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# Frontline resilience in the retail realm: the role of moral disengagement in understanding employee behavior in the post-pandemic uncertainties

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## Abstract

In the wake of the pandemic, retail services—especially vulnerable to ethical dilemmas due to heightened market instability—demand a deeper understanding of service employees' behaviors. This research investigates the impact of market uncertainties on organizational justice and behaviors, with a specific examination of the moderating role of moral disengagement. An online survey was used to collect data from 255 retail service employees. Structural equation modeling (SEM) with the partial least squares (PLS) approach was applied. Findings suggest that market uncertainties influence employees' justice perceptions. Intriguingly, in conditions of high moral disengagement, the relationship between justice perception and citizenship behaviors was strengthened, indicating a nuanced interplay of ethical perceptions amidst uncertain environments. This study is the first attempt to explore the unique role of moral disengagement in understanding frontline employees' behaviors, which can offer insights into how employees' ethical considerations evolve in complex, uncertain business environments.

**Keywords** Retail service, Market uncertainties, Organizational justice, Citizenship behavior, Moral disengagement

## Introduction

Service employees in the retail sector are confronted with considerable challenges of uncertainty in the market stemming from various factors, including inadequate market demand forecasting and/or a lack of scrutiny of the behavior and needs of consumers [15, 32]. Indeed, the COVID-19 pandemic has amplified this turbulence, deeply affecting the industry and leading to both economic consequences and increased feelings of insecurity among those employed in the retail service sector [15, 37]. This is evident in the changing employment landscapes, where the retail service sector has seen a

significant decline, with nearly 800,000 job losses, a stark contrast to the loss of roughly 200,000 jobs between 2017 and 2019 [43].

This shift has promoted a new emphasis on "Service Ethics". This approach emphasizes not just the moral and fair treatment of customers but also, and importantly for this study, the employees within the retail service industry. Amidst such upheavals, frontline retail employees have started to emphasize the importance of ethical practices in their workplace, seeking just and fair treatment during these uncertain times [15]. Recognizing this urgency, some retail companies, such as Amazon, have embarked on an endeavor to establish themselves as the "Earth's Best Employer" [43]. In light of these evolving ethical considerations, Amazon has implemented several significant measures aimed at mitigating and redressing perceived injustices experienced by their service employees. These initiatives include salary increases, the

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introduction of anytime pay options, and a historic decision to permit unionization for the first time in 30 years [43]. This increased focus on ethics within the service sector is crucial not just for employee welfare, but also for building trust and loyalty with customers, reinforcing the importance of “Ethics as Service” in today’s challenging business landscape [42].

While extant research provides invaluable insights into organizational justice and its implications for service employees’ citizenship behaviors [4, 20, 36], few have examined these dynamics in the context of a rapidly evolving, uncertain, and digitized retail service environment, such as the one induced by the COVID-19 pandemic. According to Uncertainty Management Theory (UMT), uncertainty arises when there is insufficient information available to an organization or its employees to effectively carry out a given task [10]. The theory suggests three different types of work environment uncertainties—i.e., market, technological, and competitive [10]. Market environment uncertainty pertains to the level of unpredictability encompassing external market conditions, while technological uncertainty refers to the ambiguity associated with the changes in technology and competitive uncertainty associated with competitive industry dynamics [10, 13]. Although those uncertainties create ambiguity in the work environment, which triggers anxiety and stress, thus hampering service employees’ citizenship behaviors [27], there has been a lack of discussion on how different types of uncertainties influence perceived importance of organizational justice—especially among retail service employees—after the pandemic.

Furthermore, this study focuses on the role of moral disengagement in the relation between organizational justice and organizational citizenship behaviors (OCB)—i.e., individually directed (OCBI) and organization-directed (OCBO) [40]—under the post-pandemic era. OCBI refers to behaviors aimed at supporting fellow colleagues within the organization, whereas OCBO encompasses behaviors that contribute to the overall performance of the organization [6]. Moral disengagement refers to a cognitive process in which employees reconstruct their behaviors, the effects of their behavior, or the environment in which they try to lessen their own responsibility for morally disengaged actions [33]. Existing literature generally posits moral disengagement as a factor that attenuates the positive relationship between perceptions of organizational justice and citizenship behaviors [31, 33].

However, given the distinct and challenging post-pandemic context, this relationship may manifest differently for the following reasons, especially for service

employees in the retail sector. First, the uncertainties and changes brought about by the pandemic may shape frontline employees’ perceptions of fairness or justice within their organizations and levels of moral disengagement [38]. This might be seen as employees rationalizing unethical behaviors, such as withholding effort or not adhering to safety guidelines, as necessary in the face of these unprecedented challenges. Second, in the uncertain post-pandemic retail environment, frontline employees might be more prone to justify their morally disengaged behaviors due to the added pressures and complexities of their service duties [8]. Therefore, this susceptibility could be further intensified for employees who are already exhibiting high levels of moral disengagement. Consequently, the connection between perceived organizational justice and their behavior in the organization may become more pronounced, indicating the possible differential impact of moral disengagement under varying levels of perceived importance about organizational justice, which may have been influenced by uncertainties in the retail environment. Therefore, understanding these nuanced dynamics is crucial in shaping managerial strategies to cultivate a fair, supportive, and productive workplace amidst continuing uncertainties.

Therefore, the purpose of this study is to examine the influence of business environment uncertainty on retail service employees’ perceptions of organizational justice and their consequent citizenship behaviors, with a focus on the moderating role of moral disengagement. By adopting UMT, we probe the post-pandemic retail industry’s challenges and their impact on service employee attitudes and actions. To our knowledge, this represents the first attempt to identify the moderating role of moral disengagement in the justice–behavior relationship in the retail service sector during the post-pandemic retail era. Our findings hold valuable implications for companies seeking to enhance their understanding of service employee behavior and organizational performance in these uncertain times.

The rest of the paper is organized as follows: The literature review section provides an overview of UMT as well as a review of key literature regarding uncertain retail environment, organizational justice, and employee citizenship behavior. Subsequently, the next section explains the formulation of hypotheses and the development of the research model. Following this, the methodology, along with details on data collection and analysis techniques, is elucidated. The presentation of results and discussion are contained in the next sections. Finally, conclusions, implications, and limitations are presented in the last section.

## Literature review

### Uncertain environment in the retail service frontline

The service industry, especially those offering retail services, is often considered one of the most vulnerable businesses primarily because it represents the terminal point of a complex supply chain that connects services and products to consumers across numerous countries [42]. The industry gets disrupted due to the COVID-19 pandemic, and it has been expedited in the post-pandemic era [42]. Specifically, the pandemic has triggered inflation within the USA as well as the whole world, which led to price increases, thus resulting in changes in bank loan policies, money exchange rates, and uncertain geopolitical situations that affected the retail service sector [35]. In the wake of the massive disruption, the level of market uncertainty has escalated across multiple dimensions [42]. This has manifested in forms such as heightened market competition due to shifting consumer patterns and unanticipated demands, as well as the accelerated imperative for digital transformation [42, 45]. Many retail companies failed to plan for the future due to unpredictable market competition, which created a significant challenge for them [35].

Scholars suggested that it is crucial for businesses to understand uncertainties in the organizational setting to anticipate changes and implement innovative solutions to stay competitive [13, 42]. Shankar et al. [41] mentioned that when an organization comprehends the potential impacts of uncertainties, it can devise strategies and contingency plans to mitigate risks and seize opportunities and foster a more resilient organizational culture [13]. To comprehend the impact of uncertainties under the organizational context, Brashers's [10] UMT provides a theoretical lens. According to the theory, organizational uncertainty can be described as a status of flux, wherein the predictability of resource availability is compromised, and the predictability of the business environment is obscure [10]. In light of the unpredictable nature of uncertainty in the aftermath of COVID-19, scholars emphasize the necessity for strategic organizational responses to safeguard their survival and continuity [10, 13]. Darvishmotevali et al. [13] explained that organizations need to undertake objective measures to secure their market presence. These measures may encompass the downsizing of business operations, reduction of profit margins, retraction of employee salaries or benefits, and in some instances, workforce reduction [13]. Conversely, other scholars suggested that the complexity of business environment uncertainty can be better elucidated through the lens of organizational behavior, as it extends beyond the scope of immediate or tangible measures [14, 42]. Indeed, these scholars emphasized the importance of understanding organizational behavior and dynamics

as instrumental in predicting and managing responses to environmental shifts and uncertainties (i.e., [13]).

Drawing upon the UMT, scholars have described uncertainty in the retail business environment from three perspectives: (a) market environment, (b) technological environment, and (c) competitive environment [10, 13]. Each perspective provides a unique avenue to explore and comprehend the complex nature of uncertainty in the organizational behavior context. *Market environment uncertainty* emerges from shifts in consumer preferences, price sensitivity, and evolving product requirements [10]. A lack of insights into consumer attitudes and tastes can engender considerable market environment uncertainty, particularly for retail companies [23]. Youn et al. [45], for example, examined changes in retail consumers' shopping channel preferences during the pandemic to underscore this aspect. Their results revealed significant COVID-19 impacts on consumer attitudes, perceived behavior control, and subjective norms [45]. *Technological environment uncertainty* pertains to alterations in an organization's technological resources [10]. Businesses that fail to keep pace with recent technological advancements may encounter unpredictability or ambiguity, exerting considerable influence on their operations [22]. Within the retail service sector, the COVID-19 pandemic created the need for the adoption of innovative technologies such as cloud computing, robotics, 5G, virtual reality (VR), and artificial reality (AR) (e.g., [42]). This indicates that retail companies have confronted escalating technological uncertainties in the aftermath of the pandemic. *Competitive environment uncertainty* refers to the degree or level of ongoing competition with the emergence of new competitors under prevailing market conditions [10]. Kardes et al. [22] explored the association between various environmental factors and the market share differential between multinational and local retailers after the pandemic. They found that local retailers often confront competitive uncertainty when unable to compete with multinational competitors' offerings.

### Organizational justice under uncertain retail environment

The concept of organizational justice was initially derived from the equity theory, which explores employees' perceptions of fairness within organizational contexts [1, 34]. This theory posits that individuals innately assess the proportionality of their perceived work input to output, often benchmarking this ratio against that of their colleagues [1]. Within the workplace, the 'input' is typically conceived as the time and effort expended in one's role, while 'output' pertains to rewards such as promotions, salaries, or recognition [34]. Employees cultivate certain expectations concerning the output in relation to the input they contribute [34]. Fairness in these exchanges

can serve as a positive motivator for employees, while perceived unfair treatment (i.e., inequity) can yield detrimental effects. This concept was further refined within the framework of Social Exchange Theory (SET) [9], which underscores the significance of interpersonal relationships. SET describes a relationship dynamic predicted by cost–benefit analysis between two individuals [9]. A central tenet of this theory is that the effort invested by an individual in a person-to-person relationship can shape the future characteristics of that connection [15]. In an organizational context, SET has been instrumental as individuals frequently attribute human-like characteristics to organizations [15]. This prompts employees to establish relational bonds with other employers or supervisors, mirroring the principles of social exchange [36].

Regarding organizational justice, previous research delineates three types of organizational justice: distributive, procedural, and interactional justice [3, 11]. *Distributive justice* concerns the fairness of organizational outcomes such as pay, benefits, and promotions [11]. It is underpinned by the principle of equity, suggesting that employees should receive outcomes commensurate with their contributions [25]. *Procedural justice* pertains to the processes and procedures organizations employ to deter these outcomes [3]. Regardless of the result, employees desire these processes to be executed in a manner that is consistent, transparent, and fundamentally fair [3]. For instance, the process of employee performance evaluation should be made transparent to all employees, reinforcing procedural justice [3]. *Interpersonal justice* captures evaluations of daily interactions within the workplace in terms of sincerity, dignity, respectfulness, and honesty, which is independent of procedural issues or outcomes [11, 25]. More broadly, the manner in which employers engage and interact with their employees in routine work life constitutes the essence of interpersonal justice [15].

Recent scholars have explored the ramifications of organizational justice in the face of uncertain retail market conditions, specifically those engendered by the COVID-19 pandemic. Pantano et al. [35] investigated the challenges retailers confronted during the COVID-19 pandemic. Their findings underscored the significant impact of the pandemic on the internal management of retail companies, thus leading to the implementation of cost-saving strategies. They explained that increased organizational uncertainties, in turn, often resulted in service employees' perceived unfairness or injustice in their workplace. Similarly, Kim and Woo [23] investigated the mitigation strategies adopted by global fashion retailers in response to the pandemic. Their findings show that these retailers were compelled to make difficult decisions, often perceived as unfair treatment of

their service employees. Further, Schleper et al. [39] investigated the impacts of the COVID-19 pandemic on operations and supply chain management in the retail industry. Their research indicated that the pandemic-included ambiguity disrupted retail companies' overall management, consequently affecting their internal procedures of organizational justice. McCartney et al. [30] also examined the COVID-19-induced lockdown's impact on service employees in the retail sector (i.e., hospitality). Findings revealed that the pandemic has forced organizations to reevaluate their structure and management processes (i.e., benefits and workload distribution). This restructuring raised legal and ethical concerns, as maintaining transparency, trust, and accountability proved challenging [30]. Overall, these studies collectively suggest that the post-pandemic work environment uncertainties have significantly influenced retail organizations' management approach and the enactment of justice within their operations.

#### **Organizational citizenship behavior**

Organizational citizenship behavior (OCB) is characterized by employees aligning their personal goals with those of the organization and willingly going beyond their contractual duties to achieve these shared goals [3, 44]. OCB encompasses attributes such as assisting colleagues without any expectation of reciprocation, which, in return, demonstrates courteous behaviors (i.e., gentle and polite) and maintains organizational discipline [3]. Consequently, OCB contributes to the establishment of a positive social and psychological work environment that can increase job performance.

Previous researchers have classified OCB into two categories: behavior targeted toward individuals (OCB-Interpersonally directed; OCBI) and behavior aimed at the organization (OCB-organizationally directed; OCBO) [6, 44]. OCBI pertains to behaviors that favor or assist other coworkers in the organization, such as extending help to colleagues in need, sharing suggestions, and expressing concern for coworkers' welfare [6, 44]. OCBO, on the other hand, encompasses behaviors that assist the organization's overall performance—for example, adhering to company rules, notifying absences beforehand, attending organizational events, and upholding the organization's reputation [6, 44].

Previous scholars suggested the importance of employees' OCB in accomplishing financial, social, and environmental organizational performance, especially within the retail industry [23, 27]. Lee and Ha-Brookshire [27] found that service employees' positive attitudes and behaviors significantly contributed to the attainment of sustainability performance goals within retail businesses. Kim and Woo [23] echoed similar

outcomes while exploring the retailer's response strategies to recover competitiveness post-pandemic. This study further underlined the considerable positive impact of service employees' voluntary commitment on the organization's holistic performance.

## Hypothesis development

### Effect of the uncertainty environment on organizational justice

Uncertainty within the retail business environment can considerably affect the justice system of an organization [13]. The ambiguity arising from uncertainty can influence the overall management, leading to potential unjust treatment of employees [19]. Amid uncertainty, organizations often undergo significant changes, such as alterations in work hours, and policy reforms, which might result in uncertainties in their workplace environment [18]. Under such circumstances, employees may perceive organizational justice practices as skewed or unjust. Moreover, such practices cultivate distrust among employees, which can cement overtime, leading employees to perceive even justice practices as unfair [13]. Uncertainty in the business environment can impact the distributive justice system as employees grapple with distrust regarding the organization's financial future and their fair compensation, benefits, and promotion prospects [26]. Furthermore, it might impact the procedural justice system when employees suspect a lack of transparency in the decision-making process due to unstable business conditions [26]. This shows that uncertainty can additionally impact interpersonal justice when employees feel unfairly treated by their employers or perceived favoritism toward fellow employees [18].

Darvishmotevali et al. [13] investigated the influence of three major environmental uncertainty facets within the hospitality industry. They found that organizations become more agile during uncertain times, which makes the decision-making process increasingly complex, often resulting in perceived unjust treatment of service employees [13]. Similarly, Inman and Green [19] studied the influence of business environment uncertainty on global supply chain management and found that such uncertainty could introduce ambiguity within the manufacturing industries. Matta et al. [29] also found that uncertainty induces fluctuations in employees' perceptions of fair treatment over time. Based on these observations, we put forward the following hypothesis:

*H1* Market environment uncertainty will significantly increase retail service employees' perception of the importance of—(a) distributive justice, (b) procedural justice, and (c) interactional justice.

*H2* Technological environment uncertainty will significantly increase retail service employees' perception of the importance of—(a) distributive justice, (b) procedural justice, and (c) interactional justice.

*H3* Competitive environment uncertainty will significantly increase retail service employees' perception of the importance of—(a) distributive justice, (b) procedural justice, and (c) interactional justice.

### Effect of organizational justice on citizenship behavior

According to Social Exchange Theory (SET), individuals within an organization tend to engage in various social exchanges, wherein resources such as information, support, recognition, and rewards are exchanged [36]. Previous researchers found that employees who receive fair treatment (i.e., justice) from their employers are likely to exhibit enhanced commitment and citizenship behaviors toward their organization, thereby establishing an intersection between justice and social exchange [4, 36]. Furthermore, when employees perceive that their organization advocates equitable treatment policies irrespective of age, gender, experience, and job position, they are inclined to engage in behaviors surpassing their job prerequisites [20]. Such behaviors may encompass assisting colleagues, providing suggestions to new employees, and contributing toward organizational objectives [4]. Contrarily, employees discerning perceived injustice tend to become demotivated and dissatisfied with their job roles.

In a study by Jafari and Bidarian [20], the relationship between organizational justice and OCB was explored through a survey conducted among employees (i.e., staff members) of a specific university. The results showed that components of organizational justice (i.e., distributive, procedural, and interactional) positively enhanced their OCB intentions. Similarly, Aguiar-Quintana et al. [4] assessed the relationship between the justice perceptions of employees (i.e., international hotels) and their OCB. The study inferred that fairness in the organization is a key antecedent to promoting employees' OCB, as fairness invokes moral or quasi-moral obligations superseding affective responses. Jnaneswar and Ranjit [21] also evaluated a model to examine the relationship between organizational justice and OCB among employees of various Information Technology (IT) organizations, using psychological ownership as an intervening variable. The study demonstrated that organizational justice influenced both OCB and psychological ownership positively. Consequently, we suggested that perceived justice on treatment, policies, and procedures (i.e., organizational justice) among service employees of retail companies

would influence their OCBI and OCBO. Therefore, we hypothesize the following:

*H4* Retail service employees' perception of the importance of distributive justice will increase their perception of organizational citizenship behavior—(a) OCB-I and (b) OCB-O.

*H5* Retail service employees' perception of the importance of procedural justice will increase their perception of organizational citizenship behavior—(a) OCB-I and (b) OCB-O.

*H6* Retail service employees' perception of the importance of interactional justice will increase their perception of organizational citizenship behavior—(a) OCB-I and (b) OCB-O.

#### **Moral disengagement: moderation effect**

Moral disengagement refers to the cognitive process by which individuals rationalize or justify their involvement in unethical actions or behaviors [31, 33]. This rationalization allows individuals to participate in unethical conduct without feeling distressed or experiencing guilt. The term moral disengagement was first coined by Bandura [7], who outlined it as a group of cognitive mechanisms that enable an individual to disassociate with their internal moral standards without feeling guilty or discomfort. The process represents ways where individuals distance themselves from unethical actions [33]. This involves justifying immoral actions as serving a greater purpose, using language to lessen the perceived negativity of such actions, comparing unethical behavior to more harmful actions, blaming others or authorities, minimizing the perceived impact of their actions, dehumanizing others, and blaming victims for their own mistreatment [7, 31].

We suggest that Bandura's theory of moral disengagement [7] elucidates the cognitive processes of assessing organizational justice regarding their organizationally preferred behaviors. Especially in post-pandemic uncertain organizational settings, the moral disengagement theory shed light on how individuals within retail companies may respond to ethical challenges [8]. The unique conditions of the post-pandemic environment, characterized by uncertainty, influence the way people employ moral disengagement mechanisms within organizations [38]. For instance, employees tend to morally justify certain actions, such as engaging in not reporting misconduct, by framing them as necessary for job security or organizational survival in the face of economic uncertainty [8]. Scholars mentioned that their actions are essential for the greater good, protecting their livelihoods

or those of their colleagues [8]. Furthermore, some employees shift the responsibility for their actions to the organization, attributing their behavior to pressure from a challenging work environment resulting from the pandemic [38]. In addition to that employees downplay the potential negative consequences of their actions, especially if they believe their actions are necessary to maintain their livelihoods during these uncertain times [38].

Indeed, scholars suggested that moral disengagement may act as an influential factor in the relationship between organizational justice and OCB, as it often leads to unfavorable consequences for both individuals and organizations [31]. More specifically, employees with higher levels of moral disengagement tend to indulge in unethical behavior while justifying lower standards of justice in the workplace as acceptable [38]. These individuals tend to refrain from addressing injustice or unethical conduct in the workplace, as they employ cognitive mechanisms to justify and/or rationalize their unethical behavior [31]. Therefore, employees exhibiting a high degree of moral disengagement might be less inclined toward engaging in OCB compared to their counterparts with low levels of moral disengagement [31].

Recent research in this area provides support for these observations. For instance, Newman et al. [33] conducted a systematic review of moral disengagement in the workplace, and the findings of their study show that moral disengagement significantly weakened the perception of organizational justice and OCB. Further, Seriki et al. [40] explored the role of moral disengagement in counterproductive behavior among professionals in the insurance and real estate industries. They suggested that the relationship between job-related complexity and a salesperson's counterproductive behavior was better understood when considering the role of moral disengagement as it lowers organizationally supportive behaviors among employees. Other scholars investigated the influence of perceived overall injustice on employees' deviant behavior when considering moral disengagement [38]. The findings revealed that morally disengaged employees are more prone to engaging in organizational deviance when they perceive unfair treatment.

In accordance with prior research, it is established that moral disengagement tends to weaken the perceived organizational justice and, subsequently, organizational citizenship behavior, pointing toward its potential role as a moderator within the relationship between justice perceptions and organizational behavior, especially after the pandemic [38, 40]. This underscores the need to further explore how moral disengagement might influence the dynamics between perceived justice and organizational behaviors in varying contexts. Specifically, we suggest among morally

disengaged employees, the association between perceptions of organizational justice and organizational citizenship behaviors may be reinforced in uncertain market environments. Amid the context of heightened uncertainty, such as a post-pandemic environment, service employees may morally disengage to cope with the stressors associated with uncertainty, which may increase their reliance on and expectation of perceived justice in their workplace. In such uncertain circumstances, moral disengagement could potentially enhance the link between the perceived importance of organizational justice and interpersonally directed citizenship behaviors (OCBI). Similarly, when considering the relationship between service employees' perceived importance of organizational justice and organization-directed organizational citizenship behaviors (OCBO), moral disengagement could also act as a positive moderator, especially in uncertain situations such as a retail market in the post-pandemic era. Service employees may justify their enhanced organizational behaviors through moral disengagement as a means to navigate the complexities of a changing environment. Consequently, this leads us to propose:

*H7* Moral disengagement has a positive moderating effect on the relationship between retail service employees' perceived importance of organizational justice—(a) distributive, (b) procedural, and (c) interactional justice—and OCBI.

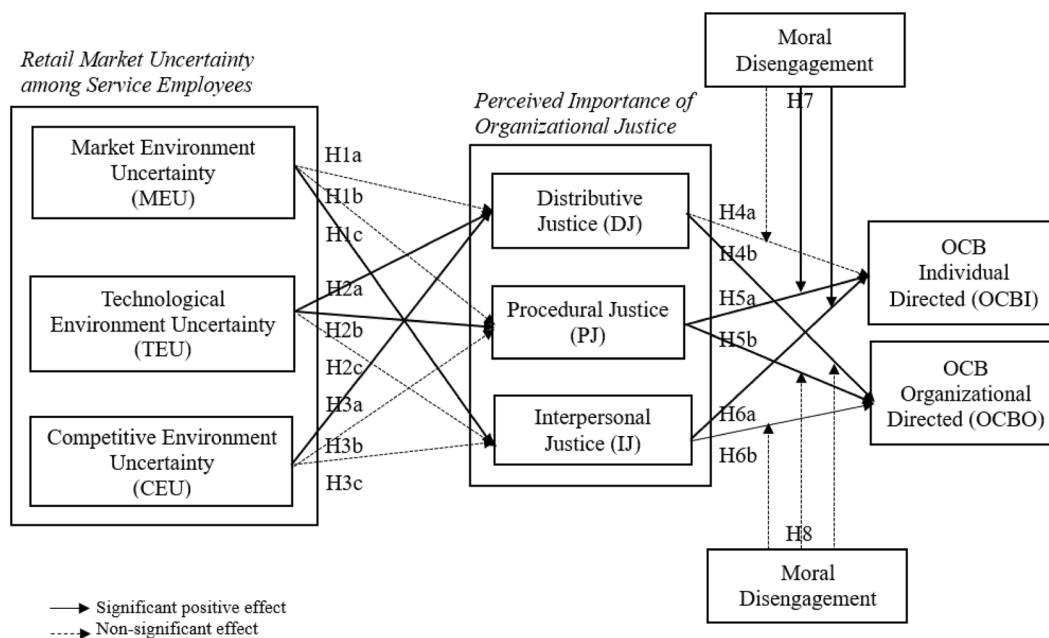
*H8* Moral disengagement has a positive moderating effect on the relationship between retail service employees' perceived importance of organizational justice—(a) distributive, (b) procedural, and (c) interactional justice—and OCBO.

The research model is presented in Fig. 1.

**Method**

**Survey development and measurement**

An online survey questionnaire was developed (Table 1). To measure business environment uncertainties, we adapted three items to measure market ( $\alpha=0.98$ ), technological ( $\alpha=0.84$ ), and competitive ( $\alpha=0.96$ ) environment uncertainty from previous scholars [13, 14]. To measure market environment uncertainty, we asked about retail service employees' perception of shifts in customer preferences and product-related needs, while technological environment uncertainty asked about technological changes, and competitive environment uncertainty asked about current promotions and price wars [14]. We also measured the perceived importance of organizational justice—i.e., distributive justice ( $\alpha=0.96$ , four items), procedural justice ( $\alpha=0.85$ ; three items), and interpersonal justice ( $\alpha=0.94$ ; four items—by adoption of scales from Afzalur Rahim et al. [2]). To measure distributive justice, we asked about the perceived importance of rewards and benefits for their contribution, while procedural justice asked about the importance of fair organizational decision-making process in the company, and



**Fig. 1** Research model

**Table 1** Assessment of measurement model on factor loading, CR and AVE

Construct	Loading	CR	AVE
Market environment uncertainty (MEU)		0.757	0.514
In our kind of business, customers' product preferences change quite a bit over time	0.752		
Our customers tend to look for new products all the time	0.792		
New customers tend to have product-related needs that are different from those of our existing customers	0.590		
Technological environment uncertainty (TEU)		0.833	0.625
The technology in our industry is changing rapidly	0.787		
A large number of new product ideas have been made possible through technological breakthroughs in our industry	0.771		
The technological changes in this industry are frequent	0.813		
Competitive environment uncertainty (CEU)		0.791	0.559
Competition in our industry is cutthroat	0.669		
There are many 'promotion wars' in our industry	0.748		
One hears of a new competitive move almost every day	0.819		
Distributive justice (DJ)		0.929	0.766
It is important that my organization provides me with rewards that I deserve	0.870		
It is important for me to satisfy with the rewards I receive from my organization	0.889		
I feel that the rewards I receive from my organization are fair	0.878		
An outsider observer can say that my organization gives me adequate rewards	0.864		
Procedural justice (PJ)		0.856	0.666
It is crucial that formal processes in my organization can challenge inappropriate decisions	0.799		
Formal procedures in my organization ensures that officials do not allow personal biases to affect their decision	0.770		
My organization have formal channels that allow employees to express their views and opinions before decisions are made	0.874		
Interpersonal justice (IJ)		0.880	0.648
It is important that my supervisor is polite to me	0.786		
It is important that my supervisor treats me in a kindly manner	0.769		
It is important that my supervisor is honest with me	0.838		
It is important that my supervisor is truthful to me	0.824		
Organizational citizenship behavior individual (OCBI)		0.848	0.583
I help others who have been absent	0.757		
I willingly give your time to help others who have work-related problems	0.735		
I show genuine concern and courtesy toward coworkers, even under the most trying business or personal situations	0.786		
I assist others with their duties	0.776		
Organizational citizenship behavior organization (OCBO)		0.899	0.642
I defend the organization when other employees criticize it	0.801		
I show pride when representing the organization in public	0.785		
I express loyalty toward the organization	0.793		
I take action to protect the organization from potential problems	0.805		
I demonstrate concern about the image of the organization	0.820		
Moral disengagement (MD)		0.951	0.708
It is okay to spread rumors to defend those you care about	0.843		
Taking something without the owner's permission is okay as long as you're just borrowing it	0.871		
Considering the ways people grossly misrepresent themselves, it's hardly a sin to inflate your own credentials a bit	0.769		
People shouldn't be held accountable for doing questionable things when they were just doing what an authority figure told them to do	0.824		
People can't be blamed for doing things that are technically wrong when all their friends are doing it too	0.885		
Taking personal credit for ideas that were not your own is no big deal	0.865		
Some people have to be treated roughly because they lack feelings that can be hurt	0.864		
People who get mistreated have usually done something to bring it on themselves	0.801		

CR Composite reliability; AVE Average variance extracted



interpersonal justice asked about the interaction between immediate supervisor and service employee [2]. Items that measured service employees' perception of moral disengagement were adapted from Moore et al. [31],  $\alpha=0.85$ ) and asked about their involvement in unethical practices. Lastly, we adapted items to measure the organizational citizenship behavior (Individual-directed; OCBI) ( $\alpha=0.83$ ), and organizational citizenship behavior (organization-directed; OCBO) ( $\alpha=0.88$ ) from Lee and Allen [28]. To measure OCBI, we asked about retail service employees' voluntary behavior toward their coworkers, while OCBO asked about their voluntary behavior toward their organization in general. All items were measured on a 5-point Likert-type scale.

### Data collection and sample characteristics

After obtaining approval from the Institutional Review Board (IRB; #2,095,968) regarding the data collection from human subjects, we collected data through Amazon Mechanical Turk (MTurk). To ensure our data's quality, we distributed an online survey to MTurk workers who hold an approval rate greater than 95% in over 1,000 tasks. Participants for this study were service employees in the retail industry who are currently working in the USA and are 18 years or older. To prevent those who do not work in retail services within the USA, a screening question was used. We conducted data collection from March 11 to April 5, 2023. Additionally, we used a random sampling technique for this study. A total of 305 participants were recruited. After excluding the incomplete responses ( $n = 35$ ) and responses ( $n=15$ ) that took an unreasonably short time (e.g., less than 3 min), 255 responses were used in the final analysis. Approximately 39% of participants were male, and 61% were female. Most participants were White (88%), had a graduate degree (45%), and were within the age-group of 25–29 (33%). Most of the participants work in the beauty and personal care service (19%), followed by grocery and supermarket (16%), apparel and accessories store (15%), and home improvement and hardware service (11%). Additionally, most participants (42%) have both physical stores and online platforms for their services. Lastly, most participants have 4–6 years of retail service work experience (42.7%), with more than 250 employees working in the organization (46.3%).

### Partial least squares structural equation modeling (PLS-SEM) analysis

In this study, we utilized partial least squares structural equation modeling (PLS-SEM) using Smart PLS 4 for model estimation. The choice of PLS-SEM was based on its suitability for several reasons. First, unlike covariance-based SEM (CB-SEM), PLS-SEM is composite-based,

ensuring variance-based results and consistent estimates. This characteristic is particularly valuable for exploratory research, as it allows us to combine explanatory and predictive perspectives [17]. Secondly, PLS-SEM offers a practical approach to identifying causal-predictive outcomes, enabling us to explore all causal relationships concurrently within a theoretically developed framework [17]. This advantage aligns perfectly with the objective of our study, which aims to comprehend retail service employees' citizenship behavior and the role of moral disengagement within the extended uncertainty management theory (UMT). Hence, given the complex nature of our model, PLS-SEM serves as an excellent fit and emphasizes the maximization of explained variance.

## Results

### Assessment of validity and reliability

A model estimation using partial least squares structural equation modeling (PLS-SEM) was performed for this study. First, the measurement model was examined by evaluating the measurements' reliability and the variables' discriminant validity. Factor loadings, composite reliability (CR), and average variance extracted (AVE) were used to assess the convergent validity. All item loadings exceed the recommended value of 0.7, the construct CR values are greater than 0.7, and the AVE values exceed the threshold value of 0.5 [17]. This indicates that convergent validity is confirmed. To test discriminant validity, Fornell–Larcker criterion and heterotrait–monotrait (HTMT) ratio of correction technique were used [16], Tables 2, 3). The Fornell–Larcker criterion indicates a satisfactory level of discriminant validity for the data set, and the HTMT ratios do not exceed the threshold values of 0.90 [17]. Full collinearity variance inflation factors (VIF) were also assessed to check common method bias possibilities of the PLS-SEM, and all the VIF scores were below the threshold value of 3, confirming that the measurement model does not have a common bias [24].

Regarding model fit, while covariance-based structural equation modeling (CB-SEM) places significant importance on stringent model fit criteria, PLS-SEM has inherent restrictions and primarily focuses on explaining the variance of dependent constructs and predicting path coefficients [17]. However, to offer a comprehensive assessment of model fit, PLS-SEM experts recommend considering the Standardized Root Mean Square Residual (SRMR) and the Normed Fit Index (NFI) [17]. The attained values for these indicators (SRMR=0.07, NFI=0.87) fall within the approved thresholds, demonstrating the model's strength and appropriateness (SRMR should be less than 0.08, and NFI should be greater than 0.85, according to [17]).

**Table 2** Fornell–Larcker criterion

	MEU	TEU	CEU	DJ	PJ	IJ	OCBI	OCBO	MD
MEU	0.717 <sup>a</sup>								
TEU	0.475	0.790 <sup>a</sup>							
CEU	0.375	0.367	0.748 <sup>a</sup>						
DJ	0.299	0.430	0.349	0.875 <sup>a</sup>					
PJ	0.420	0.530	0.317	0.543	0.816 <sup>a</sup>				
IJ	0.344	0.250	0.155	0.467	0.400	0.805 <sup>a</sup>			
OCBI	0.285	0.256	0.155	0.079	0.226	0.322	0.764 <sup>a</sup>		
OCBO	0.208	0.389	0.183	0.662	0.474	0.537	0.263	0.801 <sup>a</sup>	
MD	0.119	0.161	0.168	0.305	0.200	−0.088	−0.330	0.197	0.841 <sup>a</sup>

<sup>a</sup> Square root of AVE value for each construct

MEU Market Environment Uncertainty, TEU Technological Environment Uncertainty, CEU Competitive Environment Uncertainty, DJ Distributive Justice, PJ Procedural Justice, IJ Interpersonal Justice, MD Moral Disengagement, OCBI Organizational Citizenship Behavior (Individual-directed), OCBO Organizational citizenship behavior (Organization-directed)

**Table 3** Heterotrait–monotrait (HTMT) ratio

	MEU	TEU	CEU	DJ	PJ	IJ	OCBI	OCBO	MD	MD*DJ	MD*IJ	MD*PJ
MEU												
TEU	0.804											
CEU	0.645	0.566										
DJ	0.440	0.538	0.450									
PJ	0.677	0.727	0.445	0.651								
IJ	0.496	0.329	0.238	0.541	0.508							
OCBI	0.429	0.351	0.262	0.125	0.292	0.403						
OCBO	0.311	0.502	0.234	0.751	0.580	0.638	0.322					
MD	0.284	0.210	0.209	0.323	0.240	0.168	0.383	0.217				
MD*DJ	0.046	0.147	0.101	0.618	0.271	0.231	0.132	0.388	0.081			
MD*IJ	0.125	0.105	0.052	0.241	0.241	0.549	0.062	0.302	0.242	0.488		
MD*PJ	0.100	0.218	0.047	0.253	0.571	0.210	0.076	0.180	0.178	0.557	0.484	

MEU Market environment uncertainty, TEU Technological environment uncertainty, CEU Competitive environment uncertainty, DJ Distributive Justice, PJ Procedural justice, IJ Interpersonal Justice, MD Moral disengagement, OCBI Organizational citizenship behavior (Individual-directed), OCBO Organizational citizenship behavior (Organization-directed)

### Structural model: H1–H6

The bootstrapping method with a re-sampling of 3000 was used to estimate the significance of the path coefficient [17], Table 4). The path coefficients confirmed that market environment uncertainty has a significant positive impact on retail service employees' perception of interpersonal justice, supporting H1c ( $\beta=0.289$ ,  $p<0.001$ ), while it has a non-statistically significant effect on the distributive and procedural justice, rejecting H1a and H1b. Additionally, technological environment uncertainty has a significant positive impact on retail service employees' perception of distributive and procedural justice, partially supporting H2a ( $\beta=0.322$ ,  $p<0.001$ ) and H2b ( $\beta=0.403$ ,  $p<0.001$ ), while it has a nonsignificant effect on the interpersonal justice, rejecting H2c. Competitive environment

uncertainty has a significant positive impact on retail service employees' perceived importance of distributive justice, supporting H3a ( $\beta=0.205$ ,  $p<0.05$ ), while it does not have a significant effect on procedural and interpersonal justice, rejecting H3b and H3c. In addition to that, retail service employees' perceived importance of procedural and interpersonal justice has a significant positive impact on their individual-directed organizational citizenship behavior (OCBI), supporting H5a ( $\beta=0.376$ ,  $p<0.001$ ) and H6a ( $\beta=0.242$ ,  $p<0.001$ ), while no significant effect was found between distributive justice and individual-directed organizational citizenship behavior (OCBI), rejecting H4a. Also, employees' perceived importance of distributive, procedural, and interpersonal justice has a significant positive impact on their organization-directed

**Table 4** Direct path results (H1–H6) and moderating effects (H7–H8)

Paths	$\beta$	t-values	Confidence interval	VIF	$f^2$	$R^2$	$Q^2$
Direct effect (H1–H6)							
H1a: MEU $\geq$ DJ	0.056	0.932	[−0.064; 0.230]	1.373	0.004		
H1b: MEU $\geq$ PJ	0.193	1.900	[−0.003; 0.398]	1.373	0.040		
H1c: MEU $\geq$ IJ	0.289***	3.202	[0.116; 0.465]	1.373	0.070		
H2a: TEU $\geq$ DJ	0.322***	3.804	[0.150; 0.482]	1.364	0.099		
H2b: TEU $\geq$ PJ	0.403***	4.724	[0.230; 0.566]	1.364	0.176		
H2c: TEU $\geq$ IJ	0.110	1.322	[−0.053; 0.266]	1.364	0.010		
H3a: CEU $\geq$ DJ	0.205*	2.268	[0.032; 0.383]	1.229	0.045	0.231	0.188
H3b: CEU $\geq$ PJ	0.097	0.924	[−0.104; 0.301]	1.229	0.011	0.325	0.271
H3c: CEU $\geq$ IJ	0.006	0.084	[−0.130; 0.165]	1.229	0.001	0.128	0.080
H4a: DJ $\geq$ OCBI	0.084	0.736	[−0.127; 0.330]	3.444	0.003		
H4b: DJ $\geq$ OCBO	0.401***	4.190	[0.198; 0.580]	3.444	0.098		
H5a: PJ $\geq$ OCBI	0.376***	4.044	[0.184; 0.547]	2.314	0.096		
H5b: PJ $\geq$ OCBO	0.166*	2.134	[0.038; 0.346]	2.314	0.025		
H6a: IJ $\geq$ OCBI	0.242**	2.733	[0.067; 0.411]	2.035	0.046	0.368	0.313
H6b: IJ $\geq$ OCBO	0.268***	3.433	[0.115; 0.415]	2.035	0.074	0.523	0.111
Moderation effect (H7–H8)							
MD $\geq$ OCBI	−0.500***	7.625	[−0.632; −0.375]	1.407	0.282		
MD $\geq$ OCBO	0.063	0.959	[−0.074; 0.189]	1.407	0.006		
MD $\times$ DJ $\geq$ OCBI	0.114	1.258	[−0.053; 0.303]	3.124	0.007		
MD $\times$ PJ $\geq$ OCBI	0.246**	2.864	[0.068; 0.403]	2.470	0.045		
MD $\times$ IJ $\geq$ OCBI	0.160*	2.093	[0.016; 0.316]	2.034	0.019		
MD $\times$ DJ $\geq$ OCBO	−0.068	0.882	[−0.224; 0.081]	3.124	0.003		
MD $\times$ PJ $\geq$ OCBO	0.112	1.500	[−0.040; 0.248]	2.470	0.012		
MD $\times$ IJ $\geq$ OCBO	−0.061	0.723	[−0.214; 0.120]	2.034	0.004		

$n = 3000$  subsample; \*\*\* $p < 0.001$ ; \*\* $p < 0.01$ ; \* $p < 0.05$

MEU Market Environment Uncertainty, TEU: Technological environment uncertainty, CEU Competitive environment uncertainty, DJ Distributive justice, PJ Procedural justice, IJ Interpersonal justice, MD Moral disengagement, OCBI Organizational citizenship behavior (individual-directed), OCBO Organizational citizenship behavior (organization-directed)

organizational citizenship behavior (OCBO), supporting H4b ( $\beta = 0.401$ ,  $p < 0.001$ ), H5b ( $\beta = 0.166$ ,  $p < 0.05$ ) and H6b ( $\beta = 0.268$ ,  $p < 0.001$ ).

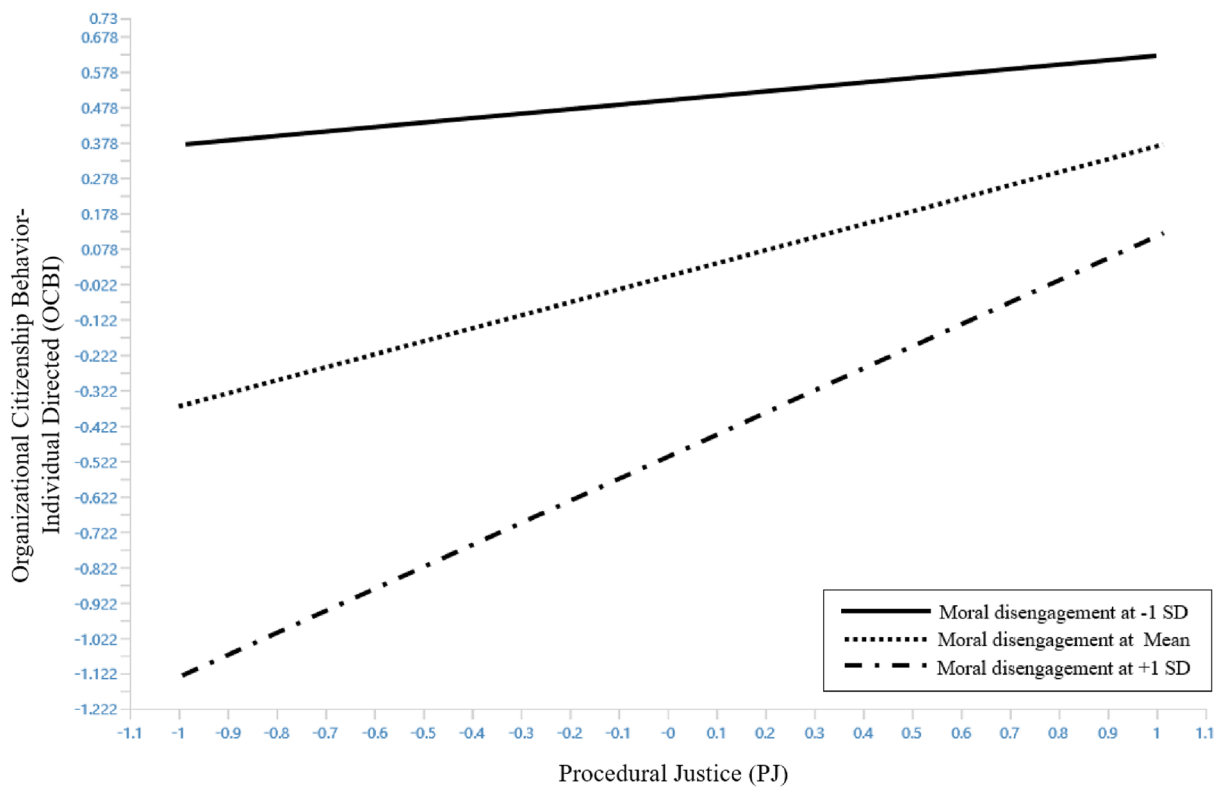
#### Moderation effect of moral disengagement: H7–H8

Regarding the moderation effect of moral disengagement, we found that retail service employees' perception of moral disengagement has a significant positive moderation effect on the relationship between the perceived importance of procedural justice and employees' individual-directed organizational citizenship behavior (OCBI), supporting H7b ( $\beta = 0.246$ ,  $p < 0.01$ ; Table 4; Fig. 2). Also, the relationship between the perceived importance of interpersonal justice and OCBI is enhanced by moral disengagement, supporting H7c ( $\beta = 0.160$ ,  $p < 0.05$ ; Table 4; Fig. 3). No significant moderation effect of moral disengagement was found for distributive justice, rejecting H7a. Additionally, no significant moderation effect of moral disengagement was found on the relationship between employees' perceived importance of

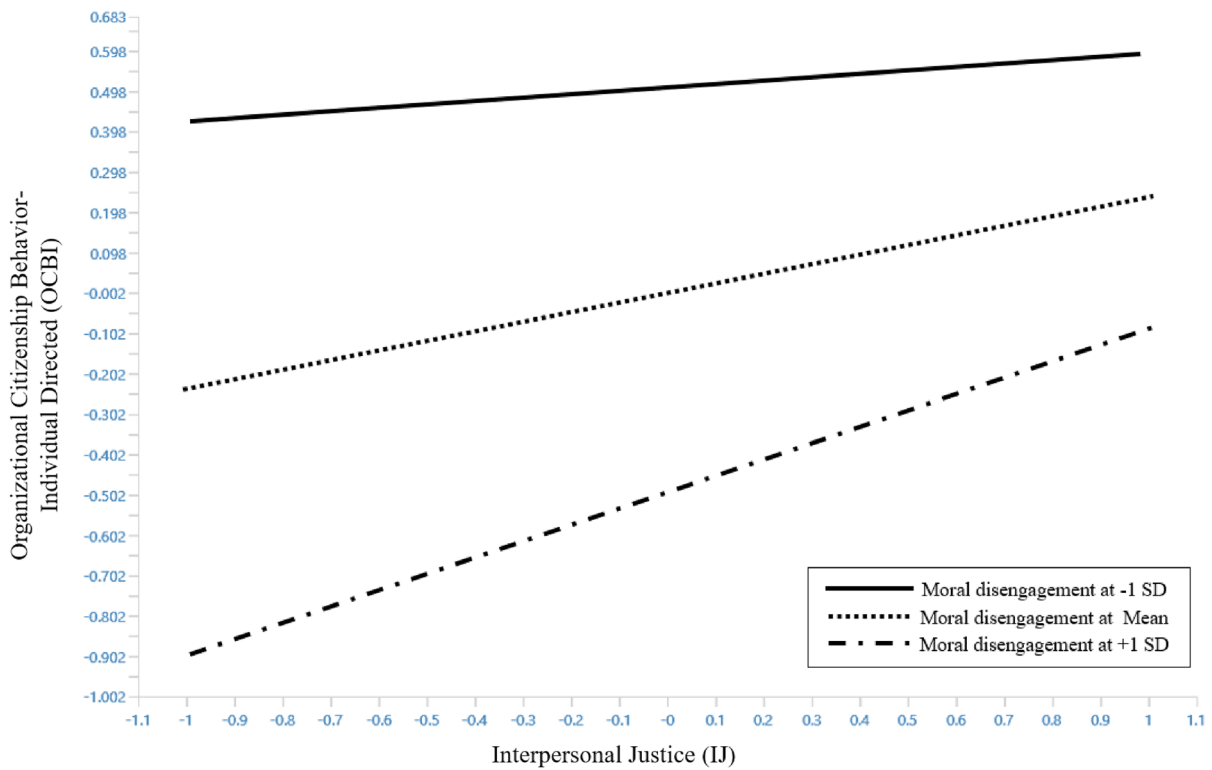
organizational justice and organization-directed organizational citizenship behavior (OCBO), rejecting H8a, H8b, and H8c.

#### Discussion

We examined the influence of three distinct business environment uncertainties on retail service employees' perceptions of organizational justice. Considering *distributive justice*, when confronted with uncertainty regarding the organization's technology (i.e., adoption of new technologies) and competitive landscape (i.e., promotion wars), service employees in the retail sector are more likely to perceive distributive justice, such as fair distribution of rewards (e.g., promotions) and resources (e.g., training opportunities). This is attributed to the fact that, in times of technological shifts and competitive turbulence, employees are more likely to feel increased stress regarding their job stability and future opportunities [5]. As a result, employees anticipate their organizations to prioritize maintaining a stable and equitable



**Fig. 2** Moderating effects of moral disengagement in the influence of PJ on OCBI



**Fig. 3** Moderating effects of moral disengagement in the influence of IJ on OCBI

distribution of rewards and resources, in line with the principles of distributive justice. This also confirms that when retail companies invest in their frontline employees' professional development and provide training in cutting-edge technologies in the post-pandemic era, they are more inclined to perceive a fair distribution of benefits and rewards associated with their work [5]. However, retail market environment uncertainties do not increase employees' perceived importance of distributive justice. In this study, the market environment uncertainty refers to retail market uncertainty, which might have always existed regardless of a specific event such as a pandemic. Therefore, it was viewed that uncertainty related to rapidly changing market conditions, such as technology and competition, would have had a greater impact on how they get awarded within their company.

Further, regarding *procedural justice*, technological uncertainty positively accounted for retail service employees' perceived importance of justice within the company. This insight suggests that as the technological landscape becomes more unpredictable, especially after the pandemic, employees tend to place greater emphasis on the fairness of processes and decision-making within the organization [12]. They seek reassurance that procedural justice cannot be compromised in the face of change driven by technological disruption. Interestingly, this positive association was not evident when considering retail market uncertainty or competitive landscape uncertainty. This discrepancy could be attributed to the distinct nature of these different types of uncertainties. Retail market and competitive landscape uncertainties, often associated with external factors such as shifts in customer demand or moves by competitors [42], may have a less direct impact on service employees' perceptions of internal procedural justice. Service employees may perceive these uncertainties as business risks that require strategic adaptations, especially in the post-pandemic era (e.g., [12]), rather than factors influencing internal fairness or decision-making processes.

Additionally, we found that during periods of market uncertainty, retail service employees tend to prioritize *interpersonal justice*, which concerns fair and respectful interactions with their supervisors or managers [10]. This finding suggests that when faced with an unstable retail market environment, such as fluctuations in consumer needs, demand, and competition, service employees may rely more heavily on interpersonal relationships within their organization to navigate the volatility [35]. This also stems from the circumstance that, during market instability, employees may undergo increased levels of stress and anxiety [23]. Maintaining fair and respectful exchanges with supervisors establishes a mentally secure atmosphere in which employees can confidently voice

their worries, seek advice, and provide input. This mental security is vital for effectively managing the challenges brought on by uncertainty. However, this association was not observed in the face of technological and competitive uncertainties. The absence of a connection arises because these particular uncertainties may not have a direct influence on the relationships between employees and supervisors or the priority placed on fair interpersonal interactions [25]. Instead, technological and competitive uncertainties might impact other facets of the workplace, such as the development of strategies or operational procedures related to distributive justice, which are not primarily centered on interpersonal dynamics. This observation has crucial implications for managers and supervisors in the retail sector, emphasizing the need for effective and empathetic leadership during uncertain market conditions.

Furthermore, regarding individually directed citizenship behaviors (OCBI), our findings showed that retail service employees' perception of procedural and interpersonal justice positively explained their individually directed citizenship behaviors (OCBI); however, service employees' perception of distributive justice failed to explain this relationship. This indicates that service employees may engage themselves in voluntary actions/behaviors toward their coworkers when they perceive procedures used by their company as transparent and the treatment they receive from their supervisors as fair and just. For example, when service employees in retail companies perceive that their organization is honest about their workload distribution process, hiring and promotion procedures, and they are treated fairly by their supervisors, they are more likely to engage in citizenship behaviors such as helping coworkers who lagged and giving suggestions to new service employees. These behaviors can benefit the organization as a whole. Conversely, it is conceivable that employees were primarily driven by factors other than distributive justice, such as intrinsic motivation, job satisfaction, or personal values when making the choice to engage in individually directed citizenship behaviors (OCBI). These results align with previous research, suggesting that fair procedures and interpersonal treatment develop trust that motivates employees to reciprocate by engaging in individually directed citizenship behaviors [4]. Furthermore, the direction of our results differs from previous studies as our study has considered the post-pandemic multi-dimensional business environment uncertainties and particularly investigated frontline employees in the retail service sector.

Considering retail service employees' organizational-directed citizenship behaviors (OCBO), findings showed that employees' perception of all three forms

of justice—i.e., distributive, procedural, and interpersonal—positively explained employees' tendency to engage in behaviors that benefit the organization as a whole (OCBO). This suggests that when service employees perceive fairness in the allocation of outcomes, the organization's procedures, and their treatment by managers, they are more likely to engage in actions that are beneficial to the organization. This is due to the fact that when employees perceive distributive, procedural, and interpersonal justice within the organization, it nurtures a feeling of trust and dedication. Employees are inclined to perceive that their organization appreciates and values them, consequently inspiring them to engage in behaviors that contribute to the overall welfare of the organization. Previous literature also supports this finding, indicating that when service employees perceive high levels of distributive, procedural, and interpersonal justice, they actively contribute to the success and well-being of the organization [4].

Finally, regarding the moderating effects, our results showed that retail service employees perceived moral disengagement enhanced the link between the perceived importance of procedural and interpersonal justice and employees' individual-directed citizenship behaviors (OCBI). This may be because, in circumstances where moral boundaries become flexible, employees' response to perceived fair procedures and interpersonal treatment appears to be enhanced, leading to increased OCBI. This observation provides a nuanced perspective on moral disengagement, often associated with negative outcomes, underscoring its potential to act as a positive moderating force under certain conditions, such as in the uncertainty-laden retail environment. While previous studies predominantly identified associations between moral disengagement and negative consequences [31], our research illustrates that even a negative degree of moral engagement can potentially strengthen the relationship between justice and citizenship behaviors among front-line employees. This can be interpreted as compensatory psychology in the face of uncertain retail market conditions. Particularly in unstable times, service employees exhibiting higher levels of moral disengagement might have heightened expectations for justice from their organizations. This heightened sense of importance could, in turn, manifest in the form of the citizenship behaviors that the organization anticipates from its employees. Conversely, the role of moral disengagement in moderating the relationship between perceptions of organizational justice and organization-directed citizenship behaviors (OCBO) was not statistically significant. This may imply that the connection between the perceived importance of organizational justice and OCBO is more robust and less affected by the extent of moral

disengagement. Alternatively, the differential impact of moral disengagement on OCBI and OCBO may reflect the fact that OCBO, being oriented toward the organization as a whole, may be less sensitive to the moral dynamics at the individual level.

## Conclusion

### Theoretical implications

The results of this study provide two theoretical contributions. First, our study extended UMT by incorporating SET and developing a theoretical model that helps to understand how post-pandemic business environment uncertainty affects retail service employees' perception of justice. While prior studies have employed UMT and SET in the broader field of organizational behavior, our study is the first to apply these theories/frameworks specifically to the post-pandemic uncertain retail business environment. This holds theoretical significance for potential scholastic attempts to investigate service employees' perception/behavior toward the ongoing adoption of technology-based services among retailers in this post-pandemic period. Second, incorporating moral disengagement theory (as a moderator) in the relationship between perceived organizational justice and citizenship behavior holds important theoretical implications as it expands our understanding of the complex dynamics underlying the relationship between justice perceptions and service employees' citizenship behaviors. This research underscores the significance of considering individual factors (i.e., moral disengagement) in the justice-behavior relationship. Organizational justice alone may not fully explain service employees' citizenship behavior, as individual cognitive processes and moral reasoning play a significant role. Therefore, the study opens avenues for further research on the underlying mechanisms that shape service employees' responses to perceived justice.

### Managerial implications

The results of this study have several managerial implications. First, in the face of technological and competitive environment uncertainties, retail service employees place significant importance on distributive justice. This may include initiatives such as providing adequate training on technology, establishing clear and consistent procedures, providing opportunities for service employees to voice their opinions and concerns, and ensuring that employees are well-informed about changes and updates, which can contribute to service employees' perception of fairness and justice. Second, as moral disengagement can vary from person to person, service employers/managers should keep themselves aware of the potential presence of moral disengagement among employees and its impact

on their behavior. By addressing the moral disengagement of service employees, employers/managers can promote an ethical work environment that will help to encourage service employees to engage themselves in citizenship behaviors and avoid any counterproductive workplace behaviors.

### Limitations and future studies

While this study constructed a research model and conducted data collection with meticulousness, the model did not explicitly incorporate other potential factors that could impact service employees' individual and organization-directed citizenship behaviors. We examined a modest number of factors related to business environment uncertainties and perceived organizational justice based on UMT and SET. Thus, to extend the model and increase its validity, future researchers may examine different contextual factors, such as organizational culture, leadership styles, and past experiences of service employees that can influence their organizational citizenship behavior. Further, we suggest including demographic factors such as gender, income, education level, and ethnicity as moderators to provide more information about how these can influence the relationship between service employees' perceived justice and citizenship behavior.

### Abbreviations

MEU	Market environment uncertainty
TEU	Technological environment uncertainty
CEU	Competitive environment uncertainty
DJ	Distributive justice
PJ	Procedural justice
IJ	Interpersonal justice
OCBI	Organizational citizenship behavior individual
OCBO	Organizational citizenship behavior organization
MD	Moral disengagement
SET	Social exchange theory
UMT	Uncertainty management theory
PLS-SEM	Partial least squares structural equation modeling
CR	Composite reliability
AVE	Average variance extracted
HTMT	Heterotrait–monotrait
VIF	Variance inflation factors
SRMR	Standardized root-mean-square residual
NFI	Normed fit index

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### Author contributions

IS Initiated the concept, analyzed the data, and managed the initial draft of the manuscript. SY Contributed to conceptualization, structured the manuscript, and reviewed the draft. Both authors contributed equally to the final manuscript.

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### Availability of data and materials

The data supporting the findings of this study can be accessed from the corresponding author upon reasonable request.

### Declarations

#### Ethics approval and consent to participate

This research study was conducted with the utmost consideration for ethical principles and participant rights. The necessity of obtaining ethics approval and consent was assessed, and it was determined that due to the nature of the study and its methodology, formal ethics approval was waived by the University of Missouri's (MU) Institutional Review Board (FWA No.: 00002876, IRB Registration Nos.: 00000731, 00009014). The decision to waive ethics approval was based on the terms and conditions described below: IRB Project No. 2095968, IRB Review No. 390269, Level of Review–Exempt, Project Status Active–Exempt, Exempt Categories (Revised Common Rule)–45 CFR 46.104d(2)(i), Risk Level–Minimal Risk, HIPAA Category–No HIPAA, Approved Documents—(1) Informed Consent & Assent–Consent (Exempt Studies Only): #634765, (2) Other Study Documents–Instruments (i.e., surveys): #634214, (3) Recruitment Materials–Recruitment Script: #634188. Participants who took part in this study provided informed consent before their involvement. They were fully informed about the study's purpose, procedures, potential risks, and benefits. Participants were assured that their participation was voluntary, and they were free to withdraw at any time without facing any negative consequences. The confidentiality of participants' information was maintained, and all data collected were anonymized to ensure their privacy. If you have further questions or concerns, please contact the MU IRB Office at 573-882-3181 or email to muresearchirb@missouri.edu.

#### Consent for publication

The procedures and protocols for this study were reviewed and approved by the IRB, ensuring ethical considerations were adhered to. Following the IRB procedure, we obtained consent to publish collected data.

#### Competing interests

The authors declare that they have no competing interests.

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