S.I. : GREENWASHING

Antecedent and consequences of sustainability employee's perception of greenwashing: the role of ethical incentive

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Abstract

Interest in the consequences of greenwashing has been growing, highlighting a notable research gap regarding both antecedents and consequences and a need to understand underlying mechanisms. Our study delves into these aspects by focusing on employee-perceived greenwashing (EPG) in the context of employees, along with examining how ethical incentives moderate the obedience to authority (OTA) and EPG relationship. We conducted a questionnaire survey involving 470 employees across various industries in Hubei, Jiangsu, and Shandong provinces from March to June 2023. Our findings reveal that OTA (antecedent) positively influences EPG, and EPG, in turn, negatively impacts employee green behavior, trust, word-of-mouth, affective commitment, and job performance (consequences). Furthermore, our study illustrates that ethical incentives can mitigate the adverse effects of obedience on perceptions of greenwashing. In essence, our research substantially contributes to the ongoing debate regarding the advantages of greenwashing, particularly within the realms of human resource management and micro-level analysis. The practical implications of our findings underscore the necessity of fostering close collaboration among various departments, notably Human Resources, Marketing, and Corporate Social Responsibility, to promote the sustainable development of businesses.

Keywords Obedience to authority · Employee-perceived greenwashing · Ethical incentives · Employee green behavior · Employee green word-of-mouth

1 Introduction

In contemporary society, there is a growing sensitivity and concern regarding firms' environmental practices (Awan et al., 2023; Qalati et al., 2023b). This heightened appreciation for environmentally friendly practices (Agyabeng-Mensah et al., 2021) places substantial pressure on firms to meet stakeholder demands (Baah et al., 2021). Recognizing the potential impact on their image, legitimacy, and reputation, firms may resort to exaggeration, deception, or embellishment in their external communications concerning environmental

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initiatives (Santos et al., 2023b) to cultivate a favorable public perception (Chen et al., 2014). This behavior is characterized by firms engaging in positive green communication or presenting themselves as environmentally conscious (Guerreiro et al., 2021). However, the messages conveyed may not align with their actual actions (Brydges et al., 2022). Scholars and the media alike have observed that corporations often employ a strategy known as "greenwashing" in their stakeholder communications to bolster their environmental reputation and credibility (Li et al., 2023; Yu et al., 2020). The greenwashing approach involves exaggerating a company's environmental achievements primarily through excessive communication rather than substantive efforts to enhance its environmental performance (Santos et al., 2023a). According to Siano et al. (2017) deceptive communication, commonly known as greenwashing, has become a prevalent tactic in the realm of corporate and marketing communication strategies. Its objective is to conceal the most contentious elements associated with corporate sustainability. Additionally, by integrating an organization's communication and corporate social responsibility practices, the potential for effective stakeholder engagement can be maximized, which can serves to protect occurrence of greenwashing and mitigate adverse consequences (Vollero et al., 2011, 2016).

Furthermore, existing studies have shown significant interest in examining the consequences of greenwashing from the consumer perspective. Scholars have specifically noted its adverse impacts on various aspects, including green brand image, satisfaction, and trust (Ha et al., 2022); green word-of-mouth and purchasing intentions (Zhang et al., 2018); consumer brand engagement (Guerreiro et al., 2021); and green brand equity (Qayyum et al., 2022). However, limited research has been conducted on different stakeholders, including employees (Pizzetti et al., 2021; Santos et al., 2023b). Additionally, it has been noted that employees are more inclined to identify inconsistencies between corporate statements and actions regarding corporate social responsibility and are more likely to respond to greenwashing behaviors compared to external stakeholders (Schons et al., 2016).

Moreover, as China vigorously strives to transition toward a more sustainable and ecologically accountable economy (Sun et al., 2022) the perspectives of employees become crucial. They serve as both observers and participants in this transformative process (Miao et al., 2023; Nguyen et al., 2019). Therefore, addressing the current research gap from the employee perspective is imperative, as the perception of greenwashing has demonstrated increasing impacts on various aspects of employee outcomes, including but not limited to task performance and organizational citizenship behavior (Li et al., 2022), employee green behavior, employee value orientation, and green psychological climate (Tahir et al., 2020), perceived corporate hypocrisy, and turnover intention (Robertson et al., 2023), perceived organizational fit (Miao et al., 2023), affective commitment, career satisfaction, negative emotions, and organizational pride (Santos et al., 2022a, 2022b).

Accordingly, the primary aim of the current study is to contribute to the existing literature on greenwashing by examining how internal stakeholders, specifically employees, respond to it. Employees' level of compliance with authority figures plays a pivotal role in shaping their attitude toward prevalent greenwashing practices within organizations (Bonn et al., 2021). The potential risk of deceptive environmental practices going unchallenged arises when employees comply without questioning or scrutinizing the sustainability claims put forth by their superiors or management (Dobos et al., 2023), possibly perpetuating greenwashing. The perpetuation of greenwashing is a possible consequence of such obedience (Blome et al., 2017). Consequently, the research gap in this context

revolves around understanding the intricate relationship between obedience to authority (*hereafter called OTA*) and employee-perceived greenwashing (*hereafter called EPG*) (Blome et al., 2016; Bonn et al., 2021). Furthermore, EPG is a crucial factor in determining their environmentally conscious behavior (Tahir et al., 2020) and trust (Aguinis et al., 2012) in organizational settings. When employees perceive their organization's sustainability efforts as authentic and transparent, they are more inclined to engage in activities that promote environmental responsibility, such as reducing waste, conserving resources, and actively participating in sustainability initiatives (Shahzad et al., 2023). This trust fosters a positive work environment, encourages employee loyalty, and contributes to a more engaged and motivated workforce (Strauß et al., 2023). Moreover, EPG also holds significant importance in influencing their green word-of-mouth communication (Chen et al., 2014, 2019). When employees genuinely endorse their organization's sustainability endeavors, they become enthusiastic advocates, both within and outside the workplace, ultimately influencing their colleagues, customers, and other external stakeholders (Hameed et al., 2022).

Furthermore, the connection between EPGs and their affective commitment to their organizations and jobs is closely intertwined (Santos et al., 2022a, 2022b). When the sustainability efforts of an organization are perceived as genuine by employees, it can significantly deepen their emotional attachment and commitment towards their roles and employers (Gomes et al., 2023). This heightened level of affective commitment can lead to a more motivated and engaged workforce, lower turnover intentions, and increased job satisfaction (Kang et al., 2015). However, a research void can be identified within the Chinese context when considering employees' viewpoints, specifically in comprehending greenwashing's impact on green behavior, trust, word-of-mouth, affective commitment, and job performance. Moreover, the study aims to delve into the specific mechanisms by which OTA affects perceptions of greenwashing, employing ethical leadership as a moderating factor in this exploration.

To address the aforementioned research gap, our study aims to answer the following questions: How does OTA (an antecedent) influence EPG? How does EPG influence its consequences including employee green behavior, trust, word-of-mouth, and employee affective commitment and performance? Does ethical leadership moderate the link between OTA and EPG? Specifically, EPG refers to an "employee's perception about the organizational behaviors that mislead stakeholders by green communication" (Li et al., 2022). To address these research questions, we draw upon agency, social exchange, and organizational support theories. In line with our research objectives and questions, our study makes a threefold contribution. First, it adds valuable insights to the existing literature on greenwashing from the employee's perspective, addressing a gap noted in previous consumer-focused empirical and review studies (Guerreiro et al., 2021; Okbagaber, 2023; Santos et al., 2023a, 2023b; Wang et al., 2020). Second, our study encompasses both the antecedents and consequences of EPG. Notably, prior literature has predominantly focused on the consequences of EPG (Li et al., 2022, 2023; Tahir et al., 2020; Westerman et al., 2022), with only a few studies examining the antecedents of greenwashing in the context of employees (Blome et al., 2017). To the best of our knowledge, this study is one of the rare ones that covers both the initiation and outcome aspects of EPG. our study contributes to the existing literature on ethical leadership by examining its moderating role, aligning with previous calls for ethical-based research in the context of sustainable practices across industries (Ahmad et al., 2022; Blome et al., 2017; Li et al., 2021).

2 Literature review and hypotheses formulation

2.1 Theoretical support

The research employed the theories of agency Eisenhardt (1989), social exchange Blau (1964), and organizational support Eisenberger et al. (1986) to examine the ramifications of the antecedent (OTA) on EPG and its implications on outcomes, such as employee green behavior, trust, word-of-mouth, employee affective commitment, and job performance.

In agency theory of Seele et al. (2022), it is believed that information asymmetry arises because agents, those in positions of authority or leadership within an organization, possess more information than principals, who are the employees. This information disparity can lead to conflicts of interest (Eisenhardt, 1989). In the context of greenwashing, OTA often stems from the hierarchical power structure within organizations (Blome et al., 2017). When employees obediently follow directives issued by authority figures, they may be less inclined to critically evaluate the validity of the organization's sustainability claims. This compliance can be attributed to a perceived power imbalance between employees and authority figures. Consequently, the perception of greenwashing arises when employees suspect that the organization is insincerely promoting its environmental initiatives (Jacobs et al., 2019; Miao et al., 2023). In this context, employees serve as the principals who anticipate that the agents, and the organizational authorities, will act in their best interests. This necessitates forthrightness and transparency regarding the organization's sustainability practices.

Moreover, the social exchange theory postulates that individuals partake in reciprocal associations within enterprises (Li et al., 2022). When individuals perceive authentic sustainability endeavors, they are more inclined to reciprocate with environmentally friendly conduct, trust, and positive communication. Conversely, the perception of greenwashing can disrupt this exchange, resulting in adverse outcomes (Chen et al., 2013; Guerreiro et al., 2021). Additionally, organizational support theory centers on how the perception of organizational support impacts employee attitudes and actions (Pati et al., 2010). When employees have faith in their organization's dedication to sustainability (perceived support), they tend to reciprocate with heightened emotional commitment, trust, and improved job performance (Kurtessis et al., 2015). The perception of greenwashing can undermine this perceived support, leading to unfavorable consequences.

2.2 Hypotheses formulation

2.2.1 Relationship of obedience to authority with an employee-perceived greenwashing

OTA refers to an individual's inclination to adhere to commands, directives, or instructions put forth by entities or individuals who are perceived as possessing authority, influence, or legitimate power within a specific context or organization (Raz, 1985). This compliance generally arises from a recognition of hierarchical structures and the conviction that those occupying authoritative positions hold the right to make decisions and establish guidelines that others ought to follow (Brief et al., 2000). OTA can be observed in various settings, such as institutions, societal, and workplace contexts, and it frequently contributes

to shaping the behaviors of both individuals and groups in response to perceived figures of authority or established systems (Spillane et al., 2022).

Within organizations, OTA can have significant effects on EPG (Blome et al., 2016). When employees obediently comply with the instructions of authority figures, they may be less inclined to critically evaluate the authenticity of the organization's claims regarding sustainability. This obedience establishes a trust dynamic, wherein employees depend on authority figures to provide accurate and ethical information about sustainability practices. However, if employees harbor suspicions that these authority figures are utilizing their positions to promote greenwashing or insincere sustainability efforts, it can undermine trust and lead to an increased perception of greenwashing (Blome et al., 2017; Lee et al., 2018).

The above text highlights that the presence of OTA may cause employees to trust and accept sustainability claims from authority figures without question. However, if there are doubts about the credibility of these figures and their promotion of greenwashing, it can damage trust and lead to a heightened perception of greenwashing. As a result, it is essential to address the conflicts between obedience to authority and the critical assessment of sustainability practices in order to fully understand and minimize the impact of OTA on EPG within organizational settings. In this respect, the research suggests that:

H1 In organizations where employees exhibit a higher degree of OTA, there will be a stronger tendency for them to perceive lower levels of greenwashing in the sustainability initiatives undertaken by the organization.

2.2.2 Relationship of employee-perceived greenwashing with employee green behavior, trust, word-of-mouth, affective commitment, and job performance

Employee green behavior encompasses the voluntary actions, attitudes, and choices exhibited by individuals within an organization, aimed at minimizing their environmental impact and fostering sustainability objectives (Chaudhary, 2020). These behaviors include a broad range of activities and practices, such as the adoption of green practices, preservation of resources (e.g., energy and water), recycling, waste and emissions reduction in daily work routines, active engagement in environmental conservation endeavors, and endorsement of sustainability initiatives (Katz et al., 2022; Norton et al., 2015).

The impact of EPG on the environmentally conscious actions of employees holds considerable significance (Tahir et al., 2020). When EPG in their organization's sustainability initiatives, it frequently results in decreased motivation and involvement in environmentally responsible behaviors (Zhao et al., 2022). This doubt regarding the genuineness of sustainability endeavors has the potential to undermine employees' trust in the organization's dedication to environmental responsibility, thereby reducing their willingness to partake in green actions, such as conserving resources, minimizing waste, and supporting green practices (Tahir et al., 2020). Prior research has often asserted that when consumers perceive greenwashing, it diminishes their intention to purchase products from the company (Guerreiro et al., 2021; Nguyen et al., 2019; Zhang et al., 2018). However, a limited study was conducted in the context of employee green behavior.

The above text suggested that it is important to acknowledge and tackle the concerns surrounding EPG) within a company, as it can have a detrimental effect on environmentally conscious actions. Doubts regarding the authenticity of sustainability efforts may result in reduced motivation and participation in environmentally responsible behaviors among

employees. Consequently, their trust in the organization's dedication to environmental responsibility may be compromised. Hence, it is imperative to address and minimize EPG to cultivate a favorable organizational atmosphere that fosters employee involvement in green practices and sustainability endeavors. Consequently, it is posited that.

H2 Employees who have a heightened perception of greenwashing in their organization's sustainability initiatives will exhibit lower levels of green behavior.

Employee trust refers to the belief, confidence, and faith that employees possess regarding their enterprises, their leadership, and its policies and practices (Brown et al., 2015). It constitutes a fundamental facet of the employment relationship and reveals the degree of certainty that employees possess regarding their organization's inclination to prioritize their best interests and uphold ethical and fair standards (Zeffane et al., 2017). When EPGs from their enterprise's toward sustainability endeavors, it often leads to a decline in their trust in the organization (De Roeck et al., 2012). This corrosion of trust stems from their skepticism concerning the authenticity and sincerity of the firm's environmental efforts (Bowen et al., 2014). Employees may cast doubt on the firm's commitment to ethical practices and transparency, thereby exerting a negative influence on their overall confidence in the firm's leadership and values. Consequently, EPG can impose strain on the trust dynamic within the workplace, thereby potentially impacting employee engagement, long-term commitment, and morale in the organization (Li et al., 2022; Szabo et al., 2021).

The establishment of trust in sustainability initiatives and organizational integrity plays a pivotal role in shaping the relationship between employees and employers (Wang et al., 2020). Prior research has suggested that when consumers perceive greenwashing, it diminishes their trust in the organization's product integrity, transparency, and overall commitment to sustainability (Guerreiro et al., 2021; Ha et al., 2022; Okbagaber, 2023). In contrast, there is a need for empirical research from the perspective of employees (Wang et al., 2020). The text implies that doubt regarding the genuineness of environmental initiatives can erode trust, affecting employees' belief in the organization's leaders, principles, and ethical conduct. This suggests that addressing and minimizing EPG is crucial for upholding a favorable trust atmosphere at work, which can subsequently impact employee involvement, loyalty, and morale. Furthermore, the text emphasizes the lack of employee-focused empirical studies on this subject, underscoring the necessity for additional exploration in this domain.

H3 Employees who have a heightened perception of greenwashing in their organization's sustainability initiatives will exhibit lower levels of trust in said organization.

In this study, we define employee green word-of-mouth as the communication and dissemination of negative or positive experiences, information, and opinions pertaining to a firm's environmental sustainability efforts by employees, both within and beyond the confines of the workplace. This green word-of-mouth can encompass several forms of communication, encompassing conversations with colleagues, family and friends, online reviews, and social media posts. Likes consumers (Ha et al., 2022) we argue that employee word-of-mouth can have substantial impact a firm's brand image, reputation, and public perception of its commitment to sustainability (Chen et al., 2014; Zhang et al., 2018).

Our study argue that EPG can have notable influences on the communication (word-of-mouth) of green practices by employee. When employees perceive insincerity or green-washing in their organization's sustainability efforts, they are more inclined to engage in negative word-of-mouth communication (Siano et al., 2017; Vollero et al., 2016). This may involve expressing their doubts and dissatisfaction about the organization's environmental practices with colleagues, friends, or on social media platforms. On the other hand, when employees perceive a genuine and dedicated commitment to sustainability, they are more likely to engage in positive word-of-mouth communication, actively endorsing their organization's green initiatives and achievements. Hence, the perception of greenwashing can shape the tone and direction of employee word-of-mouth, thereby influencing how the firm's sustainability efforts are perceived by internal and external stakeholders. The extant body of literature puts forward the notion that when consumers perceive greenwashing, it enhances the probability that they will express and share their anxieties and doubts regarding the organization's products and social endeavors to others (Chen et al., 2019; Chen et al., 2014; Guerreiro et al., 2021; Zhang et al., 2018). The text implies that if employees feel their organization's sustainability efforts are not genuine or are simply a marketing ploy, they are more inclined to spread negative opinions and express dissatisfaction. On the other hand, when there is a sincere dedication to sustainability, employees are likely to engage in positive word-of-mouth communication. This suggests that it is essential to address and minimize any perception of insincerity or greenwashing, as it not only affects internal perceptions but also has an impact on external stakeholders through employee word-of-mouth. This, in turn, can influence the organization's brand image. Hence, the study posits that.

H4 Employees who have a heightened perception of greenwashing in their organization's sustainability initiatives are inclined to participate in negative green word-of-mouth communication.

Employee affective commitment is a psychological phenomenon characterized by a profound attachment and emotional connection that individuals experience towards their respective organization (Allen et al., 1996). This particular facet of organizational commitment entails the extent to which employees are emotionally invested in, identify with, and exhibit enthusiasm towards their job and the overall organization (Gomes et al., 2023). The impacts of EPG on employee affective commitment can be detrimental (dos Santos et al., 2022a, 2022b; Santos et al., 2022a, 2022b). We argue that When organizations exhibit a deficit in their sustainability endeavors, it often leads to a decline in employee affective commitment (De Roeck et al., 2012). This decline can be traced back to the erosion of trust and the feeling of betrayal that employees may experience when they suspect that the organization is disingenuously promoting its environmental initiatives (Li et al., 2022). The emotional connection and excitement individuals have towards the organization may be dampened due to the resulting disappointment and doubt, which can potentially result in a decrease in their emotional commitment to the organization (dos Santos et al., 2022a, 2022b).

The primary issue at hand revolves around the adverse effects of EPG on affective commitment. This, in turn, results in a decrease in emotional investment and enthusiasm towards the organization when sustainability endeavors are seen as insincere. It is imperative to tackle and alleviate EPG in order to uphold employee affective commitment. By doing so, we can prevent distrust and feelings of betrayal arising from disingenuous

environmental initiatives, which have the potential to undermine the emotional bond with the organization. In alignment with this notion, the research hypothesizes that.

H5 Employees who have a heightened perception of greenwashing within their organization's sustainability initiatives will exhibit lower levels of affective commitment to the said organization

Employee job performance pertains to the degree to which an individual effectively meets the obligations, duties, and functions associated with their employment or position within a corporation (Westerman et al., 2022). It encompasses the quality, quantity, and efficiency of work-related endeavors and results, as well as the behaviors and contributions that align with an organization's objectives (Na-Nan et al., 2018). Since the employees plays a pivotal role in the success of the adoption and implementation of green practices, it was suggested that the consequences of EPG on employee job performance can be noteworthy (Li et al., 2022). When EPG in their firm's green initiatives and reporting misleading information related to green practices, it can negatively impact their job performance (Westerman et al., 2022). This is due to the fact that perceived greenwashing often leads to diminished trust in the organization's ethical practices. Employees may experience disillusionment and decreased motivation, which can subsequently yield diminished productivity, attention to detail, and overall job performance (Robertson et al., 2023).

Additionally, the experience of cognitive dissonance resulting from the perception of greenwashing while being employed by an organization that promotes environmental responsibility can generate stress and diversion, thereby further compromising one's ability to effectively carry out job tasks (Santos et al., 2022a, 2022b). Hence, it is imperative to address and alleviate the perceived occurrence of greenwashing, not only to cultivate trust but also to uphold and enhance employee job performance. Previously, (Westerman et al., 2022) posit that when EPG, their motivation and engagement suffer, ultimately resulting in a decline in job performance.

The matter at hand revolves around the harmful consequences of EPG on job performance. These consequences arise from a decrease in trust, a sense of disillusionment, and a loss of motivation. It is vital to tackle and alleviate EPG in order to maintain and improve employee job performance. This can be achieved by fostering trust and preventing the negative effects of cognitive dissonance and reduced motivation that arise from perceived greenwashing.

H6 Employees who have a heightened perception of greenwashing within the sustainability initiatives of their organization will display lower levels of job performance

Ethical incentives represent a system of rewards or factors explicitly designed to incentivize individuals or groups to engage in ethical behaviors, actions, or practices. These motivators are implemented with the intention of promoting and strengthening ethical conduct, often by providing tangible or intangible advantages to those who adhere to ethical standards or make morally upright choices (Tenbrunsel, 1998). Ethical incentives are commonly employed to foster and encourage individuals or entities to act in accordance with ethical principles, values, and standards (Kurland, 1995). Thus, the moderating role of ethical incentives in the relationship between OTA and EPG is a vital element of organizational ethics (Blome et al., 2017). When ethical incentives are

present, they serve as a counteracting force, potentially reducing the adverse impact of unquestioning OTA on employees' perceptions of greenwashing (Ferrell et al., 2021).

Previous studies have indicated that OTA has potential to results in the inadvertent disregard or justification of unethical behaviors, such as greenwashing, particularly when such instructions originate from individuals in higher positions of authority (Bonner et al., 2016; Jones, 1991). However, in instances where organizations implement ethical motivators, such as providing incentives for reporting ethical violations or linking bonuses to accomplishments in sustainability, it is more probable that employees will scrutinize those in positions of power when they suspect unethical conduct (Moore et al., 2019). Ethical incentives serve to prompt individuals to consider the ethical implications of their actions, thereby cultivating an environment that places importance on transparency and genuineness (Grant, 2015).

In this context, the existence of ethical incentives can grant employees the ability to question those in power when they observe the act of greenwashing, ultimately fostering an environment that is more ethically conscious and environmentally accountable (Blome et al., 2017). The moderating effect of these incentives emphasizes their significance in shaping how employees react to authority and interpret ethical dilemmas, ultimately contributing to an organizational culture that is more sustainable and driven by ethical principles. Therefore, it is posited that.

H7 Ethical incentives moderate the relationship between OTA and EPG, such that the negative impact of blind OTA on EPG is weaker when ethical incentives are present, compared to situations where ethical incentives are absent.

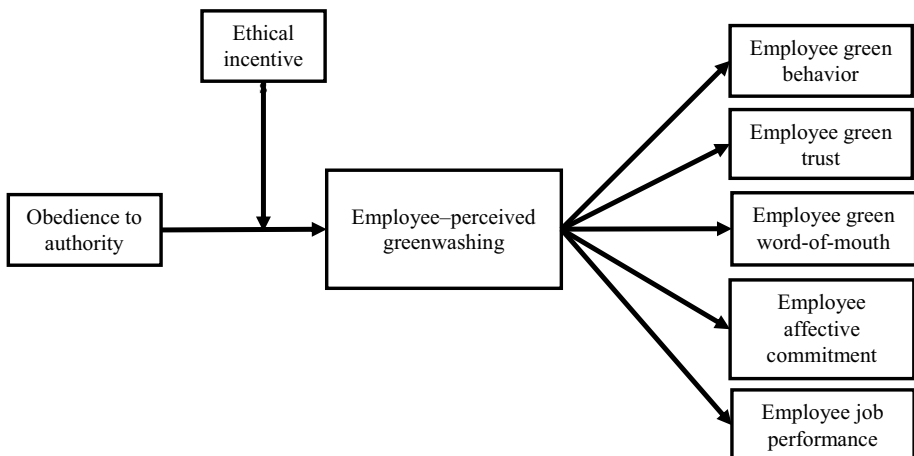Figure 1 illustrates the proposed hypotheses in pictorial form.

Fig. 1 Proposed model

3 Method

3.1 Sample and data collection

For this investigation, the researchers utilized a cross-sectional dataset obtained from a sample of 470 individuals employed in Chinese companies. Specifically, we distributed questionnaires to a total of 600 employees working in 30 Chinese companies that have publicly committed to carrying out environmental responsibilities. These participants were selected from various industries, including construction, food and beverages, manufacturing, real estate, services, and transportation, and were located in the provinces of Hubei, Jiangsu, and Shandong. The study incorporates areas from central and eastern China to ensure a wider range of perspectives and practices regarding sustainability. These regions are home to various industries such as manufacturing, transportation, food and beverages, construction, services, and real estate, providing a comprehensive understanding of how greenwashing and ethical incentives are viewed across different sectors. Additionally, the researchers focus on companies in these regions that have publicly committed to environmental responsibilities, making the results more relevant and applicable to organizations actively involved in sustainable practices. This deliberate selection of regions aligns with the study's objectives and enables a detailed examination of the factors that influence employee perceptions in the context of greenwashing and ethical incentives.

Our data collection was conducted through an online survey using email and the popular social media platform, WeChat. The decision to use an online survey for the present research comprises several reasons. First and foremost, the utilization of digital questionnaires improves accessibility and outreach, enabling a broader and more diverse range of participants from different geographical areas (Qalati et al., 2023a). By incorporating email and the popular social media platform, WeChat, it provides a convenient and familiar means of communication for respondents, which may lead to higher response rates and better data quality. Moreover, the online format simplifies the collection of data, allowing for efficient management and analysis of large datasets. Furthermore, electronic surveys enable real-time monitoring of responses, enhancing the overall timeliness of the study. To mitigate potential survey method biases, respondents were asked to complete two separate questionnaires anonymously, with a 3-month gap between them, as suggested by Podsakoff et al. (2003). We measured dependent variables (employee green behavior, trust, word-of-mouth and employee affective commitment and job performance) and the independent variable (OTA) at Time 1, while EPG and the moderator (ethical incentive) were assessed after a 3-months interval at Time 2. Participants were explicitly informed that there were no right or wrong answers. Moreover, to ensure survey confidentiality and rigor, participants were not required to disclose their respective organizations' identities. Our data was collected from different sources, including front-line employees, middle and top-level managers.

The survey received a total of 470 responses out of 600, resulting in a response rate of 78.3%. The final sample consisted of 62% male participants. Among them, 48% held a master's or doctoral degree, while 43% had 1–5 years of professional experience. Furthermore, the majority of employees, specifically 135 and 111, were employed in the services and manufacturing industries, respectively. One hundred seventy-seven organizations had workforces ranging from 100 to 500 employees. Table 1 provides details regarding the sample's characteristics.

Table 1 Demographic of sample ($N=470$)

Gender	Male	62%
	Female	38%
Age	<20	24%
	21–30	29%
	31–40	33%
	>40	14%
Education (degree)	College	14%
	Bachelor	38%
	Master or doctoral	48%
Experience (year)	<1	24%
	1–5	43%
	>5	33%
Job level	Front-line or lower	14%
	Middle	48%
	Top	38%
Industry	Construction	19%
	Food and beverages	14%
	Manufacturing	23%
	Real estate	5%
	Services	29%
	Transportation	10%
Firm size	<100	29%
	100–500	38%
	>500	33%

3.2 Measurement

The measurements utilized in the survey were based on well-established and validated scales, and they were evaluated using a 5-point Likert scale, where a rating of "1" indicated a strong sense of disagreement and "5" indicated a strong sense of agreement. These scales were subsequently translated into Chinese using the back translation methodology outlined by Brislin (1970). For this study, it was crucial for the translators to have a high level of proficiency in both languages to ensure the accuracy of the translation. Therefore, prior to the main data collection phase, a preliminary assessment involving 50 participants was conducted to identify and address any potential issues that might arise. This preliminary assessment helped make minor modifications to the questionnaire.

The final questionnaire comprised of a total of 40 items across 8 constructs. Specifically, OTA and ethical incentives were measured using three items each adapted from Blome et al. (2017). EPG four-items adopted from Li et al. (2022). Employee green behavior six-items adopted form Tian et al. (2020). Employee green trust was measured via 5-items adapted from (Ha, 2022). Employee green word-of-mouth 4-items adapted from Zhang et al. (2018). Employee affective commitment six-items adopted from Allen et al. (1996). Lastly, job performance nine-items adopted from Onwezen et al. (2014).

4 Results

To assess the hypothesized associations and the model's adequacy, we utilized structural equation modeling (SEM) techniques. For data analysis, this research employed the partial least squares (PLS) methodology in conjunction with SmartPLS 4.0. Specifically, PLS, as a second-generation technique, offers several advantages over covariance-based SEM. These advantages include less stringent assumptions regarding the normal distribution of data and the capacity to handle complex relationships (Ahmad et al., 2020). Moreover, SmartPLS is a statistical software equipped with a user-friendly graphical interface, designed specifically for variance-based SEM analysis using the PLS path modeling approach (Hair et al., 2019). PLS-SEM is also recognized as an SEM approach that encompasses both causal and predictive elements.

4.1 Measurement model evaluation

The investigation assessed the measurement framework by considering various factors, following the recommendations of Hair et al. (2019) This involved evaluating internal consistency using Cronbach's alpha (CA), assessing convergent validity through composite reliability (CR) and average variance extracted (AVE), and ensuring discriminant validity.

Individual item loadings were examined to assess the reliability of each item. A threshold of 0.70 was used as the acceptance criterion, and items with loadings below this threshold were excluded (Hair et al., 2019). Specifically, three items from employee green behavior (EGB1, 2, and 5), two items from employee affective commitment (EAC1 and EAC5), and six items from employee job performance (EJP1, 5, 6, 7, 8, and 9) did not meet the 0.70 threshold and were removed. Additionally, CA was employed to assess the internal consistency reliability of the measurement items. Table 2 shows that all variables exhibited values exceeding the acceptable threshold of 0.70. CR and AVE were used to evaluate convergent validity, with CR values above 0.70 considered satisfactory. In this study, CR values for all constructs ranged from 0.760 to 0.968, meeting the acceptable criteria (see Table 2). AVE values were expected to exceed 0.5 (Hair et al., 2019), and in this research, AVE values ranged from 0.673 to 0.871, which are also considered satisfactory. To address potential bias issues, we used the variance inflation factor (VIF) as recommended by Hair et al. (2019). VIF values exceeding 3.3 may indicate collinearity and the presence of common method bias. However, our research results revealed VIF values ranging from 1.000 to 1.006, all below the specified threshold of 3.3 (see Table 2). This suggests that common method bias is not a significant concern, and there is no multicollinearity problem in this study.

Furthermore, discriminant validity pertains to the extent to which a construct in a structural model can be reliably distinguished from other constructs present within the same model (Qayyum et al., 2022). To assess this, the AVE of each variable ought to be compared to the squared inter-variable correlation of that variable with all other reflectively assessed variables in the structural model (Hair et al., 2019). The correlations and the square root of AVEs for each variable are displayed in Table 3. It is evident that all the square-rooted AVEs significantly deviated from the diagonal correlation values, demonstrating satisfactory discriminant validity. Moreover, this research employed the heterotrait–monotrait (HTMT) ratio for further assessment of discriminant validity, following the suggestion of Hair et al. (2019). The HTMT method is considered a reliable approach for evaluating discriminant validity. For constructs that are conceptually comparable, an

Table 2 Construct reliability and convergent validity

Constructs	Items	Loading	CA	CR	AVE	VIF
Obedience to authority (OTA)	OTA1	0.912	0.864	0.935	0.779	1.006
	OTA2	0.820				
	OTA3	0.912				
Ethical incentive (EI)	EI1	0.880	0.86	0.876	0.779	1.000
	EI2	0.913				
	EI3	0.854				
Employee-perceived greenwashing (EPG)	EPG1	0.926	0.928	0.968	0.817	1.000
	EPG2	0.941				
	EPG3	0.882				
	EPG4	0.865				
Employee green behavior (EGB)	EGB3	0.883	0.815	0.901	0.730	
	EGB4	0.927				
	EGB6	0.742				
Employee green trust (EGT)	EGT1	0.865	0.896	0.926	0.704	
	EGT2	0.837				
	EGT3	0.878				
	EGT4	0.738				
	EGT5	0.871				
Employee green word-of-mouth (EGWOM)	EGWOM1	0.837	0.844	0.869	0.679	
	EGWOM2	0.886				
	EGWOM3	0.830				
	EGWOM4	0.738				
Employee affective commitment (EAC)	EAC2	0.754	0.848	0.876	0.687	
	EAC3	0.886				
	EAC4	0.866				
	EAC6	0.803				
Employee job performance (EJP)	EJP2	0.776	0.757	0.760	0.673	
	EJP3	0.860				
	EJP4	0.823				

Table 3 Discriminant validity, HTMT, and VIF

Construct	EAC	EGB	EGT	EGWOM	EJP	EPG	EI	OTA
Employee affective commitment (EAC)	0.829	**0.697**	**0.761**	**0.835**	**0.741**	**0.463**	**0.771**	**0.150**
Employee green behavior (EGB)	0.556	0.854	**0.681**	**0.636**	**0.332**	**0.480**	**0.732**	**0.151**
Employee green trust (EGT)	0.646	0.588	0.839	**0.788**	**0.717**	**0.434**	**0.576**	**0.165**
Employee green word-of-mouth (EGWOM)	0.706	0.528	0.687	0.824	**0.698**	**0.424**	**0.575**	**0.046**
Employee job performance (EJP)	0.591	0.265	0.606	0.562	0.821	**0.685**	**0.377**	**0.135**
Employee-perceived greenwashing (EPG)	−0.43	−0.46	−0.45	−0.404	−0.59	0.904	**0.189**	**0.358**
Ethical incentive (EI)	0.638	0.579	0.515	0.492	0.313	−0.17	0.883	0.098
Obedience to authority (OTA)	0.016	−0.09	−0.05	−0.005	−0.12	0.352	0.021	0.88

acceptable threshold value of 0.90 is appropriate, while for constructs that are conceptually distinct, a slightly lower threshold value of 0.85 is considered acceptable (Hair et al., 2019). All observed HTMT values fall below both the HTMT0.90 and HTMT0.85 thresholds, indicating satisfactory discriminant validity across all cases. The values presented in Table 3 provide evidence of the examination of discriminant validity based on the Fornell-Larcker criterion and HTMT ratios. Specifically, the HTMT ratios are represented by the bold values, while the remaining estimates pertain to discriminant validity.

4.2 Structural model evaluation

PLS-SEM provides optimal results when the structural model incorporates formative constructs. To evaluate the formative measurement models, (Hair et al., 2019) employ assessment criteria such as the relevance of indicator weights, indicator collinearity, and statistical significance.

The initial step in estimating the structural model involves computing the coefficient of determination (R^2) value. This value offers a comprehensive representation of the extent to which the variation in the dependent/endogenous variables can be explained by the independent variables in the model. In this study, the R^2 value indicates that the independent variable (OTA) accounts for 16.1% of the variance in EPG. Additionally, EPG itself accounts for 21.4%, 20.2%, 16.3%, 18.8%, and 35% of the variance in employee green behavior, green trust, green word-of-mouth, affective commitment, and job performance, respectively. Importantly, these values exceed the recommended threshold of 10% as suggested by Rahman et al. (2023).

Subsequently, the next step involves calculating Q^2, which measure the validated redundancy using the blindfolding command. Table 4 shows that the obtained Q^2 values for the constructs demonstrate a significant level of predictability in the proposed model. Furthermore, the evaluation of effect sizes, specifically f^2, has been emphasized (Hair et al., 2019).

Table 4 Hypotheses testing, coefficient of determination, and predictive relevance for the assessment of structural model

Hypothesis	Relationships	βeta	t-value	p-value	Decision	f^2	R^2	$Q^2 (=1\text{-SSE/SSO})$
Direct effect								
H1	OTA→EPG	0.351	8.785	***	Supported	0.146	0.161	0.113
H2	EPG→EGB	− 0.462	12.789	***	Supported	0.272	0.214	0.127
H3	EPG→EGT	− 0.450	13.026	***	Supported	0.253	0.202	0.088
H4	EPG→EGWOM	− 0.404	12.863	***	Supported	0.195	0.163	0.068
H5	EPG→EAC	− 0.434	11.811	***	Supported	0.232	0.188	0.104
H6	EPG→EJP	− 0.592	21.476	***	Supported	0.538	0.350	0.214
Moderation effect								
H7	OTA x EI→EPG	0.073	2.382	**	Supported			

OTA obedience to authority, *EPG* employee perceived greenwashing, *EGB* employee green behavior, *EGT* employee green trust, *EGWOM* employee green word-of-mouth, *EAC* employee affective commitment, *EJP* employee job performance

**$p < 0.05$; ***$p < 0.001$

Notably, Hair et al. (2019) classified f^2 values exceeding 0.35 as crucial, while those surpassing 0.02 were deemed satisfactory (see Table 4).

Lastly, the final phase of the study involved assessing the precision of the measurement model. To achieve this objective, the path coefficients and t-values were computed using the bootstrapping method on a subsample of 5000. The significance level for this analysis was set at 0.05 (Hair et al., 2019) (see Table 4). Additionally, Fig. 2 illustrates the results of the path analysis graphically. Both Table 4 and Fig. 2 provide evidence that all the proposed hypotheses were supported ($p < 0.05$).

4.3 Discussion of results

The study's H1 postulated that a higher degree of OTA leads to a lower level of perception of greenwashing, indicating a positive relationship between OTA and EPG. The findings indeed indicate that the impact of OTA on EPG was statistically significant ($\beta = 0.351$, $t = 8.785$, $p = 0.000$), providing support for H1. This finding implies that when employees believe that their bosses are always right and must unquestioningly follow their directives, their ability to perceive greenwashing is lower. Furthermore, employees are less inclined to critically evaluate the authenticity of the organization's claims regarding sustainability. This result aligns with prior work by Blome et al. (2017), who also noted a positive relationship between OTA and employees' perception of greenwashing.
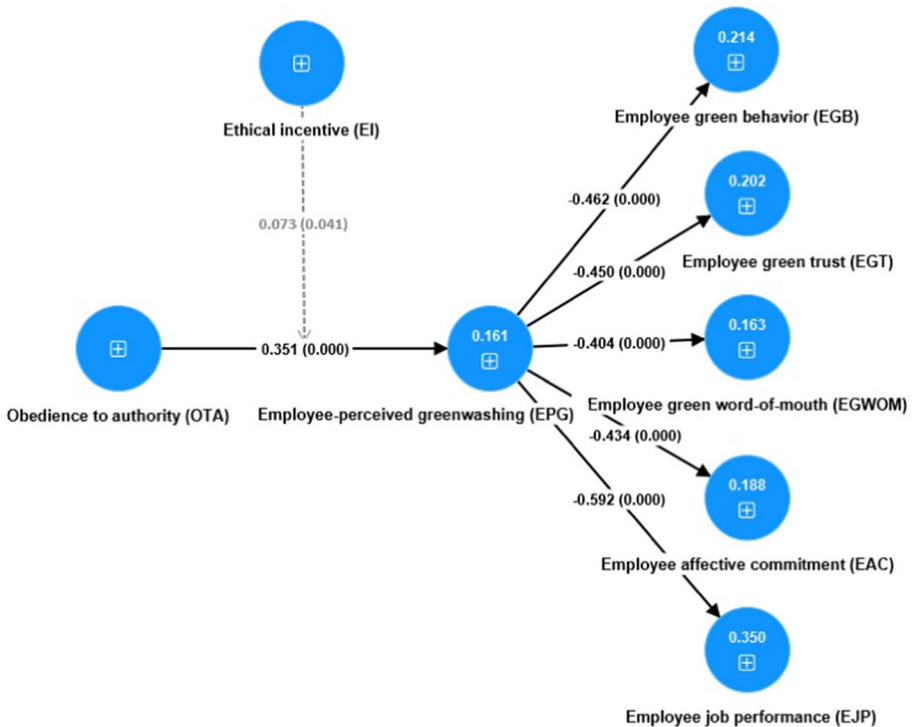
Fig. 2 Structural model

Additionally, *H*2, which posited that EPG will demonstrate lower levels of green behavior, received support ($\beta = -0.462$, $t = 12.789$, $p = 0.000$). This finding suggests a negative relationship between EPG and green behavior. In other words, as employees' perception of greenwashing increases (indicating a higher belief that the organization is being deceptive about its environmental efforts), their green behavior tends to decrease. Moreover, the results imply that when employees have EPG in their organization's initiatives, they may not perform tasks as expected and may not actively participate in sustaining the environment. This result aligns with previous research by Guerreiro et al. (2021), Nguyen et al. (2019), and Zhang et al. (2018) conducted in the context of consumer perspectives.

The study's *H*3, which posited a negative and significant effect of EPG on green trust, was supported ($\beta = -0.450$, $t = 13.026$, $p = 0.000$). This result indicates a negative relationship between EPG and employee green trust. It suggests that as EPG increases (indicating a higher belief that the organization is being deceptive about its environmental efforts), their trust in the organization's green claims tends to decrease. This finding supports the prior work by Guerreiro et al. (2021), Ha et al. (2022), and Okbagaber (2023) who also observed that when consumers perceive greenwashing in a company, it diminishes their trust in a company product integrity, transparency, and overall commitment to sustainability.

Furthermore, *H*4, which posited a negative and significant relationship between EPG green word-of-mouth communication, was supported ($\beta = -0.404$, $t = 12.863$, $p = 0.000$). This result implies that employees are less likely to recommend a company's product to others, encourage others to buy it, and may spread negative word-of-mouth when they have high levels of EPG. The beta coefficient suggests that a one-unit increase in EPG results in a 40.4% decrease in employee green word-of-mouth communication. This outcome aligns with previous research by Chen et al. (2019), Chen et al. (2014), Guerreiro et al. (2021), Zhang et al. (2018), who also observed a negative and significant relationship between consumer-perceived greenwashing and their word-of-mouth communication.

Additionally, *H*5, which suggested that EPG in a company's green initiative leads to a lower level of affective commitment, was supported ($\beta = -0.434$, $t = 11.811$, $p = 0.000$). The study's findings indicate a negative relationship between EPG and employee commitment. It further suggests an inverse relationship, with path coefficients revealing that a one-unit increase in EPG results in a 43.3% decrease in employee affective commitment. Furthermore, the results imply that when employees have EPG in their organization's green initiatives, they may not feel that they are a part of their companies, lack emotional attachment, and have a reduced sense of belonging to their companies. This result is consistent with prior work by dos Santos et al., (2022a, 2022b) and Santos et al., (2022a, 2022b).

This study's *H*6, which suggests a negative and significant effect of EPG on employee job performance, received support ($\beta = -0.592$, $t = 21.476$, $p = 0.000$). This finding infers that when employees have EPG in a company's green initiative, they may avoid meeting standards and may not effectively perform their tasks. The results indicate an inverse relationship, revealing that a one-unit increase in EPG results in a 59.2% decrease in employee job performance. This outcome of the research is consistent with previous work by Santos et al., (2022a, 2022b) who reported that when employees have EPG, their ability to effectively carry out job tasks is compromised. Additionally, our research findings supported the prior work of Westerman et al. (2022), who also posited that when employees have EPG, their motivation and engagement suffer, ultimately resulting in a decline in job performance.

Finally, regarding *H*7, which posited the moderating role of ethical incentives, it was supported ($\beta = -0.073$, $t = 2.382$, $p = 0.041$). This result implies that when ethical incentives are present, the detrimental influence of OTA on the EPG may be diminished, underscoring the potential significance of ethical motivations in alleviating greenwashing perceptions among employees. It furthers suggests that the negative impact of blind OTA on EPG is weaker when ethical incentives are present. This finding of our research is consistent with prior work of Blome et al. (2017), who highlighted the importance of ethical incentive moderating effect in the context of greenwashing.

5 Conclusion

Grounded on the agency theory Eisenhardt (1989), social exchange theory Blau (1964), and organizational support theory Eisenberger et al. (1986), this research aimed to investigate the antecedents and consequences of EPG, while also examining the moderating role of ethical incentives. This study analyzed a sample of 470 employees from various industries, including construction, food and beverages, manufacturing, real estate, services, and transportation, in China, specifically in the provinces of Hubei, Jiangsu, and Shandong. The study revealed a positive effect of OTA (as an antecedent) on EPG, along with a negative impact of EPG on employee green behavior, trust, green word-of-mouth, affective commitment, and job performance (as consequences). Furthermore, it found that companies offering ethical incentives could mitigate the detrimental influence of OTA on EPG.

5.1 Theoretical contributions

Our study contributes to the existing body of literature on greenwashing in several significant ways. Firstly, it helps resolve the ongoing debate surrounding the profitability of corporations engaging in greenwashing. Lyon et al. (2015) emphasized the need for additional empirical research on the consequences of greenwashing in their comprehensive theoretical examination of the topic. Considering the perspective of stakeholders, especially employees, the relationship between employees and the organization is recognized as a strategic asset that can provide companies with a competitive advantage. Therefore, organizations should integrate stakeholder interests into their overall strategy, as noted by Katz et al. (2022), Norton et al. (2015), and Santos et al., (2022a, 2022b). From this standpoint, the reactions of various parties involved can be seen as the pathway through which the impact of greenwashing on corporate performance becomes evident. Previous research has primarily focused on the effects of greenwashing on external stakeholders' responses, such as consumers (Guerreiro et al., 2021; Okbagaber, 2023; Rahman et al., 2023). However, there is a noticeable gap in the literature when it comes to examining the influence of greenwashing on internal stakeholders (Santos et al., 2023b). Our study addresses this gap by shedding light on the adverse outcomes experienced by employees as a result of corporate greenwashing.

Secondly, prior research conducted in the context of employee mainly focuses on the consequences of perception of greenwashing (Li et al., 2022; Santos et al., 2022a, 2022b; Westerman et al., 2022) and a few of them focuses on antecedents of greenwashing (Blome et al., 2017). However, there exists a dearth of study comprising both antecedents and

consequences of greenwashing in the context of employees (Santos et al., 2023b). In this vein, we address this gap by exploring how OTA impacts EPG and its impacts on employee outcomes (i.e., green behavior, trust, word-of-mouth, affective commitment and job performance) and how ethical incentives diminished the impact of OTA on EPG. In doing so, our research makes a valuable theoretical contribution to the existing body of knowledge on greenwashing.

Lastly, particular attention is given to the role of ethical incentives in shaping the impact of obedience on perceptions of greenwashing. Previous studies have often regarded obedience as a direct indicator of greenwashing perceptions (Brief et al., 2000; Spillane et al., 2022). By acknowledging the potential influence of ethical incentives, this research offers a more sophisticated understanding of the functioning of obedience in the realm of sustainability. In addition, this research elucidates that the disclosure of ethical incentives has the capability to temper the detrimental impacts of obedience on the perceptions of greenwashing (Blome et al., 2017). It brings to the forefront the possibility of utilizing moral practices as a tactical instrument to cultivate a climate of sustainability and alleviate the undesirable outcomes stemming from adherence to potentially unethical instructions.

5.2 Practical contributions

Our study also has offered several implications for the practitioners. Firstly, it demonstrates that employees do indeed possess concern for and possess the ability to discern the genuineness of their firm's green initiative and practices communications and underscores the reality that employees' perception of corporate greenwashing has the potential to impact their outcomes. Our examination proposes that managers ought to exercise caution in relation to potential risks when engaging in green communications. Department of Human resource and marketing or corporate social responsibility should collaborate to ensure that information pertaining to green practices, production, R&D, and supply chains that demonstrates genuine effort is widely disseminated throughout the organization. Such information is substantive and arduous to replicate, thus transmitting a more robust indication to the pertinent stakeholders (Baah et al., 2021). By doing so, a corporation could strengthen its trustworthiness in terms of environmental sustainability and diminish employee doubt, resulting in mutually beneficial accomplishments in terms of financial and environmental performance (Vollero et al., 2016).

Secondly, it is imperative for organizations to give precedence to the concept of authenticity when it comes to their endeavors in sustainability. This necessitates going beyond mere surface-level green initiatives and genuinely dedicating themselves to eco-friendly practices. The utmost importance lies in maintaining a transparent and sincere line of communication regarding these efforts. By doing so, organizations have the ability to restore trust with their employees, thereby cultivating a sense of confidence in their green initiatives (Brown et al., 2015; Chen et al., 2013). Ultimately, this newfound confidence can have a positive impact on employees' environmentally-friendly behavior, including but not limited to waste reduction, energy conservation, and the utilization of sustainable resources (Strauß et al., 2023).

Thirdly, it is important for companies to allocate resources towards educational and engagement programs for employees with a focus on sustainability. It is crucial for employees to comprehend the genuine environmental consequences of their actions and the organization's dedication to sustainability. By offering training, access to resources, and opportunities to participate in eco-friendly initiatives, companies can stimulate employees' trust in their

environmentally responsible practices, encourage positive communication within and outside the organization, and strengthen their emotional commitment. Furthermore, incorporating sustainability performance into employee assessments can serve as a motivation and incentive for individuals to align their efforts with the company's green objectives. Ultimately, addressing the issue of greenwashing not only promotes a more environmentally conscious workplace but also enhances overall job performance and organizational success. Lastly, the moderating role of ethical incentives suggests that the execution of ethical incentives, such as incentives for sustainable conduct or open reporting, can serve as a potent strategy to harmonize employees' perceptions with authentic sustainability endeavors. This furnishes actionable counsel for corporate social responsibility and sustainability professionals.

5.3 Limitations and future directions

The current research has certain limitations that should be acknowledged. Firstly, the generalizability of our study results may be limited due to our exclusive focus on Chinese enterprises. Future research is needed to validate the stability of these findings in different countries, considering cultural and institutional variations. Researchers should exercise caution when applying our outcomes to other nations. Additionally, the data collected through self-report measures might be susceptible to selection biases and common method biases (Podsakoff et al., 2003). Subsequent studies could enhance data quality by incorporating information from various sources, such as job performance evaluations provided by individuals other than the employees themselves.

Secondly, our study only examines the direct effect of OTA on EPG. It is possible that OTA has direct effects on employee outcomes (employee green behavior, trust, word-of-mouth, affective commitment, and job performance). Therefore, future studies can explore both the direct and indirect effects of OTA on EPG and its consequences. Lastly, this study does not investigate the indirect effect of EPG on the relationship between antecedents and consequences of EPG. Additionally, ethical incentives are only examined as a moderator, and their direct effect on EPG is not explored. Future research is recommended to examine the mediating role of EPG and the direct impact of ethical incentives on EPG.

Declarations

Consent to participate Not applicable.

Consent to publish Not applicable.

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