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Sustainability of Small and Medium-Sized Enterprises in Hong Kong: Drivers and the Moderating Role of Social Network

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ABSTRACT

Small and medium-sized enterprises (SMEs) are major economic actors and employers; they play a vital role in societies all over the world. Their participation and involvement are thus essential to the pursuit of sustainability. Over the past decade, academic and policy analysts have explored how to persuade or incentivize SMEs to join the sustainability bandwagon. Understanding what motivates them to pursue sustainability has important policy implications. This study advances this strand of research by identifying internal and external drivers of SMEs' sustainability practices—particularly whether (and how) their social networks might condition the impact of these drivers on the enterprises' sustainability practices. This study is conducted in Hong Kong, an important financial center in Asia; its conclusions have valuable insights for other countries in the region.

1 | Introduction

In the past decade, academic interest in how small and medium-sized enterprises (SMEs) pursue sustainability has grown rapidly (Corazza et al. 2022; Isensee et al. 2020; Rubio-Andrés et al. 2020; Westman et al. 2019). Global challenges like the COVID-19 pandemic and regional conflicts have caused economic fluctuations and market sensitivity, significantly altering how enterprises operate and adopt sustainability (Ferrón-Vílchez and Leyva-de la Hiz 2023; Setiawati and Mastarida 2024; Tsang et al. 2023). Earlier studies have explored what drives SMEs to adopt sustainability (e.g., Cantele and Zardini 2020; Korsakienė and Raišienė 2022), how these practices affect their performance (e.g., Burlea-Schiopoiu and Mihai 2019; Rubio-Andrés et al. 2020), and how to help them implement sustainable measures (e.g., Carlsson and Nevzorova 2024; Küchler et al. 2023). These studies were largely informed by theoretical frameworks and models developed to study business behavior in general. Although these studies recognize differences between SMEs and large firms, few have focused on SMEs' unique traits to explain their sustainability motivations (Drempetic et al. 2020).

SMEs play a vital role in economic development and job creation across the developed and developing worlds. In Europe, more than 99% of companies are SMEs, accounting for 67% of total employment (Cantele and Zardini 2020); in China, SMEs represent 99% of enterprises and account for 80% of job opportunities (Zhu et al. 2019). Because SMEs play a vital role in the economy, their engagement in sustainability is crucial for building a society with environmental, economic, and social balance. The post-pandemic context further necessitates rethinking existing strategies and approaches toward SME sustainability (Nasir et al. 2021).

Due to a variety of barriers and obstacles (e.g., lack of resources and knowledge, weak perceptions), SMEs often lack the necessary knowledge, resources, and incentives to pursue sustainability causes. They are frequently slower than large firms to adopt sustainability practices, including ecological innovation, responsible behaviors, and social value creation (Shahin et al. 2024; El Baz et al. 2016; Lee et al. 2016). These constraints become particularly evident during recent crises and global challenges (Campobasso et al. 2023; Cardoni et al. 2023). Promoting SME sustainability thus becomes an urgent task for implementing the sustainability policy agenda.

This article contributes to academic discussion of how to foster SME sustainability by identifying possible drivers of SMEs' sustainability practices, with a view to inform public policy related to sustainability. It explores how these drivers influence SMEs' decisions about sustainability and what this means for creating better policy tools to support them. The study context is Hong Kong—among the most vibrant economies in the region and one of the world's leading financial centers. Characterized by its entrepreneurial spirit, Hong Kong is poised to be a leader in pursuing corporate sustainability; its experience will inspire other cities in and beyond Asia.

We categorize SME sustainability drivers as internal or external (Cantele and Zardini 2020; Lozano 2015; Neri et al. 2018; Silvestre et al. 2018) and investigate how social networks modify their impact on sustainability practices. From a social capital perspective, organizations can boost their competitiveness by strategically networking with external parties (Corazza et al. 2022; Ireland et al. 2002; Melane-Lavado and Alvarez-Herranz 2020). We argue that it is particularly important for SMEs to accumulate social capital by building networks. Due to SMEs' scant resources and knowledge, networks must be formed to give them access to the necessary knowledge, integrate resources, and accumulate practical experience in sustainability practices. We test the moderating effect of social networks on SME sustainability using data collected in a survey of SMEs in Hong Kong.

The remainder of the article is organized as follows: Section 2 reviews the relevant literature regarding the drivers of SMEs' sustainability practices and how their social networks impinge on SMEs' sustainable behaviors; it also details a set of hypotheses. Section 3 introduces the data collection and analysis methods and presents the sample's descriptive statistics. Section 4 reports the empirical findings of multiple statistical models, followed by the Sections 5 and 6 that interpret theoretical contributions and policy implications, respectively.

2 | Literature Review and Hypotheses

The World Commission on Environment and Development (WCED) describes sustainable development as "development which meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED 1987). Sustainable development comprises three principles: environmental integrity, economic prosperity, and social equity. For businesses, environmental integrity comes from strong environmental management, social equity from corporate social responsibility, and economic prosperity from innovative value creation (Bansal 2005). Previous studies have established that a firm's sustainability performance can affect its reputation, legitimacy, financial performance, and long-term viability (Aguinis and Glavas 2012; Baumgartner 2014; Broccardo et al. 2019).

Prior research has examined enterprises' sustainability from different perspectives and scopes (Marrewijk and Werre 2003). A broader view sees enterprise sustainability as building systems that balance economic, environmental, and social performance (Lozano 2011; Searcy 2016), while a narrower view focuses on how "green" a firm is. Specifically, ecological responsiveness pertains to initiatives designed to mitigate a firm's impact on the natural environment, that is, reducing its "ecological footprint" (Bansal and Roth 2000; Stead and Stead 2000).

A number of studies have investigated enterprise sustainability from a green perspective (Bakos et al. 2020; Christmann 2004; Christmann and Taylor 2001; Dangelico and Pujari 2010; Delmas and Toffel 2008; González-Benito and González-Benito 2006; Le and Ferasso 2022; Marquis et al. 2007; Nguyen and Adomako 2022; Reverte 2009). Previous studies are largely based on the experiences of large enterprises such as listed and multinational companies (Christmann 2004; Lozano 2015; Reverte 2009). Yet SMEs very often face more challenges in the pursuit of environmental innovation and corporate sustainability than their larger counterparts, as the former are more constrained by cost and suffer from a lack of knowledge and incentives (Halila 2007; Prabawani 2013). Therefore, current sustainability rankings and ratings may not be appropriate for SMEs (Drempetic et al. 2020), as different types of organizations need different sustainability measurements (Marrewijk and Werre 2003). Spence (2016) called for more social responsibility studies of SMEs and set out to expand traditional corporate social responsibility theory to the SME context. In response, some recent studies have focused on SMEs' sustainability, eco-innovation, green strategies, and so forth (e.g., Cantele and Zardini 2020; Corazza et al. 2022; Isensee et al. 2020; Westman et al. 2019; Zhu et al. 2019).

This study adopts the broader understanding of enterprise sustainability, comprised of social, environmental, and economic performance. Given SMEs' contribution to the economy and employment, their cumulative impact on society, the environment, and economic development is considerable (Prabawani 2013). We employ measurements of SME sustainability developed in prior work, which focus on their environmental practices (such as recycling, waste, and resource management), social practices (employee, community, charity), and economic performance (Borga et al. 2009; Lawrence et al. 2006; Prabawani 2013).

While large enterprises have been the primary focus in previous work in this area, there is a growing recognition of the unique challenges and opportunities faced by SMEs in this domain. The existing literature underscores the need for tailored sustainability measurements and strategies that reflect the distinct characteristics and constraints of SMEs (Küchler et al. 2023; Reyes-Rodríguez and Ulhøi 2022). This study builds on this foundation by adopting a comprehensive framework that encompasses the social, environmental, and economic dimensions of sustainability, specifically tailored to SMEs. We aim to address the gap in understanding of the drivers of sustainability

practices within SMEs by exploring the nuanced motivations and constraints that shape these practices. The following section discusses and proposes hypotheses regarding the internal and external drivers of SMEs' sustainability practices.

2.1 | Internal and External Drivers of SME Sustainability

Prior research has developed multiple categorizations of the drivers of corporate sustainability. Some scholars, for example, adopted a resource-based, institutional perspective to classify the drivers of enterprise sustainability (e.g., Bansal 2005; Hojnik and Ruzzier 2016); others employed supply- and demand-side perspectives to explain firms' sustainability activities (e.g., Horbach et al. 2012; Triguero et al. 2013). Given that many SMEs are relatively new to sustainability, they often lack the necessary resources and capabilities to implement sustainable practices. Since resource-based factors and supply-side motives might not be obvious among SMEs, we use an internal/external dichotomy to categorize and illustrate the drivers of SME sustainability. The factors that drive enterprises to undertake sustainability practices emerge internally within enterprises as well as externally from the environment (Broccardo et al. 2019; Cantele and Zardini 2020; Neri et al. 2018; Silvestre et al. 2018). The internal drivers include a firm's organizational attributes (such as size, ownership, and industry), values, resource base, leadership style, and governance structure. These internal characteristics can motivate enterprises to move beyond firm-centered practices toward strategic approaches that contribute to both organizational and community sustainability (Bakos et al. 2020; DiBella et al. 2023; Küchler et al. 2023; Westman et al. 2019). SMEs operate in the broader social, economic, and policy context. Opportunities and constraints embedded in this context—such as government policies, regulatory requirements, turbulent business environment, and stakeholder pressures—can affect whether (and how) SMEs implement sustainability measures (Bakos et al. 2020; El Baz et al. 2016; Isensee et al. 2023; Zhang et al. 2023). In the remainder of this section, we propose two sets of hypotheses: H1a–H1e pertain to internal drivers, and H2a–H2d to external drivers.

SME leaders' values and personal beliefs directly shape the company's approach to environmental and social issues (Küchler et al. 2023; Rubio-Andrés et al. 2020). Compared to large firms, owners' and managers' beliefs can more easily permeate throughout smaller organizations (Westman et al. 2019). A sense of responsibility among SME owners and managers encourages SMEs to adopt a long-term view of their business operations that aligns with sustainability principles, such as caring for future stakeholders and the long-term impacts of business decisions (Küchler et al. 2023; Rubio-Andrés et al. 2020). Responsible SMEs are also more willing to invest their limited time, money, and effort into sustainability initiatives (Reyes-Rodríguez and Ulhøi 2022). Moreover, SMEs' sense of responsibility manifests in the maintenance of social capital, such as reciprocity and trust formed within the local community, which is crucial for forming competitive advantages (Reisinger and Szabó 2024; Westman et al. 2019). In summary, SMEs' sense of responsibility acts as a powerful driver of sustainability practices, influencing ethical decision-making, long-term planning, resource allocation, and social capital building. This sense of responsibility helps SMEs overcome resource constraints and other challenges to pursue meaningful sustainability initiatives. Hence, H1a is proposed.

H1a. *SMEs' sense of responsibility positively influences their sustainability practices.*

Values that drive enterprise sustainability go beyond financial gains such as profitability and potential for growth (Artiach et al. 2010); they often pertain to the enterprises' commitment to making ethical decisions and giving back to society and the community (Bansal and Roth 2000; Hahn and Scheermesser 2006; Joyner et al. 2002). An enterprise's commitment to contributing to society can also affect its propensity to pursue sustainability (Bansal and Roth 2000; Broccardo et al. 2019). SMEs with a strong commitment to societal well-being tend to integrate sustainability more deeply into their business strategies. This commitment drives them to develop business models that balance economic, social, and environmental concerns (Santos-Jaén et al. 2021). Enterprises that assess their operations as part of the larger community, and treasure the symbiosis between their organizations and overall societal well-being, tend to be more willing to invest in sustainability measures (Hahn and Scheermesser 2006). Moreover, SMEs committed to societal well-being tend to engage more actively with a wide range of stakeholders. They recognize that their sustainability practices should address the needs and expectations of various societal groups (Nguyen and Adomako 2022; Santos-Jaén et al. 2021). This engagement leads to more comprehensive and effective sustainability initiatives that consider diverse perspectives. Therefore, we propose H1b.

H1b. *SMEs' sense of commitment to societal well-being positively influences their sustainability practices.*

Enterprises are more likely to stick with sustainable development if their organizational cultures align with sustainability principles (Aguinis and Glavas 2012). An enterprise's core culture is directly reflected in its mission and vision statements, which stipulate its strategic pathway to growth and provide the guiding principles for the top management, employees, and even relevant stakeholders to make decisions and formulate actions (Taiwo and Lawal 2016). For enterprises that incorporate sustainability into their mission and vision statements, it often becomes an internal norm guiding them to act accordingly. Firms with a culture that is conscious of environmental and social impacts are more likely to adopt sustainable solutions (Bakos et al. 2020). For SMEs, the alignment of culture as a driver is particularly prominent. Given their scant resources and capabilities, they are often very sensitive to the costs of pursuing sustainability. A cultural orientation toward sustainability can lead to its integration into the company's core values and decision-making processes (Isensee et al. 2023). We thus propose H1c.

H1c. *SMEs' sustainability missions and vision positively influence their sustainability practices.*

Another important internal driver concerns SMEs' sustainability disclosure decisions. SMEs in most countries are currently exempt from mandatory sustainability reporting. In Europe, the Non-Financial Reporting Directive requires

only large public-interest entities to disclose sustainability information; even the Corporate Sustainability Reporting Directive, enacted in 2024, only requires large corporates and listed SMEs to report on sustainability. The Hong Kong Stock Exchange only requires listed companies to include environmental, social, and governance (ESG) information in their annual reports; this excludes most SMEs. There are several globally recognized sustainability reporting frameworks—including the Global Reporting Initiative and the Sustainability Accounting Standards Board—that allow enterprises of different sizes to disclose their sustainability practices. These frameworks, however, generally operate on a voluntary basis; only SMEs committed to sustainability tend to participate (Aguinis and Glavas 2012). A strong sense of responsibility often translates into increased transparency and voluntary reporting on sustainability issues (Isensee et al. 2023). Enterprises that are keen on transparency and voluntary disclosure are often the most ready and prepared to embrace more opportunities and challenges. Communicating environmental and social initiatives to stakeholders in turn reinforces SMEs' commitment to sustainable practices (Cardoni et al. 2023; Rubio-Andrés et al. 2020). This commitment to transparency can drive continuous improvements in sustainability practices and help build trust with stakeholders (Küchler et al. 2023). H1d is thus proposed.

H1d. *SMEs' sustainability transparency positively influences their sustainability practices.*

Since the pursuit of sustainability requires investment and extra efforts, access to resources is a fundamental internal factor that determines an enterprise's sustainability performance (Bansal 2005). These include both tangible resources, such as capital assets, and intangible resources, such as knowledge, experience, and business connections (Bakos et al. 2020; Bansal 2005; Darcy et al. 2014; Silvestre et al. 2018). Resources and enterprise sustainability are mutually reinforcing: sufficient resources enable enterprises to initiate sustainability practices, and sustainable management in turn fosters more efficient solicitation and use of resources (Aguinis and Glavas 2012; Bacinello et al. 2021; Belas et al. 2021). For instance, implementing environmental management practices can reduce costs by increasing resource efficiency and decreasing waste (Prieto-Sandoval et al. 2019). It can also allow SMEs to attract environmentally conscious customers and improve their market positioning (Reyes-Rodríguez and Ulhøi 2022). Since SMEs generally lack sufficient resources to invest in sustainability (Cantele and Zardini 2020; Hahn and Scheermesser 2006; Korsakienė and Raišienė 2022; Rubio-Andrés et al. 2020; Zhu et al. 2019), an enterprise's access to resources often determines its competitive advantage in sustainable investment. In turn, sustainability initiatives can help SMEs gain access to critical resources controlled by stakeholders, including green financing and investment opportunities (Khan et al. 2020). Hence, H1e is proposed.

H1e. *SMEs' resource sufficiency positively influences their sustainability practices.*

Government policy, the structure of the industry, regulatory regimes, and customers' preferences are the major external factors pulling SMEs toward sustainability (Cantele and Zardini 2020; Neri et al. 2018). Fernández-Viñé et al. (2013) analyzed how different public administration tools could help support SMEs' eco-efficiency, and confirmed the importance of appropriately designed public administration tools. Prior research has also found that government financial support—such as subsidies and grants—can help foster eco-innovation (Arranz et al. 2019; Hojnik and Ruzzier 2016; Horbach et al. 2012; Le and Ferasso 2022). Moreover, governments can play a role in educating SMEs about sustainability issues and practices. This is particularly important in developing countries, where awareness of green practices may be limited (Arranz et al. 2019; Quartey and Oguntoye 2020). Government support in disseminating information about sustainable practices and technologies can help SMEs overcome knowledge barriers (Quartey and Oguntoye 2020). Government support pertains not only to the provision of resources, but more importantly to the legitimacy it confers; it often denotes normative recognition, if not endorsement, for SMEs to join in the pursuit of sustainability. Prior research has demonstrated that government support can help set the agenda for SMEs' sustainability actions (Hsu and Cheng 2012; Korsakienė and Raišienė 2022). We thus propose H2a.

H2a. *Government support positively influences SMEs' sustainability practices.*

Most previous empirical studies in this area have focused on a particular sector such as wineries (Zhu and Mazaheri 2021), construction (Bamgbade et al. 2019), or energy (Azzam et al. 2024). A major finding of these studies is that tailor-made support provided by industry associations to adopt sustainable practices can significantly enhance the success of enterprise sustainability (Neri et al. 2018). Corporate management usually acts in response to industry codes, agreements, or benchmarks to strengthen their enterprises' legitimacy or mimic industry best practices—a process known as mimetic isomorphism. This imitation is particularly prevalent among SMEs due to their lack of eco-literacy and technical resources, which increases goal ambiguity and technical uncertainty (Reyes-Rodríguez and Ulhøi 2022). As a result, SMEs are likely to adopt sustainability practices that are common or successful within their industry. Moreover, industry benchmarks create competitive pressure for SMEs to improve their sustainability performance (Carlsson and Nevzorova 2024; Reyes-Rodríguez and Ulhøi 2022). When leading firms in the industry set high standards for sustainability, it can motivate other SMEs to enhance their practices to remain competitive. Enterprises seeking to meet the industry benchmarks on sustainability are more ready and willing to invest in sustainability (Hsu and Cheng 2012). Therefore, H2b is proposed.

H2b. *Industry benchmarks on sustainability positively influence SMEs' sustainability practices.*

Government regulations and policies are important drivers of environmental sustainability in SMEs (Arranz et al. 2019). Regulations represent coercive pressures according to institutional theory; complying with regulations and rules is a determinant of organizational legitimacy. Scholars have long argued that the structure of regulatory regimes could have serious implications for enterprises' sustainability behavior; complying

with regulations is not only an imperative but also a determinant of an enterprise's legitimacy (Lozano 2015; Testa et al. 2016). Regulatory pressures and the need to comply with environmental regulations drive SMEs to adopt sustainable practices (Alraja et al. 2022; Prieto-Sandoval et al. 2019). Prior studies have found that enterprises' desire to comply with regulations and fear of regulatory sanctions might have a stronger effect than internal motivations, such as a sense of commitment/responsibility, in driving them toward sustainability (Horbach et al. 2012; Neri et al. 2018; Silvestre et al. 2018). The design of rules and regulations matters. They must be clear and adequate to improve enterprise sustainability; opaque regulations are often the barriers. Enterprises also anticipate future regulations based on existing ones; the former might be as important as the latter (Horbach et al. 2012). Therefore, the more importance an enterprise attaches to regulations, the more eager it will be to incorporate sustainability into its decision-making process (Horbach et al. 2012; Triguero et al. 2013). We thus propose H2c.

H2c. *Regulation pressure positively influences SMEs' sustainability practices.*

Pressure from key stakeholders constitutes a major influence on SMEs adopting sustainability practices (Bakos et al. 2020). Customers' expectations, preferences, and purchasing decisions could also directly pressure SMEs on sustainability (Aguinis and Glavas 2012; Cantele and Zardini 2020; Lozano 2015); Lozano (2015) found that they were among the most important external drivers of enterprise sustainability. Customers increasingly demand eco-friendly products and services, which motivates SMEs to adopt more sustainable practices and create eco-friendly products (Nguyen and Adomako 2022). Hojnik and Ruzzier (2016) and Horbach et al. (2012) also established that customer demands exert a positive influence on eco-innovations. Since customers are resource suppliers for enterprises, firms must take their expectations and demand for business sustainability and responsible behaviors into account in decision-making (Crifo et al. 2019). Sustainability can provide a competitive edge by creating access to new markets and aligning with shifting customer preferences (Chang 2024; Rochayatun et al. 2023). Customer pressure for sustainable products and services can therefore push SMEs to adopt sustainability practices to gain or maintain market share. Customer loyalty is another important dimension of corporate performance, affecting the long-term viability of an enterprise (Aguinis and Glavas 2012). Since customers are increasingly concerned about enterprises' pro-social actions, responsible business behaviors and sustainability investments can strengthen their loyalty (Belas et al. 2021; Rubio-Andrés et al. 2020). Hence, H2d is proposed.

H2d. *Customer pressure positively influences SMEs' sustainability practices.*

2.2 | Social Network as a Moderator

Like any other type of organization, enterprises operate in a broader political-economic-social environment (Lozano 2015); to survive and thrive, they must exchange with their environment to obtain necessary resources (Ireland et al. 2002). Prior studies have found that SMEs are often more willing than large firms to engage with the local community in an attempt to build social capital (Cantele and Zardini 2020). Social capital connotes productive working relationships between organizations—often manifested in trust, norms, and networks—which enable them to develop reciprocity and long-term collaboration and often give them access to more informational and material resources, as well as new opportunities (Chen et al. 2019). Past studies have suggested that organizations, especially those with resource shortages, are keen to develop social capital to create synergies (Corazza et al. 2022; Freeman et al. 2006; Lee et al. 2012; Zia ul et al. 2023).

Perrini (2006) argued that social capital is a catalyst for responsible business practices. The process of building social capital—creating networks with relevant stakeholders and participating in industry alliances—helps strengthen enterprises' sustainability knowledge and practices. For SMEs that have insufficient resources and information to pursue sustainability, developing social capital (particularly networks) is an important way to extend their organizational boundaries and expand their access to information, expertise, and finance (Halila 2007; Teece 1986). Networks also play a key role in ensuring cognitive consistency and thus fostering normative isomorphism; they expose enterprises to sustainability values and industry best practices (Zhu and Mazaheri 2021). Given that SMEs within the same industrial or geographic network often face similar sustainability challenges, their close interactions through the network frequently enable them to cocreate solutions, and to learn from each other. Perhaps more importantly, networks can nurture trust and common understanding, which further reinforce SMEs' incentives to engage and collaborate with one another, generating momentum to pursue sustainability (Handrito et al. 2021; Corazza et al. 2022). Empirical evidence from the pandemic period confirmed that social networks help SMEs innovate and enhance their environmental performance even during significant market disruptions (Ooi et al. 2023).

Triguero et al. (2013) found that entrepreneurs who collaborated more with external parties tended to more actively engage in eco-innovations. Similarly, Melane-Lavado and Alvarez-Herranz (2020) identified a positive relationship between companies' cooperation networks and their sustainability-oriented innovation. Prior research on SMEs' sustainability has established the important role of networks. Corazza et al. (2022) highlighted the key role of corporate networks in SME sustainability in Italy. Westman et al. (2019) studied Canadian SMEs and found that they were largely social actors embedded in social relations and the broader social environment; economic drivers of SME sustainability were effective only if they were placed in a proper relational context.

Earlier research has conjectured that networks somehow link internal operations with the external environment, translating external resources and values into enterprises' operations (Pellegrini et al. 2019). In this vein, we argue that networks are an important moderating factor that condition the impact of both internal and external drivers on SMEs' sustainability decisions and actions.

H3. *SMEs' social networks positively moderate the influence of internal and external drivers on their sustainability practices.*

3 | Methodology

3.1 | Data Collection

To examine the hypotheses, this study draws upon data from Hong Kong. The data were collected in the period from November 8, 2021 to April 4, 2022, through a territory-wide survey among SMEs in the city. The sample population included all SMEs in Hong Kong that are not listed or affiliated with listed entities, with a number of employees between 11 and 500. We employed a two-stage stratified disproportionate sample design. We first obtained a full list of all the city's 5647 commercial and industrial buildings from the Lands Department, which included warehouses and non-domestic buildings (e.g., clubhouse, associations, churches). We then randomly sampled 498 of these buildings across 18 districts in Hong Kong. In each of the sampled buildings, 20 addresses were randomly selected, resulting in a sample of 9905 addresses (some buildings had fewer than 20 addresses). As not all these addresses were necessarily business entities, further screening was conducted to make sure that only addresses of commercial operations were included. After screening out noncommercial buildings as well as addresses that were vacant or under renovation ($n = 829$) and nonprofit organizations or associations ($n = 6822$), 2254 SMEs remained in the sample.

Invitation letters with the survey link were sent to the sampled SMEs. The respondents could choose to either self-administer the questionnaire or contact us to arrange a telephone or face-to-face interview. Our team visited SMEs that did not respond and invited them to participate. A total of 1400 SMEs were successfully approached and participated in our survey (a response rate of 62.1%).

3.2 | Profiles of SMEs

The sampled SMEs operate in multiple industries; a majority of them are from the tertiary sector (Table 1). More than two-thirds of the firms employ 11–20 staff members; only 7.6% had over 50 employees at the time of the survey (see Figure 1). Nearly three-quarters (73.5%) of those who filled out the questionnaire on behalf of their organizations were directors, followed by owners (14.3%), C-suite/senior management (5.8%), and others such as human resources staff and sales managers (6.4%).

TABLE 1 | Industries of the studied SMEs.

Industry groups	Industry	%
Manufacturing	Manufacturing	2.2
Electricity, gas, and water	Electricity and gas supply	0.1
Construction	Construction	6.6
Import/export, wholesale, and retail trades	Import/export, wholesale, and retail trades	42.7
Accommodation and food service activities	Accommodation and food service activities	4.5
Transportation, storage, and communications	Transportation, storage, postal, and courier services	2.6
	Information and communications	3.9
Financing, insurance, real estate, and business services	Financial and insurance activities	7.0
	Real estate activities	4.4
	Professional, scientific, and technical activities	8.3
	Administrative and support service activities	4.6
Community, social, and personal services	Education	1.4
	Human health and social work activities	2.2
	Arts, entertainment, and recreation	3.3
	Other service activities	6.3

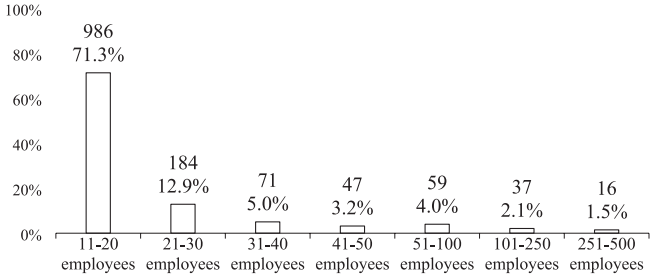

FIGURE 1 | Employment size of the studied SMEs.

3.3 | Method

This study examines whether (and how) various internal and external factors influence SMEs' sustainability practices, as well as the possible moderating effect of their social networks. We draw on prior work to operationalize sustainability practices as the dependent variables (e.g., Bansal 2005; Bansal and Roth 2000; Moore and Manring 2009; Searcy 2016). We conceptualize sustainability as the integration of three principles—social inclusion, environmental protection, and economic growth (WCED 1987). Implementing sustainability practices requires efforts in stakeholder management, environmental management, and value creation (Bansal 2005). To ensure our measurements of sustainability are relevant to the SME context, we referred to the Global Reporting Initiative and consulted with SME practitioners in Hong Kong. We identified five dimensions of SME sustainability, which embrace the WCED's three principles (see Table A1). *Employment*, *supplier assessment*, and *social contribution* represent SMEs' social inclusion and stakeholder management, *environment* measures energy and waste management, and *innovation* signifies economic efforts to introduce resource-efficient technologies and provide sustainable products and services, and so forth (Siebenhuner and Arnold 2007).

Respondents read statements and assessed their SMEs' sustainability practices (1 = "*No plan to do so*," 2 = "*Planning to implement*," 3 = "*Adopted but effectiveness is not reviewed periodically*," 4 = "*Adopted and effectiveness is reviewed periodically*"). Respondents' assessments were averaged within each dimension to generate the measurement for each of the five sustainability dimensions.

Explanatory variables include internal and external factors (Christmann 2004; Christmann and Taylor 2001; Dangelico and Pujari 2010; Delmas and Toffel 2008; González-Benito and González-Benito 2006; Lozano 2015; Marquis et al. 2007; Reverte 2009; Silvestre et al. 2018). Internal factors are organizational-level attributes that can affect SMEs' incentives and motivation to adopt sustainability practices, which include *sense of responsibility*, *sense of commitment*, *mission*, *transparency*, and *resources*. External factors are institutional-level and exogenous drivers that induce or push SMEs to pursue sustainability, including *government support*, *industry benchmark*, *regulation pressure*, and *customer pressure*. Respondents evaluated statements on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Details can be found in Table A1.

The moderator—*social network*—is measured as SMEs' engagement in nine types of groups/collaborations/networks (see Table A1). Respondents were asked to indicate their organization's level of engagement (1 = "*Not engaged and not interested*," 2 = "*Not engaged but interested*," 3 = "*Not engaged but planning to join*," 4 = "*Engaged less than a year*," 5 = "*Engaged more than a year*"). These assessments were averaged to produce an integrated measurement of each SME's social network.

We employed ordinary least squares (OLS) and propensity score matching (PSM) to examine the relationships between sustainability practices, internal and external drivers, and the moderating role of social networks. OLS models allow us to test the extent to which the internal and external factors drive/hinder SMEs' sustainability, and how the relationships are moderated by SMEs' social network engagement. PSM models further reveal the advantages/disadvantages for SMEs that actively engage in social networking.

4 | Results

The OLS regression results offer robust evidence that internal and external drivers significantly influence the sustainability performance of SMEs in Hong Kong (see Table 2). Regarding the former, the results suggest that the stronger an SME's sense of responsibility, the more likely it is to adopt environmental and social contribution practices; this finding supports H1a. H1b is also supported: SMEs that have a stronger sense of commitment are more likely to adopt supplier assessment practices. SMEs with a clear sustainability mission and vision are significantly more likely to engage in all areas of sustainability, which provides supporting evidence for H1c. Transparency enhances SMEs' propensity to adopt sustainability practices, particularly in supplier assessment and employment. This finding corroborates H1d, suggesting the importance of disclosure and openness in sustainability endeavors. Resource sufficiency boosts social contribution, environmental practices, and innovation but negatively impacts employment—only partly supporting H1e.

External factors also play a significant role in shaping SMEs' sustainability practices. Although government support is expected to enhance sustainability, our findings do not clearly support this, so H2a is not supported. Our results also suggest that while industry benchmarks help foster innovation and social contribution, they negatively impact employment practices. Thus, H2b is only partially supported. Regulation pressures, especially those related to the environment and societal views, also positively affect supplier assessment, innovation, and environmental practices. Similarly, pressures from regulation on employee concerns force sustainability practices related to employment, supplier assessment, and the environment. These findings offer empirical support for H2c, which stresses compliance with regulations related to sustainability. Significant effects of customer pressure on employment, supplier assessment, and innovation partially corroborate H2d, illustrating that SMEs' sustainability is sensitive to market demand.

Our findings suggest that social networks play an important role in moderating the impacts of government support, industry benchmarks, and customer pressure on SMEs' sustainability practices. Social networks, however, do not condition the impact of the other drivers. H3 is therefore partially supported.

Social networks significantly strengthen the effect of government support on environmental practices (0.040, $p = 0.034$), social contribution (0.070, $p = 0.001$), and innovation (0.039, $p = 0.006$), thereby amplifying its overall impact on SME sustainability. The findings further reveal that social networks enhance the impact of industry benchmarks on social contribution practices (coefficient = 0.102, $p = 0.000$). Social networks also boost the effect of customer pressure on supplier assessment (0.042, $p = 0.030$), environmental practices (0.059, $p = 0.001$), social contribution (0.086, $p = 0.000$), and innovation (0.061, $p = 0.000$). However, social networks did not influence how different drivers affect employment practices, which suggests their catalyzing effect is not uniformly positive and significant. Figure 2 displays the moderating effect of social network over three external drivers' influences on the five sustainability dimensions; Table 3 reports detailed statistical results.

We further conduct a comparative analysis of SMEs with and without social network engagement using the PSM method. Social network engagement is a dummy variable indicating whether an SME is involved in networking activities; it is based on survey responses to a question about whether they belong to any of the nine types of groups/collaborations/networks (see Table A1). We coded SME social network engagement as "0" for *no participation* (control group) and "1" for *participation* in at least one networking activity (treatment group). PSM allows us to similarize SMEs across a variety of characteristics, ensuring that we are comparing similar pairs.

Table 4 shows the PSM results for both groups, including the ATT (average treatment effect on the treated), ATU (average treatment effect on the untreated), and ATE (average treatment effect) calculations. The statistically significant difference suggests positive sustainability performance for the

TABLE 2 | Internal and external drivers of SME sustainability practices—ordinary least squares (OLS) regression results.

	Employment	Supplier assessment	Environment	Social contribution	Innovation
Sense of responsibility	−0.0409 (0.0331)	−0.0303 (0.0287)	0.0884*** (0.0256)	0.0679* (0.0271)	0.0568** (0.0186)
Sense of commitment	0.0220 (0.0381)	0.0867** (0.0328)	0.0689* (0.0296)	0.0276 (0.0301)	−0.00932 (0.0216)
Mission	0.246*** (0.0324)	0.136*** (0.0280)	0.196*** (0.0257)	0.236*** (0.0289)	0.148*** (0.0202)
Transparency	0.179*** (0.0338)	0.213*** (0.0303)	0.0675** (0.0255)	0.0528 (0.0277)	0.0664** (0.0208)
Resource	−0.119*** (0.0305)	−0.0483 (0.0259)	0.0622* (0.0242)	0.158*** (0.0256)	0.0444* (0.0173)
Government support	0.000395 (0.0307)	0.0127 (0.0250)	−0.0508* (0.0227)	−0.0174 (0.0247)	−0.0238 (0.0178)
Industry benchmark	−0.119*** (0.0320)	−0.00235 (0.0272)	0.0328 (0.0259)	0.0675* (0.0274)	0.117*** (0.0184)
Regulation pressure—environment and society	0.0330 (0.0353)	0.0835** (0.0295)	0.0577* (0.0260)	0.0228 (0.0301)	0.0622** (0.0205)
Regulation pressure—employee	0.225*** (0.0367)	0.0669* (0.0305)	0.0922** (0.0281)	0.0239 (0.0280)	−0.0285 (0.0197)
Customer pressure	0.129*** (0.0314)	0.172*** (0.0262)	0.0264 (0.0235)	0.00484 (0.0232)	0.0497** (0.0173)
Industry	Yes	Yes	Yes	Yes	Yes
Employment size	Yes	Yes	Yes	Yes	Yes
Constant	1.070*** (0.114)	0.270** (0.0940)	0.433*** (0.0863)	0.140 (0.0851)	0.542*** (0.0707)
N	1400	1400	1400	1400	1400
Adj. R^2	0.282	0.379	0.303	0.311	0.346

Note: Robust standard errors in parentheses.
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

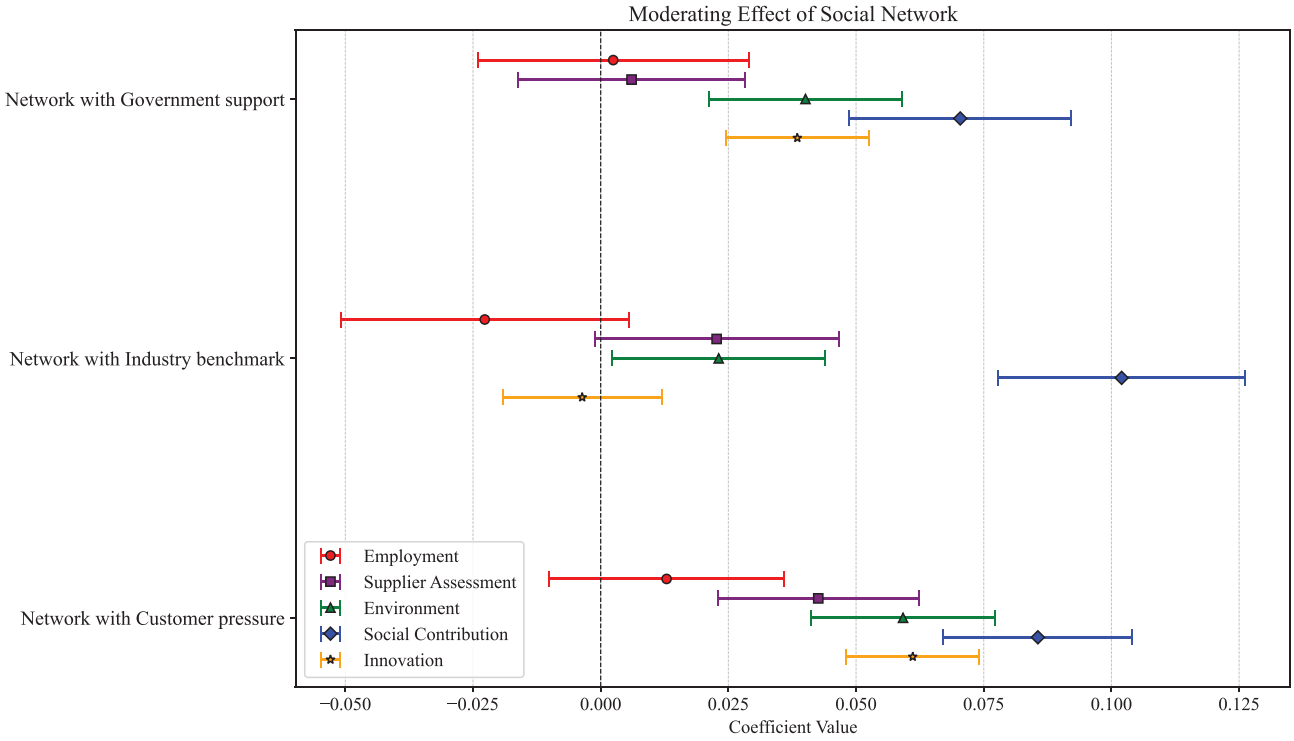

FIGURE 2 | Moderating effects of SME social network on government support, industry benchmark, and customer pressure.

treatment group compared to the control group. We thus find that social network engagement can enhance SMEs' sustainability performance in all five aspects we focus on—employment, supplier assessment, social contribution, environment, and innovation.

5 | Discussion

Our findings show that key internal drivers—a sense of social responsibility, community commitment, clear sustainability missions, transparency, and sufficient resources—are crucial for SMEs to adopt sustainable practices. These characteristics constitute an enterprise's core values, which motivate SMEs to go beyond a simple economic/financial calculus when evaluating their commitment to sustainability. These results are in line with previous findings in other contexts such as Europe and Southeast Asia (Broccardo et al. 2019; Nguyen and Adomako 2022). Interestingly, having sufficient resources does not always lead to fair recruitment and promotion, possibly due to long-standing equal opportunity practices in Hong Kong. Hong Kong's Equal Opportunities Commission (a statutory body) has promoted and enforced equal employment opportunities for more than two decades. SMEs' general compliance with equal employment opportunities might explain why resource sufficiency does not strongly influence human resource management practices.

External drivers—including government support for sustainability measures, the presence of industry benchmarks, current regulations related to environmental, societal, and employee needs, and customer pressure—significantly affect certain dimensions of SMEs' sustainability practices. It is unexpected that government support has a negative effect on environmental sustainability (energy and waste management), as it is generally meant to promote sustainable practices. In Hong Kong, the government, mainly through the Hong Kong Stock Exchange, set regulations, organized training sessions, and designed toolkits and guidance for companies to improve their sustainability reporting. However, SMEs always find that current government support is not well tailored to their specific needs and limitations (Choy 2024). The resources and trainings insufficiently address the most challenging part of ESG reporting—calculations (Yip et al. 2024). Thus, the current government support does not appropriately balance regulatory constraints, resource availability, and SMEs' specific needs. SMEs are yet to form the perceptual experience that government support leads to better sustainability performance.

Industry benchmarks are found to have a negative impact on the employment dimension, yet they enhance SMEs' social contributions and innovation. Industry benchmarks like the Hang Seng Corporate Sustainability Index often overlook SMEs' unique challenges, leading to unfair comparisons with large corporations (Yip et al. 2024). Consequently, industry benchmarks have mixed impacts on SMEs' sustainability: they discourage SMEs in less advantaged dimensions such as employment, but encourage them in flexible dimensions such as social contributions and innovation. Regulations resulting from environmental and societal pressures positively affect SMEs' sustainability in supplier assessment, the environment, and innovation. Thus, pressure to comply with industrial norms and environmental and societal regulations is crucial to enhance sustainability, which aligns with previous assertions of regulatory importance (Arranz et al. 2019; Neri et al. 2018). Moreover, we found that regulations related to employee pressures positively impact SMEs'

TABLE 3 | Moderating effects of social network.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	Empl.	**Empl.**	**Empl.**	**Sup. ass.**	**Sup. ass.**	**Sup. ass.**	**Envir.**	**Envir.**	**Envir.**	**Soci. con.**	**Soci. con.**	**Soci. con.**	**Inno.**	**Inno.**	**Inno.**
Sen_res	−0.0418	−0.0424	−0.0422	−0.0335	−0.0332	−0.0347	0.0860***	0.0848***	0.0830***	0.0654***	0.0646***	0.0606**	0.0544***	0.0528***	0.0515***
	(0.0333)	(0.0333)	(0.0332)	(0.0281)	(0.0281)	(0.0282)	(0.0241)	(0.0240)	(0.0240)	(0.0250)	(0.0248)	(0.0250)	(0.0173)	(0.0173)	(0.0172)
Sen_com	0.0205	0.0211	0.020	0.0812**	0.0802**	0.0809**	0.0638**	0.0613**	0.0619**	0.0216	0.015	0.018	−0.0142	−0.0157	−0.0160
	(0.0384)	(0.0383)	(0.0383)	(0.0323)	(0.0323)	(0.0324)	(0.0282)	(0.0282)	(0.0281)	(0.0272)	(0.0271)	(0.0270)	(0.0198)	(0.0198)	(0.0196)
Mission	0.231***	0.230***	0.230***	0.0833***	0.0840***	0.0798***	0.134***	0.134***	0.128***	0.154***	0.156***	0.146***	0.0891***	0.0883***	0.0836***
	(0.0336)	(0.0335)	(0.0339)	(0.0281)	(0.0282)	(0.0283)	(0.0249)	(0.0249)	(0.0250)	(0.0286)	(0.0286)	(0.0286)	(0.0189)	(0.0189)	(0.0187)
Trans.	0.179***	0.181***	0.180***	0.209***	0.207***	0.213***	0.0647***	0.0608**	0.0691***	0.0497*	0.0361	0.0556**	0.0637***	0.0629***	0.0684***
	(0.0337)	(0.0339)	(0.0338)	(0.0297)	(0.0298)	(0.0298)	(0.0241)	(0.0243)	(0.0242)	(0.0255)	(0.0257)	(0.0255)	(0.0189)	(0.0192)	(0.0189)
Res.	−0.125***	−0.128***	−0.124***	−0.070***	−0.068***	−0.069***	0.0379	0.0378	0.0378	0.127***	0.134***	0.126***	0.0213	0.0183	0.0214
	(0.0310)	(0.0311)	(0.0309)	(0.0259)	(0.0259)	(0.0259)	(0.0231)	(0.0233)	(0.0231)	(0.0240)	(0.0238)	(0.0240)	(0.0162)	(0.0164)	(0.0162)
Govt. Sup.	−0.00448	−0.00042	0.00207	0.00122	0.0158	0.0184	−0.137***	−0.0475**	−0.0433**	−0.169***	−0.00881	−0.00681	−0.106***	−0.0220	−0.0162
	(0.0698)	(0.0308)	(0.0309)	(0.0546)	(0.0245)	(0.0245)	(0.0476)	(0.0216)	(0.0215)	(0.0466)	(0.0225)	(0.0228)	(0.0352)	(0.0168)	(0.0168)
Ind. Ben	−0.132***	−0.0827	−0.133***	−0.0472*	−0.0971*	−0.0490*	−0.0191	−0.0715	−0.0233	0.00003	−0.227***	−0.00671	0.0672***	0.0730**	0.0630***
	(0.0326)	(0.0711)	(0.0325)	(0.0272)	(0.0577)	(0.0271)	(0.0249)	(0.0515)	(0.0248)	(0.0255)	(0.0526)	(0.0250)	(0.0168)	(0.0367)	(0.0167)
Reg_pre—Envir.	0.0265	0.0248	0.0270	0.0606**	0.0620**	0.0623**	0.0312	0.0316	0.0326	−0.0115	−0.00639	−0.00990	0.0370*	0.0356*	0.0386**
	(0.0355)	(0.0358)	(0.0355)	(0.0288)	(0.0288)	(0.0287)	(0.0248)	(0.0250)	(0.0247)	(0.0277)	(0.0273)	(0.0275)	(0.0191)	(0.0193)	(0.0192)
Reg_pre—Empl.	0.227***	0.227***	0.229***	0.0732**	0.0735**	0.0784***	0.0991***	0.1000***	0.107***	0.0326	0.0345	0.0441*	−0.0219	−0.0212	−0.0140
	(0.0367)	(0.0367)	(0.0367)	(0.0298)	(0.0298)	(0.0299)	(0.0271)	(0.0271)	(0.0272)	(0.0257)	(0.0257)	(0.0258)	(0.0187)	(0.0187)	(0.0188)
Cust. Pres.	0.127***	0.128***	0.0992*	0.166***	0.165***	0.0747	0.0218	0.0177	−0.108**	0.000188	−0.00979	−0.188***	0.0453***	0.0425***	−0.088***
	(0.0316)	(0.0314)	(0.0587)	(0.0261)	(0.0261)	(0.0486)	(0.0224)	(0.0224)	(0.0457)	(0.0216)	(0.0215)	(0.0393)	(0.0160)	(0.0159)	(0.0305)
Network	0.0544	0.131	0.0204	0.200***	0.151**	0.0815	0.133**	0.193***	0.0707	0.118*	0.0374	0.0687	0.126***	0.262***	0.0522
	(0.0956)	(0.0923)	(0.0868)	(0.0775)	(0.0770)	(0.0671)	(0.0668)	(0.0699)	(0.0653)	(0.0712)	(0.0725)	(0.0651)	(0.0485)	(0.0492)	(0.0433)
Network × Govt. Sup.	0.00245			0.00604			0.0401**			0.0704***			0.0385***		
	(0.0265)			(0.0222)			(0.0189)			(0.0217)			(0.0140)		
Network × Ind. Ben		−0.0227			0.0227			0.0231			0.102***			−0.00362	
		(0.0282)			(0.0239)			(0.0209)			(0.0242)			(0.0156)	
Network × Cust. Pres.			0.0129			0.0426**			0.0592***			0.0856***			0.0611***
			(0.0230)			(0.0197)			(0.0181)			(0.0185)			(0.0130)
Constant	1.052***	0.905***	1.116***	0.192	0.289*	0.413***	0.534***	0.431***	0.653***	0.377***	0.559***	0.477***	0.640***	0.391***	0.780***
	(0.191)	(0.198)	(0.176)	(0.151)	(0.157)	(0.136)	(0.136)	(0.145)	(0.133)	(0.130)	(0.138)	(0.120)	(0.104)	(0.101)	(0.0897)
Adj. R^2	0.283	0.283	0.283	0.410	0.410	0.411	0.363	0.361	0.365	0.409	0.413	0.413	0.441	0.438	0.446

Note: Robust standard errors in parentheses. $N = 1400$ for Models (1) to (15); industry and employment size are controlled in all models.
*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.

employment sustainability, supplier assessment, and environmental sustainability; customer pressure, by contrast, positively influences SMEs' employment, supplier assessment, and innovation sustainability. These findings confirm the positive role of stakeholders in SME sustainability (Khan et al. 2020; Nguyen and Adomako 2022).

Regulatory frameworks motivate SMEs by setting compliance standards and encouraging innovation in social, environmental, and operational practices. We also find that a company's benchmark position in an industry—its standing relative to industrial standards and competitors—serves as a barometer for its operational excellence and strategic direction. Moreover, customers who are increasingly keen on sustainability constitute a powerful force to encourage SMEs to adopt ethical and sustainable practices and to promote ethical consumption.

The PSM results suggest that better employment sustainability performance is linked to networking. It is in line with supplier assessment: conscientious business practices in dealing with suppliers are more likely when companies actively participate in external networking activities. The ATT and ATU differences are significant in environmental and social responsibility management, suggesting that network engagement is associated with more efficient resource and waste management, as well as social contribution. The PSM results also indicate that social network engagement among SMEs can cultivate an environment conducive to creativity and innovation.

Social networks enable SMEs to share knowledge and pool resources. By connecting with peers and experts, SMEs gain insights that help overcome barriers such as limited expertise and technology (Reyes-Rodríguez and Ulhøi 2022; Shahin et al. 2024). Engaging in networks further strengthens internal drivers—like sense of responsibility, societal commitment, and clear missions—through peer influence and shared resources. Social networks also link SMEs with suppliers and customers, boosting the effect of external stakeholder pressures on sustainable practices. Furthermore, social networks create a field wherein normative isomorphism is formed through sharing knowledge and experience with similar enterprises. This isomorphic process also enhances mutual trust and social capital development among SMEs, which are key catalysts for co-action toward improving SMEs' overall sustainability (Handrito et al. 2021). In Hong Kong, several networking bodies connect like-minded businesses for sustainable purposes, such as the Business Environment Council, Hong Kong Green Building Council, and Sustainable Development Solutions Network. These bodies offer networking events, workshops, forums, and resources to encourage enterprises to engage in sustainability efforts. There are also networks specifically for SMEs, such as the Hong Kong Small and Medium Enterprises Association and Hong Kong Federation of Commerce for Small and Medium Enterprises. These SME networks are actively embracing corporate social responsibility and ESG concepts. Integrated in the networks, SMEs in Hong Kong are increasingly encouraged and empowered for sustainability practices.

TABLE 4 | Propensity score matching (PSM) results.

		Treated	Controls	Difference	Bootstrap S.E.
None-engagement vs. activities engagement					
Employment	ATT	2.824	2.543	0.280**	0.082
	ATU	2.206	2.572	0.366***	0.120
	ATE	—	—	0.339***	0.073
Supplier Assessment	ATT	2.370	2.099	0.272**	0.075
	ATU	1.662	2.005	0.343***	0.092
	ATE			0.320***	0.065
Environment	ATT	2.378	2.039	0.339***	0.067
	ATU	1.662	2.081	0.419***	0.072
	ATE			0.394***	0.050
Social Contribution	ATT	2.134	1.634	0.500***	0.090
	ATU	1.347	1.856	0.510***	0.084
	ATE			0.506***	0.068
Innovation	ATT	1.969	1.759	0.210***	0.050
	ATU	1.502	1.723	0.222***	0.049
	ATE			0.218***	0.044
N		437	963		

Note: Number of cases in the common support samples is reported. There are 106 cases off support out of 1400 cases in the comparison between SMEs with and without social network engagement.
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

Company size influences sustainability engagement. As SMEs grow, they become more innovative, socially committed, and better at managing employees, suppliers, and resources. This progression suggests that organizational growth is a powerful catalyst that enables SMEs to amplify their efforts to help build a sustainable future. Organizational growth and sustainability efforts are inherently interconnected and reinforce each other.

6 | Conclusion

Accounting for 98% of all enterprises and 45% of total employment in Hong Kong, SMEs' contribution to the city's economy has attracted attention from not only government officials and policy-makers, but also corporate leaders and sustainability advocates. An array of measures has been put into place in recent decades—including funding schemes, training programs, and knowledge platforms—to help SMEs expand their markets, promote products, and improve operations. Their role and potential contribution to sustainability, as well as the challenges they face in adopting sustainability practices, have received less attention. Drawing on survey data from Hong Kong, this study identifies and examines drivers for SMEs to adopt sustainability practices—particularly how social networks moderate the impact of the drivers. We identify five dimensions of "sustainability practices"—employment, supplier assessment, environmental management, social contribution, and innovation—and examine whether and how an array of drivers foster SMEs' engagement in sustainability.

Our study provides compelling evidence that both internal and external drivers significantly influence the sustainability performance of SMEs in Hong Kong. Internally, a strong sense of responsibility (H1a), commitment (H1b), and a clear sustainability mission (H1c) are pivotal in fostering environmental and social practices, while transparency (H1d) and resource sufficiency (H1e) play nuanced roles. Externally, regulatory pressures (H2c) and customer demands (H2d) are critical motivators, although the anticipated positive impacts of government support (H2a) and industry benchmarks (H2b) on certain sustainability dimensions were not fully realized. We find that social networks (H3) serve as a crucial moderating factor that amplifies the effects of external pressures on sustainability practices. The PSM analysis further underscores the importance of social network engagement, linking it to enhanced performance across multiple sustainability dimensions. These findings highlight the complex interplay among organizational growth, external pressures, and networking in driving SMEs toward a sustainable future, and suggest that strategic engagement with these factors can significantly bolster sustainability efforts.

Enterprises' pursuit of sustainability is a dynamic process (e.g., Aguinis and Glavas 2012; Evans et al. 2017; Korsakienė and Raišienė 2022). Collaborating on sustainability challenges can significantly affect how the drivers affect SMEs' adoption of sustainability practices. We find that SMEs' engagement in social networks is a powerful moderator that conditions how the drivers affect their commitment to sustainability. Social networks among SMEs significantly amplify and reinforce the impacts of government support, industry benchmark, and customer pressure on SMEs' sustainability practices. Thus, SMEs that have invested in building their social networks tend to benefit more from government support, industry benchmark, and customer pressure. An SME's engagement in social networks can significantly improve its overall sustainability performance.

In Europe, sustainability practitioners and advocates have long urged governments to help SMEs pursue sustainability through networks (von Høivik and Shankar 2011); this study provides further evidence to support this argument. To attain more satisfying sustainability outcomes, policy-makers should help SMEs build networks with research institutes, nonprofits, consumer associations, and government agencies (Triguero et al. 2013). Our empirical results indicate that this suggestion is particularly relevant to Asian countries, where SMEs often operate in isolation of one another. Networks have the potential to catalyze the impact of different drivers on SMEs, further improving the enterprises' sustainability performance (Pellegrini et al. 2019).

Our findings lead to four recommendations for policy-makers and business leaders. First, the government should develop specific sustainability support programs that address the unique needs and limitations of SMEs, instead of adopting a one-size-fits-all approach. Such programs could include simplified ESG reporting guidelines and targeted financial incentives for sustainable practices. Second, policy-makers should encourage the formation of regional or industry-specific networks that connect SMEs. These networks can serve as platforms for knowledge sharing and resource pooling, enhancing SMEs' capacity to adopt sustainable practices. Given social networks' positive influence on the path from SMEs' internal/external drivers to their sustainability performance, existing networks must design tailor-made activities and resources for SMEs to fully play a moderating role. This recommendation is in line with SMEs' policy expectations of bespoke support and industry-specific training in Hong Kong (Lam et al. 2025). Third, policy-makers should consider incorporating feedback from SMEs to ensure that regulations, industry benchmarks, and government support programs are practical and achievable. This will facilitate co-regulation and co-production among SMEs in the sustainability field. Finally, business leaders should actively participate in industry networks, workshops, and forums to gain insights into best practices and emerging trends in sustainability. These networks will not only foster participants' sustainability initiatives, but also facilitate resource sharing and further business collaboration.

Our study suffers from at least two methodological limitations. First, our data consists of self-reported measures from SME leaders, which might be vulnerable to response bias and common source bias. Second, our sample did not include micro enterprises with fewer than 10 employees, which limits the generalizability of the findings. Future research might want to study micro firms in the Asian context, which has been largely overlooked in previous work. Sustainability pertains not only to tangible aspects such as resource management, technological innovations, and the provision of sustainable products/services, but also to intangible attributes such as the evolution of

organizational culture (Lozano 2015). Future research could therefore also incorporate the cultural and value aspects of sustainability in theory development and empirical analysis.

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Appendix A

TABLE A1 | Studied variables and measurements.

Variables	Measurements
Dependent variables	
Employment	My company recruits individuals based on their ability, experience, and performance, regardless of their sex, age, religion, ethnicity, or disabilities My company promotes individuals based on their ability, experience, and performance, regardless of their sex, age, religion, ethnicity, or disabilities
Supplier assessment	My company requires suppliers to acknowledge the company's ethical code of conduct (i.e., a guide of principles setting out the expected ethical behavior at work and when conducting business activities) My company requires suppliers to provide comprehensive information and data about their societal and environmental practices (e.g., carbon emissions, health and safety)
Social contribution	My company donates resources (e.g., money or materials) to NGOs My company takes part in volunteer work
Environment	My company reduces energy use (electricity, diesel, petrol, town gas, etc.) and adopts renewable or recycled resources My company reduces water use and adopts renewable or recycled resources My company reduces paper use and adopts renewable or recycled resources My company reduces packaging use (arising from products, courier service etc.) and adopts renewable or recycled resources My company makes effort to reduce nonhazardous waste (e.g., paper, plastic, aluminum, food waste, other solid waste) disposal to landfill, and avoid waste generation at source My company makes effort to reduce hazardous waste (e.g., toner cartridge, fluorescent light, battery, waste electrical or electronic equipment, chemical waste) disposal to landfill, and avoid waste generation at source
Innovation	My company improves work processes with experimentation and innovation (e.g., digitalization) My company has a product(s), service(s), or project(s) to specific social or environmental issue(s) My company makes the first move when developing or implementing sustainability innovations (new products and services, new techniques and technologies, production methods, etc.)
Independent variables—internal factors	
Sense of responsibility	My company and its management have a responsibility to give back to the community
Sense of commitment	My company and its management have a strong commitment to protecting the environment and operating in the most efficient manner possible
Mission	My company has a vision and mission statement that addresses a business-related sustainability issue(s)
Transparency	My company discloses its latest sustainability practice and/or data publicly (e.g., company website, brochure)
Resource	My company has sufficient resources for sustainability initiatives
Independent variables—external factors	
Government support	If government support is available, my company will implement voluntary sustainability measures to meet the Sustainable Development Goals
Industry benchmark	Industry benchmark is present for my company to compare sustainability performance with industry peers
Regulation pressure—environment and society	Existing regulations in my industry have adequately responded to all environmental issues and social needs
Regulation pressure—employee	Existing regulations in my industry have adequately responded to employees' concerns
Customer pressure	My company's customers are willing to pay for green or socially responsible products and services
Moderating factor	
Social network	Company's engagement in the following: Member of a business association/industry association or similar organization Government-led sustainability-oriented initiatives/schemes/programs (e.g., reward schemes, certifications, eco-labeling, awards etc.) Voluntary sustainability-oriented initiatives/schemes/programs organized and run by other organizations (e.g., NGOs, charities, academic institutions, large corporations) Development of industry standards/code of conduct/regulations Sustainability-oriented initiatives/schemes/programs organized and run by your industry Participated as a mentee in a mentoring scheme Collaboration with actors such as other SMEs, large corporations, NGOs etc. Voluntary environmental/social program Member of an environmental/social group