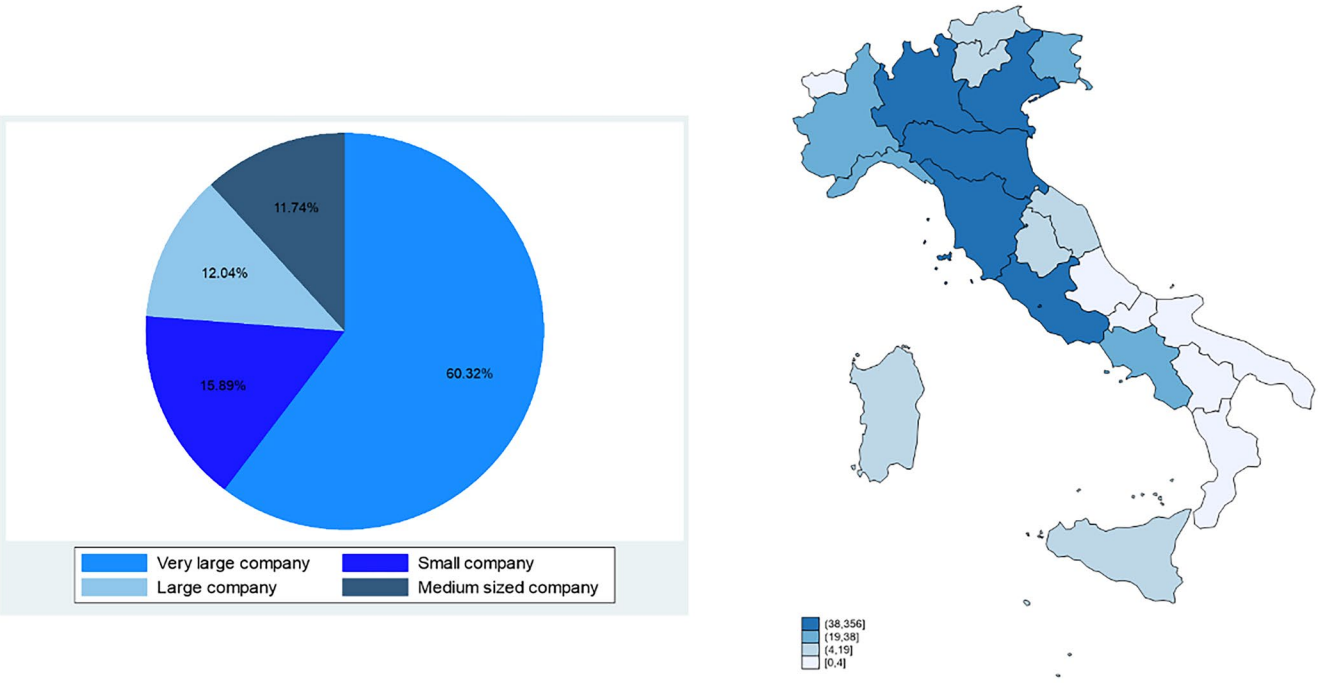

FIGURE 1 | Size of companies engaged in lobbying size and location of the headquarter company. The missing data on the size present in ORBIS have been filled considering the city of the parent company. Moreover, the missing data on the sector were filled considering the ATECO code present in the business register (https://www.registroimprese.it/ricercaext?utm_source) and subsequently converted into NACE. *Source:* Authors' elaboration based on data from LobbyFacts and ORBIS, processed using Stata.

in total lobbying outlays, followed by Manufacturing (€33.9 million) and Electricity, Gas, Steam, and Air Conditioning Supply (€34.3 million), which also displays one of the highest average expenditure per firm (€552,532). This indicates that capital-intensive and highly regulated sectors tend to invest more in lobbying activities. Conversely, sectors such as Agriculture, Education, and Arts show minimal lobbying engagement and relatively low spending, reflecting their smaller lobbying footprint in this context. Overall, the data show that lobbying intensity is concentrated in sectors where regulatory frameworks and market dynamics are highly sensitive to policy changes, consistent with existing literature (Errichiello et al. 2025).

3.2 | Descriptive Statistics

Table 2[7] presents descriptive statistics on lobbying expenditures, full-time lobbyists, participation in EU commission online meetings, and participation in climate-related meetings. Firm performance is assessed through revenue turnover, profit margin, ROE, return on capital employed (ROCE), solvency ratio, labor productivity over time, and the number of employees. As shown in the literature, lobbying activity and firm-level variables are useful indicators of firm characteristics to investigate whether an increase in lobbying activity affects corporate performance (Tovar 2011; Kim and Savagar 2023; Endres et al. 2020; Nosko and Ušiak 2023; Wang et al. 2024; Miller 2021).

Firm-level financial strength, measured by indicators like revenue or ROE, plays a key role in determining a company's ability and willingness to engage in direct lobbying, particularly, when industry associations fall short in addressing firm-specific or sector-specific regulatory concerns.

The selection of these financial and structural variables is based on existing research showing their relevance in explaining corporate involvement in lobbying (Hersch et al. 2008).

The descriptive statistics in Table 2 provide an overview of the key variables used in the analysis, based on a sample of 988 observations. On average, firms spend approximately €184,609 on lobbying, though this amount is highly skewed given the maximum expenditure reaching €4.6 million. The average revenue is €5.26 billion, with wide variation across firms (min €0, max €144 billion), reflecting a heterogeneous sample in terms of firm size. Profit margins (mean = 7.55) and return indicators such as ROE (14.83%) and ROCE (12.67%) also display substantial dispersion, highlighting the financial diversity of the firms. The average solvency ratio is 33.17%, while employment figures show that companies have on average over 10,000 employees, with some firms employing up to 167,000 people.

Regarding lobbying structure, organizations typically employ just over two full-time lobbyists, but this number can exceed 100 in some cases. The table also includes dummy variables for participation in online and climate-related meetings with the European Commission. Although overall participation in these meetings is low, climate meetings are used as a proxy for climate lobbying activity. The level of lobbying engagement (EFFORT), obtained by multiplying lobbying expenditure by the number of climate meetings attended, data reveals significant differences in how organizations target climate issues. Finally, the correlation matrix confirms no evidence of high correlation among the variables (see Table B1 in Appendix B).

Figure 2 illustrates the trends of key lobbying variables over time, including total and average expenditures, climate-related

TABLE 1 | Sectoral composition of Italian lobbyists in the sample and corresponding lobbying expenditures.

NACE	Sector	Percent lobbyists	Lobby expenditure (mean)	Lobby expenditure (sum)
A	Agriculture, forestry, and fishing	1.01	91,999.9	919,999
B	Mining and quarrying	1.32	1,080,769	1.41E+07
C	Manufacturing	24.09	142,339.5	3.39E+07
D	Electricity, gas, steam, and air conditioning supply	6.28	552,532.3	3.43E+07
E	Water supply; sewerage, waste management and remediation activities	1.32	12,884.38	167,497
F	Construction	2.23	150,227.2	3,304,999
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	2.43	127,724.5	3,065,387
H	Transportation and storage	4.55	156,710.9	7,051,992
I	Accommodation and food service activities	0.1	0	0
J	Information and communication	13.97	89,080.41	1.23E+07
K	Financial and insurance activities	10.32	231,807.3	2.36E+07
M	Professional, scientific, and technical activities	24.49	175,891.9	4.26E+07
N	Administrative and support service activities	3.44	164,106.3	5,579,613
O	Public administration and defense; compulsory social security	0.4	17,500	70,000
P	Education	2.13	57,440.67	1,206,254
Q	Human health and social work activities	1.11	20,566.82	226,235
R	Arts, entertainment and recreation	0.81	14,374.5	114,996

Source: Authors' elaboration based on data from LobbyFacts and ORBIS, processed using Stata.

meetings, and the number of lobbyists (representing the number of organizations involved in lobbying activity each year).

While a direct causal link cannot be established, the trend suggests that lobbying activity intensifies during periods of major climate policy approvals. The total lobbying expenditure shows a clear upward trajectory, with a notable surge around 2015—the year of the Paris Agreement—followed by a peak in 2016. Another sharp increase occurred in 2019, coinciding with the approval of the European Green Deal. However, the trend plateaued in 2021, likely due to the exogenous shock of COVID-19. The pandemic represents a critical turning point for analyzing the relationship between company revenues and lobbying. As a global shock with both economic and environmental implications, it significantly affected firms' financial performance and strategic behavior. Not considering COVID-19 in the analysis is a limitation (Barra and Falcone 2024). Several studies highlight that during this period, political attention temporarily shifted away from climate objectives toward crisis management and economic recovery (Escribano and Lázaro-Touza 2020; Tian et al. 2022), influencing firms' lobbying effort. Moreover, government support may have shaped this relationship: on average, firms that received COVID-related subsidies experienced an 11% increase in revenues by mid-2020 compared to those that did not (Turkson et al. 2021). These dynamics underline the need to explicitly account for the COVID-19 period, as it likely influenced both firms' capacity to lobby and their motivation to influence climate-related policy. Following this exogenous shock, lobbying activity rose again following the approval of the Fit for 55 package. The number of climate-related meetings follows a similar pattern, peaking in 2015 and rising steadily from 2019 onward, reaching its highest levels in 2023. This indicates growing corporate attention to climate issues in recent years.

While the Paris Agreement was partially shaped by EU strategies that initially tempered its ambitions (Oberthür and Groen 2018), the European Green Deal has amplified them, accelerating the transition to renewable energy (Kougias et al. 2021). Moreover, the impact of sustainable policies varies across different regions.

TABLE 2 | Descriptive statistics of main variables.

Variable	Mean	SD	Min	Max
LOBBY	184609.36	381524.82	0	4,624,500
REVENUE	5.264e+09	1.605e+10	0	1.440e+11
PROFIT	7.547	17.105	−96.371	99.868
ROE	14.83	48.921	−664.53	166.569
ROCE	12.667	26.689	−273.048	175.392
SOLVENCY	33.171	23.137	−28.136	100
EMPLOYEES	10166.795	24202.703	1	167,014
PL	2.020e+08	1.442e+09	−1.358e+10	1.389e+10
LFT	2.276	6.254	0	103.25
OMEETINGS	0.053	0.223	0	1
CMEETINGS	0.072	0.258	0	1
TCMEETINGS	0.28	1.314	0	16
EFFORT	36965.585	252697.55	0	4,624,500
Observations		988		

Abbreviations: CMEETINGS, dummy climate-related meetings; EFFORT, level of lobbying engagement, considering companies actively participating in climate meetings; EMPLOYEES, total number of employees in the company; LFT, Lobbyists Full-Time; LOBBY, total lobbying expenditure; OMEETINGS, online meetings with the EU Commission; PL, profit and loss for period; PROFIT, profit margin; REVENUE, overall revenue turnover; ROCE, return on capital employed; ROE, return on equity; SOLVENCY, solvency ratio; TCMEETINGS, total number of meetings assisted.
Source: Authors' elaboration based on data from LobbyFacts and ORBIS, processed using Stata.

For instance, the implementation of the Fit for 55 package has had heterogeneous effects on employment. Consequently, the nature of lobbying—whether supportive or oppositional—also varied according to regional and sectoral characteristics (Perdana and Vielle 2025).

The trajectory of average lobbying expenditure per organization sometimes diverges from total spending, providing insights into the composition of the lobbying sample. Before 2015, lobbying was primarily driven by organizations making substantial investments to shape policies. In 2013, following the approval of the third phase of the EU ETS, both average and total lobbying expenditures increased, then declined in 2014 before rising again in 2015, peaking in 2016. From 2017 to 2023, the entry of smaller lobbyists led to a decline in the average lobbying expenditure, even as total lobbying spending continued to grow.

Figure 3 illustrates the trends of the key operational variables, providing insights into the composition of the Italian lobbying sample. Specifically, it depicts the average and total values of revenue, number of employees, and profit margin. A comparative analysis of these trends confirms the increasing participation of smaller lobbyists in the market. Additionally, the overall patterns suggest an improvement in the performance of organizations engaged in lobbying activities.

The descriptive statistics in Table 2, as well as Figures 2 and 3, provide a comprehensive overview of the sample, revealing a heterogeneity in terms of both lobbying intensity and operational and financial performance. While the Italian lobbying landscape is dominated by very large organizations, the presence of smaller lobbyists ensures representation for SMEs, which play a crucial role in Italy's economic fabric. Participation in climate-related meetings remains relatively low compared to the total number of meetings and is concentrated among a few key lobbyists. However, the observed trends suggest a growing corporate focus on key climate policies, suggesting increasing strategic interest in regulatory developments.

Given this context, an econometric analysis is essential to empirically assess the relationship between lobbying activities and organizational resources.

4 | Methodology

This section outlines the methodology used in the study. First, a textual analysis was conducted to identify climate meetings and the most frequently occurring keywords within them, highlighting key themes. Subsequently, this information was synthesized to define variables used in the econometric analysis.

4.1 | Climate Effort: A Textual Analysis

The Green Deal and the Fit for 55 package are among the most significant EU policies strengthening sustainability regulations. These initiatives have facilitated the implementation of policies such as the Climate Law, the Battery Regulation, the Methane Regulation, and the Nature Restoration Law. By transforming verbal commitments into concrete legislative proposals, they mark a significant step toward a sustainable transition (Pollex

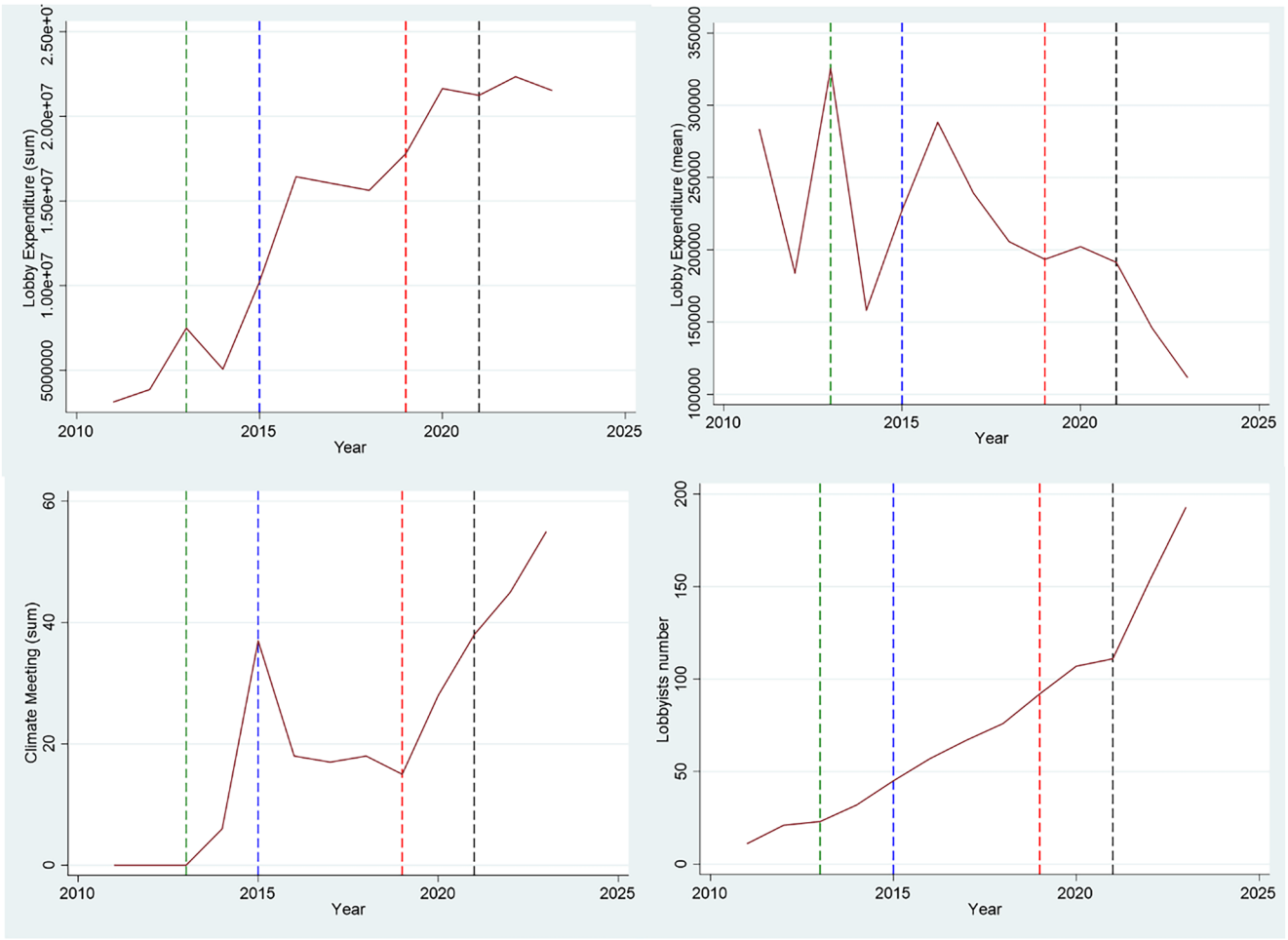

FIGURE 2 | Trends of lobbying expenditure and climate meetings. The statistics are based on the panel, so multiple lobbyists may have participated in the same meeting. Vertical dashed lines indicate significant climate policy entry into force: the introduction of the third phase of ETS in 2013 (green line), the Paris Agreement in 2015 (blue line), the Green Deal in 2019 (red line), and the Fit For 55 initiative in 2021 (black line). *Source:* Own elaboration using Stata17 with LobbyFacts data.

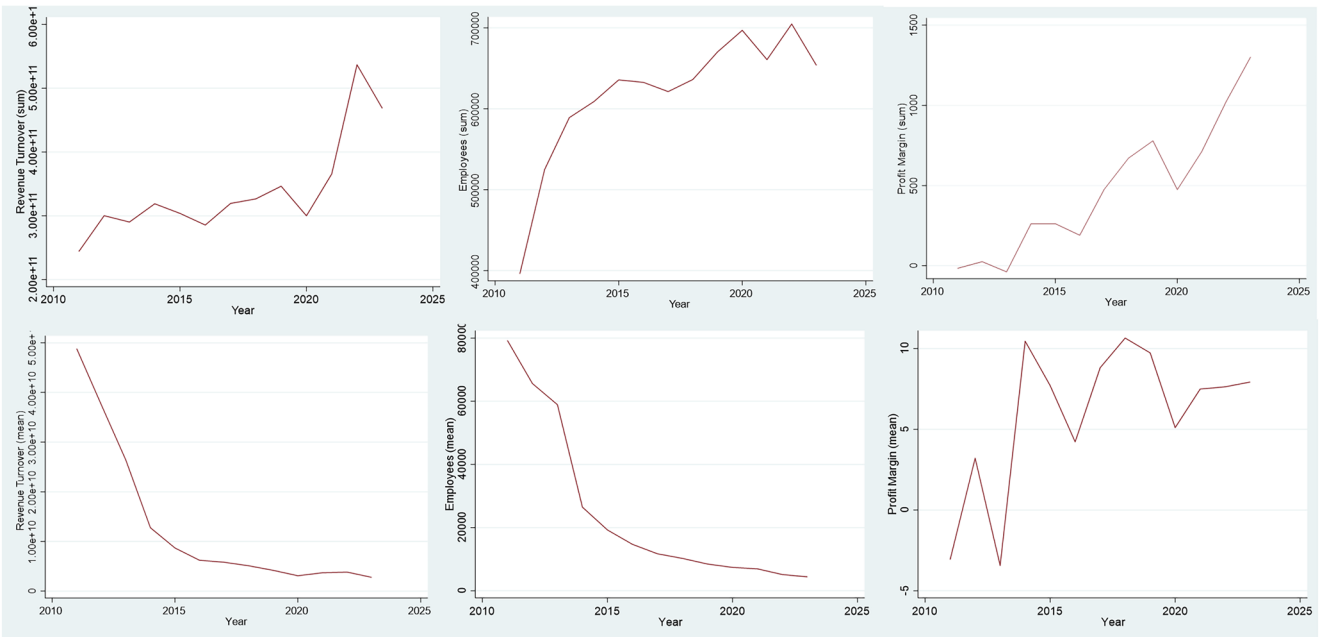

FIGURE 3 | Trends of main operating variables—revenue, number of employees, and profit margin (mean and sum). *Source:* Authors' own elaboration using Stata17 with ORBIS data.

and Lenschow 2024). In some cases, these policies set ambitious targets, requiring a drastic reduction in emissions (Vierth et al. 2024).

At the corporate level, these regulatory advancements have driven the adoption of green-aligned strategies, promoting investments in sustainable technologies, collaboration with stakeholders, resource management, employee training and engagement, and emission reduction initiatives (Charłampowicz et al. 2025). While the Green Deal sets ambitious and complex objectives, Northern European countries have largely led the transition toward a green economy, with France, the Netherlands, and Germany achieving their targets at a higher rate (Olczyk and Kuc-Czarnecks 2025).

However, achieving these objectives is often hindered by the absence of a comprehensive and integrated approach. This is evident in the challenges faced during the implementation of key policies such as the EU Renewable Energy Directive and the Land Use Regulation, where fragmented decision-making and regulatory inconsistencies have slowed progress (Köhl et al. 2021).

This study investigates the determinants of lobbying activity, with a particular emphasis on climate lobbying. To achieve this objective, we utilize textual data from the LobbyFacts dataset to construct a proxy for climate lobbying. Specifically, we analyze the topics of meetings attended by organizations with the European Commission, identifying those related to climate issues and assigning a dummy variable equal to one for these cases and zero otherwise.

To accurately identify climate lobbying activities for our econometric analysis, we first selected the meetings attended by Italian organizations and subsequently conducted a textual analysis to pinpoint those specifically related to climate issues. This analysis was carried out using MAXQDA 2022 alongside AI-based tools, including GPT-4o mini, to enhance precision and consistency in the classification process. To ensure the robustness of the classification process, we adopted a three-step methodology. The selection procedure is schematized in Figure 4 and involves: (1) selecting climate-related meetings based on keywords analysis, (2) verification by researchers, and (3) validation through an AI-based check.[8]

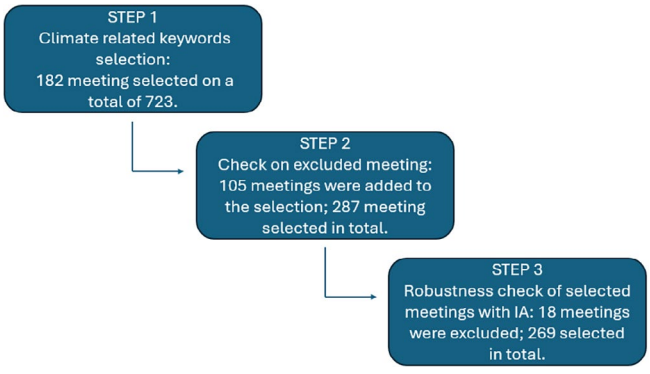

FIGURE 4 | Methodological steps of textual analysis. *Source:* Authors' elaboration.

We implemented a structured, three-step selection process on the initial pool of 723 lobbying meetings assisted by the sample of firms in the selected time frame. The goal was to isolate only those meetings specifically related to climate change. In the first step, we applied a set of climate-related keywords (see Appendix A, Figure A1 that presents a word cloud illustrating the frequencies of selected keyword in Green Deal and Fit for 55), which filtered the sample down to 182 meetings. Recognizing the potential limitations of keyword-based filtering, we conducted a second step involving a manual review of the initially excluded meetings, recovering an additional 105 relevant cases and expanding the selection to 287 meetings. Finally, we performed a robustness check using AI to ensure consistency and reduce potential bias in the selection process, which led to the exclusion of 18 meetings. This rigorous approach resulted in a final sample of 269 climate-related lobbying meetings, which we subsequently used as a key variable in our econometric estimations[9] (see Figure A2 in Appendix A showing the word cloud of selected meetings).

4.2 | Econometric Analysis

The baseline model specification is estimated using a GLS regression to ensure the robustness by addressing potential issues of autocorrelation and heteroskedasticity (Krämer and Hassler 1998). All the variables have been standardized to account for substantial variations in performance levels across firms. Standardization also enhances the comparability of variables measured on different scales, enabling a more consistent and interpretable analysis (Marquardt 1980; Santiago et al. 2018).

The baseline specification is as follows[10]:

$$L_{it} = \alpha_0 + \beta_1 L_{it-1} + \beta_2 R_{it} + \beta_3 V_{it} + \tau_t + \mu_i + \varepsilon_{it} \quad (1)$$

where L_{it} represents the dependent variable, which alternates between lobbying expenditure, the number of climate-related meetings attended by the organization, and the overall lobbying effort for organizations that participated in climate meetings (see Section 3.2). α_0 is the constant term, while L_{it-1} is the lagged dependent variable, included to account for the persistence effect of the dependent variable (Wilkins 2018), as firms engaged in lobbying in the past are more likely to continue investing in it due to established relationships with policymakers and long-term strategic commitments. The main explanatory variable, R_{it}, represents the revenue. V_{it} is the vector of microeconomic control variables, including operational, financial, and lobbying-related characteristics of different organizations (see Section 3.2). τ_t and μ_i capture time-fixed effects and organization-specific fixed effects, respectively, to account for heterogeneity in the sample related to unobserved lobbyist-specific and time-specific characteristics (Barra et al. 2024; Hausman and Taylor 1981). Finally, ε_{it} represents the standard error of the residuals, which accounts for heteroscedasticity across cross-sectional units, meaning that the variance of the error term differs for each panel in the dataset, ensuring robust estimation (Greene 2018).

Some structural factors and exogenous shocks may affect firms' performance and lobbying behavior. To control for

these effects, we include variables accounting for North–South regional differences, firm size, or exogenous shocks such as COVID-19 (Al-Thaqeb et al. 2022; Bloom 2009; Mate-Sanchez-Val and Martinez-Victoria 2025; Tsagkanos and Siriopoulos 2015).

The literature provides evidence that lobbying both influences and is influenced by corporate performance. Firms that engage in either insufficient or excessive lobbying compared to their competitors experience a marginally negative impact on performance (Girard et al. 2023a). Moreover, the effects of lobbying on firm performance vary depending on companies' political orientation (Unsal et al. 2016). Additionally, industries with a higher proportion of large firms tend to exhibit greater political activity intensity (Bombardini 2008).

Given these findings, we account for potential endogeneity and reverse causality by employing the GMM.[11] This approach mitigates bias arising from correlation between lagged variables, ensuring that the estimates are not driven by spurious relationships (Falkenström 2024; Nacken et al. 2024).

We acknowledge that the small sample size may affect our estimates. With limited data, there is a higher risk of overfitting, as the model may capture idiosyncratic patterns rather than generalizable relationships. Estimating unobserved characteristics in small samples can be challenging; however, previous research has demonstrated that this is feasible with sophisticated estimators. Additionally, while unbalanced panels may introduce additional complexities, rigorous analysis remains achievable (Bruno 2005; Taylor 1980). To ensure the reliability of our findings, we have tested the baseline model across different specifications and sample characteristics, verifying that the identified effect remains consistent. Furthermore, the GMM approach proves to be less biased than the first-difference estimator (Hayakawa 2007).

5 | Findings

5.1 | Baseline

Small samples may have a limited capacity to capture underlying data dynamics, which potentially could lead to correlated residuals. This issue may result in an underestimation of standard errors, thereby increasing the risk of false positives, where variables appear significant even when they are not (Bai et al. 2021). To mitigate this issue, we tested the GLS model to enhance estimation efficiency and ensure that the results are not distorted by heteroskedasticity or autocorrelation in the error terms.

The baseline specification reveals a relationship between firm performance and lobbying activity (see Table 3).[12] The positive and significant coefficient of the main dependent variable, REVENUE, indicates that as revenue increases, lobbying expenditures rise (Column 1), the likelihood of participating in climate-related meetings increases (Column 2), and lobbying effort intensifies (Column 3). Previous literature has already highlighted the relationship between firm performance and lobbying in the United States (Borghesi and Chang 2015). However, our findings confirm the differences between the Italian and American entrepreneurial systems (Costa et al. 2024), identifying revenue as a key variable. Specifically, we identify revenue as a crucial determinant in the Italian context, where it drives not only lobbying expenditure but also the intensity of lobbying efforts. These results support our hypothesis Hypothesis 1, confirming that firm performance, particularly, revenue, is positively associated with both lobbying expenditures and lobbying intensity within Italy.

These findings illustrate a multifaceted relationship between corporate performance and lobbying activities. On the one hand, firms exhibiting stronger financial and operational performance are more likely to engage in lobbying due to their ability to afford such activities and their potential to influence policies in their favor, aligning with existing literature (Hill et al. 2013). On the other hand, those with higher financial stability may feel less compelled to lobby, as they are already well-positioned within the existing regulatory framework. Additionally, the counterintuitive finding regarding the negative impact of company size on meeting participation and financial performance suggests that being larger or experiencing financial flux can present barriers to direct involvement in policy discussions. In many cases, they may outsource lobbying efforts to consultancy firms (Espinosa 2021). Larger companies may have more bureaucratic hurdles, making it harder to actively participate, while firms in financial difficulty may be less able to allocate resources toward these types of external engagements. Nevertheless, our analysis supports Hypothesis 1—firm performance, particularly, in terms of revenue, is positively associated with lobbying expenditure and intensity in the Italian context. These findings align with prior literature linking lobbying and corporate performance (Chen et al. 2015). Moreover, while firm size plays a role, other factors such as the strategic relevance of the policy issue also influence lobbying behavior (Kerr et al. 2014). This supports the broader view that lobbying activity is shaped by a combination of strategic priorities, resource availability, and the need for regulatory influence, with firm performance acting as a key enabler in determining both the timing and intensity of corporate political engagement.

5.2 | Robustness Check

To test the robustness of our results confirming the hypothesis Hypothesis 1 and assess the consistency of the effects of corporate operational and financial variables on lobbying, we conducted several robustness checks. These checks address differences in firm size, geographical location, the impact of COVID-19, and potential endogeneity issues. This approach ensures the reliability of our estimates by preventing results from being driven by specific contexts or events. While not all operational and financial variables remain significant across different model specifications, the relationship between revenue and lobbying expenditure remains robust. Specifically, revenue exhibits a positive and significant effect on lobbying expenditures across all model specifications, confirming its role as a key determinant.[13] Appendix B reports additional robustness checks (see Tables B2–B5).

TABLE 3 | Estimation GLS with fixed effects.

	LOBBY	TCMEETINGS	EFFORT
L.LOBBY	0.3566		
	[0.0347]***		
REVENUE	0.3377	0.3838	0.2536
	[0.0643]***	[0.0840]***	[0.0391]***
PROFIT	0.0023	−0.0003	0.0006
	[0.0040]	[0.0047]	[0.0031]
ROE	0.0054	−0.0005	0.0013
	[0.0037]	[0.0071]	[0.0073]
ROCE	−0.0095	0.0014	0.0002
	[0.0046]**	[0.0043]	[0.0046]
SOLVENCY	−0.0144	0.0003	−0.0003
	[0.0047]***	[0.0034]	[0.0036]
EMPLOYEES	0.0728	−0.0960	−0.0875
	[0.0350]**	[0.0416]**	[0.0257]***
PL	0.0668	−0.0943	−0.0305
	[0.0405]*	[0.0520]*	[0.0319]
LFT	0.3083	0.0008	0.0125
	[0.0365]***	[0.0032]	[0.0131]
OMEETINGS	0.0142	0.4909	0.0266
	[0.0622]	[0.0810]***	[0.0218]
CMEETINGS	0.1094		
	[0.0436]**		
L.TCMEETINGS		0.3277	
		[0.0609]***	
LOBBY		0.0085	
		[0.0151]	
L.EFFORT			0.4689
			[0.1171]***
N	542	542	542

Note: All variables have been standardized except for the dummy variables. Fixed effects for panel ID and year are considered.
Abbreviations: CMEETINGS, dummy climate-related meetings; EFFORT, level of lobbying engagement, considering companies actively participating in climate meetings; EMPLOYEES, total number of employees in the company; LFT, lobbyists full-time; LOBBY, total lobbying expenditure; OMEETINGS, online meetings with the EU Commission; PL, profit and loss for period; PROFIT, profit margin; REVENUE, overall revenue turnover; ROCE, return on capital employed; ROE, return on equity; SOLVENCY, solvency ratio; TCMEETINGS, total number of meetings assisted.
*$p < 0.1$.
**$p < 0.05$.
***$p < 0.01$.
Source: Own elaboration with Stata17.

5.2.1 | Firm Size

Table 4 confirms the baseline specification results when considering only very large companies. Excluding these companies from the sample, we observe no significant evidence that revenues influence participation in climate-related meetings for large companies and SMEs. The coefficient is not statistically significant, indicating that the results for climate meetings are primarily driven by very large companies. However, operational and financial variables are key determinants of overall lobbying expenditure for these firms (see Table B3 in Appendix B). Indeed, lobbying activities have previously been linked to firm size (Alonso and Andrews 2022).

TABLE 4 | Estimation of GLS with FE with only "very large companies."

	LOBBY	TCMEETINGS	EFFORT
L.LOBBY	0.3566		
	[0.0347]***		
REVENUE	0.3377	0.3838	0.2536
	[0.0643]***	[0.0840]***	[0.0391]***
PROFIT	0.0023	−0.0003	0.0006
	[0.0040]	[0.0047]	[0.0031]
ROE	0.0054	−0.0005	0.0013
	[0.0037]	[0.0071]	[0.0073]
ROCE	−0.0095	0.0014	0.0002
	[0.0046]**	[0.0043]	[0.0046]
SOLVENCY	−0.0144	0.0003	−0.0003
	[0.0047]***	[0.0034]	[0.0036]
EMPLOYEES	0.0728	−0.0960	−0.0875
	[0.0350]**	[0.0416]**	[0.0257]***
PL	0.0668	−0.0943	−0.0305
	[0.0405]*	[0.0520]*	[0.0319]
LFT	0.3083	0.0008	0.0125
	[0.0365]***	[0.0032]	[0.0131]
OMEETINGS	0.0142	0.4909	0.0266
	[0.0622]	[0.0810]***	[0.0218]
CMEETINGS	0.1094		
	[0.0436]**		
L.TCMEETINGS		0.3277	
		[0.0609]***	
LOBBY		0.0085	
		[0.0151]	
L.EFFORT			0.4689
			[0.1171]***
N	542	542	542

Note: All variables have been standardized except for the dummy variables. Fixed effects for panel ID and year are considered.
Abbreviations: CMEETINGS, dummy climate-related meetings; EFFORT, level of lobbying engagement, considering companies actively participating in climate meetings; EMPLOYEES, total number of employees in the company; LFT, lobbyists full-time; LOBBY, total lobbying expenditure; OMEETINGS, online meetings with the EU Commission; PL, profit and loss for period; PROFIT, profit margin; REVENUE, overall revenue turnover; ROCE, return on capital employed; ROE, return on equity; SOLVENCY, solvency ratio; TCMEETINGS, total number of meetings assisted.
*$p < 0.1$.
**$p < 0.05$.
***$p < 0.01$.
Source: Own elaboration with Stata17.

5.2.2 | Firm Geographical Location

The results presented in Table 5 provide further insights into the relationship between corporate performance and lobbying activities, focusing specifically on firms located in Northern and Central Italy.

When excluding companies from Southern Italy and the Islands, the baseline results are largely confirmed, suggesting that the patterns observed in the overall sample are primarily driven by firms headquartered in these regions. This is, particularly, evident in the persistent significance of revenue as a key determinant of lobbying expenditures, which remains a strong

TABLE 5 | Estimation of GLS with FE without lobbyists headquartered in Southern Italy and Islands.

	LOBBY	TCMEETINGS	EFFORT
L.LOBBY	0.3860		
	[0.0313]***		
REVENUE	0.3231	0.3938	0.2574
	[0.0642]***	[0.0855]***	[0.0400]***
PROFIT	0.0042	−0.0003	0.0008
	[0.0039]	[0.0052]	[0.0031]
ROE	0.0066	−0.0006	−0.0017
	[0.0044]	[0.0083]	[0.0087]
ROCE	−0.0084	0.0018	0.0023
	[0.0047]*	[0.0061]	[0.0055]
SOLVENCY	−0.0248	0.0002	−0.0011
	[0.0049]***	[0.0038]	[0.0040]
EMPLOYEES	0.0762	−0.0997	−0.0890
	[0.0349]**	[0.0444]**	[0.0265]***
PL	0.0854	−0.0923	−0.0276
	[0.0353]**	[0.0553]*	[0.0330]
LFT	0.3018	0.0010	0.0115
	[0.0352]***	[0.0029]	[0.0136]
OMEETINGS	0.0102	0.4881	0.0258
	[0.0626]	[0.0815]***	[0.0228]
CMEETINGS	0.1080		
	[0.0462]**		
L.TCMEETINGS		0.3344	
		[0.0622]***	
LOBBY		0.0097	
		[0.0164]	
L.EFFORT			0.4706
			[0.1183]***
N	516	516	516

Note: All variables have been standardized except for the dummy variables. Fixed effects for panel ID and year are considered.
Abbreviations: CMEETINGS, dummy climate-related meetings; EFFORT, level of lobbying engagement, considering companies actively participating in climate meetings; EMPLOYEES, total number of employees in the company; LFT, lobbyists full-time; LOBBY, total lobbying expenditure; OMEETINGS, online meetings with the EU Commission; PL, the profit and loss for period; PROFIT, profit margin; REVENUE, overall revenue turnover; ROCE, return on capital employed; ROE, return on equity; SOLVENCY, solvency ratio; TCMEETINGS, total number of meetings assisted.
*$p < 0.1$.
**$p < 0.05$.
***$p < 0.01$.
Source: Own elaboration with Stata17.

predictor of lobbying activity across the entire country, including both Northern and Southern Italy. However, when excluding firms from Northern Italy (see Table B4 in the Appendix B), the results show that only the relationship between lobbying expenditure and revenue remains statistically significant. This highlights the regional differences in lobbying behavior, with companies from Northern Italy exhibiting a more pronounced association between financial performance and lobbying expenditures. The North–South divide in Italy, as suggested by Accetturo et al. (2022), seems to play a pivotal role in shaping corporate strategies, with firms in the North more likely to engage in lobbying activities. This regional distinction may reflect differences in the industrial composition, economic development, and institutional contexts between Northern and

Southern Italy, where Northern companies are typically larger, more export-oriented, and more involved in EU-level policy-making. Interestingly, excluding firms from Southern Italy reveals a weaker relationship between lobbying expenditures and key financial indicators, such as ROCE and SOLVENCY, which are typically used to evaluate a firm's financial health. This suggests that Southern firms may place less emphasis on lobbying activities compared to their Northern counterparts, possibly due to resource constraints, lower industrial diversity, or a reduced level of strategic engagement with EU institutions. These findings align with the hypothesis that regional economic heterogeneity influences lobbying patterns (Hypothesis 2): regions with higher industrial concentration—typically found in Northern Italy—tend to exhibit more intense lobbying activity. While financial capacity, particularly revenue, remains a key determinant of lobbying expenditures across both geographical subgroups, the significance of other firm-level characteristics weakens in Southern regions. This suggests that regional heterogeneity may affect how corporate attributes translate into lobbying behavior. Such differences could be partially related to contextual factors such as institutional quality, administrative capacity, or economic infrastructure. In fact, while regions such as Molise since 2004, Abruzzo since 2010, Lombardy since 2016, Calabria and Puglia since 2017, Emilia-Romagna since 2019, and Tuscany since 2002, have adopted specific lobbying regulations (Crepaz and De Francesco 2025), though sometimes poorly implemented (Petrillo 2023), many other regions have no such policy framework. Highlighting significant regional differences, the analysis emphasizes the need to move beyond a predominantly sanction-based regulatory approach and instead promote ethical models, transparent dialog, and greater openness in lobbying activities (Antonucci 2019).

5.2.3 | Exogenous Shock: COVID-19

Exogenous shocks, such as the COVID-19 pandemic, could influence our results. Evidence shows that the financial and operational variables of Italian firms were significantly impacted during the pandemic, with heterogeneous outcomes across regions and sectors (Ferragina and Iandolo 2022). To account for this, we isolate the effect of COVID in our estimates by using a GLS fixed-effects model to capture heterogeneity and homoscedasticity (see Equation 2).

$$L_{it} = \alpha_0 + \beta_1 L_{it-1} + \beta_2 R_{it} + \beta_3 C_t + \beta_4 \left(R_{it} \times C_t\right) + \beta_5 V_{it} + \tau_t + \mu_i + \varepsilon_{it} \quad (2)$$

The variables are the same as those specified in Equation (1) in Section 4.2, with the addition of a dummy variable, C, which takes the value of 1 for the COVID years (2021 and 2022) and 0 otherwise. Moreover, to isolate the effect of COVID-19, an interaction term between revenue and the COVID dummy was included. Table 6 shows that the results from the baseline specification are confirmed even when considering COVID-19. The positive and significant link between lobbying and revenue remains intact. However, when isolating the COVID effect, no evidence is found of an impact of revenue on participation in meetings. However, the acceptance of climate policies increased, as governments and businesses reprioritized regulatory agendas in response to the crisis (Drews et al. 2022). Instead, a negative and significant effect of revenue on lobbying expenditure is observed during the COVID period (Column 1). This suggests that during COVID-19, companies that experienced an increase in revenue directed their investments toward recovery, reducing their lobbying expenditures.

5.2.4 | Dealing With Potential Endogeneity: The GMM

To further address potential endogeneity concerns among the key operational variables, we applied a GMM estimation, as shown in Table 7. The results highlight a robust positive and significant relationship between lobbying expenditures and revenue, reinforcing the notion that financial capacity plays a crucial role in driving lobbying activities. Specifically, revenue emerges as a key determinant not only of lobbying expenditures but also of engagement in climate-related meetings and overall lobbying efforts. This suggests that firms with higher revenue are more likely to allocate resources to both direct lobbying and participation in climate discussions, further underlining the strategic importance of financial strength in shaping lobbying strategies. Additionally, the presence of internal members dedicated to lobbying and climate-related engagements continues to positively influence lobbying expenditures (as seen in column 1 of Table 7), emphasizing the significant role of organizational resources and internal commitment in shaping lobbying outcomes. This aligns with findings in the United States, where firms investing more in climate lobbying tend to see higher returns (Leippold et al. 2024). Notably, variables such as profit margins, ROE, and ROCE show weaker or non-significant effects in this context, suggesting that while financial health is important, the focus on revenue and internal engagement may be more influential in driving lobbying behaviors. The Hansen test and Arellano–Bond autocorrelation tests confirm the validity of the instruments, further validating the robustness of the results.

6 | Conclusion

This study offers a comprehensive examination of the financial and operational factors driving climate lobbying among Italian firms, providing new insights into an underexplored European context. Our results reveal a strong, positive, and significant correlation between firm revenue and lobbying intensity, especially among larger corporations, while also noting a marked increase in SME involvement since 2017. The relationship persists across varying geographical regions and firm sizes, reinforcing the role of corporate performance in shaping lobbying behaviors. Higher-performing companies, in particular, tend to exert greater influence over climate policy-making processes. These findings are consistent with existing literature on corporate political engagement (e.g., Bombardini 2008; Dellis 2023), affirming the critical role of financial resources in firms' ability to impact regulatory processes. In terms of hypotheses, Hypothesis 1 is fully supported, with revenue being positively correlated with higher lobbying expenditures, greater engagement in climate-related meetings, and intensified lobbying efforts. Hypothesis 2 is

TABLE 6 | Estimation of GLS with FE and COVID effect.

	LOBBY	TCMEETINGS	EFFORT
L.LOBBY	0.3508		
	[0.0328]***		
REVENUE	0.4162	0.4466	0.3010
	[0.0753]***	[0.0908]***	[0.0421]***
COVID	0.0748	0.6660	0.2594
	[0.3818]	[0.6825]	[0.3522]
IRC	−0.1863	−0.0779	−0.1010
	[0.0972]*	[0.1178]	[0.0812]
MARGIN	−0.0025	−0.0003	−0.0009
	[0.0050]	[0.0054]	[0.0045]
ROE	0.0055	0.0002	−0.0023
	[0.0041]	[0.0077]	[0.0087]
ROCE	−0.0064	0.0012	0.0032
	[0.0044]	[0.0059]	[0.0059]
SOLVENCY	−0.0186	0.0004	−0.0010
	[0.0050]***	[0.0038]	[0.0045]
EMPLOYEES	0.0624	−0.1105	−0.0889
	[0.0349]*	[0.0427]***	[0.0288]***
PL	0.0687	−0.1018	−0.0325
	[0.0404]*	[0.0498]**	[0.0339]
LFT	0.3186	0.0009	0.0107
	[0.0354]***	[0.0092]	[0.0131]
OMEETINGS	0.0292	0.5070	0.0334
	[0.0612]	[0.0613]***	[0.0320]
CMEETINGS	0.0995		
	[0.0414]**		
L.TCMEETINGS		0.3113	
		[0.0589]***	
LOBBY		0.0099	
		[0.0168]	
L.EFFORT			0.4696
			[0.1198]***
N	542	542	542

Note: All variables have been standardized except for the dummy variables. Fixed effects for panel ID and year are considered. Dummy COVID is present because of the year 2022 dummy is omitted due to collinearity. The results remain consistent when the COVID dummy is excluded instead, confirming the robustness of the estimates.

Abbreviations: CMEETINGS, dummy climate-related meetings; EFFORT, level of lobbying engagement, considering companies actively participating in climate meetings; EMPLOYEES, total number of employees in the company; IRC, interaction between REVENUE and COVID; LFT, lobbyists full-time; LOBBY, total lobbying expenditure; OMEETINGS, online meetings with the EU Commission; PL, profit and loss for period; PROFIT, profit margin; REVENUE, overall revenue turnover; ROCE, return on capital employed; ROE, return on equity; SOLVENCY, solvency ratio; TCMEETINGS, total number of meetings assisted.

*$p < 0.1$.

**$p < 0.05$.

***$p < 0.01$.

Source: Own elaboration with Stata17.

TABLE 7 | Estimation of GMM.

	LOBBY	TCMEETINGS	EFFORT
L.LOBBY	0.0746		
	[0.0804]		
REVENUE	0.3715	1.0830	0.7060
	[0.1286]***	[0.3768]***	[0.2118]***
PROFIT	0.1285	0.1414	0.1940
	[0.1348]	[0.1789]	[0.1820]
ROE	0.0080	0.0232	−0.0123
	[0.0777]	[0.0437]	[0.0918]
ROCE	−0.0877	−0.0604	−0.0415
	[0.1571]	[0.0788]	[0.1329]
SOLVENCY	−0.0241	−0.0216	−0.0031
	[0.0821]	[0.0779]	[0.0855]
EMPLOYEES	−0.3498	−0.6688	0.1149
	[0.5754]	[1.0449]	[0.8218]
PL	−0.0197	−0.1673	−0.0139
	[0.0983]	[0.1387]	[0.0726]
LFT	0.3510	0.0467	0.1805
	[0.1614]**	[0.0601]	[0.1837]
OMEETINGS	0.0891	0.1230	−0.9397
	[0.2750]	[0.8320]	[0.9591]
CMEETINGS	0.4175		
	[0.1744]**		
L.TCMEETINGS		0.2848	
		[0.0980]***	
LOBBY		0.0967	
		[0.1148]	
L.EFFORT			0.3343
			[0.0789]***
AR(1)	0.056	0.064	0.081
AR(2)	0.487	0.204	0.308
Hansen test	0.493	0.252	0.384
N	542	542	542

Note: All variables have been standardized except for the dummy variables. We inserted macroarea fixed effect into the model to control for territorial heterogeneity by considering homogeneous groups, moreover, we consider year fixed effect. The table reports the results of the Arellano-Bond autocorrelation tests (AR(1) and AR(2)) and the Hansen test confirming instrument validity.

Abbreviations: CMEETINGS, dummy climate-related meetings; EFFORT, level of lobbying engagement, considering companies actively participating in climate meetings; EMPLOYEES, total number of employees in the company; LFT, lobbyists full-time; LOBBY, total lobbying expenditure; OMEETINGS, online meetings with the EU Commission; PL, profit and loss for period; PROFIT, profit margin; REVENUE, overall revenue turnover; ROCE, return on capital employed; ROE, return on equity; SOLVENCY, solvency ratio; TCMEETINGS, total number of meetings assisted.

*$p < 0.1$.

**$p < 0.05$.

***$p < 0.01$.

Source: Own elaboration with Stata17.

also confirmed, as the analysis uncovers notable regional disparities in lobbying activity, with wealthier, more industrialized areas exhibiting higher levels of engagement.

These results not only emphasize the significant role of financial performance in driving lobbying efforts but also underscore the regional variations that shape lobbying dynamics across Italy. Currently, large firms dominate the lobbying space, raising concerns about regulatory capture and asymmetric policy influence. This highlights the urgent need for a coherent set of policy interventions to democratize climate lobbying, enhance transparency, and ensure more inclusive participation.

While our findings provide robust insights into the determinants of climate lobbying in Italy, several limitations merit acknowledgement. First, although the LobbyFacts dataset offers an exceptional basis for empirical analysis, lobbying disclosure in Italy remains limited, especially at the subnational level. This may underrepresent smaller or informal lobbying actors, particularly SMEs or non-traditional interest groups. Second, our identification strategy, while strengthened by robustness checks, does not establish causal effects; lobbying expenditures and policy participation may be jointly shaped by omitted organizational factors such as network centrality or political ties. Third, our econometric estimations rely on firm-level panel data from a single national context—Italy—which limits the generalizability of results. However, the structure and coding of our dataset are readily extendable across countries, providing a unique opportunity for future cross-country studies that examine how institutional arrangements, lobbying regulations, and regional disparities shape corporate engagement in climate policy across the EU. Further research could also enrich our textual analysis by applying dynamic topic modeling to trace shifting lobbying narratives over time. Finally, more work is needed to connect firm-level lobbying activity with actual regulatory outcomes, such as delays, amendments, or exemptions in climate legislation, to better assess lobbying effectiveness and democratic implications. Moreover, future studies should investigate how contextual variables—such as institutional quality, regulatory fragmentation, political risk, and climate policy uncertainty—moderate the relationship between firm-level characteristics and lobbying behavior. These variables can help identify the mechanisms that condition lobbying intensity across different institutional environments. For example, high levels of political risk may amplify lobbying among firms seeking to hedge against regulatory volatility, while strong institutional quality may limit returns to lobbying, thereby discouraging excessive expenditure. Including these moderating dimensions, either in regional panel data or cross-country settings, can reveal under what conditions lobbying becomes more strategic, more effective, or more distorted.

Building on our findings, we propose a set of integrated policy interventions tailored to Italy's institutional landscape yet informed by international best practices. First, to address the lack of transparency and data fragmentation, Italy should adopt a mandatory and publicly accessible national lobbying register, fully interoperable with the EU Transparency Register. This should require detailed disclosure of lobbying expenditures, targeted policy areas, and meeting minutes, extending beyond Brussels to include national and regional institutions involved in environmental policy. Such reforms would align Italy with best practices from countries like Ireland and Canada, where real-time lobbying disclosures have improved accountability and reduced regulatory capture.

Second, recognizing the structural disadvantage faced by SMEs, we recommend the creation of SME Climate Advocacy Hubs, publicly funded platforms hosted by regional Chambers of Commerce or innovation agencies. These hubs would offer legal support, policy briefings, and capacity building for SMEs, enabling them to participate meaningfully in national and EU-level climate consultations. This would address the current asymmetry wherein large firms dominate lobbying due to resource and access advantages, as documented in both our findings and comparative studies across the EU.

Third, we call for the institutionalization of stakeholder balance requirements in Italy's climate policymaking, particularly within the Ministry of Environment and Energy Security. Decision-making procedures for key climate initiatives (e.g., industrial decarbonization, Fit for 55 implementation, carbon border adjustment mechanisms) should include binding rules ensuring diverse representation across sectors, firm sizes, and territories. This approach mirrors inclusive consultation frameworks used in Nordic countries and enhances democratic legitimacy while reducing the risk of biased outcomes favoring dominant incumbents.

Finally, we propose that Italy take a leading role in advancing a European Charter for Responsible Climate Lobbying, which would establish guiding principles for transparency, equity, and public interest alignment in corporate advocacy. Italy's domestic reforms could thus act as a demonstrative model, positioning the country not only as a follower of EU directives but as a proactive contributor to shaping EU-wide norms on sustainable governance. Together, these measures could help recalibrate the institutional architecture of climate policymaking to reflect the diversity of corporate actors, regional voices, and environmental imperatives necessary for a just and effective green transition.

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Data Availability Statement

Data are available upon request.

Endnotes

[1] https://economy-finance.ec.europa.eu/document/download/110f4d88-aeaa-4b5e-aaf6-40a1d5ee2dee_en?filename=2018-european-semester-country-report-italy-en.pdf&utm.

[2] https://www.europarl.europa.eu/EPRS/Lobbying-transparency-comparative-analysis-rev-FINAL.pdf?utm.

[3] https://www.eca.europa.eu/ECAPublications/SR-2024-05/SR-2024-05_EN.pdf.

[4] https://www.lobbyfacts.eu/.

[5] Particularly, companies and group, law firms, professional consultancies, self-employed individuals and think tanks & research

institutions were selected from LobbyFacts website. Including additional categories would have made it more difficult to retrieve financial and operational information, potentially affecting the accuracy and clarity of the analysis.

[6] The reported values are in Euros.

[7] The variable "EFFORT" serves as a proxy for the lobbying effort of lobbyists participating in meetings with the European Commission on the topic. It is obtained by multiplying the variables LOBBY and TCMEETINGS. See Table C2 in the Appendix C for sample statistics on the number of observations.

[8] The prompt used for the analysis with IA was the follow: "You are an expert member of the European Commission tasked with classifying meetings held with lobbyists. I will provide you with a list of meetings involving the European Commission. Each meeting will be numbered and identified by a name that includes its main topic. For each topic, you will evaluate whether the meeting relates to climate or sustainability issues and therefore addresses matters included in the European Green Deal or Fit for 55 package. If the meeting is connected to these topics, assign a value of 1. If the meeting is unrelated to these issues or the title is too generic to determine the focus, assign a value of 0. Are you ready?"

[9] The use of artificial intelligence for textual content analysis is well-documented in literature, demonstrating its effectiveness as a powerful tool for text processing (Tsironis et al. 2024). Research findings indicate that AI significantly enhances the accuracy of results compared to unsupervised methods, improving the efficiency of text classification (Belal et al. 2023; Gilardi et al. 2023; Qin et al. 2023).

[10] The prior Wald and Hausman tests confirm the joint significance of the coefficients and support the choice of fixed-effects models. Additionally, the variance inflation factor (VIF) test indicates no multicollinearity issues among the independent variables.

[11] Based on the previous evidence (Costa et al. 2024; Girard et al. 2023b; Unsal et al. 2016; Bombardini 2008), demonstrating revers causality and the importance of the revenue as a measure of performance, we considered the lagged dependent variable, revenue, margin of profit and number of employee (a proxy of size) as endogenous variables.

[12] The link between revenue and lobby is confirmed with balanced panel (see Table B5 in the Appendix B).

[13] Table B2 in the Appendix B confirms these findings by considering only observations between the second and 100th percentiles of the lobbying expenditure distribution. This approach helps account for potential underreporting or undeclared lobbying expenditures, ensuring that extreme values do not bias the results.

[14] In the second step, we deliberately excluded meetings that were too generic and might have addressed sustainability-related topics without explicitly stating them, such as "energy policy." While EU energy policy is largely linked to the green transition and sustainable energy, we cannot assume that a meeting with this title necessarily focused on these issues. For meetings with names referencing specific policies, we conducted a verification process on the European Commission's website by searching for the policy name and assessing whether sustainability was a central topic.

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Appendix A

Keywords.

The analysis of keywords allowed the identification of the meetings connected to climate issues. One of the key objectives of the Green Deal and Fit for 55 is achieving climate neutrality by 2050, which entails reaching net-zero emissions through decarbonization while ensuring recovery and innovation (Filipović et al. 2022; Ranieri et al. 2023). The literature highlights how analyses of climate discourse and public perception reveal recurring keywords, many of which also appear in the texts of the Green Deal and Fit for 55. In addition to the term climate, frequently observed keywords include *renewable, sustainable, environment, transition, green, ecosystem, circular, and efficiency. At the same time, terms such as carbon, pollution, emission*, and *greenhouse* are also prominent in discussions related to climate policies (Gokcimen and Das 2024; Li et al. 2024).

Furthermore, discourse analysis on social media has identified additional key terms such as *biodiversity, clean, mobility*, and *ecology*, underscoring the broader themes shaping public debates on climate action (Carneiro and Tucci 2024; Yin et al. 2025).

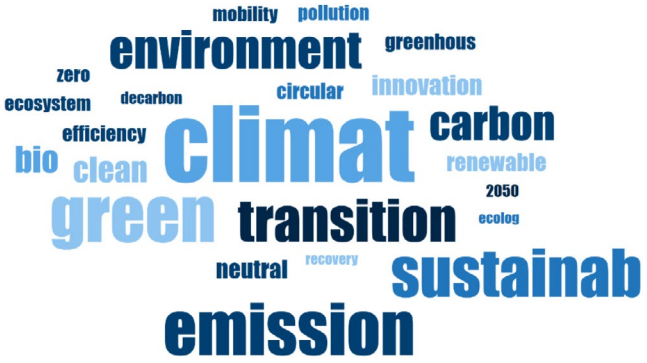

FIGURE A1 | Frequencies of selected keyword in Green Deal and Fit for 55. Some words have been truncated to encompass different word endings and variations within the same category. This approach ensures consistency and simplifies the inclusion of related terms without repetition. The link of document used are the follow: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2019%3A640%3AFIN#:~:text=It%20is%20a%20new%20growth%20strategy%20that%20aims,where%20economic%20growth%20is%20decoupled%20from%20resource%20use; https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021DC0550. *Source:* Authors' elaboration with MAXQDA22.

Figure A1 shows the result of the first step, representing frequencies of selected keywords in Green Deal and Fit for 55.

In the second step to enhance classification accuracy, we independently reviewed all identified meetings to ensure that no relevant meetings were mistakenly excluded. In cases of uncertainty, we cross-checked the European Commission's website to verify whether the meeting topics aligned with specific climate-related policies.[14] Finally, in the third step, we used AI-based tools to confirm that selected meetings were indeed climate-related.

The three-step analysis allowed us to identify meetings connected to climate issues. Figure A2 presents the 75 most frequently occurring words in the selected meetings, highlighting the most discussed topics. Among these, *energy* emerges as a central keyword in Europe's climate discussions, followed closely by terms such as *green, sustainable, renewable*, and *clean*. Additionally, words like *electricity, solar, circular, transition, sector*, and *strategy* highlight key focal points for achieving climate goals.

FIGURE A2 | Word cloud of climate meetings participated in by Italian lobbyists. To create this word cloud, the meeting titles were loaded into the MAXQDA22 software, with the following options selected: lemmatize words, apply an English exclusion list, set a minimum frequency of 1, and include the Top 75 words. *Source:* Authors' elaboration with MAXQDA22.

Appendix B

Correlation and Robustness Checks

TABLE B1 | Linear correlation matrix.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) LOBBY	1.000												
(2) REVENUE	0.577	1.000											
(3) PROFIT	−0.055	−0.007	1.000										
(4) ROE	−0.081	−0.021	0.463	1.000									
(5) ROCE	−0.089	−0.054	0.543	0.700	1.000								
(6) SOLVENCY	−0.046	−0.005	0.306	0.092	0.107	1.000							
(7) EMPLOYEES	0.445	0.697	−0.075	−0.072	−0.124	0.018	1.000						
(8) MFT	0.344	0.070	−0.061	−0.056	−0.054	−0.048	0.044	1.000					
(9) PL	0.289	0.519	0.193	0.063	0.045	0.029	0.285	0.028	1.000				
(10) OMEETING	0.095	0.131	−0.020	−0.011	−0.030	0.004	0.171	0.030	0.044	1.000			
(11) CMEETINGS	0.288	0.305	−0.040	−0.014	−0.049	−0.037	0.228	0.069	0.122	0.191	1.000		
(12) TCMEETINGS	0.613	0.587	−0.007	0.005	−0.025	−0.051	0.372	0.151	0.273	0.091	0.350	1.000	
(13) EFFORT	0.544	0.637	−0.031	−0.011	−0.050	−0.048	0.402	0.129	0.234	0.190	0.537	0.911	1.000

Note: The only high correlation (0.9) is between two variables that were not used in the same regression, as they serve as the dependent variables in Models 2 and 3. Abbreviations: CMEETINGS, climate-related meetings; EFFORT, level of lobbying engagement, considering companies actively participating in climate meetings; EMPLOYEES, total number of employees in the company; LFT, lobbyists full-time; LOBBY, the total lobbying expenditure; OMEETINGS, online meetings with the EU Commission; PL, profit and loss for period; PROFIT, profit margin; REVENUE, overall revenue turnover; ROCE, return on capital employed; ROE, return on equity; SOLVENCY, solvency ratio; TCMEETINGS, total number of meetings assisted.
Source: Own elaboration with Stata17.

The following tables (B2–B5) present robustness checks of the baseline specification. Estimations in Table B2 are performed after excluding the first percentile of the distribution. Since some organizations might not be required to disclose their lobbying expenses, this procedure helps address the potential bias arising from false zeros in lobbying expenditures. By excluding the lowest percentile, we mitigate the risk of distortion in our results, strengthening the reliability of our findings.

TABLE B2 | Estimation of GLS without the first percentile of the distribution.

	LOBBY	TCMEETINGS	EFFORT
L.LOBBY	0.0571		
	[0.0760]		
REVENUE	0.3622	1.0697	0.6511
	[0.1529]**	[0.3179]***	[0.2417]***
PROFIT	0.1839	0.0657	0.1999
	[0.1451]	[0.1750]	[0.1831]
ROE	−0.0567	0.0387	−0.0346
	[0.1984]	[0.0656]	[0.1170]
ROCE	−0.1014	−0.0390	−0.0607
	[0.1792]	[0.0495]	[0.1331]
SOLVENCY	−0.0690	0.0110	0.0034
	[0.0612]	[0.0837]	[0.0876]
EMPLOYEES	−0.0583	−0.6548	0.2117
	[0.5947]	[0.9637]	[0.7781]
PL	−0.0349	−0.1446	0.0224
	[0.0896]	[0.1190]	[0.0803]
LFT	0.2666	0.0067	0.1108
	[0.1628]	[0.0439]	[0.0855]
OMEETINGS	0.0147	0.0041	−0.9878
	[0.2010]	[0.8922]	[0.9500]
CMEETINGS	0.3003		
	[0.1841]		
L.TCMEETINGS		0.2500	
		[0.0984]**	
LOBBY		0.2051	
		[0.1970]	
L.EFFORT			0.3253
			[0.0986]***
N	501	501	501

Note: All variables have been standardized except for the dummy variables. Fixed effects for panel ID and year are considered.
Abbreviations: CMEETINGS, climate-related meetings; EFFORT, level of lobbying engagement, considering companies actively participating in climate meetings; EMPLOYEES, total number of employees in the company; LFT, lobbyists full-time; LOBBY, total lobbying expenditure; OMEETINGS, online meetings with the EU Commission; PL, profit and loss for period; PROFIT, profit margin; REVENUE, overall revenue turnover; ROCE, return on capital employed; ROE, return on equity; SOLVENCY, solvency ratio; TCMEETINGS, total number of meetings assisted.
*$p < 0.1$.
**$p < 0.05$.
***$p < 0.01$.
Source: Own elaboration with Stata17.

TABLE B3 | Estimation of GLS with FE with only large, medium and small companies.

	LOBBY	TCMEETINGS	EFFORT
L.LOBBY	0.4648		
	[0.0673]***		
REVENUE	−37.6522	0.0243	0.0003
	[16.7378]**	[1.7324]	[0.0355]
PROFIT	0.0604	−0.0001	−0.0000
	[0.0252]**	[0.0010]	[0.0000]
ROE	−0.1028	0.0001	0.0000
	[0.0360]***	[0.0014]	[0.0000]
ROCE	0.0521	−0.0002	−0.0000
	[0.0259]**	[0.0014]	[0.0000]
SOLVENCY	−0.0612	−0.0000	−0.0000
	[0.0091]***	[0.0008]	[0.0000]
EMPLOYEES	26.7394	−0.0021	0.0001
	[10.6897]**	[0.7933]	[0.0159]
PL	−10.1628	0.7493	0.0151
	[16.8988]	[3.5574]	[0.0726]
LFT	0.4416	0.0001	0.0000
	[0.0550]***	[0.0026]	[0.0001]
OMEETINGS	−0.0742	−0.0010	−0.0000
	[0.2997]	[0.0265]	[0.0006]
CMEETINGS	−0.1110		
	[0.1377]		
L.TCMEETINGS		−0.0037	
		[0.3795]	
LOBBY		0.0001	
		[0.0023]	
L.EFFORT			−0.0036
			[0.3794]
N	167	167	167

Note: All variables have been standardized except for the dummy variables. Fixed effects for panel ID and year are considered.
Abbreviations: CMEETINGS, climate-related meetings; EFFORT, level of lobbying engagement, considering companies actively participating in climate meetings; EMPLOYEES, total number of employees in the company; LFT, lobbyists full-time; LOBBY, total lobbying expenditure; OMEETINGS, online meetings with the EU Commission; PL, profit and loss for period; PROFIT, profit margin; REVENUE, overall revenue turnover; ROCE, return on capital employed; ROE, return on equity; SOLVENCY, solvency ratio; TCMEETINGS, total number of meetings assisted.
*$p < 0.1$.
**$p < 0.05$.
***$p < 0.01$.
Source: Own elaboration with Stata17.

TABLE B4 | Estimation of GLS with FE without lobbyists headquartered in North Italy.

	LOBBY	TCMEETINGS	EFFORT
L.LOBBY	0.3649		
	[0.0666]***		
REVENUE	0.2578	0.4899	0.2142
	[0.0809]***	[0.1143]***	[0.0907]**
PROFIT	0.0569	0.0059	0.0090
	[0.0493]	[0.0243]	[0.0325]
ROE	0.0235	0.0146	0.0239
	[0.0732]	[0.0471]	[0.0780]
ROCE	−0.0891	−0.0091	−0.0136
	[0.0701]	[0.0329]	[0.0533]
SOLVENCY	0.0169	0.0031	0.0121
	[0.0236]	[0.0130]	[0.0213]
EMPLOYEES	0.0087	−0.1011	−0.0436
	[0.0602]	[0.0897]	[0.0748]
PL	0.1054	−0.1318	−0.0268
	[0.1146]	[0.1124]	[0.0882]
LFT	1.2700	0.0465	0.2049
	[0.1712]***	[0.0914]	[0.1371]
OMEETINGS	0.1271	0.6178	0.1063
	[0.2277]	[0.2913]**	[0.2121]
CMEETINGS	−0.0053		
	[0.1088]		
L.TCMEETINGS		0.3505	
		[0.0925]***	
LOBBY		0.0250	
		[0.0362]	
L.EFFORT			0.4968
			[0.1221]***
N	218	218	218

Note: All variables have been standardized except for the dummy variables. Fixed effects for panel ID and year are considered.
Abbreviations: CMEETINGS, climate-related meetings; EFFORT, level of lobbying engagement, considering companies actively participating in climate meetings; EMPLOYEES, total number of employees in the company; LFT, lobbyists full-time; LOBBY, total lobbying expenditure; OMEETINGS, online meetings with the EU Commission; PL, profit and loss for period; PROFIT, profit margin; REVENUE, overall revenue turnover; ROCE, return on capital employed; ROE, return on equity; SOLVENCY, solvency ratio; TCMEETINGS, total number of meetings assisted.
*$p < 0.1$.
**$p < 0.05$.
***$p < 0.01$.
Source: Own elaboration with Stata17.

TABLE B5 | Estimation of GLS with FE balanced sample (timeframe 2017–2023).

	LOBBY	TCMEETINGS	EFFORT
L.LOBBY	0.5486		
	[0.0582]***		
REVENUE	0.2117	0.4021	0.1491
	[0.0555]***	[0.1154]***	[0.0824]*
PROFIT	0.0274	−0.0020	−0.0015
	[0.0170]	[0.0145]	[0.0156]
ROE	−0.0295	−0.0062	0.0026
	[0.0398]	[0.0426]	[0.0390]
ROCE	0.0091	0.0133	0.0012
	[0.0252]	[0.0301]	[0.0241]
SOLVENCY	−0.0069	−0.0115	−0.0078
	[0.0117]	[0.0169]	[0.0119]
EMPLOYEES	0.0578	−0.0864	−0.0440
	[0.0234]**	[0.0565]	[0.0405]
PL	0.0044	0.0138	0.0150
	[0.0420]	[0.0652]	[0.0370]
LFT	0.3846	0.0136	0.0028
	[0.0578]***	[0.0547]	[0.0245]
OMEETINGS	−0.0467	0.1458	0.0396
	[0.0466]	[0.0898]	[0.0477]
CMEETINGS	0.0301		
	[0.0498]		
L.TCMEETINGS		0.4445	
		[0.0913]***	
LOBBY		−0.0145	
		[0.0619]	
L.EFFORT			0.6571
			[0.1592]***
N	236	236	236

Note: All variables have been standardized except for the dummy variables. Fixed effects for panel ID and year are considered.
Abbreviations: CMEETINGS, climate-related meetings; EFFORT, level of lobbying engagement, considering companies actively participating in climate meetings; EMPLOYEES, total number of employees in the company; LFT, lobbyists full-time; LOBBY, total lobbying expenditure; OMEETINGS, online meetings with the EU Commission; PL, profit and loss for period; PROFIT, profit margin; REVENUE, overall revenue turnover; ROCE, return on capital employed; ROE, return on equity; SOLVENCY, solvency ratio; TCMEETINGS, total number of meetings assisted.
*$p < 0.1$.
**$p < 0.05$.
***$p < 0.01$.
Source: Own elaboration with Stata17.

Appendix C

Supporting Information on the Sample Structure

TABLE C1 | Sectoral distribution of lobbyists by macroarea (percentage).

NACE	Sector	North	Center	South and Islands
A	Agriculture, forestry, and fishing	0.5	2.02	0
B	Mining and quarrying	0	3.76	0
C	Manufacturing	26.3	21.1	17.78
D	Electricity, gas, steam, and air conditioning supply	5.7	8.09	0
E	Water supply; sewerage, waste management, and remediation activities	2.18	0	0
F	Construction	2.51	1.73	2.22
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	3.35	0.87	2.22
H	Transportation and storage	3.52	5.2	13.33
I	Accommodation and food service activities	0.17	0	0
J	Information and communication	14.24	11.27	31.11
K	Financial and insurance activities	9.72	11.27	11.11
M	Professional, scientific, and technical activities	27.97	21.68	0
N	Administrative and support service activities	0.67	8.38	2.22
O	Public administration and defense; compulsory social security	0.67	2.31	0
P	Education	1.68	2.31	6.67
Q	Human health and social work activities	0.84		13.33
R	Arts, entertainment, and recreation	0	2.31	0

Source: Own elaboration with Stata17.

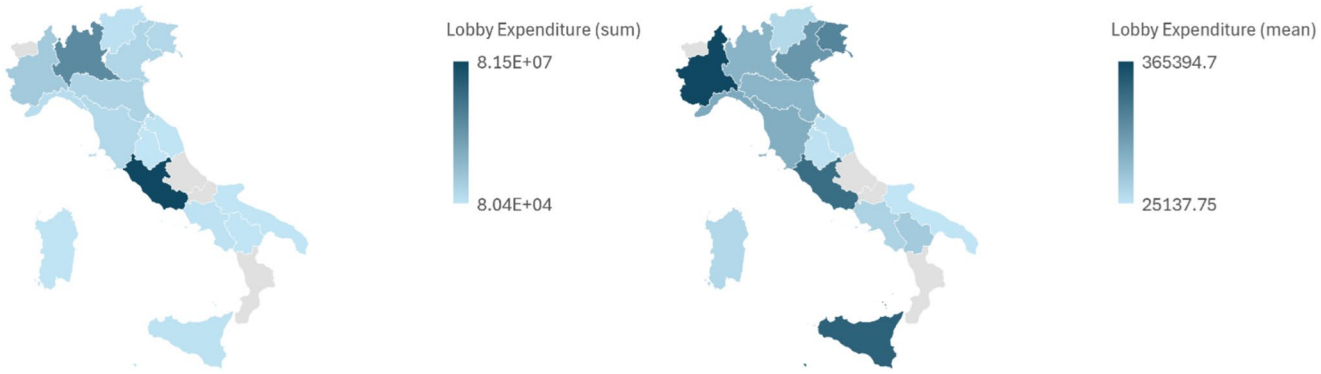

FIGURE C1 | Geographic distribution of lobbying expenditure (sum and mean). *Source:* Own elaboration.

TABLE C2 | Sample statistics for each year (percentage value).

Year	Percent statistics	Percent estimations
2011	1.11	—
2012	2.13	0.74
2013	2.33	1.29
2014	3.24	3.14
2015	4.55	3.51
2016	5.77	5.17
2017	6.78	7.38
2018	7.69	7.93
2019	9.31	10.33
2020	10.83	12.18
2021	11.23	12.36
2022	15.49	15.68
2023	19.53	20.3
Total obs.	988	542

Note: By reporting statistics on the entire sample, we aim to offer a comprehensive overview of the sectoral composition and lobbying expenditure of Italian companies. Nonetheless, some information is missing in ORBIS (variables: REVENUE, PROFIT, ROE, ROCE, SOLVENCY, EMPLOYEES, PL present missing values and therefore have a number of observation lower than 988), as we opted to focus only on firms headquartered in Italy limits data availability.
Source: Own elaboration with Stata17.