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Confucian ethical leadership, social-environmental CSR, and innovation in China: Transforming virtues into strategic value

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Abstract

This study examines how Confucian ethical leadership—grounded in the virtues of *ren* (benevolence), *yi* (righteousness), and *he* (harmony)—shapes corporate innovation in China, with social-environmental corporate social responsibility (CSR) as a strategic mediator. Data were collected from 151 case samples of Confucian-oriented firms in China using a case survey method, and hierarchical regression analysis was employed for hypothesis testing. Confucian ethical leadership directly enhance corporate innovation and social-environmental CSR, while social-environmental CSR partially mediates the ethics-innovation relationship. The results highlight the dual role of Confucian ethics in driving both social-environmental CSR and innovation, demonstrating social-environmental CSR as a relational infrastructure for translating ethical governance into innovation outcomes. This research highlights the practical benefits of integrating Confucian ethics into corporate management for Chinese business leaders. By fostering harmonious stakeholder relationships and prioritizing social-environmental CSR, leaders can enhance corporate innovation and secure a competitive edge in today's dynamic global markets. The companies and educational institutions should incorporate Confucian ethics into executive training curricula to cultivate future leaders.

Keywords: Confucian ethical leadership, Confucian ethics, Corporate innovation, Corporate social responsibility (CSR), Social-environmental CSR, Case survey.

Contents

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Contribution of this paper to the literature

This paper demonstrates that Confucian ethical leadership significantly enhances corporate innovation, with social-environmental CSR partially mediating this relationship. The findings provide novel insights into the multifaceted effects of Confucian ethics on innovation while broadening the ethical leadership literature by identifying culture-specific pathways that drive innovative outcomes.

1. Introduction

Innovation-driven development stands as a national core strategy in China, serving both as the critical pathway for transitioning from "Made in China" to "Created in China" and as the fundamental engine for advancing high-quality economic growth (Hu, Zhang, & Zhu, 2024). Amid intensifying global competition and the accelerated erosion of China's demographic dividend, domestic firms are compelled to reinvent their global competitiveness through innovation (Xu & Zhan, 2023). Leadership scholars highlight that entrepreneurs' ethical leadership styles significantly shape corporate innovation capabilities (Hui, Anh Thi Lan, & Phong Ba, 2020) offering a novel lens to address the prevailing "innovation fatigue" dilemma.

Confucian ethics—a value system deeply rooted in Eastern civilization—constructs a unique tripartite ethical framework centered on *ren* (benevolence), *yi* (righteousness), and *he* (harmony) (Wang, Li, & Sun, 2018). This tradition emphasizing self-cultivation to become a *junzi* (noble person) and altruistic symbiosis to foster collective harmony (Vane-Ing, Tse Alan, & Powpaka, 2020). Evolving into a distinct form of Confucian ethical leadership within organizational contexts (Alzola, Hennig, & Romar, 2020; Tan, 2024) it has shaped modern management practices. However, while there is extensive discussion on the impact of Confucianism on individual creativity or regional innovation climates (Hofstede & Bond, 1988; Hubner et al., 2022; Kuang, Luo, & Xu, 2023; Wang, Bi, & Qi, 2024) the mechanism through which Confucian ethics are internalized via leadership styles to catalyze organizational innovation remains underexplored.

Advances in business ethics and strategic management resolve this impasse. Confucian ethics, anchored in virtues like *ren* and *yi*, compel leaders to prioritize social-environmental corporate social responsibility (CSR) as a moral imperative (Li, Wang, & Kashyap, 2019; Wang et al., 2018). Such CSR practices—embodying Confucian ideals of reciprocity and stewardship—are not merely ethical but strategically potent. They foster stakeholder trust, enhance resource efficiency, and unlock market differentiation (Bahta, Jiang, Islam, & Ashfaq, 2021; Porter & Kramer, 2006) positioning CSR as a mediator between Confucian ethics and innovation. Yet, existing studies overlook this mechanism, focusing on cultural proximity or familial harmony while neglecting how leaders operationalize virtues into strategic action.

This empirical study aims to addresses two pivotal questions: (1) Does Confucian ethical leadership— leaders' active embodiment of Confucian ethics virtues in strategic decisions—drive corporate innovation and social-environmental CSR? (2) Does social-environmental CSR mediate the relationship between Confucian ethics and innovation outcomes? To address the research questions, this paper employed a case survey method (Jager, Newig, Challies, Kochskämper, & Henrik von, 2022; Larsson, 1993) analyzing data from 151 Confucian firms in China. This approach triangulates qualitative case narratives with quantitative coding to capture how leaders translate virtues into practices. By reframing Confucian ethics as a dynamic leadership paradigm, this study bridges Eastern traditions with Western innovation theory. It not only deepens our understanding of the relationship between Confucianism and innovation but also provides a culturally grounded roadmap for sustainable growth in China's transitional economy—where balancing ethical heritage with competitive modernity remains a defining challenge.

2. Literature Review

Confucian ethics, a philosophical system deeply embedded in East Asian social and organizational practices, represents a virtue ethics system that guides personal development and interpersonal relationships (Hofstede & Bond, 1988). Its core virtues—*ren*, *yi*, and *he*—form the foundation of ethical conduct (Wang et al., 2018). *Ren* fosters compassion and empathy, *yi* advocates justice and equitable interest-balancing beyond profit-seeking, and *he* serves as the ultimate goal of achieving harmony within society, nature, and human relationships (Ip, 2009; Woods & Lamond, 2011; Yu, Chen, & Gao, 2020). Confucian ethics emphasizes self-cultivation to embody *ren* and *yi*, guiding leaders to balance interests without harming others while promoting societal well-being through benevolence and duty (Hackett & Wang, 2012; Ip, 2009). These principles collectively aim to achieve *he* (Wang & Juslin, 2009).

China's rapid economic ascension has reignited global interest in Confucian ethics (Alzola et al., 2020; Tan, 2024). While innovation remains central to sustaining economic growth (Chen, Lin, Tsao, & Jin, 2022) the role of Confucianism in shaping innovation outcomes has sparked scholarly debate. Prior studies bifurcate Confucianism into two incomplete paradigms: as individual traits affecting creativity and risk aversion or as a cultural tradition influencing regional innovation climates. These lenses generate paradoxical conclusions—Confucianism is both condemned as a constraint on creativity through hierarchical rigidity (Hofstede & Bond, 1988; Hubner et al., 2022) and praised as a catalyst for incremental innovation via historical reflection (Niu, 2012; Rudowicz, 2006). Empirical work amplifies this tension: Yan, Xu, and Lai (2021) associate strong Confucian culture with higher R&D investment, while Feng, Jin, and Johansson (2021) find Confucian temple proximity stifles innovation.

These contradictions stem from a critical oversight: treating Confucianism as a static cultural variable or individual disposition, neglecting its embodiment in leadership practices and strategic decision-making. This separation of ethical norms from business practices limits our understanding of how Confucian values influence innovation processes through organizational routines, leadership styles, and mechanisms such as stakeholder alignment. Given that individual creativity thrives on autonomy while firm-level innovation requires collaboration (Wolniak, 2022) Confucianism's organizational impact cannot be fully understood through individual or cultural analyses alone.

Ethical leadership, defined in Western contexts as "the demonstration of normatively appropriate conduct through personal actions and interpersonal relationships, and the promotion of such conduct to followers through communication, reinforcement, and decision-making" (Brown, Trevino, & Harrison, 2005) provides a useful

framework. Rooted in Aristotelian and Kantian virtues, Western ethical leadership emphasizes two dimensions: moral person (a leader's demonstration of ethical behavior) and moral manager (proactive efforts to hold followers accountable for ethical conduct). Research shows that ethical leadership positively influences corporate innovation by promoting knowledge sharing, fostering innovative climates, and enhancing psychological capital (Özsungur, 2019; Shafique, Bashir, & Masood Nawaz, 2020; Zeger Van der & Demircioglu, 2020).

However, the meanings, criteria, and goals of virtues in Confucianism and Western ethics are fundamentally distinct (Alzola et al., 2020). For instance, Confucian virtues aim for harmony in interpersonal relationships, whereas Aristotelian virtues seek justice and can accommodate social conflict (Koehn, 2020). This divergence shapes the decision-making behavior of Confucian ethical leaders, who prioritize societal harmony by actively engaging in CSR (Wang & Juslin, 2009) a focus rarely addressed in Western ethical leadership research. Consequently, Confucian ethical leadership may adopt distinct approaches to fostering corporate innovation compared to its Western counterparts.

Despite these insights, existing research on Confucian leadership primarily focuses on dependent variables such as corporate culture, employee behavior, successor selection, corporate governance, and overall performance (Chen, Xiao, & Zhao, 2021; Lam & Goo, 2015; Yuan, Chia, & Gosling, 2023). There is a notable paucity of empirical investigations exploring its influence on corporate innovation. Tian, Rohlfer, Wu, and Yan (2022) explicitly call for research to disentangle Confucian business ethics' effects on innovation, arguing that such work could advance indigenous Chinese management theory and inform global debates on culturally rooted business ethics. Given that much of the existing leadership research in China borrows directly from Western ethical leadership frameworks, Yuan et al. (2023) argue that it is crucial for Chinese scholars to develop and articulate a theory of ethical leadership that is both rooted in their cultural context and extends beyond Western paradigms, particularly as China emerges as a major global player.

3. Related Concepts

3.1. Confucian Ethical Leadership

When applied to corporate management, Confucian ethics guide leaders in aligning personal behavior and decision-making with Confucian virtues. In terms of personal conduct, these leaders act as moral persons striving to cultivate themselves into morally upright and capable individuals (*junzi*) (Tan, 2024). Viewing the company as a "nursery" for moral development (Koehn, 2020) they also act as moral managers to enhance subordinates' ethical standards through personal example and education (Wah, 2010).

In managerial decision-making, Confucian entrepreneurs promote self-cultivation at the organizational level, aiming to transform the company into a "superior enterprise" (Wang & Juslin, 2009). For instance, they focus on training employees to boost research and development capabilities. Moreover, adhering to the principle of *ren* and *yi*, they consider stakeholder interests in management decisions, such as supporting local education and community development (Zhao & Roper, 2011) and adopting green technologies to minimize environmental impact (Yu et al., 2020). These efforts aim to build harmonious relationships between the company and stakeholders. Drawing on research in ethical decision-making (Treviño, 1986) this paper introduces the concept of the "moral decision-maker" to encapsulating this role, and define it as a leader's actions to integrate Confucian principles into managerial decision-making, aiming to build successful and ethical organizations.

Therefore, Confucian ethical leadership, which encompasses three dimensions—moral person, moral manager, and moral decision-maker—can be defined as *a leadership style where leaders, guided by Confucian virtues, elevate their moral standards and promote organizational ethics through self-cultivation, serve as ethical exemplars and educators, and harmonize stakeholder interests via loving others, ultimately achieving organizational and societal sustainability.*

Unlike Western ethical leadership, Confucian ethical leadership exhibits three culturally rooted orientations in decision making. First, the harmony orientation focuses on cultivating trust-based networks with both internal and external stakeholders, promoting collaboration and minimizing conflicts (Chu & Moore, 2020); Second, the collectivism orientation regards the company as an integral part of larger collectives, emphasizing responsibility for employee welfare and contributions to society and the environment (Jin, Cheng, Cary, & Huang, 2020). Finally, the long-term orientation aligns strategies with intergenerational equity and ecological balance (Li, Wang, & Kashyap, 2017). These management practices resonate with humanistic management principles, which emphasize the holistic development of individuals and organizations within an ethical and harmonious framework (Chou & Cheng, 2020; Melé, 2016).

3.2. Corporate Innovation

Innovation is a multifaceted concept that can be understood as both a process and an outcome (Birkinshaw, Hamel, & Mol, 2008; Crossan & Apaydin, 2010). The process aspect focuses on the 'how'—the mechanisms and strategies used to foster innovation within an organization. The outcome aspect addresses the 'what'—the tangible results and impacts of these efforts, such as new products, services, or processes. This dual perspective underscores that the innovation process lays the groundwork for achieving transformative outcomes.

This study specifically examines corporate innovation, which pertains to firm-level innovation activities aimed at fostering creativity and implementing novel solutions to address market needs, improve efficiency, or solve organizational challenges (He, Peng, & Zhong, 2023). Corporate innovation spans multiple dimensions, including product, process, administrative, and marketing innovations (Aksoy, 2017; Wendra, Sule, Joeliaty, & Azis, 2019). It can be described as the production or adoption, assimilation, and exploitation of value-added novelties in economic and social spheres. This includes the renewal and enlargement of products, services, and markets; the development of new methods of production; and the establishment of new management systems.

3.3. Social-Environmental CSR

Corporate Social Responsibility (CSR) is grounded in the belief that companies should balance economic goals with their broader impact on society and the environment (Marrewijk, 2003). Low and Ang (2012) define CSR as actions taken by organizations to fulfill their economic, legal, moral, and philanthropic responsibilities towards

stakeholders. When integrated into business practices, CSR can drive financial success, competitive advantages, and long-term sustainability (Porter & Kramer, 2006; Zhu, Sun, & Leung, 2014). According to stakeholder theory, CSR can be divided into four key aspects: responsibilities for employees, customers, society, and the environment (Dzage, Hussain, Dapaah, & Mustapha, 2024; Farooq, Farooq, & Jasimuddin, 2014). Each aspect represents a specific set of activities and initiatives aimed at addressing the corresponding stakeholder group.

Among these dimensions, social-environmental CSR practices most clearly demonstrate a company's commitment to social responsibility and the efforts it makes, as they often require greater cost investments (Xia, Li, Wei, & Gao, 2023). Social CSR, aiming to contribute positively to the broader society, involves initiatives such as supporting local education through partnerships with schools, addressing social issues through charitable programs, and promoting local employment opportunities to uplift the community activities (Li et al., 2019). Environmental CSR activities, focusing on minimizing the ecological impact of business operations, concerns implementing waste reduction and recycling programs, actively participating in environmental protection initiatives, and adhering to environmental management standards such as ISO 14001 (Vilanova, Lozano, & Arenas, 2009; Xia et al., 2023).

4. Research Hypotheses

4.1. Confucian Ethical Leadership and Corporate Innovation

The self-cultivation emphasized by Confucian ethical leadership encourages organizational members for lifelong learning to refine their competencies and character (Wah, 2010; Woods & Lamond, 2011). The commitment to lifelong learning fosters the generation and accumulation of internal knowledge within the organization. Additionally, Confucian ethical leadership prioritizes building harmonious relationships with stakeholders, creating a robust and extensive stakeholder network. This network provides access to external knowledge about technology, markets, and competitors, complementing and expanding the firm's knowledge base (Bahta et al., 2021; Luo & Du, 2015). Furthermore, the familial harmony within Confucian organizations promotes knowledge sharing (Kuang et al., 2023) enhancing the firm's ability to absorb and disseminate internal and external knowledge (Hui et al., 2020; Liao, Fei, & Chen, 2007; Tian et al., 2022). According to the knowledge-based view, the integration, fusion, and absorption of external and internal knowledge that boost both individual and collective creativity (de Sousa, Pellissier, & Monteiro, 2012; Shafique et al., 2020), drive the creation of new ideas and solution (Eslami & Lakemond, 2016; Hui et al., 2020; Sinshaw, Atul, & Manjit, 2021) significantly enhancing the firm's innovation capabilities and performance, including product, service, marketing, and management innovation (Chang, BaibJulie, & Lia, 2015; Liao et al., 2007; Sinshaw et al., 2021).

The internal familial harmony cultivated by Confucian ethical leadership helps employees accumulate personal resources, boosting psychological safety and innovation self-efficacy, thereby promoting innovative behavior (Wang et al., 2024). Externally, harmonious relationships with stakeholders strengthen collaboration with customers, suppliers, and others, encouraging their active participation in R&D processes, such as providing new technologies, materials, product improvement suggestions, and participating in product trials (Fu, Luan, Wu, Zhu, & Pang, 2021). Studies confirm that stakeholder involvement in R&D, including employees, customers, and suppliers, enhances innovation performance by accelerating and improving development cycles (Li, Xu, Wu, Hong, & Skare, 2023; Li, Lee, Li, & Liu, 2010; Ryzhkova, 2015; Zhou, Wang, & Zhao, 2020).

The long-term orientation of Confucian ethical leadership ensures the stability and sustainability of organizational learning and stakeholder relationships, enabling continuous internal knowledge generation, external knowledge acquisition, and stakeholder collaboration. This sustains the firm's innovation capacity over time. Fang, Cai, and Xu (2024) confirm that firms with stronger long-term orientation exhibit greater innovation capabilities, even under performance pressures. Therefore, Confucian ethical leadership—through its emphasis on lifelong learning, harmonious relationships, and long-term orientation—enhances corporate innovation by facilitating knowledge integration, the development of individual and collective creativity, and stakeholder collaboration. Therefore, the following hypothesis is proposed:

H_1: Confucian ethical leadership positively influences corporate innovation.

4.2. Confucian Ethical Leadership and Social-Environmental CSR

The harmonious orientation of Confucian ethical leadership encourages companies to implement social-environmental CSR to strengthen the coexistence with communities and natural environments (Wang & Juslin, 2009). Confucian leaders utilize social CSR to address societal issues such as education and public health, aiming to fortify social cohesion and communal prosperity (Low & Ang, 2012). To promote harmony between the enterprise and its natural surroundings, Confucian firms invest in environmental CSR initiatives like adopting environmentally friendly technologies to reduce emissions and pollution (Li et al., 2019).

Under a collective orientation, Confucian ethical leadership views the company as an integral part of society and the environment. Leaders consider common social welfare and adopt social-environmental CSR actions, such as participating in poverty alleviation efforts to contribute to societal progress (Huang, Li, Xia, & Li, 2024) and embracing renewable energy to conserve natural resources (Wang & Juslin, 2009). The long-term orientation of Confucian ethical leadership drives companies to implement social-environmental CSR activities for sustainable and enduring growth. Confucian leaders prioritize social-environmental impacts, investing in CSR projects that may not offer immediate financial returns but benefit societal development, such as environmental protection and educational support (Yu et al., 2020). Thus, we propose the following hypothesis:

H_2: Confucian ethical leadership exerts a positive effect on social-environmental CSR.

4.3. Mediating Role of Social-Environmental CSR

Confucian ethical leadership promotes corporate innovation by fostering harmonious stakeholder relationships, facilitating knowledge integration and collaboration both within and outside the organization. Central to this process is the establishment of trust-based collaborations, which Confucian leaders achieve by prioritizing societal and ecological welfare through social-environmental CSR initiatives.

Social CSR, which involves activities like community development and public health initiatives, can build a positive corporate image (Farooq et al., 2014). Environmental CSR, encompassing practices such as sustainable sourcing and green technique adoption, enhances a company's reputation as an eco-friendly organization (Zhu et al., 2014). These actions foster employee pride and satisfaction, contributing to a workplace where employees feel their efforts are meaningful, leading to heightened motivation and involvement (Zhou et al., 2020).

Moreover, social CSR addresses societal issues and provides community benefits, building relational capital with governments, NGOs, and local communities. This facilitates partnerships, such as participation in large-scale government projects and securing policy support and funding from NGOs (Xia et al., 2023). Environmental CSR initiatives, like green supply chains or circular production, enhance consumer trust and loyalty among environmentally conscious customers and strengthen cooperation with suppliers who share green values, encouraging their active participation in the company's CSR projects (Liu, Wang, Chen, Yang, & Zhang, 2025).

By integrating social-environmental CSR, Confucian ethical leaders establish trust and collaborative networks with stakeholders, both internal and external. These relationships facilitate knowledge sharing and co-creation, driving product and service innovation (Zhou et al., 2020). Therefore, social-environmental CSR plays a critical mediating role between Confucian ethical leadership and corporate innovation, transforming ethical governance into actionable innovation pathways. Then, the hypothesis is articulated as follows:

H_5: Social-environmental CSR mediates the relationship between Confucian ethical leadership and corporate innovation.

5. Research Design

5.1. Method

This study employed the case survey method to test the hypothesis. The case survey is a quantitative research technique that aggregates pertinent case studies into sufficiently large datasets for statistical analysis of patterns across various studies (Larsson, 1993). This method is widely utilized in analyzing organizational behaviors because it leverages the richness of case materials, offering the generalizability benefits of cross-sectional analysis (Jager et al., 2022). It addresses the challenge of extrapolating from a single case study while simultaneously providing a more detailed examination of intricate organizational phenomena than questionnaire-based surveys (Yin & Heald, 1975). This approach is particularly apt when there is a diverse collection of case studies related to the research subject, especially concerning complex processes such as strategic and macro-level organizational processes (Larsson, 1993).

Given the specificity and sensitivity surrounding topics like business leaders' values and corporate ethics, the case survey was deemed more appropriate than a questionnaire. Questionnaires often yield low response rates for complex or sensitive inquiries and can be influenced by post-hoc rationalization biases (Larsson & Finkelstein, 1999). Conducting a case survey involves four fundamental steps (Jager et al., 2022): (1) Identifying and selecting case studies relevant to the research question at hand, (2) Developing a coding scheme to systematically convert qualitative case descriptions into quantitative variables, (3) Engaging multiple raters to code the cases and ensuring interrater reliability, and (4) Executing statistical analyses on the coded data.

5.2. Sample

The sample firms were selected from the Bo'ao List of Confucian Leaders, a prestigious index established in 2017 by the China Confucius Foundation in collaboration with academic institutions. This list benchmarks ethical leadership in business through a rigorous evaluation system based on six core Confucian virtues: *de* (moral integrity), y*i*, *xin*, *zhi*, *ren*, and *yong* (courage). These virtues are operationalized through 32 measurable indicators, such as employee welfare policies, environmental compliance records, and stakeholder engagement initiatives. The validation process included Delphi surveys with 108 scholars in Confucian philosophy and business ethics, focus group discussions with 1,200 entrepreneurs across China, and pilot testing on 50 firms to refine metric weights.

As of 2022, the finalized list includes 630 leaders, predominantly from private enterprises (82%, including companies like Huawei, Lenovo, and Alibaba) and the remainder from state-owned enterprises (18%, such as Sinopec and China Mobile). To ensure representativeness, stratified random sampling was employed: the sampling frame consisted of all 630 listed firms, categorized into strata based on firm size (SMEs vs. large corporations), industry (manufacturing vs. services), and ownership type (private vs. state-owned). This resulted in a final sample of 163 firms (26% of the population), proportionally distributed across these strata.

To enhance data robustness, a six-month triangulation process (January-June 2022) was conducted to gather multi-source evidence for each case. Data sources included internal documents (annual CSR reports, innovation strategy white papers), external validations (third-party ESG ratings, news archives from People's Daily and Caixin Global), and scholarly analyses (peer-reviewed case studies indexed in CNKI and Web of Science). Twelve firms were excluded due to insufficient verifiable data, resulting in a finalized dataset of 151 firms. This meticulous curation ensured alignment with Larsson (1993) case study validity criteria, balancing depth (rich contextual narratives) and breadth (cross-industry generalizability).

5.3. Data Collection

Central to the case survey method is a coding scheme that guides researchers on transforming qualitative data into quantifiable variables pertinent to their research questions. A 7-point Likert scale offers more response options, yet fewer distinctions can compromise respondent reliability and necessitate additional labor. Conversely, a 3-point scale falls short in providing sufficient information. The 5-point scale, though manageable, introduces ambiguity when respondents opt for the neutral choice. In line with Zott and Amit (2007) case survey examining market strategies and business models, this study employs a 4-point scale for all variables (see Appendix 1), aiming to balance information richness with coding accuracy.

Data collection spanned thirteen months. Three MBA students, blind to the study's hypotheses, served as raters. Prior to coding, they underwent training to ensure a uniform understanding of the coding scheme, achieved by jointly coding two cases. Subsequently, each rater independently coded the remainder of the cases, convening every ten cases to compare results. Discrepancies were discussed until consensus was reached through dialogue.

Such procedures, encompassing pre-coding training and post-coding deliberations, mitigate biases from raters' personal traits and experiences, ensuring robust data quality (Jager et al., 2022).

5.4. Variable Measurement

The measurement of Confucian ethical leadership involves evaluating two requirements that Confucian leader sets for the company. This study employed a total of 7 items, with three items targeted the self-cultivation dimension, and the other four focused on the "respecting nature and loving people" dimension. These items were synthesized from similar scales found in three key sources: Xu (2011) development of the Chinese academic leadership scale based on junzi (noblemen) characteristics and behaviors, Yang (2019) measurement of Chinese values, and Low and Ang (2012) definition of Confucian Leaderships.

For assessing social-environmental CSR practices, we utilized a 5-item scale adapted from Liu, Kong, and Li (2015). Here, two items specifically evaluated social CSR, and the other three examined environmental CSR.

As corporate innovation is multifaceted, involving various dimensions and stages, different researchers have adopted diverse foci. Some emphasize innovation input, utilizing metrics like R&D expenditure. Others concentrate on output, using indicators such as patent grants and applications to gauge corporate innovation performance. However, single measures of either input or output fail to fully encapsulate the multi-dimensional nature of corporate innovation. Following Wu and Hsieh (2015) recommendation for a process-based evaluation method provides, in this study, a more accurate measure of actual innovation capabilities. This approach is pertinent given the complex case scenarios, the predominance of small and medium enterprises (SMEs) among the businesses studied, and the likelihood that their innovation capabilities are better reflected through their innovation processes and potential rather than mere outputs. Accordingly, this study introduces a 10-item scale for corporate innovation, integrating insights from foundational works: Chen, Lin, and Chang (2009) 5-item construct encompassing product, process, and overall organizational innovation; Liao et al. (2007) triadic view of innovation capabilities; and Aksoy (2017) additions for product and marketing innovation. The resulting scale offers a comprehensive assessment of corporate innovation across product, process, organizational, and marketing dimensions. Appendix provides the measurement items for Confucian ethical leadership, social-environmental CSR, and corporate innovation.

This research involves variables at the organizational level. To account for factors that might influence results, control variables—including company age, background, size, operational model, listing status, and high-tech status—were coded according to the scheme outlined in Table 1.

Table 1. Coding scheme of control variables.

Control variables	Coding scheme
Company age (K1)	Founded in 2020 - years
Company background (K2)	Local area (Mainland China) : 1 Overseas (Including China, Hong Kong, Macao and Taiwan) : 2
Company size (K3)	Number of people <100 or turnover <10 million: 1 100< People <500 or 10 million < Turnover < 100 million: 2 Number of employees >500 or turnover > 100 million: 3
Company operation mode (K4)	Offline operation: 1 Online business: 2 Mixed operation: 3
Listing status (K5)	Unlisted: 0 Listed: 1.
High-tech status (K6)	Common enterprise: 0 High-tech enterprises: 1

6. Data Analysis and Hypothesis Testing

6.1. Descriptive Statistics of Sample Firms

This study uses SPSS 26.0 to conduct data analysis. Tables 2 and 3 provide distribution and descriptive statistics of the 151 case firms by firm age, background, size, operation model, listing status, and nature. The average firm age is 19.00 years, and the standard deviation is 13.80; the standard deviation of the operation model is 1.0. According to the statistical results, there is a large difference between minimum and maximum values of the variables for the cases. The sample firms are collected from relatively broad and highly competitive markets, and can well represent the markets in general (Zott & Amit, 2008).

Table 2. Distribution of sample firms.

Variables	Statistical content	Number of samples	Proportion (%)
Age	2	6	4
	4	7	4.6
	5	4	2.6
	6	4	2.6
	7	4	2.6
	8	4	2.6
	9	5	3.3
	10	4	2.6
	11	6	4
	12	7	4.6
	13	3	2
	14	2	1.3
	15	4	2.6
	16	8	5.3

	17	11	7.3
	18	7	4.6
	19	6	4
	20	3	2
	21	3	2
	22	7	4.6
	23	6	4
	24	6	4
	25	5	3.3
	26	5	3.3
	27	3	2
	28	1	0.7
	29	1	0.7
	30	4	2.6
	32	2	1.3
	33	1	0.7
	35	2	1.3
	36	2	1.3
	39	1	0.7
	45	1	0.7
	48	1	0.7
	57	1	0.7
	60	1	0.7
	69	1	0.7
	81	1	0.7
	98	1	0.7
Background	Local area (Mainland China) : 1	138	91.4
	Overseas (Including Hong Kong, Macao and Taiwan) : 2	13	8.6
Size	Number of people <100 or turnover <10 million: 1	54	35.8
	100< people <500 or 10 million < turnover < 100 million: 2	28	18.5
	Number of employees >500 or turnover > 100 million: 3	69	45.7
Operation mode	Offline operation: 1	72	47.7
	Online business: 2	0	0
	Mixed operation: 3	79	52.3
Listing status	Unlisted: 0	100	66.2
	Listed: 1.	51	33.8
High-tech status	Common enterprise: 0	98	64.9
	High-tech enterprises: 1	53	35.1

Table 3. Descriptive statistics of sample firms.

Variables	Sample size	Min.	Max.	Average	SD
Age	151	2	98	19.00	13.80
Background	151	1	2	1.09	0.28
Size	151	1	3	2.10	0.90
Operation model	151	1	3	2.05	1.00
Listing status	151	0	1	0.34	0.47
High-tech status	151	0	1	0.35	0.48

6.2. Scale Reliability and Validity

Reliability is a measure of the consistency and reliability of the results obtained by an instrument. In this study, we used Cronbach's alpha coefficient to assess the internal consistency of the variables in the scale. The overall Cronbach's alpha value for all items was 0.824, which is considered very good. The Cronbach's alpha values for Confucian ethical leadership, social-environmental CSR, and corporate innovation were 0.797, 0.834, and 0.749, respectively. These values satisfy Nunnally and Bernstein (1994) guidelines, which suggest a benchmark of 0.700 for internal consistency.

Validity refers to the accuracy with which an instrument measures what it intends to measure. To test the construct validity of the scale, we conducted exploratory factor analysis (EFA) after conducting Bartlett's test of sphericity and KMO test to ensure that the data are suitable for factor analysis. The chi-square value of Bartlett's test of sphericity was 1307.67 (with a degree of freedom of 120), indicating a significant difference between the measured values and the desired values. The KMO value was 0.821, which is greater than the threshold of 0.600, suggesting that factor analysis can be performed.

After performing EFA on the 22 items, we extracted three factors using varimax rotation. The factor matrix after rotation is shown in Table 4, with factor loadings displayed in the table. The total amount of variation explained by the three factors is 67.233%, and each item has a high loading (greater than 0.600) in the relevant factor. This indicates that the items have been parceled satisfactorily according to Byrne (2010) criterion value of 0.500. The variance inflation factors (VIF) for Confucian ethical leadership (an independent variable) and social-environmental CSR (a mediating variable) were 2.250 and 2.636, respectively, both of which are much smaller than the critical threshold of 10. These VIF values indicate that there is no multicollinearity issue with these variables.

In summary, our measurements demonstrate adequate reliability and validity, as they meet the established criteria for internal consistency and construct validity.

Table 4. Factor matrix after rotation.

Construct	Measurement item	Component		
		1	2	3
Confucian ethical leadership (CEL)	CEL1	0.699		
	CEL2	0.783		
	CEL3	0.769		
	CEL4	0.785		
	CEL5	0.732		
	CEL6	0.686		
	CEL7	0.715		
Social-environmental CSR(S&E)	S&E 1		0.652	
	S&E2		0.867	
	S&E 3		0.84	
	S&E 4		0.652	
	S&E 5		0.691	
Corporate innovation (CI)	CI1			0.628
	CI2			0.716
	CI3			0.697
	CI4			0.683
	CI5			0.903
	CI6			0.857
	CI7			0.927
	CI8			0.784
	CI9			0.622
	CI10			0.806

6.3. Hypothesis Testing

This study employed the hierarchical regression method proposed by Baron and Kenny (1986) to test each research hypothesis, with the results presented in Table 5. Model 1 serves as the control model, elucidating the impact of all control variables on corporate innovation. Model 2, the main effect test model, reveals that Confucian ethical leadership significantly and positively influences corporate innovation ($\beta = 0.588$, $p < 0.001$), supporting H1. Model 3 demonstrates that Confucian ethical leadership significantly and positively affects social-environmental CSR ($\beta = 0.552$, $p < 0.001$), suggesting that firms with robust Confucian ethical leadership are more inclined to emphasize and effectively implement social-environmental CSR, confirming H2.

In accordance with Baron and Kenny (1986) criteria for mediating effect tests, when H1 and H2 are supported, and the influence of Confucian ethical leadership on corporate innovation remains significant ($\beta = 0.429$, $p < 0.05$) in Model 4, it can be concluded that social-environmental CSR partially mediates the relationship between Confucian ethical leadership and corporate innovation. Hence, H3 is accepted.

Table 5. Hypothesis testing results.

Variables	Model1	Model2	Model3	Model4
	CI	CI	S&E	CI
K1	-0.001	0.001	0.003	0.000
K2	0.313	0.190	0.081	0.166
K3	0.105	0.059	0.108**	0.028
K4	0.139**	0.069	0.015	0.065
K5	0.332**	0.166	0.231**	0.100
K6	0.201*	0.166*	0.024	0.159*
CEL		0.588***	0.552***	0.429*
S&E				0.288**
R square	0.368	0.471	0.621	0.493
Adjusted R square	0.342	0.445	0.602	0.465
F	13.977***	27.936***	33.435***	6.165**

Note: N = 151; CEL stands for Confucian ethical leadership, S&E social and environmental CSR, and CI corporate innovation; K1 refers to the company age, K2 the company background, K3 the company size, K4 the operation model, K5 the listing status, and K6 the company nature.
*** indicates a p-value less than 0.001 (Two-tailed test); ** indicates a p-value less than 0.01 (Two-tailed test); * indicates a p-value less than 0.05 (Two-tailed test).

7. Discussion

The empirical findings reveal that Confucian ethical leadership significantly enhances both corporate innovation and social & environmental CSR, with CSR partially mediating the relationship between leadership and innovation. These results offer several critical insights into the interplay between Confucian ethics, CSR, and innovation. First, when business leaders internalize Confucian ethics as corporate operating principles, they foster an environment conducive to collective innovation. Unlike individual creativity, corporate innovation relies heavily on stakeholder collaboration (Wolniak, 2022). Confucian ethics, with its emphasis on harmony, enables firms to navigate complex management and technological challenges by building trust and cooperation across organizational boundaries (Torild Alise, 2015). This provides a novel explanation for the surge in innovation among Chinese firms in recent years, as Confucian principles align organizational goals with stakeholder interests, driving superior innovation performance.

Second, leaders guided by Confucian ethics are intrinsically motivated to institutionalize social-environmental CSR due to their commitment to collectivist welfare, intergenerational equity, and stakeholder symbiosis. This dual focus on ethical practices and sustainable innovation highlights Confucian ethics' unique ability to balance profit motives with societal and environmental well-being. Given the alignment of innovation and CSR with the SDGs (Leena, Kra, Ganesh, Bhat, & Satya, 2024) Confucian ethics emerge as a powerful driver of corporate engagement in global sustainability agendas.

Third, this study uncovers the pivotal role of social- environmental CSR as a mediator between Confucian ethical leadership and corporate innovation. Specific CSR activities—such as community development programs and green supply chains—build harmonious stakeholder relationships, which translate into tangible innovation outcomes. By elucidating this mechanism, the study demonstrates how Confucian ethics promote innovation through CSR, reinforcing commitments to long-term sustainability and social responsibility. This not only advances organizational success but also generates broader societal benefits.

7.1. Theoretical Contributions

This study makes several significant theoretical contributions to the literature on ethical leadership, innovation, and Confucian business ethics. First, this study offers a fresh perspective on the relationship between Confucian ethics and innovation. Traditionally, Western scholars have argued that Confucian ethics hinder individual creativity and innovation due to their emphasis on harmony and a reluctance to challenge authority (e.g., Hofstede & Bond, 1988; Hubner et al., 2022; Ng, 2001). However, our findings reveal a counterintuitive insight: leaders who embrace Confucian ethics can serve as catalysts for corporate innovation. This suggests that Confucian ethics' impact on innovation is multi-faceted rather than unilaterally constraining, with its influence operating at both individual and organizational levels. By highlighting the positive role of Confucian ethics in fostering collective innovation, this study enriches the understanding of the Confucian ethics-innovation nexus and opens new avenues for exploring this complex relationship.

Second, this study reveals that ethical leadership influences innovation through cultural-contingent mechanisms. Within the Confucian paradigm, ethical leadership enhances corporate innovation by promoting social & environmental CSR activities. This contrasts with Western-centric research that often associates ethical leadership with innovation via factors such as psychological empowerment or an innovative climate (e.g., Elenkov & Manev, 2005; Sinshaw et al., 2021). By framing CSR as a strategic corporate initiative (Bernal-Conesa, Nieves Nieto, & Briones-Penalver, 2017) we illustrate how Confucian ethical leadership serves as a strategic catalyst for innovation, distinct from Western frameworks that emphasize individual psychological factors. This insight underscores the importance of context-specific approaches in understanding ethical leadership's impact on business operations, offering a foundation for cross-cultural comparisons.

Furthermore, this study contributes to the advancement of Confucian ethical leadership theory. Integrating Confucian virtues with Brown et al. (2005) ethical leadership framework, this study establishes a conceptual model of Confucian ethical leadership that emphasizes its unique structure and characteristics. Unlike Western ethical leadership, which focuses primarily on leaders as moral persons (role models) and moral managers (enforcers of ethical behavior), Confucian ethical leadership introduces a third dimension: moral decision-makers. These leaders ensure corporate actions align with ethical principles, balancing profit motives with societal and environmental welfare. This tripartite framework—moral person, moral manager, and moral decision-maker—highlights the comprehensive nature of Confucian ethical leadership and provides a robust foundation for future research on its applications in corporate management.

7.2. Managerial Implications

This research highlights the practical benefits of integrating Confucian ethics into corporate management for Chinese business leaders. By fostering harmonious stakeholder relationships and prioritizing social & environmental CSR, leaders can enhance corporate innovation and secure a competitive edge in today's dynamic global markets. This is particularly critical as China navigates challenges like a declining demographic dividend and increasing international competition. Embracing Confucian principles can help firms address complex challenges while maintaining ethical integrity.

The educational institutions should incorporate Confucian ethics into executive training curricula to cultivate future leaders. Key initiatives include developing courses on Confucian virtues and their application in modern business, as well as encouraging case studies and practical exercises that demonstrate how Confucian ethics drive innovation and sustainability. Such training ensures that future leaders are equipped to build ethical, innovative, and sustainable organizations, aligning corporate practices with national and global sustainability goals.

7.3. Limitations and Further Research Directions

First, this study examines the overall impact of Confucian ethics on corporate innovation but does not differentiate between specific innovation types. Future research should investigate how Confucian ethics influence product, marketing, process, management, or business model innovations. Additionally, while Confucian societies excel at incremental innovation by adapting Western technologies (Gardner, 1989) their hierarchical structures may hinder radical breakthroughs (Ho, Xie, Peng, & Cheng, 2013; Root, 2023). Future studies could explore how Confucian virtues balance these dynamics.

Second, while this study identifies social & environmental CSR as a partial mediator, other pathways may also link Confucian ethical leadership to innovation. Future research could explore these alternative pathways to achieve a more comprehensive understanding of how Confucian ethical leadership influences corporate innovation. For instance, investigating whether Confucian leaders prioritize long-term R&D investment over short-term gains.

Finally, the case survey method, while valuable for synthesizing qualitative insights, has limitations such as subjectivity in data interpretation and case selection bias. Additionally, all cases in this study are from China. Future research could include firms from other Confucian societies (e.g., Japan, South Korea) to enhance

generalizability, and compare Confucian ethics with other cultural frameworks (e.g., Ubuntu in Africa, Dharma in India) to identify universal and context-specific mechanisms.

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Appendix

Appendix 1. Scale items.

Items		**Scale**			
Confucian ethical leadership (CEL)		**Strongly disagree**	**Disagree**	**Agree**	**Strongly agree**
	The leader believes that business operations should comply with social norms.				
	The leader proactively seeks new knowledge relevant to business operation.				
	The leader emphasizes honesty and integrity in business dealings.				
	The leader believes in mutual benefit and win-win scenarios in business dealings.				
	The leader upholds collectivism over individualism.				
	The leader views the company as an extended family.				
	The leader advocates for harmonious relations with stakeholders to foster prosperity.				
Social - Environmental CSR (S&E)					
	The company develops and implements higher industry standards				
	The company actively advocates energy conservation and emission reduction				
	The company can properly handle all kinds of waste and dangerous goods produced in production				
	The company set up its own public welfare fund to provide practical support for social welfare activities for a long time				
	The company's investment in local culture, education and sports is higher than that of other companies in the same industry				
Corporate innovation (CI)					
	The company often develops new products				
	A large part of the company's profits come from new products				
	The company improves product quality by acquiring new equipment or technology				
	The company is able to develop more efficient manufacturing processes or operational processes				
	The company will change the role of different branches in different departments according to management needs				
	The company will use new management methods to accomplish certain tasks				
	The company is able to establish new relationships with customers, suppliers, other enterprises, and external agencies				
	The company can flexibly change product design and packaging design according to customer needs				
	The company often changes the distribution channels for their products				
	The company often change their pricing schemes in order to capture the market				