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The investigation of sustainable environmental performance of manufacturing companies: mediating role of organizational support and moderating role of CSR

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ABSTRACT

China is transitioning towards green and sustainable manufacturing, considering environmental measures as per external environment demands. This research investigates the impact of green entrepreneurial orientation, social entrepreneurship, and organizational ambidexterity on sustainable environmental performance. Besides, examining the mediating role of organizational support and moderating the role of corporate social responsibilities (CSR) are also included in the aim of this research. The present study has used quantitative data of 510 respondents from China's manufacturing industry; further structural equation modelling (SEM) was employed to analyse the data. The results revealed that organizational ambidexterity, green entrepreneurial orientation, and social entrepreneurship are positively associated with sustainable environmental performance. Organizational support positively mediates among the nexus of green entrepreneurial orientation, social entrepreneurship, and sustainable environmental performance. The findings also showed that CSR significantly moderates the relationship between organizational support and sustainable environmental performance. These outcomes provide various implications for policymakers while making policies regarding CSR and sustainable environmental performance.

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1. Introduction

Manufacturing enterprises have a favourable impact on economic growth, particularly in terms of job opportunities and economic output. However, statistical research has

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demonstrated that industrial businesses often hurt the environment (Khan et al., 2021a; Shahzad et al., 2020). Furthermore, the manufacturing sectoris mostly responsible for using vast amounts of resources and creating waste worldwide. Recently, natural resource scarcity and environmental insecurity have been critical problems (An et al., 2021; Ding et al., 2019; Saunila et al., 2018). Carbon emissions (CO_2), in particular, rose by 28%, relative to a projected 10% decrease after the 10th five-year plan of Chinese development. The release of chemical oxygen demand (COD) decreased by just 2%, way below the expected 10% decline. The built consolidated capacity for wastewater treatment hit 37% of urban wastewater flows), below the 45% mark (Li et al., 2015). The overall success of China during the tenth five-year plan-FYP (2001–2005) is centred on environmental protection and natural resource management. Because of these measures, the economy began to overheat in early 2002, fuelled by energy-intensive industries such as power, iron, stainless steel, and construction materials, with annual growth rates of more than 10% (Li et al., 2015; Razzaq et al., 2021).

Coal use climbed from 1.37 billion tonnes in 2002 to 2.22 billion tonnes in 2005, resulting in huge increases in CO_2 emissions. The proportional importance of China's energy-intensive and polluting sectors is unexpected. While China contributes for only 4% of global GDP, it consumes over 28% of the world's raw steel and cement. Figure 1 depicts the China Environmental Performance Index-EPI.

Factually, there has been a link between industrial enterprises and unfavourable environmental effects (He et al., 2021; Shahzad et al., 2021). As manufacturing enterprises generate economic values by changing resources input into usable output under the supervision of environmental regulation, environmental problems have been connected to their operational operations (Khan et al., 2021b; Saunila et al., 2018). As a result, environmental practice has emerged as a critical worldwide problem that poses difficulties to social and industrial practitioners (Chien et al., 2021; Sharif et al., 2019). Further, environmental performance consciousness among the community has culminated in various conversations on environmental pollution, climate change,

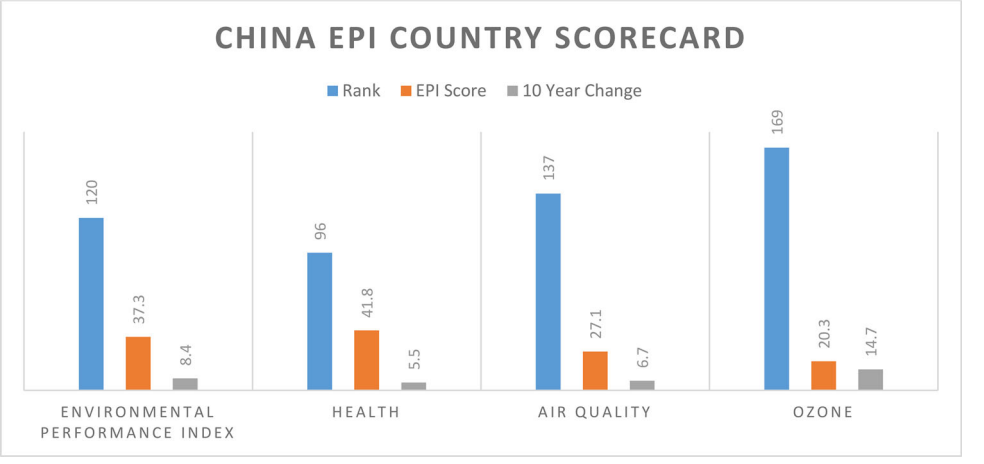

Figure 1. China Environment Performance Index Country Scorecard.
Source: Authors.

ethics, and social responsibility, the marginalization and development of powerful collective voices, radicalism, and demonstrations against capitalism (Halme et al., 2020; Nazari et al., 2017). Enterprise has thus assumed a special role in recent research following the achievement of sustainable environmental performance. The organization sees it as really necessary to broaden the role of entrepreneurship in developing environmental sustainability (Lee et al., 2018).

The theoretical underpinning for this research is based on the green theory (GT); it is a new philosophy and transdisciplinary thinking that unites human rights, citizenship, governance, social responsibility, and the environment (Eckersley, 2010). Ecologists and environmentalists believe GT urged firms to include CSR activities and green thinking into their operations, improvingenvironmental sustainability (Raimi, 2017). Due to escalating environmental issues and resource constraints, academics have focused heavily on sustainable environmental performance (An et al., 2021a; Jun et al., 2019; Razzaq et al., 2021a; Sun et al., 2021; Yousaf, 2021). It helps organizations produce eco-friendly goods and processes, allowing the sustainable development goals (SDGs)to be met (Abdul-Rashid et al., 2017; Chien et al., 2021; Razzaq et al., 2021b). Organizational support is vital to building on the competencies that provide sustainable environmental performance (Qi et al., 2019). Previous research has discovered that CSR is viewed as an additional financial burden if organizational support does not sufficiently commit to CSR, and their leadership is not interested in taking the extra financial risk; additionally, it contributes to organizational image and improves environmental sustainability (Anser et al., 2018). Previous studies also emphasized the relationship between CSR and organizational support (Brammer et al., 2007). SDGs significantly enhance sustainable environmental performance (Kusi et al., 2021; Zhuang et al., 2021). However, none of the studies has evaluated the impact of organizational support on sustainable environmental performance by taking CSR as a key moderator. Given the gap in the literature, this study attempts to understand how organizational support and CSR influence sustainable environmental performance? To understand this phenomenon in a better way, we evaluate the mediating role of organizational support and moderating role of CSR in an encompassing model.

Data were obtained from Chinese manufacturing industry employees to assess the hypotheses, and structural equation modelling was used to analyse the data. The current study observed the link between green entrepreneurship, organizational support, CSR, and sustainable environmental performance. This study is relevant in several ways. First, the suggested conceptual model is based on the conceptualization of sustainable development and is examined using structural equation modelling (SEM), a unique phenomenon that adds value to the literature. Second, this study focuses on a core idea of CSR and sustainable development to improve sustainable environmental performance that is currently understudied. Furthermore, this study incorporates organizational support as a mediator and CSR as a moderator to measure long-term environmental performance. This research also helps professionals to incorporate CSR initiatives into organizational plans to boost long-term development. The next part includes a literature review and the formation of hypotheses; section 3 is about study methods, section 4 is about outcomes, and section 5 is about discussion, implications, and limits.

2. Review of literature and hypotheses development

Organizational ambidexterity is a skill that contributes to organizational structural and environmental models (Cui et al., 2020). It is dependent on the exploration of corresponding elements that directly place their effects on environmental performance (Bui et al., 2021). It is eminent that organizations have certain environments, and the role of organizational learning and ambidexterity insert dominant controls (Severgnini, Vieira Valter, & Cardoza Galdamez Edwin, 2018). These controls are the efficacious measures of organizational ambidexterity and the efficient learnings that enhance organizations' environmental performance. The previous researcher acknowledged that organizational ambidexterity helps through the absorptive capacity for improvement and monitoring organizational environmental performance (Shahzad et al., 2020; Shahzad et al., 2021). The demands and functions of organizational ambidexterity favourably compete with effective controls to generate superior performance. While asserting an organization's performance, the function of organizational ambidexterity and performance assessment systems could not be overlooked (Brix, 2019). This indulging eminence of organizational ambidexterity uplifts the environmental performance and proceeds for proper legitimation. Various strategic controls through effective decision-making insert numerous ambidextrous behaviours that support the significance of the environmental performance, as these are closely associated with environmental performance(Cui et al., 2020). It also put various measures to have significant environmental performance. These measures clearly state the decision-making, accountability, and legitimacy for positive effective environmental performance (Tung et al., 2018). Certain applications of processing outcomes that prevail in organizational ambidexterity support the wide assessments of environmental performance. It also states its direct association with the outcomes of the environment. Mostly, the prevalence of environmental performance is based on a variety of organizational structures. Therefore, organizational ambidexterity is considered as one of them which strives for the achievement of environmental performance, the following hypothesis is proposed

H1: Organizational ambidexterity significantly influences sustainable environmental performance.

The green entrepreneurship orientation is a wider approach for tackling an indefinite situation in the organizational market (Sáez-Martínez et al., 2014). It is prevalent among organizations and competitive markets in achieving sustainable competitive advantage due to market orientation and green entrepreneurial orientation (Pratono Aluisius et al., 2019). Although inter-organizational learning also contributes toward environmental performance, the green entrepreneurship orientation has a vital role. For better environmental performance, the green entrepreneurship orientation is considered as eminent placement in the organizational structures (Muñoz & Kibler, 2016). Previous studies acknowledge that various factors of green service innovation significantly link with green entrepreneurial orientations and green relationship quality (Lin & Chen, 2018). It develops the comfort zone for the enhancement of sustainable environmental performance.

Further, different locations and conditions are the most probable needs of natural resources, which also intervenes with sustainable environmental performance(Ling

et al., 2021; Lingyan et al., 2021; Terán-Yépez et al., 2020). Some levels of green entrepreneurship orientations are beneficial for the development of organizational structures. It also helps to enhance environmental performance to improve in every particular sector (Sáez-Martínez et al., 2014). The emotions of density in various neighbourhoods are eminent for the designs which are feasible for the environmental performance. Among different cities and neighbourhoods of Chine, environmental performance is assessed by green orientation (Lau et al., 2018). The stakeholders are probably engaged in the organizations and green entrepreneurship orientation, which enlarges the practices over sustainable environmental performance (Razzaq et al., 2021b).Thus, the following hypothesis is proposed.

H2: Green entrepreneurship orientation significantly influences sustainable environmental performance.

Among different intentions of entrepreneurs, the individuals establish various abilities toward the organizations. These are better performing social entrepreneurs who also influence environmental performance (Terán-Yépez et al., 2020). The dynamics of environmental performance have been changed with the elaboration of social entrepreneurship. This elaboration has attained the significant importance of collaborative dynamics among social entrepreneurship (de Bruin et al., 2017). It asserts various collaborations that occur across the emergent ecosystem of organizations. This social inclusion in the organizations and competitive markets opens broader ways to enhance performance (Mozas-Moral et al., 2016). It is also based on a variety of contributions that are associated with social networks. It is the potential for expansion, sustenance, and establishment of some social entrepreneurship projects. It positively enumerates the sustaining efforts of social entrepreneurship, which places influence upon different phases of performance (Jayakar Pai & More, 2018). Previous studies also acknowledge the role of social entrepreneurship, which is eminently discussed in the management ties related to social capital and sustainable environmental performance (An et al., 2021a; Lin & Chen, 2018).

Further, many elements have also been retrieved from the sustainable assessments. These assessments are placed with the significance of assessors, financiers, and clients, which demands environmental performance. The ongoing assessments have been dependent on the cycles of businesses that are trending in buildings of social entrepreneurship (Lützkendorf, 2018). It uplifts the highlights of conflicting goals, which are irritable among the environmental performance. Sustainability effort is also dominated by numerous indicators of environmental impacts and assessments. The effective implications of social entrepreneurship could cover this.

H3: Social entrepreneurship significantly influences sustainable environmental performance.

CSR is significantly related to the factors associated with organizational structure and competitive environments (Shahzad et al., 2020). Therefore, relevance is also needed with the implications of CSR communications where the interactivity and modality could be fixed (Go & Bortree, 2017). This is upon the consequences and antecedents of organizational ambidexterity which asserts its moderating effect on environmental performance (Günsel et al., 2018). Particularly, the role of

organizational performance and ambidexterity has a moderating effect on CSR. The inclusion of competition, innovation, and proactive risk-taking emerges in the economies and specifies the importance of CSR. Within this, the orientation of entrepreneurs is also eminent toward the hospitality of environmental performance (Njoroge et al., 2020). With the strong communism and transition toward the economy, CSR has induced some political and legal frameworks (Shahzad et al., 2020). Social entrepreneurship in many countries is considered an institutional change due to the efforts (Warnecke, 2018). These combined efforts are named to strengthen various ecosystems, which is important for changing sustainable environmental performance. The active role of CSR has inserted a significant moderating effect on environmental performance(Go & Bortree, 2017). By the inducement of CSR, the moderating effects are posing a clear picture by emphasizing the behaviours of employees and the public due to the environmental performance (Tuan, 2018). This is a wider approach to consumer relationships that CSR develops. Therefore, the following hypothesis is proposed.

H4: Corporate social responsibilities significantly moderate the relationship between organizational support and sustainable environmental performance.

Organizations have various standards for the employees as well as for the public. These standards are required to be followed for better enumeration of environmental performance. Although, many elements of organizational support extend the views upon organizational ambidexterity and environmental performance (Kusi et al., 2021). The eminent relationship also prevails among knowledge sharing and organizational support that is a matter of self-construal between employees (Yang et al., 2020). This states the wide contribution of organizational support between the employees and performance. A clear mediating role is depicted between environmental performance and organizational ambidexterity (Imran & Aldaas, 2020). A knowledge-sharing atmosphere is significantly beneficial for the organizations and for better environmental performance. This need could better elaborate the organizational support model that induces its mediating role among both organizational factors. It also states some key enabling factors for the different sectors with organizational ambidexterity (Palm & Lilja, 2017). It is known as incremental for the organizational ambidexterity and environmental performance. Some radical improvements and innovativeness explore numerous opportunities that refer to the dominance of organizational support (Kusi et al., 2021). The effective regulations toward the organizational ambidexterity and environmental performance are viable with the organizations. This viable approach is explored with the positive implementation of organizational support that induces the mediating role. Although, some intrinsic motivation toward environmental performance is dominant in China. In some industries, the dominance of environmental performance, motivations among business leaders, and government regulations have been significantly illustrated (Graafland & Bovenberg, 2020).

Exhibits of organizational support are enumerated with the external pressures disrupting the environmental performance. This inducement of organizational support positively mediates environmental performance and organizational ambidexterity (Imran & Aldaas, 2020). variety of creativeness is a calling need of every organization and is also known as a subject for many institutions and organizations. This induces organizational support

with all the ingredients that could develop the easy measures for developing environmental performance. The calling needs of customers have developed a significant relationship between employee creativity and organizational support (Duan et al., 2020). this indulging situation of organizational support has established the administered scale for environmental performance and green entrepreneurship.

With the evaluation of some green practices in the organizations, the dominance of organizational support has developed significant links with green entrepreneurial orientations. These intentions bring positive change toward environmental performance (Kusi et al., 2021). A slight chance of green entrepreneurial orientations has been mediated by organizational support in the companies of China. Environmental performance has significantly impacted (Dieste et al., 2020). This impact is wide support of organizations where the green entrepreneurial orientations are developed with its calculated performance. The overviews of lean implementation highlight the importance, which states organizational support as a significant mediator among them.

H5: Organizational support significantly and positively mediates between green entrepreneurship orientation and sustainable environmental performance.

The investigations have been placed in some organizations with the implementation of social entrepreneurship. This implementation is supported by the organizational structures where the decision-making lacks coverage (Mirvis & Googins, 2018). The coverage through organizational support extends its mediating role over social entrepreneurship to evaluate the environmental performance. The occupational commitment in organizations asserts the relationship between job performance and organizational support sources (Aydın & Kalemci Tüzün, 2019; Dieste et al., 2020). Such indication covers the support of supervisors as well as support from organizations. Therefore, organizational support itself also mediates among environmental performance and social entrepreneurship. The inducement of various promotions in organizations is approached by organizational support, which states the importance of social entrepreneurship (Shahzad et al., 2021). This role of social entrepreneurship has a significant impact on environmental performance. With the catalysing of eminent social entrepreneurship in many corporations, organizational support also has some ecosystems among them (Mirvis & Googins, 2018). These systems are based on the practical opportunities which are pertinent to the fortifying sources of organizational support. It also enables the extension of controls, creating challenges and opportunities through social entrepreneurship and environmental performance (Imran & Aldaas, 2020). The relationship between environmental performance and organizational support is a dominant term in many organizations of China. Therefore, the significant results have also been depicted with positive findings by social entrepreneurship. This inclusion of social entrepreneurship with the quality of institutions illustrates the relationship between the development of sectors and environmental performance (Usman et al., 2020). So, organizational support has been dominant with mediating role that stimulates the growth in industries. This enclosure of growth also ascertains the positive environmental performance with mediating role of organizational support.

H6: Organizational support significantly and positively mediates between social entrepreneurship and sustainable environmental performance.

3. Methodology

The goal linked with the ongoing research is to investigate the impact of organizational ambidexterity, green entrepreneurial orientation, and social entrepreneurship on sustainable environmental performance, along with the examination of mediating role of organizational support among the nexus of green entrepreneurial orientation, social entrepreneurship, and sustainable environmental performance and investigation of moderating role of CSR among the nexus of organizational support and sustainable environmental performance of manufacturing industry in China. The present study has used the quantitative method of data collection and collected that from the manufacturing industry employees in China. This study selected the respondents by using simple random sampling and questionnaires to gather the data from them. The surveys have been sent to the respondents by mail and by personal visit. A total of 740 questionnaires were distributed to the respondents in both ways (online and offline), but after one month, only 510 were received, representing the response rate of 68.92%. Almost 56% of those were men. Table 1 displays the overall demographics.

This study used the ten times rule for sample size, which is "10 times the largest number of structural paths directed at a particular latent construct in a structural model," as recommended by Hair et al. (2017). The current research has adopted one predictive variable named sustainable environmental performance (SEP), with five items(Shahzad et al., 2020). In addition, the study used three predictors, such as organizational ambidexterity (OA), with four items (Chang & Hughes, 2012), green entrepreneurial orientation (GEO) that has seven items (Jiang et al., 2018), and social entrepreneurship (SE), with four items (Dibrell et al., 2015). Moreover, organizational support (OS) has been used as a mediator with six items (Imran & Aldaas, 2020), and corporate social responsibility (CSR) has been used as a moderating variable with five items (Farooq et al., 2014; Turker, 2009). These variables are highlighted in Figure 2. We used SmartPLS version 3.2.8 and IBM SPSS version 24 to analyse the data, and we used partial least squares structural equation modelling (PLS-SEM). The current study also used the PLS-SEM to analyse the selected data because the research

Table 1. Demographic Details.

Respondent profile		($n = 510$)	
Characteristics	Distribution	Frequency	(%)
Gender	Female	197	0.39
	Male	288	0.56
	Prefer not to say	25	0.05
Qualification	Undergraduate	129	0.25
	Graduate	164	0.32
	Postgraduate	136	0.27
	Others	81	0.16
Age (years)	20 – 29	187	0.37
	30 – 39	148	0.29
	40 – 49	113	0.22
	More than 50	62	0.12
Job experience (years)	0 – 5	131	0.26
	6 – 10	162	0.32
	11 – 15	119	0.23
	More than 15	98	0.19

Source: Authors.

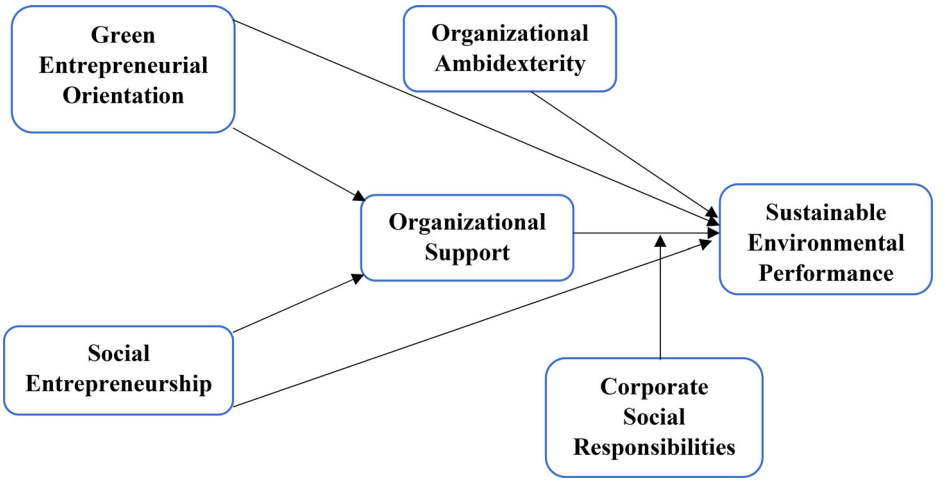

Figure 2. Research model.
Source: Authors.

has adopted a complex model, and hypothesis testing is the study's goal. Smart-PLS is considered the effective statistical tool that simultaneously examines the measurement and structural model (Hair et al., 2017).

4. Research findings

This study investigated measurement and structural model evaluation using Hair et al. (2017) criteria. The research findings have shown the measurement model assessment with the help of convergent and discriminant validity. Firstly, convergent validity has been examined that shows the correlation among items. The results have exposed that the values of loading and AVE are more than 0.50 (Hair et al., 2017). The values of composite reliability (CR) and Cronbach alpha are more than 0.70. These values were aligned with Cohen (1988) criteria. These values highlighted the high correlation between items and valid convergent validity. These values are shown in Table 2.

Secondly, discriminant validity has been examined that shows the correlation among variables. Firstly, cross-loadings and Fornell Larcker methods were used to examine the discriminant validity. The results have exposed that the exposed links with construct itself are greater than the links with other constructs (Fornell & Larcker, 1981). These values highlighted the low correlation between variables and valid discriminant validity. These values are shown in Tables 3, 4, and Figure 3.

In addition, Heterotrait Monotrait (HTMT) has also been used to examine the discriminant validity. The results have exposed that the values of the HTMT ratio are not bigger than 0.85 (Henseler et al., 2015). These values highlighted the low correlation between variables and valid discriminant validity. These values are shown in Table 5.

A bootstrapping method was used to assess the significance of hypotheses (5000 resample). The structural model assessment has been executed to examine the nexus among the variables using path analysis. The results revealed that organizational

Table 2. Convergent validity.

Constructs	Items	Loadings	Alpha	CR	AVE
Corporate social responsibilities	CSR1	0.886	0.845	0.820	0.536
	CSR2	0.669			
	CSR4	0.676			
	CSR5	0.675			
Green entrepreneurial orientation	GEO1	0.912	0.944	0.956	0.782
	GEO2	0.824			
	GEO3	0.903			
	GEO4	0.902			
	GEO5	0.912			
	GEO7	0.849			
Organizational ambidexterity	OA1	0.958	0.966	0.975	0.908
	OA2	0.943			
	OA3	0.952			
	OA4	0.959			
Organizational support	OS1	0.954	0.959	0.968	0.835
	OS2	0.826			
	OS3	0.953			
	OS4	0.955			
	OS5	0.825			
	OS6	0.955			
Social entrepreneurship	SE1	0.874	0.909	0.936	0.785
	SE2	0.881			
	SE3	0.887			
	SE4	0.901			
Sustainable environmental performance	SEP1	0.810	0.889	0.918	0.692
	SEP2	0.815			
	SEP3	0.855			
	SEP4	0.815			
	SEP5	0.864			

Source: Authors.

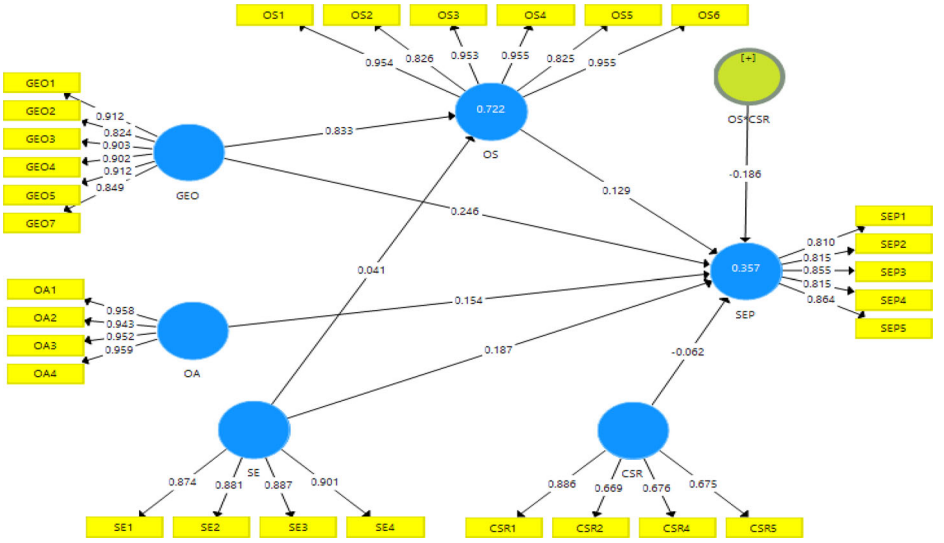

Figure 3. Measurement model assessment.
Source: Authors.

ambidexterity, green entrepreneurial orientation, and social entrepreneurship positively correlate with sustainable environmental performance and accept H1, H2, and H3. Besides, the outcomes also exposed that organizational support positively

Table 3. Fornell Larcker.

	CSR	GEO	OA	OS	SE	SEP
CSR	0.732					
GEO	0.395	0.884				
OA	0.336	0.470	0.953			
OS	0.399	0.849	0.486	0.914		
SE	0.335	0.386	0.384	0.363	0.886	
SEP	0.325	0.506	0.407	0.498	0.370	0.832

Source: Authors.

Table 4. Cross-loadings.

	CSR	GEO	OA	OS	SE	SEP
CSR1	**0.886**	0.458	0.828	0.469	0.372	0.378
CSR2	**0.669**	0.134	0.267	0.105	0.121	0.090
CSR4	**0.676**	0.081	0.264	0.102	0.109	0.099
CSR5	**0.675**	0.113	0.243	0.096	0.119	0.071
GEO1	0.331	**0.912**	0.391	0.736	0.341	0.447
GEO2	0.362	**0.824**	0.434	0.775	0.329	0.465
GEO3	0.356	**0.903**	0.445	0.723	0.346	0.446
GEO4	0.352	**0.902**	0.440	0.731	0.340	0.452
GEO5	0.327	**0.912**	0.381	0.735	0.338	0.434
GEO7	0.361	**0.849**	0.400	0.794	0.353	0.438
OA1	0.713	0.448	**0.958**	0.468	0.339	0.399
OA2	0.705	0.444	**0.943**	0.450	0.401	0.360
OA3	0.718	0.448	**0.952**	0.462	0.387	0.391
OA4	0.709	0.453	**0.959**	0.471	0.343	0.401
OS1	0.367	0.772	0.450	**0.954**	0.316	0.450
OS2	0.353	0.776	0.429	**0.826**	0.359	0.463
OS3	0.368	0.770	0.452	**0.953**	0.319	0.456
OS4	0.375	0.776	0.449	**0.955**	0.317	0.444
OS5	0.352	0.776	0.430	**0.825**	0.360	0.459
OS6	0.368	0.773	0.446	**0.955**	0.313	0.449
SE1	0.314	0.307	0.322	0.292	**0.874**	0.340
SE2	0.276	0.351	0.350	0.342	**0.881**	0.339
SE3	0.290	0.341	0.330	0.306	**0.887**	0.327
SE4	0.308	0.369	0.359	0.345	**0.901**	0.305
SEP1	0.334	0.473	0.378	0.493	0.295	**0.810**
SEP2	0.288	0.455	0.350	0.403	0.305	**0.815**
SEP3	0.242	0.369	0.296	0.397	0.284	**0.855**
SEP4	0.214	0.392	0.330	0.359	0.335	**0.815**
SEP5	0.261	0.402	0.330	0.403	0.321	**0.864**

Source: Authors.

Table 5. HeterotraitMonotrait (HTMT) ratio.

	CSR	GEO	OA	OS	SE	SEP
CSR						
GEO	0.266					
OA	0.537	0.492				
OS	0.259	0.690	0.504			
SE	0.249	0.416	0.411	0.388		
SEP	0.220	0.548	0.436	0.535	0.411	

Source: Authors.

mediates among the nexus of green entrepreneurial orientation, social entrepreneurship, and sustainable environmental performance and accept H5 and H6. The mediating effect of the OS was examined by a series of steps among these targeted variables (Nitzl et al., 2016). At first, this study evaluated the indirect effect of green entrepreneurial orientation and social entrepreneurship and found the significant indirect

Table 6. A path analysis.

Relationships	Beta	S.D.	*T* Statistics	*P* values	L.L.	U.L.
GEO → SEP	0.246	0.103	2.394	0.009	0.049	0.386
OA → SEP	0.154	0.092	1.672	0.049	0.020	0.319
OS*CSR → SEP	−0.186	0.054	3.470	0.000	−0.280	−0.102
SE → SEP	0.187	0.063	2.953	0.002	0.074	0.285
GEO → OS → SEP	0.108	0.052	2.077	0.014	0.009	0.263
SE → OS → SEP	0.105	0.046	2.282	0.011	0.002	0.325

Source: Authors.

effect of these variables towards SEP. The second step assessed the direct impact of the green entrepreneurial orientation and social entrepreneurship without eliminating the mediator. A significant positive effect was found of these variables towards SEP, which leads to partial mediation. This study observed direct and indirect effects and found the same positive sign for both paths; therefore, it might be concluded that organizational commitment has complementary partial mediation. Hence, H6, H7, and H8 are fully supported. Finally, the findings showed that CSR significantly moderates the nexus of organizational support and sustainable environmental performance and accepts H4. These values are mentioned in Table 6 and Figure 4. At first, yielded results stated that CSR has a significant positive impact as an independent variable without any interaction effect. Further, the moderation effect of CSR was assessed. The structural model results in Figure 5 reveal that CSR significantly interacts with the relationship of OS*CSR towards SEP. Figure 5 demonstrates the interaction slope.

5. Discussions and research implications

5.1. Discussion

The current study investigated the effect of green entrepreneurial orientation, social entrepreneurship, organizational ambidexterity and support, and CSR on sustainable environmental performance based on the arguments of green theory. As per our results, green entrepreneurial orientation, social entrepreneurship, and organizational ambidexterity positively affect sustainable environmental performance. These results support previous studies in a broader context (Cui et al., 2020; Muñoz & Kibler, 2016; Terán-Yépez et al., 2020). As green entrepreneurial orientation and social entrepreneurship positively correlated with innovative efforts and sustainable manufacturing. Further, organizational support was found to have a strong mediating effect among green entrepreneurial orientation, social entrepreneurship, and sustainable environmental performance. Our results were also aligned with the results of previous studies (Imran & Aldaas, 2020; Kusi et al., 2021). Further, CSR significantly moderates the relationship between organizational support and sustainable environmental performance. Shahzad et al. (2020) identified that green and innovative efforts are the key regulators of the CSR spectrum. The positive impact of corporate social responsibility and its healthy correlation with a firm's growth, environmental performance, and the firm's better social status are clearly explained in the research work of Habib et al. (2021). These findings are supported by the studies conducted by Ahmed et al. (2020). These researchers compared the economic conditions of China with the

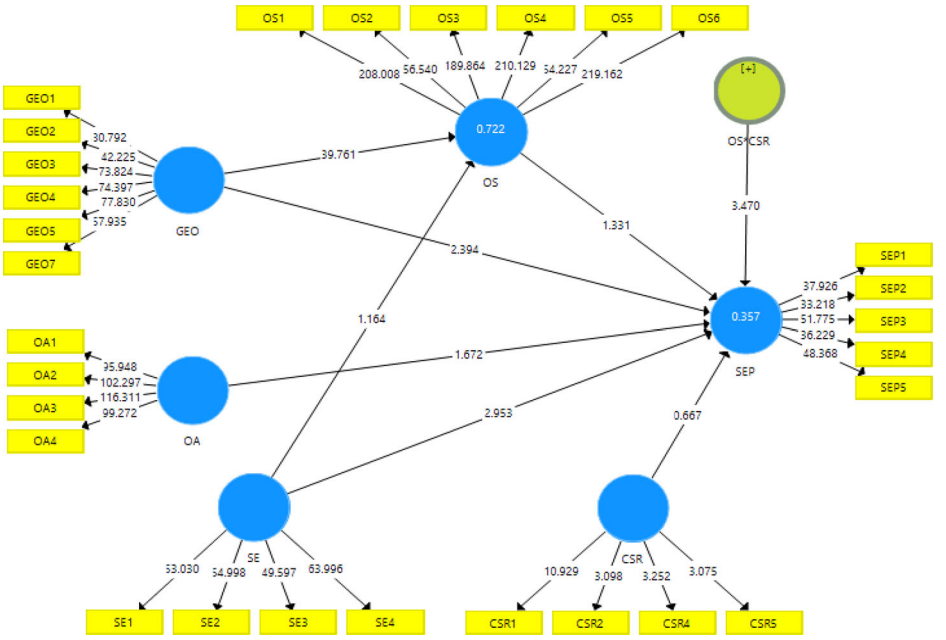

Figure 4. Structural model assessment.
Source: Authors.

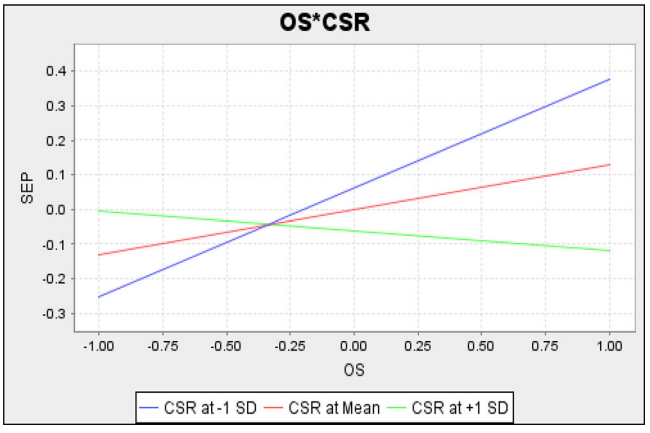

Figure 5. Interaction graph.
Source: Authors.

developing economies. They analysed how the CSR practices and green entrepreneurial orientation based on innovative efforts of organizations support the organizational ambidexterity and environmental performance of the business firms. When the staff members of an organization are in complete harmony with the management's green and sustainable vision, practices, and eco-friendly techniques-based vision, then environmental performance is improved. The previous research supports these findings Jiang, Chai, Shao, and Feng (2018). This research group highlights the importance of green entrepreneurship in coordination with the innovation implicated by the current conditions of the environment and business community simultaneously.

This study confirms that the Chinese business community is well-aware of the emerging climate change situation and overall conditions of the business world. This study is based upon the data from a multinational firm in China. The described business firm simultaneously monitors the current environmental conditions and utilizes innovative eco-friendly business technologies to cope with current international business challenges. The current research-based study provides a comprehensive overview of the organizational ambidexterity of Chinese business ventures. These findings correlate with the previous study evidence of Habib et al. (2020). Further, Chinese firms are keenly devoted to performing the service of humanity with their goods and services. The environmental performance of all these firms is marvellous. The combined effect of CSR and organizational support can do miracles, and the current research-based study is proof of this fact. The teamwork of the organization's staff to achieve organizational ambidexterity and green entrepreneurship orientation are the indicators of the improved economic condition of China. The current study explains the importance of organizations as complex and dynamic entities. The management of the business firm always governs organizational frameworks. Organizational support and correlation are the mediators of CSR and all related social, environmental, and economic sustainability functions. The current study is an amalgam of organizational ambidexterity and organizational support. The organizational ambidexterity of Chinese firms is explained in this research work about the environmental performance of the Chinese firms. All the findings are supported by the past research of Shafique et al. (2021). The research of all these workers is based on the organizational framework and importance of organizational ambidexterity concerning green manufacturing and entrepreneurship efforts.

5.2. Research implications

This research has great scientific, strategic, and ecological implications. It highlights the theoretical implications and an empirical impact of CSR, organizational ambidexterity, and environmental performance of business firms in China. This study suggested that if the business firm can maintain economic and environmental safety simultaneously, environmental performance becomes marvellous in a very short period. The current study examines the development of green entrepreneurship-based practices in correlation with CSR and social entrepreneurship then. Surely the climate change could be controlled, and environmental well-being be protected. Organizational support, ambidexterity, and social and ethical implications provide a strong foundation for sustainability and developmental approaches. The Chinese government seeks to open the doors of new shared business ventures and projects with other world economies like Pakistan. The current study also implicates that CSR practices mediate the relationship between environmental and social practices to improve economies' overall dwindling situation. The importance of biodegradable and ecologically sound manufacturing practices cannot be denied, and developed economies like China are searching for the best suitable methods to maximize the environmental performance of the business firms. China is a developed economy, and

its prosperity is the eco-friendly and socially responsible attitude towards its business community.

The Chinese government has strict policies for job protection, insurance, and old age allowance for all workers. This study highlights that all business firms are accountable for any infringement in the laws based on green manufacturing practices and green entrepreneurial orientation. Business organizations should ensure that all the CSR goals mentioned in their mission statement are strictly followed. All the Chinese legal authorities appreciate the social entrepreneurship-based efforts of business firms. The government of China is so concerned to improvise the organizational ambidexterity-based efforts in its business community. This study showed all the results of the improvised and innovative strategies adoption practices implicated by the Chinese business firms on a large scale. The current findings are supported by Ahmed et al. (2020). These researchers compared the economic conditions of China with the developing economies. They analysed how the CSR practices and green entrepreneurial orientation based on innovative efforts of organizations support the organizational ambidexterity and environmental performance of the business firms.

The current study is an initiation for exploring the same areas concerning environmental sustainability and green entrepreneurship-based practices. This study has focused on the impact of entrepreneurship-based efforts and ambidexterity enhancement practices of Chinese business firms. This study is suitable for policymakers while developing CSR, entrepreneurship, and sustainable environmental performance policies. The study also makes an empirical implication. It guides the whole community, specifically business analysts, and ecologists to find innovative ways to maintain a perfect balance between the social entrepreneurship and environmental performance of financially sustainable business firms. Chinese firms have more resources and improvised facilities in terms of qualified staff and highly skilled professionals, so the issues of educating the workers beforehand are minimal. In the case of developing economies, these problems are huge because they have uneducated laborers in their manufacturing units, and they are unaware of the basic protocols of social and ecological well-being, so the environmental performance is quite low. They should learn more improvised techniques, modernized machinery, and ample funds to make green manufacturing practices more effective and efficient. Chinese government and finance ministry are providing new and innovative ways to adopt improvised CSR practices and green entrepreneurship.

5.3. Limitations and recommendations

The current study also has some limitations due to time and resource constraints. Limitations of the current study are the guiding stars for future researchers. The true hurdles in developing the proper entrepreneurial efforts and green manufacturing practices can be more easily explained if the researchers have supportive evidence-based data from a developing economy. Future researchers must find new data sets from different business companies and industries to have a wide view and differentiate versions. The comparative analysis will provide additional information about different problems in the adoption of social and environmental entrepreneurship. Future

researchers should make models having more explanatory independent variables. They can have more moderating and mediating variables to have a deep insight into CSR practices and their correlation with environmental performance. Further, we can compare the economic conditions of developing and developed economies to highlight the differences more appropriately. Future researchers have a great opportunity to explore more endeavours of organizational ambidexterity and environmental performance. They should use data from different economies to have a clear contrast and dynamic overview of overall hurdles in the business companies' green entrepreneurship-based efforts and environmental performance. Cross-verification and variability will provide a sound and elaborated business model for analysing the environmental performance data.

6. Conclusion

The current study contributes to the growing area of research on sustainable environmental performance by investigating the key relationships between green entrepreneurial orientation, social entrepreneurship, organizational ambidexterity, organizational support, and CSR for improving sustainable environmental performance using a novel SEM approach. Our results suggested that green entrepreneurial orientation, social entrepreneurship, organizational ambidexterity positively affect sustainable environmental performance. Besides, organizational support is partially mediated and CSR moderates these relationships. This study comprehensively ensures the environmental performance and improvement in sustainability of the manufacturing industry of China. The findings of this study have given ecologists and business executives the chance to support and improve their sustainable performance by integrating green entrepreneurial and CSR practices. Further, organizational ambidexterity supports the success and prosperity of business firms. The study implicates that socially, environmentally, and ethically responsible business firms have more workers, and they provide them job security and ecologically friendly products to increase the green manufacturing practices. With a huge population and the human capital burden, the Chinese economy thrives in achieving organizational ambidexterity by keeping organizational support and green entrepreneurial practices in view.

Conflict of interest

No potential conflict of interest was reported by the author(s).

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