Reaching the SDGs by 2030: At what point is Italy? Evidence from firms at the regional clusters' level

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Abstract

Framing of the research. *The implementation of the SDGs, one of the most urgent and current challenges, requires adaptation to sub-national contexts and the involvement of many actors, including firms.*

Purpose of the paper. *The paper examines the Italian situation regarding the achievement of the SDGs through the lens of the adoption of the 2030 Agenda by firms from different Italian regions.*

Methodology*. The research involved 30 Italian listed companies from Northern and Central-Southern Italy, selected from the CONSOB's list of firms providing a non-financial declaration. An integral reading of the documents with subsequent interpretation was performed.*

Results*. Regional localization does not affect the overall contribution to the SDGs, which is limited for all firms. Instead, the geographic localization of firms at the regional scale differentiates the prioritized SDGs: Northern firms are more oriented towards social and economic SDGs, while Central-Southern firms focus more on environmental ones.*

Research limitations*. The paper represents a preliminary exploration of Italian firms' advancements towards the SDGs over a regional space. Future research developments could focus on sample enlargement and the exploration of sub-national specificities in other countries around the world.*

Managerial implications. *Italian firms should enhance their commitment to the 2030 Agenda in all its ambitions by incorporating the sustainable goals within their corporate culture and strategic posture.*

Originality of the paper. *The study responds to the need to consider sub-national specificities in the literature on sustainable development by capturing the connections between firms, their territory of operation, and the SDGs.*

Key words: *2030 Agenda for sustainable development; sustainable development goals; SDG contribution; geographical localization; regional clusters; Italy*

1. Introduction

Biodiversity loss, climate change, and widening inequalities are considered 'wicked problems' (Waddock and McIntosh, 2011) that urgently need to be addressed to shift the world onto a sustainable and resilient path. In 2015, the United Nations (UN) issued a global call for protecting the planetary and human future by publishing the 17 Sustainable Development Goals (SDGs) to be achieved by 2030. In 2019, the UN Secretary-General called for a "Decade for Action" to fully operationalize the 2030 Agenda for

Sustainable Development. Its accomplishment has become a global priority because more than one-third of the 2015-2030 period has passed, and the already slow advancements towards the goals have been further hindered by the Covid-19 outbreak (UN, 2021). The latter has compromised the capacity to overcome the unsustainability of modern production and consumption patterns, making the call to "leave no one behind" even more urgent (Biggeri *et al.*, 2021). As a result, the need to accelerate progress towards goal achievement is evident in civil society, among policymakers, and scholars (Pastore and Ugolini, 2020).

In this context, the emphasis on the implementation of the SDGs varies by geographic area, necessitating further analysis of local contexts to develop a comparative analysis that delineates progress towards sustainable development over space (Salvia *et al.*, 2019; Liu, 2021). The goals of the 2030 Agenda recognize the importance of action across all scales - global, national, and sub-national - to achieve a sustainable future (Szetey *et al.*, 2021). The SDGs must take into account regional and country-level starting points: goals and targets conceived for all nations must be adapted to sub-national realities because there is significant variation between and within countries (Nicolai *et al.*, 2015), and diversities among different sub-national areas are a prerequisite for sustainability at the national level (Clarke and Lawn, 2008; Pulselli *et al.*, 2012). Local communities, in fact, have heterogeneous sustainability needs, requiring global goals and targets to be tailored to align with local priorities (Moallemi *et al.*, 2020). In this sense, SDG localization is a flexible process that encompasses the downscaling of goals to the local level by identifying a subset of SDGs or a group of SDG targets relevant to the local scale (Szetey *et al.*, 2021).

The adoption and diffusion of SDGs have been investigated at national and supranational levels (Suriyankietkaew and Nimsai, 2021), and comparative studies looking at differences among countries in SDGs achievement start to appear in academia (e.g., Garcia *et al.*, 2017; Reverte, 2022; Kuc-Czarnecka *et al.*, 2023). Conversely, studies at regional and local levels are scarce, which can determine strong structural disparities, and comparisons at the regional level are still limited (D'Adamo *et al.*, 2021), despite increasing awareness of the importance of SDG localization (Jones and Comfort, 2020). According to Yin *et al.* (2023), research on the SDGs still requires further investigation, moving away from a macro-level-centered approach to a micro-level focus.

The paucity of studies based on a regional perspective represents an important gap because regions, intended as the spatial scale below a state, are the most appropriate scale for studying sustainability. Environmental functioning and human activities interact most intensely at this scale, and their balance is crucial for studying and addressing sustainability issues (Salimzadeh *et al.*, 2013). Moreover, the acceleration of sustainable solutions addressing the world's biggest challenges (e.g., public health, poverty, gender, climate change, etc.) involves especially the local level (Biggeri *et al.*, 2021). There, inequalities, exclusions, and vulnerabilities are most immediately experienced because the interactions between authorities, institutions, and citizens are strongest and most immediate. Thus, regional and local contexts represent the most proximate socio-institutional settings that directly affect individual and collective capabilities, as distinctive ecosystems in which history, culture, geography, resources, knowledge, and institutions converge (Biggeri *et al.*, 2018). Recognizing and nurturing these local endeavors becomes essential to ensure their effectiveness and integration into the broader global mission of achieving the SDGs. In this direction, the UN itself gives visibility to SDG practices at the local level through the Local 2030 initiative (Local 2030, 2023), highlighting the crucial role of local efforts. The centrality of SDG territorialization is also expressed by the promotion of Voluntary Local Reviews, documents in which local governments share their experience of territorialization of the 2030 Agenda's targets, related to the responsibilities and abilities of local governments to provide basic services to citizens (Richiedei and Pezzagno, 2022).

Overall, further research in various regions is encouraged to enrich the limited body of knowledge in this field and enhance SDG adoption (Miocevic and Srhoj, 2023; Montera *et al.*, 2023). Furthermore, the necessity of considering sub-national specificities, giving attention to the territory, is even more important for Italy, a country historically characterized by strong regional specificities and differences, which find their radicalization in the so-called North-South gap (Alaimo and Maggino, 2020).

On these bases, this paper aims to examine the Italian situation regarding the achievement of the SDGs to highlight potential territorial differences or homogeneity through the lens of the adoption of the 2030 Agenda by firms from different Italian regions. This firms' perspective is chosen due to the acknowledgment that the sustainable development agenda cannot be achieved without business (UN, 2015). Thus, all firms - regardless of their country, size, and industry - are called to make an important contribution in the SDGs era. Palau-Pinyana *et al.* (2023) conducted a systematic literature review on SDG implementation in the private sector, and a research question on the local roles played by organizations emerges as still open. Moreover, the same authors state that empirical studies should analyze the situation in certain regions, allowing the comparison of results among companies. Thus, the following research question (RQ) arises: *Does geographic localization of firms at the regional scale differentiate the contribution of Italian firms to the SDGs?*

With this in mind, we conducted empirical research based on secondary data, answering the call of some scholars (van der Waal *et al.*, 2021; Mio *et al.*, 2020) who have invited academia to empirically study firms' contributions to the SDGs. Most studies are conceptual and interpretative; thus, they underline fundamental aspects of the topic but without delineating the trends at scale (Calabrese *et al.*, 2022). The research involved 30 Italian listed companies from different regions, selected by the Italian National Commission for Stock-Exchange Market (CONSOB)'s list of firms providing a non-financial declaration (NFD).

The findings reveal that geographic localization does not differentiate the overall SDGs contribution of Italian firms, which show a low effort regardless of the regional macro-area of belonging. Conversely, geographic localization affects which SDGs are prioritized by sample firms.

This paper provides some theoretical and practical contributions. First, we attempt to fill the need for considering sub-national specificities in the literature on sustainable development (Salvia *et al.*, 2019; Liu, 2021) by capturing the connections between firms, belonging territory, and SDGs. To maintain the comparability of the results, the analysis is based on global data available in the public domain. Second, the multiple dimensionalities of the SDGs are considered without computing indices or averages that impose autonomous weights. Third, the results of the analysis are interesting for policymakers and government authorities to regulate the pursuit of sustainability goals and should put in place appropriate regional-level targets, along with flexible implementation plans.

The remainder of this study is organized as follows. After a literature review on the 2030 Agenda and factors influencing firms' contributions to SDGs (Section 2), the method is explained (Section 3), followed by the description and discussion of the findings (Sections 4 and 5). Finally, this study proposes theoretical and managerial implications and concludes with limitations and possible directions for future research (Section 6).

2. Theoretical background

2.1 2030 Agenda for sustainable development and firms' contributions

In the UN resolution "Transforming our world: the 2030 Agenda for Sustainable Development" (UN, 2015), the adherent states established 17 goals, 169 related targets, and more than 230 indicators as guidelines, covering nearly all fields of life, to globally undertake a balance between economic progress, environmental protection, and the safeguarding of social interests, with consideration for future generations (Mio *et al.*, 2020; Martinoli, 2021). Since then, contemporary sustainability literature has focused on the various SDGs outlined by the UN, embedding the three pillars of sustainability: economic, social, and environmental (Capobianco *et al.*, 2022).

In light of a more ambitious vision of transformative change towards achieving a more sustainable future by 2030, the SDGs represent an evolution of their predecessors such as the Millennium Development Goals (MDGs), whose deadline was reached in 2015. The MDGs aimed at eradicating poverty and improving health conditions within developing countries heavily reliant on funding from wealthier nations (Van Zanten and Van Tulder, 2018). Conversely, the SDGs guide economic growth, social development, and environmental sustainability globally, within both developed and developing countries (Pizzi *et al.*, 2021). Moreover, the SDGs focus not only on international cooperation but also on sustainable development within countries through a collective effort by governments, civil society, and public and private organizations (Kumar *et al.*, 2016). Finally, the SDGs place greater emphasis on environmental sustainability than was expressed by the MDGs (Griggs *et al.*, 2013). The SDGs remain an agenda adopted by 178 countries and territories (Afandi *et al.*, 2021).

In summary, the distinguishing features of the 2030 Agenda are the principles of universality and indivisibility: universality implies that the SDGs apply to all nations and actors globally, regardless of their current level of income or sustainability challenges; whereas, indivisibility means that the implementation of the SDGs should be based on integrated approaches rather than on siloed knowledge and policymaking (Bennich *et al.*, 2020).

In terms of SDGs formulation, the goals are briefly described herein (UN, 2016), highlighting the multidimensionality of sustainability challenges (Table 1).

Tab. 1: Overview of SDGs

SDGs	Description
SDG 1 *No poverty*	Reduction of poverty by half the world people through nationally appropriate social protection systems to create the basis for an integrated and inclusive economic development
SDG 2 *Zero hunger*	Provision of safe, nutritious, and abundant food to people, also promoting a sustainable agriculture
SDG 3 *Good health and wellbeing*	Reduction of the global maternal and children mortality caused by infectious and chronic diseases
SDG 4 *Quality education*	Filling the education gap between males and females by providing them with completely free, equitable and quality opportunities to gain pre-school, primary and secondary education
SDG 5 *Gender Equality*	Elimination of all forms of violence against women and girls in the public and private spheres, and pink endorsement in decision-making and leadership roles
SDG 6 *Clean water and sanitation*	Access to clean drinking water and hygiene facilities
SDG 7 *Affordable and clean energy*	Access to affordable, reliable, sustainable energy for all by implicating an energy infrastructure expansion which leads to an increased economic activities and employment opportunities
SDG 8 *Decent work and economic growth*	Provision of labor standards in line with human dignity, equal employment opportunities for all, also eradicating unemployment and child labor
SGD 9 *Industry, Innovation, and infrastructure*	Inclusive and sustainable industrialization by leveraging on technology, innovation and sustainable infrastructure,
SGD 10 *Reduced inequalities*	Development of the conditions of countries being at the bottom of the pyramid, also helping them to fight the internal economic, social and political challenges.
SGD 11 *Sustainable cities and communities*	Improvement of living standard of the general population by ensuring good quality and safe housing access, sustainable transportation, and availability of support services
SDG 12 *Responsible consumption and production*	Encouragement of both manufacturers and consumers to show responsibility towards the consumption of resources
SDG 13 *Climate action*	Fight against climate change and its impact
SDG 14 *Life under water*	Promotion of the sustainable use of the ocean, seas, and marine resources
SDG 15 *Life on land*	Preservation of biodiversity along with ecosystems
SDG 16 *Peace, justice, and strong institutions*	Promotion of peaceful and inclusive societies with equal access to knowledge and justice services
SDG 17 *Partnership for goals*	More collective efforts towards the adoption of all the other SDGs

Source: our elaboration

In realizing the SDGs, the governments of the UN member states are not the only actors involved: in fact, the sustainable development agenda cannot be achieved without businesses that are considered as sustainable development agents (Mio *et al.*, 2020). Thus, all firms of any country, size, and industry are called to give an important contribution in the SDGs era by appealing to their creativity and innovation to generate value for the common good (UN, 2015). Previous literature has already recognized the key role of businesses in achieving sustainable development (Wicki and Hansen, 2019; Garcia-Sanchez *et al.*, 2020; Cerquetti and Montella, 2021).

SDGs' implementation by firms implies the adoption of strategies and practices supporting the SDGs (Grainger-Brown and Malekpour 2019), integration of these goals into business activities (Biggeri *et al.*, 2019), and reporting activities on them (Zemanová and Druláková, 2020). In doing so, several advantages can be obtained in terms of overall sustainable development but also at the company level.

In terms of overall sustainable development, the private sector engaging in SDGs can provide opportunities for entire economies of countries, not only contributing to the creation of societal value (Buhmann *et al.*, 2019) but also reducing the scale of money laundering activities, which weaken domestic economies (Dobrowolski and Sułkowski 2020). In this vein, multinational enterprises (MNEs) play a crucial role in adopting SDGs as part of their ordinary investments. In this way, MNEs can increase knowledge, wealth, and health, and reduce negative externalities consisting of the overuse of natural resources, harm to social cohesion, and overconsumption (Kolk *et al.*, 2017; Montiel *et al.*, 2021). Thus, foreign subsidiaries are also called to implement SDGs (Liou and Rao-Nicholson, 2021; van Tulder *et al.*, 2021). In addition, small and medium enterprises and other for-profit firms can contribute to environmental preservation and economic development (Palau-Pinyana *et al.*, 2023).

At the company level, SDGs' implementation acts as a lever for improving sustainability performance (Caldera *et al.*, 2018), for achieving a competitive edge in the industry (Jayaprakash and Radhakrishna Pillai, 2018), as well as for increasing stakeholders' preferences for companies (Yamane and Kaneko, 2022), and even for better facing global crises such as the COVID-19 outbreak (Mattera *et al.*, 2021).

2.2 Factors influencing the firms' contributions to SDGs: The geographic area

There is still scant evidence on the factors influencing firms' contributions to SDGs since corporate engagement in the 2030 Agenda is a novel phenomenon (Van der Waal and Thijssens, 2020; Calabrese *et al.*, 2022). An important knowledge advancement is provided by a recent systematic literature review that maps specific enablers and their combination for SDG implementation in the private sector (Palau *et al.*, 2023). Some enablers are classified as endogenous to the firm's environment, which include the company's characteristics, its governance, and the solutions related to innovation and technology that each company can adopt. Among endogenous enablers, pioneering studies have identified firm size as a key antecedent of corporate contribution to sustainable goals.

In this regard, companies of greater size are characterized by a higher likelihood of SDG involvement because they are more visible and subject to greater stakeholder attention than smaller companies (Khaled *et al.*, 2021). Moreover, Mattera and Ruiz-Morales (2021) state that small-medium enterprises contribute to the SDGs less than multinationals that have a higher global presence, also in developing countries where the SDGs are particularly relevant (Van der Waal and Thijssens, 2020).

Another typology of enablers is labeled by Palau *et al.* (2023) as external to the environment of the company and comprises a set of exogenous forces that could affect the organization. These enablers include the industry, the available tools needed to thoroughly put SDGs into practice, and education. Focusing on the firm industry, scholars demonstrate that the firms belonging to industrial sectors more likely to cause social and/or environmental damage (i.e., so-called sensitive sectors) significantly contribute to the SDGs (Cosma *et al.*, 2020; Emma and Jennifer, 2021). In addition, Tsalis *et al.* (2020) suggest that firms in the metal product, energy, and telecommunication sectors perform better in terms of the SDGs' adoption, while firms in the real estate industry show a low level of commitment toward the 2030 Agenda (Ionaşcu *et al.*, 2020).

Among external enablers, the geographic area in which businesses are located also affects the SDG involvement. The firms in developed countries contribute to the SDGs more than those in developing and underdeveloped countries due not only to the different availability of resources for devoting to such goals (Rosati and Faria, 2019; Biglari *et al.*, 2022) but also the disparities in the countries' institutional settings (van der Waal and Thijssens, 2020). These institutional differences are related to country-specific legal origin (civil vs. common law), investors protection rights (strong vs. weak), national culture (ESG-averse vs. ESG-seeking), and corruption level (low vs. high) characterizing the institutional surroundings under which firms are embedded (DasGupta and Roy, 2023). Thus, political instability, corruption, and labor conditions lead the emerging market firms to face greater risks in pursuing sustainable goals than developed market firms (Clark *et al.*, 2015).

The heterogeneous contribution to the SDGs by firms from different countries of origin is recently under investigation (i.e., Garcia *et al.*, 2017; Reverte, 2022; Kuc-Czarnecka *et al.*, 2023), while there is paucity of research on the potential differences in the ESGs adoption by firms across regions of the same country. Prior studies examine regional performance in terms of progress towards the SDGs - some of them are referred to Italian regions (Alaimo and Maggino, 2020; D'Adamo *et al.*, 2021; Cavalli *et al.*, 2021). The premise is that the process of defining policies and actions aimed at achieving the 2030 Agenda requires considering the territory. It is the result of the interaction of the same subsystems (environmental, economic and social) of sustainable development: the territory is a geophysical space, corresponding to a specific socio-cultural identity, in which certain economic and social relations occur and develop (Alaimo and Maggino, 2020). Place-specific conditions - related to political, cultural, educational, and economic institutional framework surrounding firms - provide barriers or incentives for SDGs implementation and compliance, affect firms' sustainability performance by defining the "rules of the game" that grant them legitimacy, and can influence the adoption, scope, and quality of sustainability reporting. Nilsson *et al.* (2016) highlight the importance of key contextual determinants, such as geographical conditions, when it comes to working with the SDGs. Especially, the regional resource base makes a big difference. According to Ansell *et al.* (2022), the resources owned by local firms and aimed to promote the achievement of SDGs are named NATO resources standing for: a) Nodality: actor's connections to other actors' resources; b) Authority: actor's position and legitimacy; c) Treasure: financial and organizational resources of an actor; and, d) Organizational capacity in terms of problem-solving or organizing fruitful interactions with other actors. In addition, Medeiros (2021) evidences a "territorial dimension" to the sustainable development understanding because the SDGs incorporate a myriad of territorial scales for policy intervention: urban, peri-urban, rural, local and subregional, regional, national, and international.

Anyway, to the best of our knowledge, regional comparisons based on local firms' contribution to the SDGs are lacking. On the contrary, the key roles of firms should not be neglected in the transformation toward sustainability at the regional scale: in fact, the firms are local actors having first-hand knowledge about both context-specific problems and challenges and thereby are able to easily adapt the SDG goals and targets to local conditions (Ansell *et al.*, 2022). Thus, scholars have recently called for further regional comparisons in this research area (D'Adamo *et al.*, 2021), and the present study moves in this direction.

3. Method

3.1 Research setting

This study considered Italy as an appropriate research setting because the need to consider sub-national specificities, focusing on the territory, is highly important for such a country. Since the beginning of the 20th century, Italy has been characterized by marked regional specificities and differences, upon which the so-called North-South gap is built (Alaimo and Maggino, 2020). The strong differences in the territorial development of Italy (i.e., in terms of lower per capita GDP, unemployment rate, child mortality rate, rate of waste recycling, etc.) represent a "prototypical case of seemingly intractable within-country disparities" (Bigoni *et al.*, 2019, p. 1).

To identify the firms to be included in this study, we focused on the Consob's list, which contains Italian companies with ordinary shares listed on the Italian Stock Exchange and which issued a NFD in 2022. According to Directive 2014/95/EU, NFD discloses to firm stakeholders the main corporate non-financial information to communicate the development, performance, position, and impact of firm activity, in terms of environmental, social, and employee matters, respect for human rights, anti-corruption, and bribery matters (Mazzotta *et al.*, 2020). The choice to look at the NFDs is due to the following two reasons: firstly, the consideration that the above-mentioned EU Directive has given impetus to the reporting of not only non-financial information but also, presumably, issues related to the SDGs; secondly, the availability of public data since the NFDs are published on corporate websites.

Given the centrality of the regional perspective herein adopted, firms of the Consob's list are grouped into regional macro-areas according to where their headquarters are established, such as North of Italy (Piedmont, Valle D'Aosta, Lombardy, Liguria, Trentino Alto Adige, Veneto, Friuli Venezia Giulia, Emilia Romagna), and Central-South of Italy (Tuscany, Umbria, Marche, Lazio, Campania, Abruzzo, Molise, Puglia, Basilicata, Calabria, Sicily, Sardinia) (Gazzola *et al.*, 2020).

At this point, being a preliminary investigation to be extended in the future, we have deliberately restricted the study to the first 30 companies of the Consob's list by following this approach: 5 firms in Lombardy, 5 in Veneto, and 5 in Emilia Romagna that represent the new industrial triangle of Northern Italy (Fortis, 2023); 5 firms in Lazio, 5 in Tuscany, and 5 in Campania, Sicily, and Puglia, where there is the highest number of active businesses in the Central-South area (www.infocamere.it) (Tab. 2).

Tab. 2: The first 30 companies of the Consob's list and their geographical localization

North of Italy	Lombardy	A2A Spa
		Amplifon Spa
		WeBuild Spa
		Brembo Spa
		Recordati Industria Chimica e Farmaceutica Spa
	Veneto	Safilo Group Spa
		De' Longhi Spa
		AcqueVenete Spa
		Zignano Vetro Spa
		Dovalue Spa
	Emilia Romagna	Aeroporto Bologna Spa
		Hera Spa
		Interpump Group Spa
		Aimag Spa
		Bper Banca Spa
Central-South of Italy	Lazio	Leonardo Spa
		Terna Spa
		Enel Spa
		Eni Spa
		Atlantia Spa
	Tuscany	Piaggio & C. Spa
		Salvatore Ferragamo Spa
		Kedrion Spa
		Eukedos Spa
		Estra Spa
	Campania, Sicily, and Puglia	La Doria Spa
		Seri Industrial Spa
		Mediocredito Centrale- Banca del Mezzogiorno Spa
		Banca di Credito Popolare Scpa
		Banca Agricola Popolare di Ragusa Scpa

Source: our elaboration

The cut-off of 5 firms is due to the limited number of companies from the Consob's list located in Southern regions, which are generally less industrialized than those in the North. This cut-off has been applied uniformly across all macro-areas to ensure the sample's uniformity, thereby reducing potential biases associated with the underrepresentation of Southern firms and the overrepresentation of those located in Northern Italy.

3.2 Data collection

In December 2022, data were collected from secondary sources, such as non-financial information provided in individual NFDs (or consolidated NFDs in the case of groups), available on the corporate websites of the firms listed in Table 2. The primary advantages of gathering secondary data include time-saving and the ability to access a large amount of data that would otherwise be difficult to collect independently (Johnston, 2017). Reports were selected based on three inclusion criteria: public accessibility, publication in 2021, and verification by a third-party organization to ensure the disclosure of more reliable information (Diaz-Sarachaga, 2021). By adhering to these criteria, high-quality input data, characterized by relevance and homogeneity, were obtained. The application of these criteria to the entire dataset yielded 30 usable NFDs.

Information from the NFDs was integrated and cross-referenced with other reliable sources, including annual reports (specifically management reports), social, sustainability, and integrated reports. Additionally, abstracts of strategic plans presented to investors during roadshows and available in the Investor Relations section of corporate websites were reviewed. Furthermore, specialized press, including the prominent Italian economic newspaper Il Sole 24 Ore, and top management magazines, served as additional data sources. Triangulation was employed to examine the phenomenon from various perspectives, enrich our understanding of the issue under investigation, and assess the convergence of evidence (Jick, 1979).

3.3 Data analysis

A content analysis was conducted to elicit SDG-related information from various sources, critically evaluate them, and understand the firms' impact on the 2030 Agenda (Calabrese *et al.*, 2021; Silva, 2021; Gunawan *et al.*, 2020). The content analysis was performed manually in line with existing literature (Cosma *et al.*, 2020; Silva *et al.*, 2021) for two main reasons: firstly, much of the SDGs information was associated with the use of icons for the 17 goals, which cannot always be processed by content analysis software (e.g., Wordstat 7, Nvivo, TLab); secondly, the qualitative information to be interpreted was highly heterogeneous and not always present in the standard sections of the analyzed reports. Instead, a thorough reading of the documents followed by the interpretation of the contents was carried out.

All 30 reports were read in full, and the firms' contributions to the SDGs were assessed on a 0-4 scale, providing a more detailed picture than a Boolean scale. According to Calabrese *et al.* (2022), the five different levels of contributions are as follows: i) 0 if there is no contribution to any SDGs; ii) 1 if SDGs are mentioned as broad statements but without a plan to take action; iii) 2 if SDGs are mentioned and there is a narrative wording about plans to address them; iv) 3 if SDGs are mentioned but firms do not provide progress towards the stated SDGs; v) 4 if SDGs are mentioned with quantitative achievements. Any discrepancies in the assigned scores were discussed and resolved by the authors.

To facilitate data analysis, the 17 SDGs were clustered into three groups based on existing literature (Kumar *et al.*, 2018; Szennay *et al.*, 2019), resembling the three pillars of sustainability. Thus, the economic group comprised SDGs 8, 9, 11, 12, and 17; the social group included SDGs 1-5, 10, and 16; and the environmental group consisted of SDGs 6, 7, and 13-15. Subsequently, the overall score for the 17 SDGs and the scores for economic, social, and environmental SDGs were converted to an ordinal scale measuring low, medium, and high impact (Calabrese *et al.*, 2022). The ordinal scale was developed as follows: the scores of each group of SDGs were summed up to produce one score for each report. These scores were then divided into three intervals: low (the interval with the lowest scores), high (the interval with the highest scores), and medium (the other interval). The aggregated scores for each group of SDGs in each report were categorized into the corresponding interval.

After these steps, the data were analyzed through two contingency tables - one for Northern firms and the other for Central-South firms of Italy - where cells contained the number of reports with a specific score (high, medium, low) for each SDG group (economic, social, environmental, and overall SDGs). The two crosstabs were analyzed separately to determine if the variables (i.e., impacts and SDG groups) in each were independent, meaning that no relationship existed between them, and vice versa (Montera, 2018).

4. Results

A descriptive analysis of the sample reveals that many Northern firms operate in manufacturing industries (53.3%), providing industrial products (such as cables, pumps, brakes, etc.) mainly to business-to-business markets. In contrast, more than half of the Central-Southern firms operate in service industries (67%), particularly related to energy and financials, serving both business-to-business and business-to-client markets. In terms of firm size, the sample includes large firms whose workforce exceeds 250 units (European Commission, 2003).
Table 3 displays the total number of Northern firms for each SDG group along with the corresponding percentage in parentheses. For instance, the cells on the left indicate that Northern firms disclose a low contribution (46.6%) to overall SDGs; however, there is a focus on social (60%) and economic (53.3%) SDGs. The Pearson's Chi-square statistic has a value

of 23.258 (df = 4), indicating significance (p-value <0.01). Thus, the distribution in Table 3 is not random.

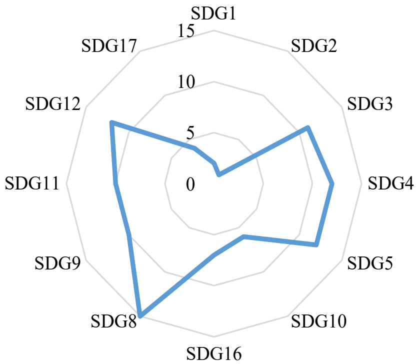
Tab. 3: Chi-square association among impacts and SDGs groups: Norther firms

	Economic SDGs	Social SDGs	Environmental SDGs	Overall SDGs
High	8 (53.3%)	9 (60%)	2 (13.3%)	3 (20%)
Medium	5 (33.3%)	4 (26.6%)	5 (33.3%)	5 (33.3%)
Low	2 (13.3%)	2 (13.3%)	8 (53.3%)	7 (46.6%)
	15	15	15	15

Source: our elaboration

By examining the number of Northern firms that disclose SDG achievements (Fig. 1), it becomes evident that their sustainable efforts are primarily directed towards SDG 4 - *Quality education* (80%) and SDG 5 - *Gender equality* (80%) within the social group, and towards SDG 8 - *Decent work and economic growth* (100%) and SDG 12 - *Responsible consumption and production* (80%) within the economic group.

Fig. 1: Prioritized social and economic SDGs: Norther firms (in number)



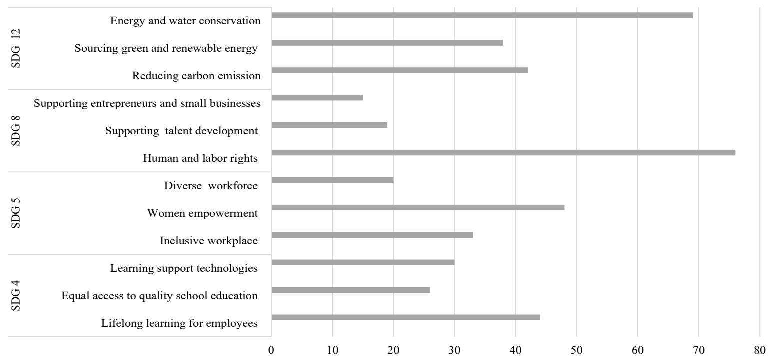
Source: our elaboration

Within these prioritized social SDGs, Figure 2 illustrates that the most frequent actions related to SDG 4 - *Quality education* involve promoting lifelong learning opportunities for employees (44%) by providing access to training courses aimed at enhancing skills and furthering professional development in areas such as sustainability, anti-corruption measures, and human rights. For example, Recordati Spa has implemented a two-year training course for all Group employees to disseminate the principles of the Code of Ethics. This course, available in the languages of subsidiaries, was delivered online, with hard-copy formats distributed for employees without access to digital devices. The course, which included a final assessment of learning, was completed by over three thousand employees. Regarding SDG 5 - *Gender equality,* Northern firms are committed to female empowerment by fostering women's careers in leadership and management (38%). For instance, Hera Spa reports that 34% of managerial positions were held by women in 2021.

Concerning the prioritized economic SDGs, Figure 2 reveals that the most frequent actions related to SDG 8 - *Decent work and economic growth* focus on preserving human rights in the workplace (76%), including improvements in wages and health and safety conditions, and the prohibition of forced labor and child labor. For example, A2A Spa has made Capsule available to workers, a health-pod for self-assessment of physical state, resilience to stress, cellular aging, and dietary habits, with over 2,000 accesses registered.

Regarding SDG 12 - *Responsible consumption and production*, Northern firms are actively involved in waste reduction through prevention, reduction, and reuse policies (e.g., energy and water conservation) (69%). For instance, at Zignago Vetro Spa, recycled glass, which now constitutes almost 50% of the total glass produced by the Group, and packaging recycling are integral parts of the production process.

*Fig. 2: Social and economic SDGs: main actions by Northern firms (in %)**



*More actions are contextually implemented within SDG 4, 5, and 8; thus, the total of the actions exceeds 100% for those specific SDGs.

Source: our elaboration

Table 4 displays the total number of Central-Southern firms for each SDG group along with the corresponding percentage in parentheses. To illustrate, the cells on the far left indicate that Central-Southern firms disclose a low contribution (53.3%) to overall SDGs; however, there is a notable focus on environmental SDGs (47%). The Pearson's Chi-square statistics has a value of 19.726 (df = 4), indicating that the test is significant (p-value <0.01). Thus, the distribution in Table 4 is not random.

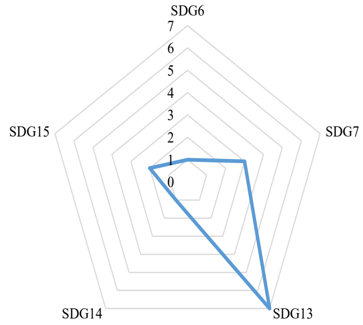
Tab. 4: Chi-square association among the variables: Central-Southern firms

	Economic SDGs	Social SDGs	Environmental SDGs	Overall SDGs
High	2 (13.3%)	2 (13.3%)	7 (47%)	3 (20%)
Medium	4 (27%)	3 (20%)	5 (33.3%)	4 (27%)
Low	9 (60%)	10 (67%)	3 (20%)	8 (53.3%)
	15	15	15	15

Source: our elaboration

By examining the number of Central-Southern firms that disclose SDG achievements (Fig. 3), it becomes evident that their sustainable efforts are primarily directed towards SDG 13 - Climate action (47%) within the environmental group.

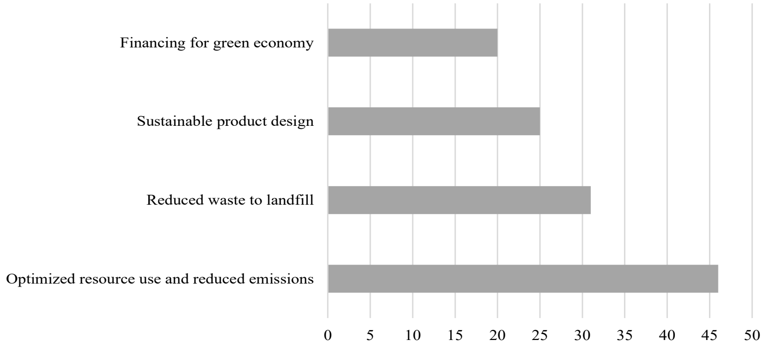
Fig. 3: Prioritized environmental SDGs: Central-Southern firms (in number)



Source: our elaboration

Within these prioritized environmental SDGs, Figure 4 illustrates that the most common actions associated with SDG 13 - Climate action include optimized resource use and reduced emissions (46%) and reduced waste sent to landfills (31%).

*Fig. 4: SDG 13 - Climate action: main actions by Central-Southern firms (in %)**



*More actions are contextually implemented within SDG 13; thus, the total of the actions exceeds 100% for these SDGs.

Source: our elaboration

For example, La Doria Spa has successfully executed the Crystal Project, which aims to decrease packaging surface area and increase the percentage of renewable materials used for Tetra juice packaging. As a result, there have been reductions in CO_2 emissions (-14%) and plastic usage (-13%). Similarly, Leonardo Spa has minimized the resources required for product prototyping and testing by implementing digital twins. Furthermore, the company has diminished waste produced during the manufacturing process through additive manufacturing and has extended product lifespan through predictive maintenance.

5. Discussion

By delving into our research question, findings demonstrate that the geographic localization of businesses at the regional scale is not always a critical variable in achieving the 2030 Agenda in Italy. While many differences in SDG approaches are highlighted at the country level (Rosati and Faria, 2019; van der Waal and Thijssens, 2020; Biglari *et al.*, 2022), this paper suggests less conclusive evidence when narrowing the analysis to within-country scope.

Regarding the overall contribution of Italian firms to the SDGs, the localization in Northern or Central-Southern Italy does not exert any significant impact. In fact, all analyzed firms exhibit limited overall SDG involvement, regardless of their regional macro-area of belonging. This indicates a reduction in the classical North-South gap in Italy, as historic within-country disparities become more nuanced. The limited contribution of Italian firms to the 2030 Agenda aligns with the critical position of Italy, with results for nine out of seventeen sustainable goals lagging behind the average values of the EU (Rapporto ASviS, 2022).

The low contribution of Italian firms to the SDGs can be interpreted as evidence that organizations still perceive sustainable goals as aspirational or forward-looking agendas rather than urgent objectives (Scott and McGill, 2018). This perception may stem from SDGs being seen as pertaining to a macro level, centered around worldwide challenges of sustainable development, which seem distant from corporate sustainability perceived at the micro level (i.e., business level). This disparity is reflected in progress in corporate sustainability not always being aligned with the achievement of the SDGs (Dyllick and Muff, 2015). The latter represent a broad, integrated, and complex development agenda, which are challenging to implement (Allen *et al.*, 2017).

Furthermore, our empirical analysis indicates that few firms provide progress reports towards the stated SDGs and mention the adopted SDGs with quantitative achievements. This evidence suggests a symbolic attitude of Italian firms towards disclosure, consistent with European and global trends (Manes-Rossi and Nicolò, 2022; Calabrese *et al.*, 2022). The symbolic approach is based on a marketing and impression management rationale (Boiral, 2013), driven by increasing pressures from social parties to integrate the SDGs into business strategies and operations, aimed at influencing stakeholder perception of substantive adoption of the 2030 Agenda. Through symbolic compliance with sustainable goals, firms can enhance legitimacy, reputation, and access more resources, without necessarily making costly substantive changes from business-as-usual (Clementino and Perkins, 2021). However, this poses a risk of SDG-washing and cherry-picking practices (Heras-Saizarbitoria *et al.*, 2021) if firms do not undergo significant transformation to accommodate the ambitions of the 2030 Agenda. Moreover, the scarcity of firms providing progress reports towards the stated SDGs and mentioning the adopted SDGs with quantitative achievements may indicate that Italian companies understand 'why' they should prioritize social, environmental, and economic goals but lack knowledge on 'how' to implement the SDGs (van Tulder *et al.*, 2021). This issue is not exclusive to Italian firms; the absence of strategies for practical SDG implementation in the private sector is among the reasons sustainable development progresses slowly at a global level (Ferreira Caldana *et al.*, 2022).

The neutrality of the regional localization of companies disappears when shifting the focus from the overall contribution of Italian firms to the sustainable goals to prioritized SDGs for firms settled in the different macro-areas of Italy. Thus, the geographic localization of firms at regional scale differentiates the SDGs considered priorities by Italian firms. Specifically, Northern firms address their efforts towards social and economic SDGs, while Central-Southern firms are more oriented towards environmental ones. In this regard, companies are affected by the sustainability policies adopted by the belonging regions. Recent studies, in fact, outline that the Northern regions are more engaged in socio-economic SDGs than other Italian regions, while the Southern regions overperform in environmental SDGs compared to the rest of Italy (ISTAT, 2021; D'Adamo *et al.*, 2021). In other words, the pathway toward the SDGs attainment by regions and that undertaken by local firms are aligned, paving the way to a co-created translation of Agenda's global goals into local aspirations (Ansell *et al.*, 2022). Individual changes, in fact, are not enough to concrete the SDGs but there is a necessity for collective changes involving local actors (Caputo *et al.*, 2020).

The finding that the SDGs priorities vary across geographical localization of firms is in line with Gazzola *et al.* (2020) who state that divergences in the industrialization, economic prosperity, societal structures, and cultural values still emerge among the Italian areas and affect companies' approaches to sustainability issues. Looking at our results at a glance, it emerges that businesses from different regional clusters focus on specific goals at the expense of others within their prioritized SDGs. In particular, Northern firms address their efforts towards SDGs 4 and 5 (social goals) and SDGs 8 and 12 (economic goals), while Central-Southern firms are more oriented to SDG 13 (environmental goals). This aspect could be considered as a form of sustainability metonymy, whereby meeting selected goals is taken to signify conformity to the whole of the 2030 Agenda, disregarding the other ambitions (Siegel and Lima, 2020). On the contrary, the important challenges proposed by the SDGs cannot be dealt with in isolation but should be pursued holistically together to arise the expected benefits due to the integrated and indivisible nature of the sustainable goals (Mio *et al.*, 2020; Dwivedi *et al.*, 2021). Moreover, Northern firms' focus on SDG 4 is not combined with an equal interest in SDG 7 that does not appear among the prioritized goals. This is an interesting finding because SDGs 4 and 7 are considered as synergetic SDGs, which may be problematic because they are key to attaining the rest of the goals and can help in the progression of others (Boar *et al.*, 2021).

6. Conclusions

The paper investigates if and how the geographic localization of firms at the regional scale differentiates the contribution of Italian firms to the SDGs, intended as one of the biggest challenges to be urgently addressed to ensure a future for the planet and humanity. The content analysis of NFDs published by 30 Italian companies, listed on the Italian Stock Exchange and grouped by regional macro-areas, reveals that the geographic localization does not differentiate the overall contribution of Italian firms to the SDGs but affects which SDGs are prioritized by such firms.

From a theoretical viewpoint, this study enriches the body of knowledge on SDGs and on the sustainable actions of companies as it is one of the few studies that focus on the regional location using the firm's lens. In doing so, we respond to the call to better understand the role of businesses as sustainable development agents (Mio *et al.*, 2020), especially through regional comparisons lacking in this research area (D'Adamo *et al.*, 2021). Thus, we try to fill the need for considering sub-national specificities in the literature on sustainable development (Salvia *et al.*, 2019; Liu, 2021) by capturing the connections between firms, belonging territory, and SDGs. Moreover, prior studies determining the presence or absence of SDGs (e.g., Rosati and Faria, 2019; Emma and Jennifer, 2021; van der Waal *et al.*, 2021) are extended because a multi-level scale is employed herein to derive how the firms contribute to SDGs. In addition, an initial picture of main actions implemented at a regional scale is also provided, in line with the need for understanding how companies are working to put the SDGs into action (van der Waal and Thijssens, 2020; Bonfanti *et al.*, 2023).

From a managerial viewpoint, this paper suggests that Italian firms should enhance their commitment to the 2030 Agenda by substantially incorporating the sustainable goals within their corporate culture, business management, and strategic behavior. In this direction, a means for undertaking the disruptive transformations required to achieve the SDGs consists of leveraging and redeploying firms' innovation capabilities to develop new offerings, processes, and business models centered on SDGs (Scherer and Voegtlin, 2020; Gutierrez *et al.*, 2022). Moreover, businesses should adopt a multistakeholder approach because the fast implementation of all the SDGs is beyond the reach of any single firm but needs for the collaboration of all social actors (Palau et at., 2023).

In this logic, a useful proposal could be to foster the establishment of virtuous partnerships between the public, private, and third sectors, e.g., involving research institutes, universities, and firms (Leal Filho *et al.*, 2022). In addition, other possible keys to successfully engage the SDGs are active leadership and the development of core competences at corporate and managerial levels with which to develop supportive strategies that generate social benefits, reduce environmental harm while maintaining profits.

Our paper suggests, in line with Raub and Martin-Rios (2019), to counter "sustainability myopia" and to act locally to identify, ponder and put into action SDG goals. To facilitate this, companies should introduce measurement and control systems that allow them to stay on track and the

SDGs to be achieved; avoid fragmented actions in pursuit of the goals; and act in a timely manner and take corrective actions (Guarini *et al.*, 2022).

From a policymakers' viewpoint, research findings are also interesting for government authorities, especially for regional ones, to define well-targeted interventions for resolving regional gaps and fostering the full adoption of the 2030 Agenda by local businesses in an approach as participatory as possible. Multilevel territorial governance could be a paramount precondition to achieving economic, social, and environmental development objectives even in turbulent times and continuing to take into consideration different cultural settings. The development of new kinds of partnerships taking into consideration the municipal level is also suggested to aid in the SDGs achievement and monitoring. To facilitate this, at a policy level, a possible solution could be to create a system that limits access to public resources in the face of failure to meet targets or comply with regulations.

The limitations of this work suggest avenues for further research. Data was collected only from NFDs, but much non-financial information is included in social and environmental reports provided on a voluntary basis. Thus, a next survey could be performed by interviewing key informants to collect and analyze the primary data. It would be interesting to run cross-country studies for comparing the subnational specificities of Italy in terms of SDGs achievement with those of other countries around the world. Moreover, the present study chooses a limited number of firms, whose NFDs are analyzed, but a wider perspective can be adopted by investigating all firms on the Consob's list to find more robust findings. In the future, it would be interesting to monitor the SDGs adoption over time, extending the temporal horizon herein adopted. Another limitation is related to the content analysis performed manually. In the future, it could be integrated with an automated content analysis integral reading of the documents to deepen the interpretation of the reports. Finally, further connections between geographical localization and SDGs adoption could be captured by grouping the firms not only in regional macro-areas but also in economic sectors, currently heterogeneous. In particular, the focus should be on homogeneous industries, such as banking, which are evenly distributed across Italy. Likewise, it would be interesting to study the relationships between geographic area and other external and internal enablers for SDG implementation.

In conclusion, we invite keeping the research field progressing to train the old and new generations of business leaders in alignment with SDG engagement across all scales. Therefore, more academic research is needed, with a special focus on regional strategies for successful implementation, understanding, and operationalization of the goals in the private sector that seems to be still missing.

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