

# The impact of organizational support on employee performance

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## Abstract

**Purpose** – Building on organizational support theory and social exchange theory, the purpose of this paper is to study the impact of organizational support on employee performance (EP) in the context of flexible manufacturing. In particular, the authors aimed to investigate the mediating role of employee attitude between organizational support and EP, and the moderating role of organizational justice (OJ).

**Design/methodology/approach** – A total of 180 participants from 36 work teams employed in 7 large automotive manufacturing enterprises in China were surveyed using a questionnaire designed by the authors. Multiple linear regressions were used to test the proposed hypotheses.

**Findings** – The results revealed four new performance indicators of frontline workers in the context of flexible manufacturing: continuous learning, teamwork, problem solving and active work. Organizational support can be divided into reinforcing support and inhibitive support. Reinforcing organizational support has a positive effect on new performance of frontline workers, and a sense of belonging plays a strong mediating role between them. Inhibitive organizational support plays an important role in the sense of awe (SA) of employees, but the SA has no influence on new performance of frontline workers. OJ plays a strong moderating role between organizational support and employee attitudes.

**Originality/value** – This study is one of the first attempts to explore the performance of frontline workers in the context of flexible manufacturing and contributes to the existing literature on the relationship between organizational support and EP.

**Keywords** Organizational support, Attitudes, Justice, Performance, Frontline worker, Flexible manufacturing

**Paper type** Research paper

## Introduction

The “Made in China 2025” policy has changed the development of China’s manufacturing industry. On the one hand, the rapid development of information, automation and digital manufacturing technologies has led to the wide use of flexible manufacturing systems (FMS) in various industries, accelerating the application of intelligent processes to manufacturing enterprises. On the other hand, as China’s economy developed and consumers’ personalization requirements increased (Yizhong *et al.*, 2019), wider product

This work was supported by the project of International Innovation Team of Philosophy and Social Science of Jilin University (Grant No. 2019GJTD05).



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lines and the rapid introduction of new products have become key competitive levers where FMS play an important role (Abu Qudeiri, 2017). A FMS is defined as “an integrated group of processing CNC machines and material-handling equipment under computer control for the automatic processing of palletized parts” (Elmaraghy and Caggiano, 2016). Enterprises that cannot adopt flexible manufacturing are gradually losing their power due to severe competition.

Manufacturing systems are human-machine systems composed of manufacturing equipment and personnel. In building FMS, many researchers and professionals emphasize the flexibility of manufacturing equipment, paying less attention to employee flexibility and the effects of a transition from traditional manufacturing to flexible manufacturing on frontline workers (Maheso *et al.*, 2018). Researchers believe that as highly intelligent individuals frontline workers can naturally cope with the challenges and can easily utilize their own capabilities to deal with flexible manufacturing (Birecikli *et al.*, 2016). However, our practical experience and initial investigations suggest that flexible manufacturing puts new requirements on frontline workers that may be difficult for them to deal with independently.

In a traditional manufacturing system that produces a single product, frontline work is mainly labor work, and the performance assessment is based on efficiency and quality (Kelly, 1982). However, frontline work in a FMS that produces a variety of products also requires work activities (Adler, 1991) in which employees need to: pay more attention to deal with work differences introduced by product variety; learn continuously to grasp specific information and operation standards to introduce new products; cooperate with team members to solve production problems brought on by product variety and the introduction of new products; and develop greater initiative to prevent problems occurring and engage in continuous improvement. It is not easy for frontline workers accustomed to physical work to respond to the work requirements as mentioned above. Therefore, human resource management also needs to adapt to lift the skills level and work initiative of frontline workers (Prieto and Perez-Santana, 2014) to avoid the decline of production efficiency and product quality during the transition to flexible manufacturing.

According to social exchange theory (SET) (Liao *et al.*, 2019) and organizational support theory (Rhoades and Eisenberger, 2002), companies need to give support to frontline workers, so that they obtain higher incentive to work hard and get better performance. Researchers have constructed “supportive human resource management,” which states that enterprises should support employees by providing organizational recognition, generating endogenous motivation and good working results (Arthur, 1994). Although there is much research on employees in the Chinese auto industry (Nichols and Zhao, 2010), there have been few studies on the performance of frontline workers in the context of flexible manufacturing. Although the association of organizational support and employee performance (EP) is well studied (Rhoades and Eisenberger, 2002), the influence mechanisms and specific roles of organizational support on the performance of frontline workers are still unclear, and empirical evidence is lacking.

Given the rapid development of flexible manufacturing in China, this paper contributes to the literature by studying the relationship between organizational support and frontline worker performance based on social exchange and organizational support theories. Four new indicators for frontline worker performance were identified. A conceptual model was developed to delineate the relationship between organizational support, sense of belonging (SB), sense of awe (SA), organizational justice (OJ) and EP. By dividing organizational support into reinforcing support and inhibitive support, our results show that reinforcing organizational support (ROS) had a positive effect on the new performance of frontline workers, and that a SB plays a strong mediating role between them. Inhibitive organizational support (IOS) plays an important role in the SA of employees, but the SA has no influence on the new performance of frontline workers. OJ plays a strong moderating role between organizational support and employee attitudes.

**Theoretical background and hypotheses**

*Organizational support and performance of frontline workers*

SET states that “social exchange comprises actions contingent on the rewarding reactions of others, which over time provide for mutually rewarding transactions and relationships” (Cropanzano and Mitchell, 2005). Within the context of organizations, Eisenberger *et al.* (1986) proposed a theory of organizational support stating that when employees sense organizational care, support and attachment, they will perform better. Companies that care about their employees improve the overall perception of support from the organization (Eisenberger *et al.*, 2001). According to the reciprocity rule of social exchange, organizational support encourages employees to work hard to repay the organization, so perceived organizational support should significantly increase EP. This has been confirmed by many empirical studies (Zhong *et al.*, 2016). Eisenberger *et al.* (1986) opened a venue of research on the impact of organizational support on EP which provided new perspectives for enterprise managers to evolve EP management strategies. Armeli *et al.* (1998) found that the impact of organizational support on EP increased significantly. In HRM practices with high performance, perceived organizational support had a significant impact on employee innovative performance (Kehoe and Wright, 2013). Similarly, in a rapidly changing organizational context, employees’ perceived organizational support can also have an impact on EP (Cullen *et al.*, 2014). Skinner (1957) found that the use of different positive stimuli (things that bring pleasure) and negative stimuli (things that produce pain) can reinforce or inhibit specific behavior of the subject (Table I). Although giving the subject a negative stimulus is a form of punishment, its purpose is to suppress wrong behavior and therefore may also be considered a supportive action. This paper proposes two modes of organizational support, ROS and IOS. ROS refers to providing positive stimuli or revoking negative stimuli imposed on employees in order to strengthen positive behaviors, usually by offering positive stimuli such as salary, welfare, care, etc. IOS refers to withdrawing positive stimuli or imposing negative stimuli to restrain negative behaviors, such as by salary reductions, fines or criticism (Rhoades and Eisenberger, 2002).

EP is the individual’s work achievement after exerting required effort on the job (Hellriegel *et al.*, 1999). Although there are many frameworks in EP (Pradhan and Jena, 2017), few of them are suitable for frontline workers, especially in the flexible manufacturing setting. Our preliminary survey of automakers with flexible manufacturing factories showed four new work contents of frontline workers. First, compared to traditional production, multi-variety production makes frontline work diversified. Workers need to identify different processing tools and parts and accurately distinguish standard operations to ensure correct processing. These intellectual works consume more energy; the more varieties of products that frontline workers deal with, the more energy they exert. Second, the introduction of new products has changed the work content for frontline workers. Evolving work processes might involve new tools, parts and processing techniques. Frontline workers must learn to fully grasp the production of new products and ensure efficiency and quality. Frequent introduction of new products requires continuous employee learning. Third, multi-variety production makes the production line complicated. The introduction of new products and elimination of old products requires frequent adjustment of the production line. Due to the complexity and frequent adjustments, production lines may not be able to maintain optimal status; the frequent equipment stops

**Table I.**  
Different types of  
intension and  
inhibition

	Implement stimulation	Eliminate stimulation
Positive stimulation	Intension 1	Inhibition 2
Negative stimulation	inhibition 1	Intension 2

and problems of quality could affect more than just a single product. The effectiveness of equipment management that relies on after-sale professional maintenance is decreasing. Preventive equipment management that requires deep involvement of frontline workers is receiving more and more attention, but this requires that frontline workers have certain skills and problem-solving capability. Fourth, finding solutions to production problems is not easy, and the key is in discerning the real cause of the problems. Solutions are likely to encompass many aspects, and require collaboration with frontline workers.

Based on the above discussion, this paper measured the performance of frontline workers in the context of flexible manufacturing using four indicators which were continuous learning, problem solving, teamwork and work initiative. Frontline workers in the context of flexible manufacturing fulfill the definition of the general concept of employees, so organizational support has a positive impact on the new performance of frontline workers. In the course of their work, employees are affected by various internal and external conditions and, due to changes in their situation, it is difficult to maintain organizational expectations. When employees exhibit negative behavior, inhibitory support activities are executed in a timely manner to eliminate such behavior, so ROS and IOS coexist in daily activities. Therefore:

*H1a.* ROS has a positive impact on new performance of frontline workers.

*H1b.* IOS has a positive impact on new performance of frontline workers.

#### *Organizational support and employee attitude*

Under ROS, companies provide positive stimuli or eliminate negative stimuli so employees can obtain satisfaction (Anglin *et al.*, 2017). When employees are satisfied, they can adjust to the required work pressures and form a sense of organizational identity. However, in practice, even if employees have a sense of identity with a specific organization, it is possible that they may feel that other organizations might offer greater recognition. That means employees compare senses of identity and accessibility of their current and potential work, and then form a SB to their organizations after some adjustments (Hagerty *et al.*, 1992). In the field of psychology and organizational behavior, a SB is an important concept, which predicts many positive employee behaviors (Knapp *et al.*, 2014). In the actual survey conducted in this study, it was found that the word “belonging” was more easily understood and accepted by frontline workers and frontline managers, and was mentioned more frequently than words such as “organization commitment” and “organization identity.” Therefore, this study utilized a SB to describe the frontline workers’ attitudes under ROS.

Under IOS, negative stimuli are given or positive stimuli are eliminated by organizations, and the damage caused by employee behavior follows the basic principles of fairness (Collins, 2017). When employee behavior has negative consequences on the organization and the punishment given by the organization is consistent with or lower than the expected level, the psychological state of employees should remain good; however, significant differences exist between this state and the state under positive stimulation. When employees lose work amenities that they value, they feel pain inside, and the painful feeling will cause fear of further IOS behavior (Keltner and Haidt, 2003). The fear is essentially generated by the possibility of losing work privileges, while employees can simultaneously recognize the legitimacy of this loss. The SA can well describe this complex psychological state (Keltner and Haidt, 2003). As a complex and contradictory comprehensive emotion, the SA has connotations of both “respect” and “dread.” Compared to fear, awe is more accurate and comprehensive in expressing the impact of IOS on employee attitudes (Bai *et al.*, 2017). When employees receive IOS such as fines and criticism, the SA can help them proactively suppress their own harmful behaviors and accept organizational decisions with a good

attitude through their own ethics, while maintaining organizational interests. Therefore, this study selected the SA to describe the attitudes of frontline workers under inhibitory organization support.

The relationship between organizational support and employee attitudes has been widely validated (Choi, 2019). In terms of the general impact of organizational support on employee attitudes, this study believes that:

*H2a.* ROS has a positive effect on SB.

*H2b.* IOS has a positive effect on SA.

#### *The relationship between belonging, awe and new performance of frontline workers*

Research into the practices of human resource management has shown that employee attitudes impact the new performance of employees (Cosenz, 2018). The SB and SA, as indicators of positive employee attitudes, are ubiquitous in organizations, and have important influence on EP (Kehoe and Wright, 2013). Employees with a SB will maintain a positive attitude, showing strong initiative, investment and efficiency (Kim *et al.*, 2014). The SA will make employees consciously restrain their behaviors and guarantee work performance. The influence of employee attitudes on new performance should also be applicable to frontline workers in flexible manufacturing. Therefore, the SA and SB of frontline workers should directly affect their behaviors and work performance.

The core purpose for organizations to support employees is to influence their behavior. A sense of organizational support enables employees to further influence their own behaviors to ensure stable development and improvement; an employee's behavior is directed by their internal attitudes, so the relationship between organizational support and employee behavior necessarily involves employee attitudes (Wang *et al.*, 2014). Organizational support manifests itself in the psychological perceptions of employees, and affects the new performance of employees through their behavior. Combined with the above analysis, this study considers that employee attitudes play a mediating role between organizational support and new performance. Therefore:

*H3a.* SB has a positive impact on the new performance of frontline workers.

*H3b.* SA has a positive impact on new performance of frontline workers.

*H4a.* SB plays a mediating role between ROS and new performance of frontline workers.

*H4b.* SA plays a mediating role between IOS and new performance of frontline workers.

#### *The moderating effect of organizational justice*

OJ refers to the peoples' feelings that the organization's system of policies and measures treats them fairly and is a subjective perception and psychological experience of the individual (Colquitt *et al.*, 2001). Existing research mainly evaluated the sense of OJ from four dimensions: distributive, procedural, interpersonal and informational. Employees' perceptions of organizational fairness had an impact on employees' attitudes toward the organization, which, in turn, affected their behavior (Masterson, 2001). Different aspects of organizational fairness have different influences on employees' attitudes (Riggle *et al.*, 2009). Usually, the exchange process cannot reach absolute fairness, and unfairness exists in more or less proportion; employees' perception of fairness has an important impact on attitudes (Jung and Ali, 2017).

Homans (1958) pointed out that social exchange followed the principle of fairness which was that the exchanged parties must judge the reciprocity between pay and return in the social exchange, such that no one will suffer long-term exchange of "loss."

Therefore, fairness perception has an important impact on the attitudes and behavior of the employees; but it is not difficult to see that the perception of fairness is formed by a certain comparative analysis of the value of the exchanged content. Therefore, fairness is generated on the basis of the value of the exchanged content. From the perspective of employees, the strength of organizational support is used to express the value of the supported content that the organization gives to employees (Rhoades and Eisenberger, 2002). OJ is formed based on the strength of organizational support. Intensity is the original attribute of organizational support, and fairness is a derivative attribute of organizational support based on intensity to adjust the impact of organizational support intensity on employee attitudes (Rhoades and Eisenberger, 2002).

Given a certain level of support, under the high fairness perception scenario, employees can generate positive attitudes for matching them, which, in turn, encourages them to work hard at a certain level, while in the low-fairness perception scenario, the positive level of employee attitudes will be reduced and their proclivity for hard work will be reduced. Since the remuneration of first-line workers is generally at a low level, employees are more sensitive to changes in organizational support with remuneration as the core, and the role of organizational fairness is more significant.

Research on organizational support usually focuses on intensity attributes, with literature on organizational fairness mainly studying its direct effect (Rhoades and Eisenberger, 2002). There are few papers considering strength and fairness, and their interaction effects. As a secondary attribute, fairness usually manifests as a moderating effect, which has been tested in the existing literature (Sora *et al.*, 2010, Janssen, 2001). Perceptions of fairness can moderate the relationship between employee independence, organizational commitment and turnover intentions (Birecikli *et al.*, 2016). Our experience in the automobile manufacturing industry showed us that frontline workers in this industry were highly sensitive to organizational fairness because of low salary levels, and this attitude may influence the impact of organizational support intensity on attitudes and behavior. Therefore:

*H5a.* OJ moderates the relationship between ROS and SB.

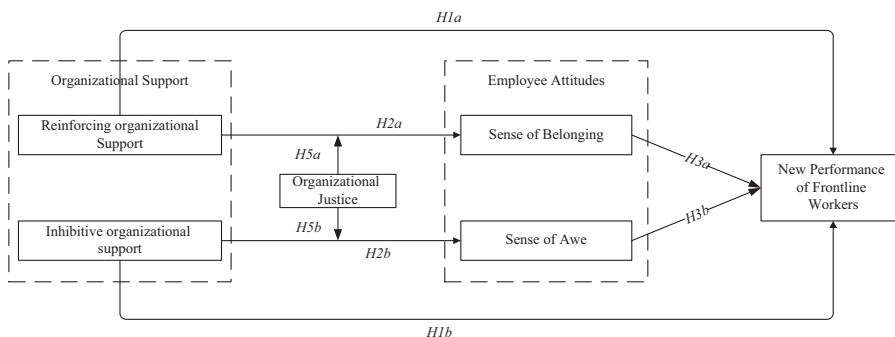
*H5b.* OJ moderates the relationship between IOS and SA.

In summary, this study built a supportive employee management model as shown in Figure 1.

## Methodology

### *Samples and procedures*

This study selected the China FAW Group as the research base to ensure sample representativeness. The FAW group is one of the biggest automotive manufacturing enterprises in China. It has formed joint ventures with famous worldwide auto companies,



**Figure 1.**  
The conceptual model

such as Audi, Volkswagen, Toyota and GM. The auto models produced by the FAW group include trucks, buses, commercial vehicles, cars and other vehicles and its production plants are spread all over the country.

Due to the varieties of sub-companies in China's FAW group, this research covered both sole proprietorships and joint ventures, comprising commercial vehicle manufacturers, passenger car manufacturers, vehicle manufacturers and component manufacturers so that there were balanced samples across the enterprises. The manufacturing process included assembly, painting, welding, stamping, logistics and maintenance. Considering that the flexibility of final assembly, welding and painting was high, the frontline workers in these stages were selected as sampling targets. We conducted a pre-study to come up with an effective questionnaire. In the formal investigation, seven sample sub-companies were selected to conduct the survey. A total of 180 questionnaires were distributed and 179 were collected. After screening, the number of valid questionnaires available for data analysis was 139, with a validation rate of 77.7 percent.

The distribution of samples is summarized in Table II. We can see that most participants (76.3 percent) have worked in production for a long time – more than three years. Most participants were from 25 to 40 years old, with 35.3 percent under 25 years of age and 18.7 percent more than 40 years old. Education levels included high school education level and below (26.6 percent), secondary school education level (19.4 percent) and college education level (54 percent). The average monthly salaries of surveyed employees were less than 2,500 yuan (11.5 percent), 2,500–3,000 yuan (20.9 percent), 3,000–4,000 yuan (20.1 percent) and 4,000 yuan and above (18.7 percent).

### Measures

This research attempted to use mature scales of similar research whenever possible, and adopted strict translation and back-translation to ensure accuracy. Meanwhile, considering

Classification	Frequency	%
<i>Age (years)</i>		
Below 25	49	35.3
26–30	35	25.2
31–35	11	7.9
36–40	18	12.9
41–50	26	18.7
<i>Education levels</i>		
Below senior high school	37	26.6
Secondary school	27	19.4
College	75	54
<i>Average monthly salaries (yuan)</i>		
Below 2,500	16	11.5
2,501–3,000	29	20.9
3,001–4,000	68	20.1
Above 4,000	26	18.7
<i>Length of service (years)</i>		
Less than 3	33	23.2
3–6	48	34.6
7–10	12	8.6
11–15	10	7.2
16–20	14	10.1
Above 20	22	15.3

**Table II.**  
Descriptive statistics

the reality of China's automobile industry and new practice of performance appraisal by production workers, some scales were modified to adapt to real practice. Particularly, considering that the overall knowledge level of first-line production workers was low, the scales were simplified as much as possible, and all variables were measured using a five-point Likert scale. After determining the first draft of the scales, two comparable and typical automobile manufacturers were selected to conduct a pre-study; problems in the pre-tested scale were corrected to form the final questionnaire.

ROS was assessed using ten items (Eisenberger *et al.*, 1986), containing three sub-dimensions: work treatment (WT), leadership care (LC) and corporate care (CC). A sample item of WT reads "What level is your salary in?" The metrics for each item were divided into five levels, from low to high. LC was assessed with a three-item scale; a sample of LC reads "How does your line manager care about your development," while a sample item of CC reads "How does your line manager care about your life?"

The measurement of IOS consisted of one item (Eisenberger *et al.*, 1986), "How severe does your company punish the employee for bad behavior." The severity of punishment was divided into five levels, from no penalty to very strict penalty.

Four measurement items (Colquitt, 2001) were used to assess OJ: "From your perspective, how do you feel about the fairness of the company's organizational system?", "How is your line manager's daily fairness?", "How do you feel that the organization rate your contribution to the organization" and "Compared with your colleagues, how do you feel the fairness of the company's treatment of your work?" Each of the four items was assessed on a five-point scale (very unfair to very fair).

Employee attitudes were assessed with a six-item scale (Porter *et al.*, 1974, Chait and Summers, 1998), containing two sub-dimensions: SB and SA. We designed four items to assess employees' SB; a sample item reads, "How likely are you willing to work long-term in the company." Sample items of awe include "How does the company's work system relate to you" and "How is the binding force of work behavior?"

The metrics for EP were mainly derived from practical experience. The questionnaire about EP was filled out by the line manager of the production worker, consisting of four sub-dimensions, each corresponding to a measurement item: "How does the employee's learning meet job requirements?", "How does the employee improve his/her production problem solving skills?", "How is the employee's teamwork in the work team?" and "How is the employee's work initiative?" Five scales were used from 1 (very unsatisfied) to 5 (very satisfied).

We also included control variables in order to isolate the test effects (Boselie *et al.*, 2005) and followed the intentions of Anand *et al.* (2010) to use individual level control variables in testing the hypothesized organizational support-EP. Specifically, the tests were controlled by marriage status (0 = unmarried, 1 = married), age (1 = below 25 years, 2 = 26-30 years, 3 = 31-35 years, 4 = 36-40 years and 5 = 41-50 years); average monthly salary (1 = below 2,500 yuan, 2 = 2,051-3,000 yuan, 3 = 3,001-3,500 yuan, 4 = 3,501-4,000 yuan and 5 = above 4,000 yuan); education level (1 = below senior high school, 2 = secondary school and 3 = college); and length of service (1 = below 3 years, 2 = 3-6 years, 3 = 7-10 years, 4 = 11-15 years, 5 = 16-20 years and 6 = above 20 years).

### *Data analysis and results*

Correlation analysis was first conducted to explore the relationships between variables (Table III). The correlation coefficient between ROS and employee's new performance was 0.264 with  $p < 0.01$ , so *H1a* passed the test; while the correlation between inhibitory organization support and employee new performance was 0.018 with  $p > 0.05$ , so *H1b* failed the test. The correlation coefficient between ROS and employee's SB reached 0.655 and was significant at the 0.01 level, indicating that ROS had a great influence on an employee's SB,



so *H2a* was accepted. The correlation coefficient between IOS and employees' SA was 0.422 and significant at the 0.01 level, so *H2b* passed the test.

The correlation coefficient between SB and EP was 0.023 and significant at the 0.01 level, and the coefficient between SA and EP was not significant. Therefore, *H3a* was verified, while *H3b* was not. This study calculated the correlation coefficients between the four performance indicators of employees' new performance and the SB and SA, respectively (Table IV). The results indicate that the SB had a positive influence on the four new performance variables, while the SA had no significant impact on EP. IOS also had no effect on EP, so SA did not play a mediating role between IOS and EP; therefore, *H4b* did not hold.

A stepwise regression method was used to analyze the relationship between the dependent variable and the independent variable and to test the related mediating and moderating effects (Table V). EP was used as the dependent variable, and ROS and SB were

**Table III.**  
Correlation analysis  
results of research  
variables

	ROS	IOS	OJ	SB	SA	EP
ROS	1					
IOS	0.043	1				
OJ	0.723**	0.126	1			
SB	0.655**	-0.058	0.585**	1		
SA	0.150	0.422**	0.182*	0.094	1	
EP	0.264**	0.018	0.283**	0.261**	0.01	1

**Notes:** *n* = 139. \*, \*\*Significant correlation at the 0.05 and 0.01 levels, respectively (two-tailed test)

**Table IV.**  
Correlation  
coefficient matrix

	SB	SA
EP-1	0.195*	-0.048
EP-2	0.198*	0.026
EP-3	0.229**	0.076
EP-4	0.195*	-0.026
EP	0.252*	0.023

**Notes:** \**p* < 0.05; \*\**p* < 0.01

**Table V.**  
Calculation results for  
multivariate linear  
regression equations

Independent variable	Dependent variable			
	EP Model 1	SB Model 1	Model 2	SA Model 1
constant	1.45***	1.344***	0.850***	1.449***
ROS	Removed	Removed	0.331**	-
IOS	-	-	-	Removed
OJ	-	Removed	Removed	Removed
ROS × OJ	-	0.142***	0.081**	-
IOS × OJ	-	-	-	0.093***
SB	0.276**	-	-	-
SA	-	-	-	-
<i>R</i> <sup>2</sup>	0.068	0.437	0.467	0.227
Adj. <i>R</i> <sup>2</sup>	0.061	0.433	0.459	0.222
<i>F</i> -value	9.51**	106.463***	7.534**	40.337***
$\Delta R^2$	0.068	0.437	0.030	0.227
Sig. $\Delta F$	0.002	0.000	0.007	0.000

**Notes:** \*\**p* < 0.01; \*\*\**p* < 0.001

used as the independent variables in first step regression, after which the ROS variables were removed. Calculation results reveal that SB plays a full mediating role between ROS and EP, so *H4a* passed the test.

Using SB as the dependent variable, and ROS, OJ and the product of the two as independent variables, we created Models 1 and 2. Then, OJ and ROS were removed from Model 1, while only OJ was removed from Model 2. The  $R^2$  of Model 2 was significantly larger than for Model 1. According to the calculation results, OJ had a strong moderating effect between ROS and SB. Therefore, *H5a* was accepted. Using the SA as the dependent variable, and IOS, OJ and the product of the two as the independent variables, only one model was obtained. The independent variables in the model only retained the product of the two. The results show that OJ played a full moderating role between IOS and SA. Therefore, *H5b* was verified.

## Discussion

### *Relationship between organizational support and employee performance*

Through investigation of new work requirements for frontline workers, we identified four new performance indicators including continuous learning, teamwork, problem solving and work initiative. Compared with the traditional performance indicators of work quality and work efficiency (Hellriegel *et al.*, 1999), the new performance indicators reflect the new requirements of flexible manufacturing for frontline workers. The above statistical analysis shows that the new performance indicators were significantly affected by ROS (*H1a*). This is in line with the literature (Kurtessis *et al.*, 2017), because employment is the trade of effort and loyalty by the employee for tangible benefits and social resources from the organization according to the SET (Cropanzano and Mitchell, 2005). Therefore, when frontline workers receive positive organizational support (increased salary, bonuses, etc.), their feeling of obligation to help the organization will be enhanced. As a result, frontline workers with high reinforcing organization support should engage in greater efforts such as learning new skills and working proactively resulting in enhanced performance (Kurtessis *et al.*, 2017). However, inhibitory organizational support had no significant impact on the new performance (*H1b*), which differed from the current literature (Asadullah *et al.*, 2018). Possible reasons could be the implementation of a new FMS during the transition period. During this transition period, IOS like fines or punishment may only make frontline workers correct the problems emerged. The stimuli may not be great enough to motivate them to greater teamwork or to keep learning. Our result showed that the SB had a significant impact on EP (*H3a*). This is not surprising because the SB which is similar to the psychological ownership for the organization can increase employees' work commitment and job satisfaction which, in turn, improves their performance (Van Dyne and Pierce, 2004). But the SA had no effect on EP (*H3b*). This may be because that SA is an infrastructural and "health" perception, its active level is lower than SB; its main impact is on efficiency and quality indicators, and has little effect on new performance indicators. The above results suggest that for frontline workers, reinforcing support is needed to make them feel valued and create a SB which, in turn, improves their performance.

### *Mediating role of sense of belonging*

This paper proposes two modes of organizational support: ROS and IOS. WT, company care and supervisor care, as contents of ROS, have a significant positive impact on employees' SB (*H2a*), while work punishment, as the main content of inhibitory organizational support, has a significant positive impact on employees' SA (*H2b*). This is consistent with the literature (Kurtessis *et al.*, 2017, Rhoades and Eisenberger, 2002). The explanation is straightforward. ROS can give employees a positive attitude toward the organization and

enhance their identity in the organization, which will increase their SB, while IOS may make employees worry too much about their performance and fear the organization.

The SB played a mediating role between ROS and EP (*H4a*). That means that ROS affected EP through the SB. This is also not inconsistent with the literature (Kurtessis *et al.*, 2017, Rhoades and Eisenberger, 2002). The positive support given to employees will increase their commitment to the organization and motivate them to learn, work and solve problems. The performance improvement will come from the internal motivation.

*Moderating role of organizational justice*

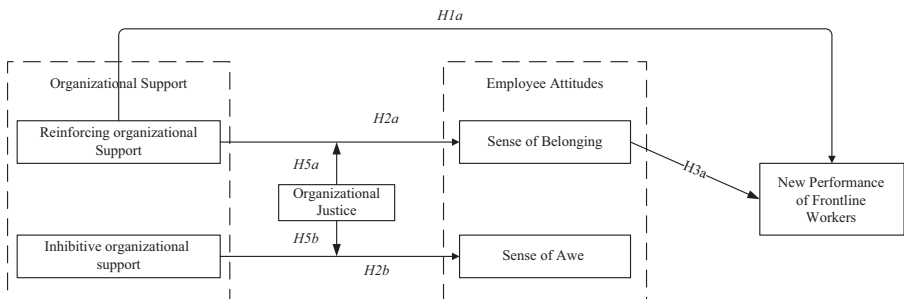
OJ as perceived by employees had a moderating effect between IOS and SA (*H5a*), and between ROS and SB (*H5b*). This is reasonable since OJ significantly affected employees' perception of the organization (Collins, 2017). When employees felt that the organization was unfair, they did not develop a SB even with high organizational support; however, if they perceive the organization as fair, even a small degree of support may make employees feel valued and encouraged. In contrast, when OJ was low, a small punishment like a fine may produce a high SA (Wang *et al.*, 2014). This result suggests that to make organizational support work effectively, a high degree of OJ is essential.

Based on the above analysis, we created the following model for the role of organizational support on the frontline workers' performance (Figure 2).

This figure demonstrates that ROS can impact employees' SB which, in turn, affects their performance. The OJ plays a moderating role on the path between organizational support and SB or SA.

*Conclusion and practical implications*

This paper studied the impact of organizational support on frontline workers' performance and its impact mechanisms in the context of flexible manufacturing. We found that ROS had a significant impact on EP via the SB. In addition, OJ had a significant moderating effect on the role of organizational support. Specifically, OJ moderated the impact of ROS on the SB, as well as the impact of IOS on the SA. The findings are helpful in identifying the mechanisms of the impact of organizational support on employee attitudes, and can help managers of frontline production personnel improve performance. In production management practice, because only the SB had a positive impact on EP, production managers should give employees more respect and recognition. Punitive measures such as fines will only strengthen awe toward the organization, without having an impact on employee's work performance. In this sense, the management of production workers in the context of flexible manufacturing should use more ROS. Production managers should pay full attention to the role of OJ in their management of workers, whether through IOS or ROS. OJ plays a strong moderating role in the impact of ROS on employee attitudes, so in giving rewards, such as strengthening process support, management should pay special attention to justice, otherwise it will bring negative effects.



**Figure 2.**  
Optimized  
mechanism model

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### Limitations and future research

Like any research, this paper is not free from limitations. Considering the specific situation of frontline employees, this study has greatly simplified the research variables and measurement items. This makes the research granularity coarser, lacking detail in the investigation of specific variables and their relationships. In the future, more detailed examination can be conducted on the research variables. The samples selected in this study were solely from the automobile industry without covering the overall manufacturing industry. There may be some differences among industries, which need to be tested by subsequent studies. This study examined the key roles of variable relationships relatively independently, and the test of the overall interaction between variables needs to be carried out in the next steps.

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