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# How Supportive Leadership Promotes Employee Innovation under Uncertainty: Evidence from Chinese E-Commerce Industry

Yan Wang <sup>1,\*</sup> , Tachia Chin <sup>1,\*</sup> , Francesco Caputo <sup>2</sup>  and Hanfeng Liu <sup>1</sup>

<sup>1</sup> School of Business, Honghe University, Mengzi 661199, China; liuhanfenguse@hotmail.com

<sup>2</sup> Department of Economics, Management and Institutions, University of Naples Federico II, 80138 Naples, Italy; francesco.caputo2@unina.it

\* Correspondence: wangyan2@uoh.edu.cn (Y.W.); tachiachin@zjut.edu.cn (T.C.)

**Abstract:** Innovative behavior (IB) is an important issue in academic and other sectors. The increasing uncertainty caused by COVID-19 has resulted in rising job insecurity for employees in the e-commerce industry. This has jeopardized career sustainability (CS). Numerous studies have explored the influence of supportive leadership (SL) on IB, but so far there is still a dearth of research investigating the role of CS. In addition, CS must be considered because the perceived sustainability of a career has an impact on individual innovation. Therefore, based on job demands-resources (JDR) theory, we analyzed the effects of SL on IB as well as the roles of CS in IB. The mediating role of employee's perceived occupational sustainability was explored. This study investigates the associations between supportive leadership style (job resource) and employee innovative behavior (job demand). In total, 308 valid samples were collected from China. Structural equation modeling examines the construct validity and path relationships. The results show that in China's e-commerce industry, under the uncertainty brought about by the COVID-19 pandemic, only when employees perceive CS can SL promote the transformation of job resources into workplace IB. That is, CS completely mediates SL and IB. This provides new information for the management of employee behavior in the current special period. The result revealed that SL improves IB through CS. Theoretically, this study fills the gap and establishes a theoretical framework for SL and IB. Practically, we offer guidance for enterprises and managers in that they should provide their employees with work resources which are good for employee CS so as to promote employees' IB.

**Keywords:** innovation behavior; supportive leadership; career sustainability; e-commerce industry



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## 1. Introduction

The repeated waves of COVID-19 have had a severe impact on global economic development [1–3] and posed a serious threat to employees' job sustainability [4], such as creating job insecurity and instability [5–7]. The increasing uncertainty caused by COVID-19 has resulted in rising job insecurity among employees in the e-commerce industry, which has hindered engagement in innovative behavior (IB) [8]. With the rapid changes and high competition in the business arena today, especially in the context of changing job demands in the e-commerce industry, enterprise innovations are novel strategic means to establish competitive advantage, so as to meet social needs and benefit themselves at the same time [9]. Moreover, the IB of employees is referred to as a fundamental prerequisite for organizational innovation capability and competitive advantage [1,2]. Hence, to ensure the survival of organizations in the new situation of the post-pandemic, firms need to consider supportive leadership (SL) and career sustainability (CS) that can enhance employees' IB development.

Previous literature has indicated that when more and more organizations are eager to fight for survival through cutting costs and lay-offs, CS has become a big challenge

for employees; however, more researchers have focused on manufacturing instead of the e-commerce industry [3,9]. Moreover, facing severe innovation-related problems in such a critical post-pandemic time, leaders play a vital role in helping employees engage in IB and achieve sustainable careers [5,10,11]. When the organizational climate is supportive, it will strengthen employees' IB, so as to improve work efficiency and productivity, and achieve the goal of completing the tasks assigned by the enterprise or leaders with the best budget cost and high quality [12,13].

E-commerce is booming in China [14,15]. In the e-commerce industry, the impact of SL on IB has been a concern to some scholars [14]. However, the pandemic posed a serious threat to employees' job certainty, such as creating job insecurity and instability [5–7]. Some scholars have paid attention to the impact of SL on employee IB without CS [10,11,16]; however, the role of CS must be considered seeing that the pandemic has caused widespread unemployment and an occupational sustainability crisis [4,17,18]. To fill this gap, we thus take into account the foregoing arguments, aiming to investigate the role of SL in affecting CS and IB in the e-commerce industry. More specifically, this research aims, to investigate the effect of SL on employee IB, and CS as a mediator in the e-commerce industry.

The main contributions of this research are as follows. (1) Previous studies have examined the positive effect of SL on minimizing deviant behavior and motivating the positive behavior of subordinates [19–22]. The pandemic has led to widespread job uncertainty; however, few studies have considered the scenario of job insecurity. We argue that SL has an impact on the IB of employees, which enriches the relevant literature. (2) Our findings indicate that SL can be instrumental to employees' CS in a particular context riddled with uncertainty. This supports the view of Mwaisaka et al. [23] that SL can benefit the career development of employees. (3) We provide valuable first-hand evidence about the positive relationship between SL and IB, as well as the mediating effect of CS on the relationship above. Our research thus offers practical implications to practitioners and policy makers about how to drive employees to secure their jobs and engage in innovation in the post-pandemic world.

## 2. Literature Review and Hypothesis Development

### 2.1. Supportive Leadership and Innovation Behavior

The leaders of an enterprise have a very important influence on the behaviors of its employees [24,25]. Leadership can be defined as the attitude or behavior of a leader that influences and even shapes the behaviors and attitudes of his/her followers, co-workers, sub-ordinates, and other organization stakeholders [26,27]. SL is interpreted as a leader's "behavior oriented to meet the needs and preferences of subordinates, such as caring for the welfare of subordinates and creating a friendly and psychologically supportive working environment" [28,29]. It is one of the most commonly discussed factors in the literature [5,30,31].

SL is essential in boosting employees' innovation drive and raising organizations' overall innovation level, which is embodied in improving employee innovative behaviors [10,11]. By considering the individual needs of subordinates, supportive leaders create good communication methods and provide ways to improve work efficiency mainly through encouragement, providing work resources to employees, making appropriate demands on employees, making the right demands on employees and creating the right amount of pressure, thus providing a good organizational atmosphere for employees' innovative activities [12,32]. From the micro point of view, Kanter [33] proposed that the IB of employees includes four aspects: idea generation, coalition building, idea realization, and diffusion. Thus, the relationship between organizational support theory and innovation [34] and employees' innovation implementation behavior [7] has attracted an increasing attention from researchers. From a theoretical standpoint, SL is recognized for its ability to inspire employee innovative behavior in a number of ways. First, supportive leaders may encourage staff to participate in the inventive process [35]. The authors defined support as a process of strengthening organizational personnel internal perceptions

and a notion connected to intrinsic motivation [36]. Increased motivation resulted with increased participation in creative activity [35,37]. Second, according to organizational support theory [34], the work results of workers are dependent on organizational support. Inclusive leaders are able to give the resources needed for creative and innovative behavior, such as knowledge, time, and support [38]. Consequently, employees would have greater liberty and flexibility to participate in creative activity if their supervisor backed them [39]. Furthermore, Randel et al. [40] stated that SL facilitates employees' creativity as they feel a sense of belonging to the organization while maintaining their uniqueness and fully contribute to the organization's processes and the outcomes of innovation. Third, supportive leaders may be role models for IB [41]. According to Nemhard and Edmondson [42], supportiveness of leaders is favorably connected to participation in quality improvement efforts. The authors believed that SL exemplified a special connection defined by openness and harmony in communication, accessibility, and provision [43]. Leaders fostered an atmosphere in which workers felt more responsible, had more decision-making authority, and obtained more information and feedback, as well as support and encouragement [44]. Employee participation in creative work was enhanced by general openness, availability, and accessibility [41,43]. IB is sometimes referred to as "discretionary behavior" [45]. The distinctive characteristics of SL modified followers' perceptions of support and promoted more IBs [40]. From this background and based on the job demands-resources (JD-R) theory [46], this study focuses on the associations between SL (job resource) and employee innovative behavior (job demand). Following this logic, we thus assume that employees in SL environments are more likely to engage in innovative behaviors:

**Hypothesis 1 (H1).** *SL positively impacts IB development.*

## 2.2. Supportive Leadership and Career Sustainability

Sustainability was defined by the United Nations (UN) as "meeting the needs and aspirations of the present without compromising the ability to meet those needs in the future" [47]. CS is an emerging concept. A number of researchers have theoretically investigated the individual perspective [48,49], but have neglected organizational factors [8]. The global unemployment crisis has led to social unrest in the wake of the COVID-19 pandemic [50], and there is growing concern about occupational sustainability. On the other hand, from the enterprise's perspective, in order to gain from sustainability, enterprises have begun laying emphasis on organizations collaborating with individuals. Traditional leadership research has focused on the individual characteristics and behaviors of leaders [37]. However, SL research emphasizes the interaction between leaders and subordinates. But how does SL affect CS? SL can satisfy subordinates' expectations for empathy and encourage them to align with updated diversified and knowledge driven trends. Employees will increase their motivation to achieve their goal owing to the faith given by leaders, while gaining confidence in the ways the organization operates and taking actions that promote the growth of the organization. Hantula [51] proposed that openness, accessibility, and availability of communication between leaders and workers may be used to evaluate SL. According to Fang et al. [52], SL is characterized by three features. First, leaders must endeavor to understand their staff and accept their shortcomings. Second, leaders should motivate their teams by stressing their training and praising their accomplishments. Third, leaders should treat their people properly by taking into account their needs and sharing benefits. Furthermore, the impacts of SL are represented in an individual's positivity level, which has a large and favorable influence on workers' job adaptability, performance, and engagement [30,53]. According to studies, SL more effectively reduces workers' desire to resign; as a result, this study posits that SL characterized by healthy leader-employee interactions may have a considerable and favorable influence on CS. Supportive leaders, in particular, accept workers' viewpoints and temporary failures, evaluate their personal worth and long-term career growth, and increase their career freedom [54]. Furthermore, supportive leaders provide an emphasis on growth, give

training opportunities to match changing professional needs, and improve career renewal ability [55]. This makes workers feel valued and minimizes the risk of unemployment. Therefore, we hypothesized that SL has a positive impact on CS. Thus, we posit:

**Hypothesis 2 (H2).** *SL has a positive impact on CS.*

### 2.3. Career Sustainability and Innovation Behavior

Unemployment is highly affected by the misalignment of the skill and job role [34]. While technological innovation is unrelenting, employees' endeavors to compete and remain in sustainable roles must continually meet increasingly higher requirements [5]. On the other hand, from the enterprise's perspective, to benefit from sustainability, enterprises have begun to emphasize collaboration between organizations and individuals. However, they have ignored the influence of industry characteristics and organizational factors, and the overall characteristics of employees [8]. Employees will increase their motivation to achieve their goal of CS owing to the faith given by leaders, while building confidence in the organization and performing actions that are conducive to organizational development, in achieving CS as a collection of HRM activities that allow the acquisition of distinct capabilities such as knowledge, skills, and ability, as well as the use of ability-enhancing practices [56]. Selective staffing and internal training and development, for example, are required for an organization to pick the optimal mix of available resources for CS. Furthermore, an effective teamwork, incentives system and contextual empowerment enable workers' morale, motivation, and self-confidence to improve in order to achieve optimal IB [57]. According to Chin et al. [9], these CS resources promote employees as a distinctive form of tacit, inimitable human capital, which in turn develops prospective creative talents and, as a result, employee's IB. De Winne and Sels [58] support that a variety of CS approaches have a favorable impact on employee creativity. The authors confirm further that, in a calm, sustainable career, employees are more inclined to predispose their full potential to performance and creativity on the job. Overall, researchers have shown that CS aspects are geared to boosting pro-innovative attitudes and behaviors, such as employee IB [59]. Therefore, we hypothesized that CS has a positive impact on IB. Thus, we posit:

**Hypothesis 3 (H3).** *An employee's perceived CS is positively related to his/her sense of IB.*

### 2.4. Mediating Role of Career Sustainability

As we discussed earlier, support leadership plays a vital role in employees' IB by taking into account the personal feelings, needs and interests of employees when making decisions. Research has found that the variables influencing leadership effectiveness differ in many factors, such as cultural differences [11,40] and individual characteristics of employees [60,61]. It is above the grasp of a single study to explore all these factors. We focus on CS, since both CS and SL are crucial for employee's IB. Due to the influence and role of CS in an employees' career, it plays a key role in their work practice. For example, if employees perceive that their career is sustainable, they will increase their awareness of innovation and behavior. On the contrary, if an employee feels insecure about his or her job, this will increase his or her anxiety, and less energy will be spent thinking about innovative ways of working and improving efficiency. However, to our knowledge, few studies have explored the impact of SL on IB from the perspective of employee CS as a mediator.

According to JD-R theory, work resources, (such as job security in the organization) can cultivate employees' external work motivation, because they are the resources necessary for employees to deal with work requirements in order to achieve personal goals and promote personal development. In addition, it can also stimulate the intrinsic motivation of employees by satisfying their basic psychological needs of autonomy, belonging and competence, so it can stimulate the motivation-driven process. In this process, as the poten-

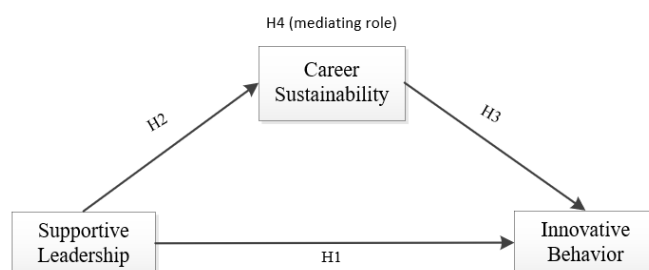
tial motivation of employees is stimulated, employees' work involvement will increase and they will finally get positive work results [62].

Therefore, we suggest that occupational sustainability plays a positive role in employees' innovation activities, and plays a key role in their work practice. For example, if employees perceive that their careers are sustainable, it increases innovation awareness and behavior. On the contrary, if employees feel unsafe and their professional career is unsustainable, energy consumption may lead to fatigue, anxiety or stress reaction, and eventually their job burnout energy is exhausted, further increasing anxiety. Then less energy will be spent on ways of thinking about work innovation and efficiency. This is not conducive to innovation in work behavior. Thus, the ways IB practices are perceived are considerably influenced by CS between leadership and worker behaviors.

Overall, our H1 assumes the positive relationship between SL and IB, H2 supports the impact of SL on CS, and H3 posits the positive interaction between SL and IB. Building on this line of thought, we can predict that CS is a crucial catalyst in transforming enterprises' SL into IB. Hence, we hypothesize:

**Hypothesis 4 (H4).** *CS mediates the relationship between SL and IB.*

Based on the above discussion, we constructed the research framework as shown in Figure 1.



**Figure 1.** The research framework.

### 3. Methods

#### 3.1. Sample

E-commerce has become the most important business activity in the world, especially in China, the world's second-largest economy [14]. Due to the impact of the COVID-19, e-commerce has boomed further to meet the needs of reduced human contact [15]. At the same time, the uncertainty and complexity of industry keeps increasing, which leads to an increase in job insecurity among employees, which greatly hinders their innovative behaviors [8]. In consideration of our research purpose, we chose people engaged in the e-commerce industry as the research objects and obtained the main data sources through online and offline surveys. Our investigation is conducted under the condition of confidentiality and anonymity. The respondents filled in the questionnaire according to their subjective feelings about SL, CS and IB. Before the survey, we clearly told the respondents that all data were only for academic research, so they were reassured. In addition, the respondents were also told that there were no right or wrong responses, and that they could fill in the questions according to their actual situation. In order to ensure the validity of the questionnaire collected, we confirmed whether the employees who answered the questionnaire had engaged in e-commerce business for more than 1 year during the COVID-19 pandemic. We conducted the survey in the first half of 2022. After several months of hard work, we received 336 questionnaires, and 18 were excluded due to fact that they did not meet completeness or did not conform to the specification. Thus, we obtained a total of 308 valid questionnaires. The valid response rate is 91.67%. The participants came from Yunnan, Zhejiang, Fujian and Guangdong provinces which are national e-commerce integrated pilot zones. The demographic data of the participants as shown in Table 1.



**Table 1.** Demographic data.

Characteristic	Categories	Frequency	Percentage
Gender	Male	202	65.60%
	Female	106	34.40%
Age	18–25 years	46	14.94%
	26–30 years	116	37.66%
	31–40 years	101	32.79%
	41–50 years	42	13.64%
	51–60 years	3	0.97%
	60 years and over	0	0.00%
Marriage	Unmarried	45	14.61%
	Married	263	85.39%
Education	Junior college and below	123	39.94%
	Bachelor	166	53.90%
	Master or PHD	19	6.17%
Length of employment	1–3 years	71	23.05%
	4–5 years	77	25.00%
	6–9 years	37	12.01%
	10 years and over	123	39.94%
Length current enterprise	1–3 years	225	73.05%
	4–5 years	43	13.96%
	6–9 years	36	11.69%
	10 years and over	4	1.30%
Duty	R&D	205	66.56%
	Marketing	47	15.26%
	Administrative matters and others	56	18.18%
Nature of enterprise	State-owned enterprise	83	26.95%
	Private enterprise	147	47.73%
	Joint-stock enterprise	76	24.68%
	Others	2	0.65%

### 3.2. Measures

This study uses SmartPLS (SmartPLS GmbH: Bönningstedt, Germany) which created by Prof. Dr. Christian Ringle, Dipl.-Wirtf. Sven Wende, and Dr. Jan-Michael Becker to examine our hypothesis [63]. The mediation model hypothesis was tested with a structural equation model. This study based the measurement of SL, CS and IB on a 6-point Likert-type scale (i.e., 1 = strongly disagree to 6 = extremely agree). The six-point scale was chosen to avoid a midpoint response bias compromise, because of the tendency of Chinese employees to cover their true sentiment towards their organizations by simply deciding on the safe midpoint of a scale [13,64]. The participants answered on a 6-point Likert scale (1 = strongly disagree to 6 = strongly agree) according to their actual situation at work.

Owing to leaders' power and resources in organizations, their supportive degree has a key role in employees' implementing IB [11]. Therefore, we measured SL through employee perceived supportive degree with three items (e.g., 'Leaders take my personal feelings into consideration when implementing actions that will affect me'; 'The leader will take my personal needs into consideration'). The participants answered along a 6-point scale (between 1 = strongly disagree and 6 = strongly agree). The Cronbach's  $\alpha$  was 0.921. The items reflect the construct of SL in terms of showing concern for employees and creating a supportive working environment [28,31].

SL was measured with three items referring to House [28] (Cronbach's  $\alpha$  = 0.921). CC was measured with three items referring to Chin et al. [65] and Hair et al. [66]. Sample items include: "My career makes me happy because I use resources efficiently." (Cronbach's  $\alpha$  = 0.961). IB was measured with Atwater and Carmeli's [35] scale including 4 items.

Sample items include: “I will have new ideas about problems at work.” (Cronbach’s  $\alpha = 0.922$ ).

Mediating variable: Referring to prior studies of Hair et al. [66], CC was measured with eight items. For example: “My career makes me happy because I use resources efficiently.” (Cronbach’s  $\alpha = 0.895$ ).

### 3.3. Common Method Variance

Given this study relies on self-reported data, we adopted the single-factor approach to test common method variance [49]. Common method variance has a direct relationship with the technique of measurement but is not deduced from the construct of the measurement element itself [49,50,67], whereas measurement errors are occurring. As a result, two strategies were used to address the issue of common method variance. First, our investigation is conducted under the condition of confidentiality and anonymity. During the data collection stage, the questionnaire was purposefully paginated to give respondents enough rest time between each page, limiting the influence of common method variance generated by continuous same scale via time differences [49]. Second, we used the Harman’s single-factor test to check the possibility of common method variance occurrence [49]. The findings of principal component factor analysis ruled out the possibility of shared method variance. This research did not display a substantial amount of common method variance since no single factor represented larger than 50% of the variance, and the findings fell inside an acceptable range [32,47].

## 4. Results

### 4.1. Measurement Model

The reliability, convergence validity and discriminant validity were determined by the measurement model through SmartPLS [68,69].

Internal consistency was verified for reliability by finding the composite reliability of the constructions [70].

The discriminating validity of the constructs was assessed using the L&B technique. According to F&B, every SR of the AVE value was more than all correlation coefficients, suggesting that the measures had adequate discriminant validity.

Referring to Reiter-Palmon and Illies’ [38] definition of standardized root mean squared residual (SRMR), that is, less than 0.1 is acceptable, comparing the model test results of this study, SRMR value is 0.056, indicating that the model is good. Regarding multi-collinearity, according to the collinearity diagnostic criteria of Jaussu and Dionne [41], when the tolerance of independent variables is greater than 0.1 the range of variance inflation coefficient less than 10 is acceptable, indicating that there is no collinearity problem between independent variables. The factor loading of all items was significant in terms of convergent validity ( $>0.7$ ). Therefore, the convergence validity of these measures is satisfied. In the current study, the AVE values ranged from 0.786 to 0.864, which was more than 0.5. (CS and SL, respectively). As the test results of this study shown, the above requirements are met, and the specific values are shown in Table 2.

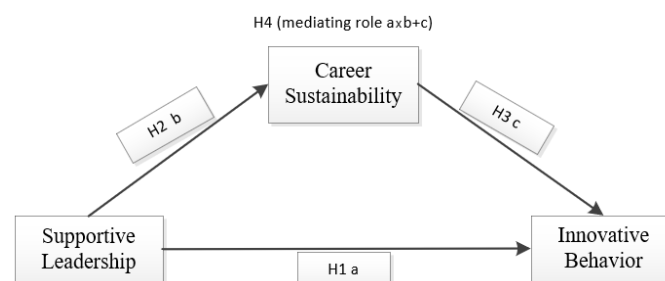
**Table 2.** Confirmatory factor analysis results for the measured variables.

Construct	Items	Factor Loading	$\alpha$	rho-A	CR	AVE
Supportive Leadership (SL)	SL1	0.917	0.921	0.922	0.950	0.864
	SL2	0.933				
	SL3	0.938				
Career Sustainability (CS)	CS1	0.894	0.961	0.961	0.967	0.786
	CS2	0.966				
	CS3	0.904				
	CS4	0.876				
	CS5	0.886				
	CS6	0.888				
	CS7	0.895				
	CS8	0.881				
Innovation Behavior (IB)	IB1	0.837	0.922	0.923	0.945	0.812
	IB2	0.919				
	IB3	0.918				
	IB4	0.927				

SL, Supportive Leadership; CS, Career Sustainability; IB, Innovation Behavior. Note:  $N = 308$ .

#### 4.2. Structural Model

In order to verify the complete mediating effect of CS on SL and IB, we performed the following steps. First, test whether SL has a significant impact on IB, that is, whether path coefficient  $a$  is significant. The second step is to verify whether SL has a significant impact on CS and whether CS has a significant impact on IB, that is, whether path coefficients  $b$  and  $c$  are significant. If yes, proceed to the third step, which is to execute the mediation model while verifying whether path coefficients  $a$  and  $b$  are significant and evaluating compilation interpretation (VAF). When it is less than 20%, there is no mediation effect. When its value is between 20% and 80%, it is a partial mediation effect, and when its value is greater than 80%, it is a complete mediation effect. Compared with the detection results of this study, it can be seen that, in the first step, the  $R^2$  value of SL to IB was 0.694\*\*\*, indicating that the SL research model accounted for 69.4% of the variance in IB (H1,  $\beta = 0.833$ ,  $p = 0.01$ ), which fully supported Hypothesis 1. In the second step, the  $R^2$  value of SL to CS was 0.863\*\*\*, indicating that the SL research model accounted for 86.3% of the variance in CS (H2,  $\beta = 0.929$ \*\*\*,  $p = 0.01$ ), which fully supported Hypothesis 2. Besides, the  $R^2$  value of CS to IB was 0.777\*\*\*, indicating that the CS research model accounted for 77.7% of the variance in IB (H3,  $\beta = 0.881$ \*\*\*,  $p = 0.01$ ), which fully supported Hypothesis 3. In step 3, path coefficient  $a$ ,  $b$  and  $c$  are 0.107, 0.929 and 0.782, respectively and the calculated VAF is 87.2% ( $a \times b / b \times c + a$ ). Therefore, the relationship between CS and SL and innovative behavior is a full mediation model. The theoretical model is shown in Figure 2.

**Figure 2.** Theoretical model.

To test Hypothesis 4 in this study, the results were evaluated using the Bootstrap resampling method in SmartPLS, and the responses were resampled 5000 times (Hair et al., 2017 [66]). Table 3 shows the results. The  $R^2$  value of SL and CS to IB was 0.778\*\*\*, indicating that the LP and CS research model accounted for 77.8% of the variance in IB. Besides this,

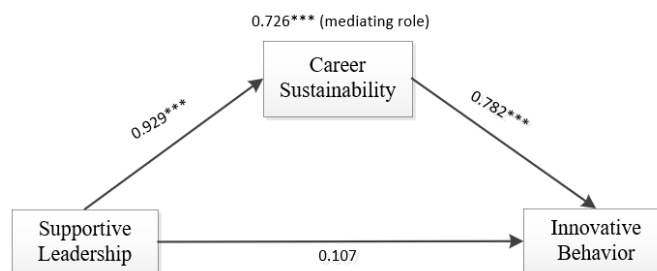


the  $R^2$  value of SL to CS was 0.929\*\*\*, which means that the SL research model explained 92.9 percent of the variation in CS. As a result, both had a high explanatory power. The empirical results back up hypotheses H1, H2, H3, and H4. According to the findings, SL is favorably connected to IB (H1,  $\beta = 0.107$ ,  $p = 0.264$ ) which is smaller than the value 0.833 in the single model; SL was significantly related to CS (H2,  $\beta = 0.929$ ,  $p < 0.01$ ); CS was significantly related to IB (H3,  $\beta = 0.782$ ,  $p < 0.01$ ). The idea that CS mediates the link between SL and IB was confirmed (H4,  $\beta = 0.726$ ,  $p < 0.001$ ), which fully supported Hypothesis 4, as shown in Table 3. Thus, CS fully mediated the relationship between SL and IB. Figure 3 presents the PLS results of the research model.

**Table 3.** Full mediation results.

Hypothesis	Effect	T-Value	p Value	Result
H1: SL $\rightarrow$ IB	0.107	1.107	0.264	Not Significant
H2: SL $\rightarrow$ CS	0.929	102.230	0.01	Significant
H3: CS $\rightarrow$ IB	0.782	8.452	0.01	Significant
H4: SL $\rightarrow$ CS $\rightarrow$ IB	0.726	8.583	0.01	Significant

SL, Supportive Leadership; CS, Career Sustainability; IB, Innovation Behavior.



**Figure 3.** Path diagram and the standardized estimates of the model (Note: \*\*\* means the correlation is significant at the level of 0.001).

## 5. Discussion

### 5.1. Implications for Theories

Previous studies have examined the effect of SL on IB [10,11,14]. We consider the uncertainty caused by COVID-19. We believe that this uncertainty leads to a change in the mechanism of action of SL on IB. Through the above analysis, our findings support this hypothesis (see the specific four hypotheses in Section 2). The results show that the SL is positively correlated with employee's IB, the relationship between CS and employee's IB is also positively correlated, and the relationship between SL and IB is completely mediated by the perceived CS. Namely, the perceived CS can promote the innovative consciousness and behavior of employees and accelerate the sharing of innovative ideas, thus further increasing the generation of innovative behaviors.

How the SL of enterprises affects and promotes the IB of employees has always been and will continue to be a hot topic in related fields [11]. In addition, strong professional sustainability provides employees with rich resources, makes their work more flexible, allows for growth, increasing information, knowledge acquisition and absorptive capacity therefore promoting the staff's innovation consciousness and IB. Innovation consciousness can be shared with other colleagues, and this virtuous circle will further promote the recurrence of IB. Viewed from this angle, this study draws on JD-R theory and provides some valuable theoretical and practical significance.

First, to our knowledge, this work is the first empirical study that provides excellent first-hand evidence of how organizational SL effects the process of IB with employees through CS. To some extent, our research responds to Nemphard and Edmondson's [42] deeper and more comprehensive understanding of the impact of organizational resources on individual work requirements in uncertain economic times in recent years. However, our study is not identical with the conclusions of Bourini [10] and Staub et al. [11]. Their

studies believe that SL has a direct positive correlation with employee innovation behavior. We argue that CS must be considered in the e-commerce industry with young people (more than 50% of employees are under 30 from our survey data.) as the main labor force during the COVID-19 pandemic period. The relationship between SL and employee IB in these organizations will change greatly compared with the traditional positive relationship. This generation of workers (about 50% of respondents were in their 30s) may be more inclined to actively redesign their jobs and self-manage their careers. During the current special employment situation for other reasons, only when employees perceive CS, can SL promote them to transform job resource into job IB. That is, they pay more attention to CS to adapt to increasing job uncertainty, and then consider work behavior innovation [32]. Therefore, in the current special circumstances managers should provide their employees with work resources, but only when employees perceive that the job is safe and sustainable will the positive effect of these work resources on the outcome variable of employees' work IB become prominent. Otherwise, the work resources provided by the supportive leader have little effect on the work.

Second, our findings contribute to the current body of information concerning JD-R theory. Our study does not exactly arrive at the same as the conclusion as Staub et al. [11], who believe that supportive leadership has a direct positive correlation with employee innovation behavior. We argue that the relationship between SL and employee IB will change greatly compared with the traditional positive relationship. Namely, traditional leadership relationships may not be sufficient to meet the rapidly changing needs of today's highly competitive business environment, especially in the COVID-19 pandemic in the e-commerce industry with young people as the main labor force. This paper highlights the intermediary role of CS in promoting IB, so as to enrich the positive leadership in e-commerce environment SL (job resources) and employee innovative behavior (job requirements) and understanding of the related issues. From this perspective, this study also makes a theoretical contribution to integrating JD-R theory into the professional field from an interdisciplinary perspective.

### 5.2. Implications for Practice

As mentioned above, with the acceleration of digitalization coupled with electronics development in the global business environment, as well as the increasing uncertainty and complexity brought about by the new situation at home and abroad, employees' innovative behaviors are seriously hindered. An enterprise wants to gain competitive advantages and survival in a difficult environment, and needs employees' continuous IB to reduce related costs while improving work output. According to empirical judgment, SL creates positive factors for employees, such as trust and justice from the organization and meeting emotional needs of individual personalities to enhance employees' work involvement and help to increase their energy at work.

In terms of practical ramifications, our results provide new perspectives on staff management in the e-commerce industry under the current complex situation. The resources provided by China's e-commerce industry organizations for employees' CS can serve as an effective catalyst. In the process of electronic business transformation, the transformation of organizational commitment into providing resources for sustainable career development has a positive impact on employees' innovative behavior. In the current special circumstances managers should provide their employees with work resources which is good for employee CS and can promote employees' IB.

### 5.3. Limitations and Future Directions

Despite several significant results, the present study has some limitations that point to future research directions. First, since the present research used cross-sectional data and each questionnaire was completed by workers themselves, correctly and rigorously evaluating the causal link between factors is challenging. Future research should look at smarter techniques to reduce measuring inaccuracies. Second, the survey subjects consisted

of employees in the e-commerce industry in China. Individuals from diverse nations and sectors may be included in the sample population in the future. A cross-layer research approach may also be used to increase the data's correctness and external validity. Third, the present research investigated one of the ways in which SL may have a favorable effect on CS and IB, as well as the effect of CS on IB. Other influencers' paths may have gone unnoticed. Finally, changes in individual personality traits of workers may have an impact on the study's importance. Moderation factors may be added in the future to investigate the establishing boundary of the serial mediating effect.

## 6. Conclusions

In conclusion, this study, based on JD-R theory, provides new ideas and valuable first-hand empirical evidence to reveal the relationship between organizational resources such as SL and employee IB. With the acceleration of digitalization coupled with electronics development in the global business environment, e-commerce becomes more and more common and important in most industries, and it is of practical significance to study in depth how leadership styles and CS in this industry influence employees' attitudes and behaviors toward innovation. Viewed from this point, we therefore think that this study provides an important insight: a positive leadership style can promote the staff's professional sustainability and to promote employees to spend more energy to work to deal with difficulties and challenges in active thinking and innovation methods in order to cope with the changes in complex work requirements, so as to better promote the enterprise and strengthen its position.

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