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Article

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Effect of supervisor-subordinate Guanxi on employees work behavior: An empirical dynamic framework

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ABSTRACT

Recently, the Chinese concept of guanxi (networks or business relationships) has drawn considerable attention and inspired researchers to explore its prevalence in diverse cultures. Accordingly, we examined the direct link between supervisor-subordinate guanxi and employee work behaviors (innovative work behavior and work engagement) by investigating the moderating effect of trust in the supervisor and the mediating effect of psychological empowerment. We collected data randomly from 510 employees (383 subordinates and 127 supervisors) working in China's manufacturing industry. The PROCESS macros operationalize the study constructs to test the presence of moderated mediation. All the hypothesized relationships are supported except the mediating role of psychological empowerment in the supervisor-subordinate guanxi and innovative work behavior relationships. The findings demonstrated that trust in supervisors strengthens the supervisor-subordinate guanxi's direct effect on psychological empowerment and its indirect impact on employees' work behaviors. To promote positive employees and work behaviors, organizations can develop supervisor-subordinate guanxi that supports organizational goals.

Ethics statement: This study was carried out in accordance with the recommendations of the Ethical Principles of Psychologists and Code of Conduct by the American Psychological Association's (APA). All participants gave written informed consent in accordance with the Declaration of Helsinki. The protocol was approved by the ethics committee of Jiangsu University, China.

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Introduction

"Alone, we can do so little; together, we can do so much." (Helen Keller).

Employees' behaviors in organizations influence work accomplishments and organizational success (Khan et al., 2018). Developing synergies is crucial to generating productive outcomes and enhancing organizational image (Khan et al., 2019). Monetary gains and market share typically measure organizational success and brand equity developed by top management (Li, Duverger & Yu, 2018). Even though these factors help realize organizational goals, employees' attitudes and work behaviors are also crucial for organizational

success (Zhang et al., 2017). Employees are key corporate resources (Khan et al., 2019), and employee retention has become a global challenge (Li et al., 2018). Mejia et al. (2018) have shown that a strong bond between supervisors and subordinates reduces employee turnover and improves work behaviors. As a result of high-quality relationships in the work environment, employees are able to access useful resources and support (Atitumpong & Badir, 2018). Influential leaders encourage employees to achieve mutual goals (Ali et al., 2019) and create a positive environment through communication with subordinates (Zhou et al., 2020). Substantial investigations have been carried out on the role of leaders in improving employees' creativity and job performance (Atitumpong & Badir, 2018; Guan & Frenkel, 2019). However, few studies have investigated whether an informal exchange relationship between supervisors and subordinates enhances efficiency and fosters positive work behaviors (Guan & Frenkel, 2020).

Social interactions outside the workplace have been shown to affect employees' performance (Ali et al., 2019). Research has

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explored the informal relationships embedded in the Chinese work culture, known as *guanxi* (Wang et al., 2016). Generally, *guanxi* applies to social/personal relationships through which employees build reciprocal and cordial links, achieving mutual benefits (Ali et al., 2019). This study focuses on supervisor-subordinate *guanxi* (SSG) based on social connections in work and non-work environments (Cheung et al., 2009). In Asia, on specific occasions or holidays, bosses and subordinates socialize outside the workplace (Mejia et al., 2018). In contrast, the Western leader-member exchange (LMX) concept is based on individualistic work values and formal ties (Cheung et al., 2009). Eastern work culture stands on collectivism and often extends to employees' personal lives (Bari et al., 2020). This phenomenon has been studied extensively in China, where strong relationships between employers and employees are believed to increase productivity (Law et al., 2000). Based on social exchange theory (SET), in line with Saeed et al. (2019), this study contends that leaders' encouragement, motivation, and incentives strengthen employee relationships. Numerous studies have found that SSG significantly affects employees' work outcomes (Guan & Frenkel, 2020; Li et al., 2018). SSG influences innovative work behavior (IWB), recognized by scholars as extra-role behavior, ensuring long-term organizational survival (Jamil & Yukongdi, 2020). Liu, Wang and Chen (2019) have shown that a supportive leadership style facilitates IWB. Work engagement (WE) is reflected in the enthusiasm, zeal, and dedication to carry out the tasks at work (Agarwal et al., 2012; Schaufeli & Bakker, 2004). Devoted employees guarantee an organization's survival, productivity, and sustainability (Saeed et al., 2019). Hence, leaders need to push for high WE amongst employees to achieve organizational objectives (Lu, Xie & Guo, 2018). However, very few studies have assessed the impact of SSG on employees' work behaviors (Ali et al., 2019; Miao et al., 2019). In business relationships, *guanxi* helps entrepreneurs expand their businesses, maintain a competitive edge (Chen, Chang & Lee, 2015), and develop creative and innovative industries (Chen et al., 2015). The manufacturing industry requires a new approach to satisfying stakeholders (Iqbal et al., 2020), and WE and IWB are essential to bridle the competitive market. Hence, this study investigates the influence of SSG on employee WE and IWB in the manufacturing industry.

Previous studies unveiled that trust in supervisor (TIS) facilitates *guanxi* between supervisors and subordinates (Wong, 2017; Yan, 2018). Trust in the leader results in positive behaviors and attitudes (Jamil & Yukongdi, 2020; Yan, 2018). The emotional bonds between employees and supervisors depend on their level of mutual trust (Han, Peng & Zhu, 2012). Psychological empowerment (PE) is an outcome of trust (Gill et

al., 2019). The supervisor's quality and the subordinate relationship depend on the level of trust (Wong, 2017). Since the 1980s, empowerment-related studies have focused on organizational development (Agarwal et al., 2012; Liu et al., 2019). However, few studies have analyzed the association between PE and employees' work behaviors (Agarwal et al., 2012; Saeed et al., 2019; Iqbal et al., 2020). Psychologically empowered individuals exhibit higher WE and innovative behaviors (Saeed et al., 2019). Hence, this study investigates PE in the relationship between SSG, employee IWB, and WE.

By analyzing the SSG in Chinese cultural contexts, we aim to investigate when and how SSG affects employee work behavior and what mechanisms play an essential role in the supervisor-subordinate relationship. We use SET by Blau (1964) as the conceptual framework to assess three key objectives. The first objective is to investigate the role of SSG among employees in the manufacturing industry in terms of the quality of the SSG that affects the employees' IWB and WE. Second, this study explores the mechanism that explains how high SSG between supervisors and subordinates might successfully develop IWB and WE. Based on the model of supervisor-subordinate relationships, this study employed TIS as a factor. Moderator evidence demonstrated in previous research has shown that when workers have a high level of confidence in their supervisor, they invest effort in performing their work efficiently. In addition, this study investigates whether PE can mediate the impact of SSG on employee work behaviors. Notably, the findings contribute to understanding the mechanism by which SSG can improve IWB and WE from diverse cultures. From a practical point of view, this study offers recommendations for the management of Chinese organizations to strengthen SSG and develop IWB and WE through PE and TIS. Lastly, this study provides new insights into the area by associating SET with the SSG concept, as shown in Fig. 1.

Literature review

Supervisor subordinate Guanxi, innovative work behavior, and work engagement

Supervisor-subordinate *guanxi* is a trait that establishes appropriate behaviors and where each party cares for the other (Charoen-sukmongkol, 2022). Based on SET (Blau, 1964), when someone receives a favor, the receiver is expected to repay the favor at some point. According to some psychological and sociological studies that elucidate behaviors through exogenous social norms, social behavior

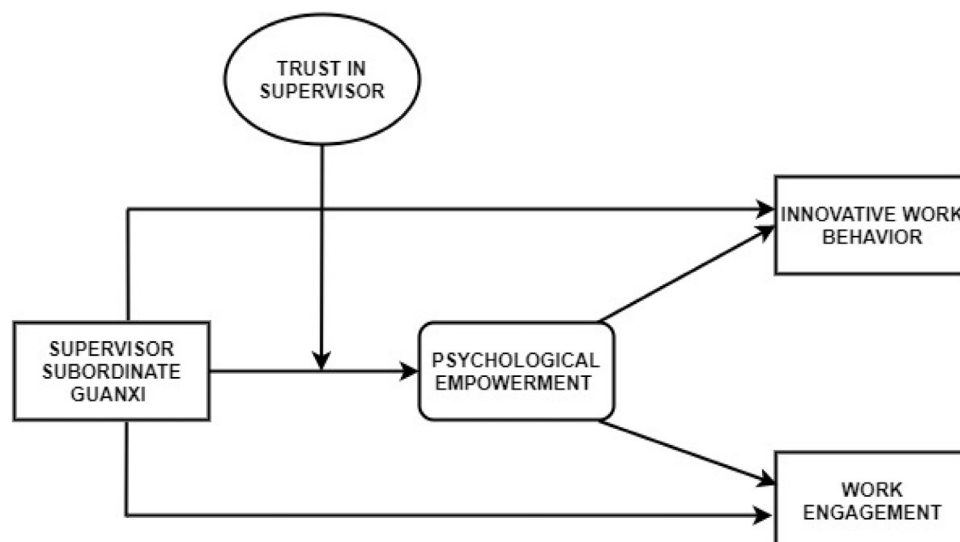


Fig. 1. Conceptual Model.

is influenced by the give-and-take philosophy (Cohen & Blecher, 2022). The significance of social contacts at work varies depending on the private social lives of remote workers since those with weaker social networks outside of work may place a higher value on work relationships (Mergener & Trübner, 2022). Situating SSG in SET, supervisors can develop a culture that addresses employees' personal needs such that they feel obligated to support the vision of their supervisor to maximize gains (Khalid & Ahmed, 2015).

According to the social exchange perspective, the leader encourages employees to respond with superior creativity and innovativeness. Leaders as supervisors foster IWB by encouraging employees to strive for common goals (Li et al., 2019). When strong SSG exists, subordinates are expected to have access to essential information, social assistance with the supervisor's referral, and the resources needed to implement positive change. Thus, employees work collectively through the social exchange, leading to increased IWB (Ratasuk & Charoensukmongkol, 2020).

Likewise, WE is termed a positive, fulfilling, and work-related mental state characterized by enthusiasm, commitment, and absorption (Schaufeli et al., 2002). This suggests that a situation in which people are cognitively, emotionally, or physically committed to their work displays work engagement (Aboramadan et al., 2022). An engaged workforce is necessary in today's globalized competitive environment (Aboramadan et al., 2022). Work engagement is an emotional state positively associated with essential conclusions such as job performance, commitment, and health (Kartal, 2018). In the context of social exchange, SSG plays a vital role in employees' intrinsic motivation to do a good job (Agarwal, 2014). Employees who have good *guanxi* with their supervisors are more engaged in their work because high-quality leader-member relationships boost followers' WE (Jiang, Xi & Tian, 2015). Furthermore, the SSG improves work behavior and performance (Guan & Frenkel, 2019). Employees who have a positive relationship with their managers are more likely to invest extra effort and be involved in organizational tasks (Aggarwal et al., 2020). Therefore, we expect SSG to relate positively to IWB and WE based on the above discussion. The following hypotheses are proposed,

H1a: SSG is positively related to IWB.

H1b: SSG is positively related to WE.

Moderating role of trust in supervisor

Trust is an important factor in collaboration. This represents the most direct, cost-efficient, and successful strategy for leaders to boost organizational effectiveness (Azizah, 2021). According to social exchange theory, employees typically reciprocate the treatment meted out by their employer in a way they believe to be fair (Blau, 1964). When workers view their boss favorably, it strengthens the social exchange connection and helps them build trust with him or her (Ahmad et al., 2019). As a result, workers feel obligated to repay the leader's actions with fruitful workplace outcomes. More particularly, interactions between employees and supervisors result in reciprocal exchanges based on the values of fairness and trust. (Aboramadan et al., 2022). Researchers found a significant link between trust and citizenship behavior (Sokmen & Yasrebdoost, 2022), interpersonal trust (Chudzicka-Czupala et al., 2022), effective supervisory communication (Men, Qin & Jin, 2022) and performance feedback (Asad et al., 2021). Trust is often connected with innovation, organizational survival, and a number of critical employee perceptions and actions (Cao & Le, 2022). An employee's supervisor assessment measures TIS (Basit, 2017). Trust in the supervisor improves an employee's willingness to accept greater responsibilities inherent in an empowerment effort, as well as innovativeness and creativity (Ertürk, 2012). According to (Tzafrir et al., 2004), the only way for

management to benefit from empowerment is through a high-trust culture. Employees feel psychologically empowered when they work in a trust-based environment, which leads to increased ownership (Gill et al., 2019).

In a social exchange relationship, the parties choose to be courteous in their reciprocation, and trust is generally rewarded with trust (Legood et al., 2021). As a result, employees should anticipate that their first motivated response will fulfill their commitment to their bosses by increasing their faith in reciprocation (Nazir et al., 2018). Thus, followers' trust is an immediate reaction to positive assessments of supervisors' socio-structural actions as benign organizational support that improves subordinates' fulfillment of their psychological needs. Moreover, Wong, Ngo and Wong (2003) have determined that SSG positively predicts TIS. Literature also shows a significant positive relationship between SSG and TIS, with SSG showing substantial overlap with leader-member exchanges (Ding & Yu, 2020). The strength of the relationship between the supervisor and the subordinate depends on the level of TIS (Wong, 2017). Therefore, based on the above discussion, it is hypothesized that,

H2 TIS moderates the relationship between SSG and PE.

Mediating role of psychological empowerment

PE is contextual, and individual meaning denotes various core processes and emotional conditions of the intellectual type, influencing people's perceptions of themselves (Permarupan et al., 2020). Internal task motivation that displays self-control in regard to one's active participation in the work role is called psychological empowerment (Joo & Galbraith, 2022). According to SET, when leaders and subordinates have good *guanxi*, it increases employees' PE, increasing IWB, which is one of the most prominent characteristics of employees' work behavior (Dedahanov et al., 2019; Khan et al., 2020). It also encourages innovative ideas pushing individuals to surpass the defined job description by increasing their PE.

Furthermore, PE contributes to a high WE and reduces withdrawal behavior (Aggarwal et al., 2020). It was determined that the social exchange interaction between the leader and the subordinate was critical in improving job outcomes and WE (Breevaart et al., 2015). Researchers found a strong link between LMX and employee empowerment. They also showed how PE could serve as a connection between LMX and job outcomes (Chiu et al., 2020). As a result, it is important to investigate the impact of SSG on IWB and WE through PE. Therefore, on the contention that SSG has a strong effect on employees' IWB and WE, the following hypotheses are proposed when they feel psychologically empowered:

H3a: PE mediates the relationship between SSG and IWB

H3b: PE mediates the relationship between SSG and WE

The moderating-mediating role of trust in supervisor

It seems that employee job outcomes are positively affected by TIS (Men et al., 2022). Scholars found that TIS positively and significantly affects the supervisor-subordinate relationship at work (Yan, 2018). Trust is influenced by leadership style and the counterparty's trustworthiness and fairness (Afsar & Masood, 2018). In our study, TIS refers to the emotional ties that develop between a leader and a follower as they participate in the process of social exchange. On the other hand, the latter is based on reciprocity norms and SET (Blau, 1964), and it anticipates employees' desire to reciprocate the leader's care and well-being. Thus, trustworthiness necessitates integrity (Afsar & Masood, 2018) and implies that trust boosts employees' confidence in the leader. When subordinates feel psychologically empowered, they are more likely to participate in decision-making processes and take risks to achieve organizational success (Emery et al., 2019).

According to Kim (2022), TIS may also encourage employees to engage in extra-role behavior as a sign of their loyalty to the company and their jobs. Additionally, when TIS is present, subordinates are eager to accept more responsibilities because they feel psychologically empowered (Gill et al., 2019). Employees are then incentivized to invest more effort to improve their level of engagement and innovation. Hence, we expect a conducive work environment that psychologically empowers employees in decision-making would substantially increase IWB and WE. Therefore, it is hypothesized that,

H4a: TIS significantly moderates the indirect effect of PE on the relationship between SSG and IWB.

H4b: TIS significantly moderates the indirect effect of PE on the relationship between SSG and WE.

Methods

Data collection and sample

The researchers of this study gathered information from manufacturing organizations (textiles, automobiles, and cement) in Jiangsu Province, China. Data for this study was collected from operational and administrative departments (i.e., marketing, sales, production/operations, quality, research and development, and information technology) of the respective manufacturing organizations. The manufacturing sector is a major contributor to every economy, especially in China. According to the world bank report of 2021, the manufacturing sector contributed 27.44% to the GDP of China. Data was collected using the simple random sampling technique, as this technique saves time and cost for data collection. Furthermore, the researchers of this study used the temporal separation method, as suggested by Podsakoff et al. (2003), to overcome the biasness of self-reporting opinions of the respondents. Two months' time lag was given between the first and second time lag. Data for this study was collected from a multi-level (supervisor-rated) process. This method increases the efficiency of the data and mitigates the data bias of respondents. Therefore, the researchers randomly collected data about the IWB of subordinates from their immediate officers/supervisors.

Researchers of this study contacted the human resource/administrative departments of the respective organizations which were chosen as the sample population for this study. Subsequently, researchers visited the respective organizations, and data was collected without any interference from the researchers. Immediate officers/supervisors and their subordinates were briefed before the distribution of the questionnaires in the context of the purpose of the study and data confidentiality, a description of the study's objective, and reassurance that they could quit the study at any time. A blank envelope was also given to the respondents with the questionnaire to ensure the confidentiality of their opinions, and researchers requested respondents (immediate officers/supervisors and their subordinates) to return the questions in the envelope to their respective human resource/administrative departments after filling in the questionnaires.

Before distributing questionnaires to subordinates and their immediate officers/supervisors, special coding was done on the survey questionnaires in order to match the questionnaires. Moreover, researchers collected the email addresses of the respondents on the questionnaires to ensure the pair accuracy of the questionnaires after populating it from the same respondents during the first and second phases; This also created an advantage for the researchers to pair their survey questionnaires at the end of data collection for the analysis process. The data was collected at two different times from immediate officers/supervisors and subordinates. In the first round (T1), the subordinates were asked to fill out the survey questionnaire and provide their opinions about SSG and PE. In the second phase (T2), subordinates' views about TIS and WE levels were gathered. In

parallel, in the second phase (T2), the data was also collected from immediate officers/supervisors of those employees who participated in both rounds to rate their IWB.

In the first round (T1), the opinions of subordinates were collected for SSG and PE. For this purpose, 580 questionnaires were disseminated, and at the end of this phase (T1), 495 questionnaires were received that were completed and filled. After an interval of two months, the second round (T2) began, with data being collected from subordinates and from immediate officers/supervisors; for that purpose, 495 questionnaires were distributed to the participants (subordinates who participated in the first round), and they were asked to give their opinions about TIS and WE. Furthermore, in this phase, the data was collected to obtain the opinions of the immediate officers/supervisors about the IWB of their subordinates. There were 170 supervisors that were supervising 495 subordinates that responded at T1. Of these, 127 questionnaires were received. Finally, we received 383 questionnaires from 495 subordinates and 127 questionnaires from 170 supervisors. These were completed in all aspects by matching using the special identification codes; a final sample of 510 sets was obtained (383 subordinates were supervised by 127 immediate officers/supervisors), constituting a response rate of 68%, which was ready for further statistical analysis.

Measurement scales

The measurement scales were adapted from previous studies. All responses were evaluated on a five-point Likert scale, ranging from "Strongly Disagree-1" to "Strongly Agree-5."

Supervisor-Subordinate guanxi was measured using an eight-item measure developed by Wong et al. (2003). The scale covers the questions from subordinates about their relationship with their supervisors in developing guanxi. Thus, subordinates were asked to answer questions based on the last one-year relationship with their supervisors. Three items were removed during the confirmatory analysis process, which could not meet the minimum threshold of the loading. Sample item comprised "I am quite willing to help my immediate supervisor after work"; "I have frequent interactions with my immediate supervisor after work." The alpha value of the construct was $\alpha = 0.79$.

Psychological Empowerment was measured using a nine-item measure developed by Spreitzer (1995). Subordinates were asked to report their level of PE during the year. Three items were removed during the confirmatory analysis process, which cannot meet the minimum threshold of the loading. Sample of the measurement scale is "I am confident about my ability to do my job"; "I have significant autonomy in determining how I do my job." The alpha value of the construct was $\alpha = 0.85$.

Trust in Supervisor was measured using a four-item scale proposed by Podsakoff et al. (1990). Subordinates were asked to give their opinions about their level of trust in their immediate officers/supervisors. Sample items include "I have complete faith in the integrity of my supervisor"; "My supervisor would not try to gain an advantage by deceiving employees." The alpha value of the construct was $\alpha = 0.92$.

Innovative Work Behavior was measured using a six-item scale developed by Scott and Bruce (1994). The employees' immediate officers/supervisors were asked to rate the innovative behavior of their subordinates at the workplace during the year. Two items were removed during the confirmatory analysis process, which cannot meet the minimum threshold of the loading. Example of sample items includes "he/she develops adequate plans and schedules for the implementation of new ideas," "he/she searches out new technologies, processes, techniques, and product ideas." The alpha value of the construct was $\alpha = 0.82$.

Work Engagement was assessed through an 18-item scale developed by Schaufeli, Bakker and Salanova (2006). Subordinates were

asked to report their level of WE during the year. Ten items were removed during the confirmatory analysis process, which cannot meet the minimum threshold of the loading. Sample items include "When I am working, I forget everything else around me."; "I am proud of the work that I do." The alpha value of the construct was $\alpha = 0.89$.

Control variables

We controlled age, education, gender, and experience, as previous studies have shown that these demographic constructs significantly affect the relationship between SSG and employees' work behaviors (Ding & Yu, 2020; Guan & Frenkel, 2019; Li et al., 2018). Therefore, these constructs were controlled during the hypotheses testing.

Analysis

Regression analysis was performed to assess the direct effect of a predictor variable on the criterion variable. Further, PROCESS macros were employed for the analysis of mediation and moderation. This software allows testing complex and contingency models; for instance, the moderated mediation model requires efficient and convenient computations (Preacher et al., 2007). Additionally, this software is popular in the management, marketing, and business fields (Hayes, 2013).

Demographics (Subordinates)

Demographically, 383 respondents were male, and 91.12% (349) and 8.87% (34) were female. In terms of age groups, 21.67% (83) of participants were 20–30 years old, 28.2% (108) were 31–40 years old, 44.13% (169) were 41–50 years old, and 6.01% (23) were 51–60 years old. Their educational qualification was 85.38% (327) undergraduate, 10.18% (39) graduate, and 4.44% (17) post-graduate. Earlier studies indicated that the higher-educational level of employees influences the innovation capability of the individuals and the research development level of the firms (Duan et al., 2022). Moreover, manufacturing sector organizations, such as pharmaceutical,

textile, cement, and automobile industries, hire highly educated workforce for the attainment of competitive advantage through innovations (Khan et al., 2022; Li et al., 2022). Therefore, data for this study was also collected from the subordinates and immediate officers/supervisors who hold a graduation and post-graduation degree and work in different technical departments of manufacturing organizations. In terms of work experience, 44.65% (171) of participants worked 5–10 years, 29.77% (114) were employed for 11–15 years, 19.58% (75) worked 16–20 years, and 6.01% (23) were employed for 21–25 years.

Demographics (Supervisors)

Demographically, 127 respondents were male, of which 95.27% (121) and 4.72% (6) were female. In terms of age groups, 29.14% (37) of participants were 20–30 years old, 40.94% (52) were 31–40 years old, 18.11% (23) were 41–50 years old, and 11.81% (15) were 51–60 years old. Their educational qualification was 75.59% (96) undergraduate, 17.32% (22) graduate, and 7.09% (9) post-graduate. In terms of work experience, 22.83% (29) of participants worked 5–10 years, 37.8% (48) were employed for 11–15 years, 25.2% (32) worked 16–20 years, and 14.17% (18) were employed for 21–25 years.

Model measurement

A confirmatory factor analysis (CFA) was run to test the reliability and validity of the construct. Table 1 shows the values of CFA, where all indicators meet the minimum threshold 0.500–0.700 of factor loading (Kock, 2015). Moreover, the average variance extracted (AVE) values are above the minimum threshold (0.500) recommended by Fornell and Larcker (1981). The composite reliability (CR) values meet the minimum threshold (0.700) (Fornell & Larcker, 1981). The alpha values of all variables (in parenthesis) also exceed the minimum threshold (0.70) recommended by van Griethuijsen et al. (2014). To check the common method variance (CMV), we adopted several methods suggested by earlier researchers. CMV occurs simultaneously as data of study variables are collected from the respondents simultaneously, which can endanger the statistical results.

Table 1
Confirmatory Factor Analysis.

Variable	Measurement Items	Factor Loading	Alpha	CR	AVE	VIF
Supervisor Subordinate Guanxi (Subordinate-Rated)	SSG_04	0.783	0.79	0.859	0.553	2.642
	SSG_05	0.880				2.542
	SSG_06	0.690				2.315
	SSG_07	0.740				2.323
	SSG_08	0.595				1.980
Psychological Empowerment (Subordinate-Rated)	PE_02	0.819	0.85	0.891	0.579	3.197
	PE_03	0.667				1.857
	PE_04	0.833				2.394
	PE_05	0.708				3.474
	PE_06	0.744				3.432
Trust in Supervisor (Subordinate -Rated)	PE_08	0.782	0.92	0.944	0.809	2.637
	TIS_01	0.931				3.378
	TIS_02	0.968				1.032
	TIS_03	0.869				2.726
	TIS_04	0.824				2.264
Innovative Work Behavior (Supervisor-Rated)	IWB_03	0.694	0.82	0.902	0.700	1.519
	IWB_04	0.901				2.880
	IWB_05	0.851				2.587
	IWB_06	0.885				2.522
Work Engagement (Subordinate -Rated)	WE_04	0.692	0.89	0.913	0.602	2.840
	WE_05	0.700				3.830
	WE_06	0.828				3.876
	WE_08	0.644				4.152
	WE_16	0.886				3.232
	WE_17	0.798				4.297
	WE_18	0.850				3.875

Table 2
Measurement of the Model.

Fitness Criteria	Acceptable Range	Model Measurement	Structural Model
CMIN/DF	1–3	2.849	1.927
GFI	>0.90	.981	.946
AGFI	>0.80	.903	.892
CFI	>0.95	.980	.938
TLI	>0.90	.932	.915
NFI	>0.90	.976	.937
RMR	<0.09	.009	.019
REMSEA	<0.08	.024	.062
P_CLOSE	>0.05	.006	.027

According to, if there is a high correlation (0.900) between the study variables, then there is CMV; values of correlations about all study variables of this study are between 0.300 to 0.700, as shown in correlation table as well 3, so there is no chance of CMV. For further clarification about the CMV, we calculate the inner values of VIF (variance inflation factor). According to Kock (2015), if each construct item's inner value is less than or equal to 5, then there is no chance of CMV; VIF values of each item of this study are less than five and are between 1 and 5, as shown in Table 1. Finally, to cross-verify the problem of CMV, we ran the single factor analysis (cumulative percentage value) as suggested by Harman (1967) for the extracted sum of squared loadings, and we found it to be 37.13%, which is less than 50%, showing that no problem of CMV found in this data (Field, 2013).

Moreover, we measured the structural model for the goodness of fit through AMOS. Table 2 shows the values of measurement of good fitness, and all fitness indicators meet the minimum thresholds as suggested by Hair, Gabriel and Patel (2014); Hu, Bentler and Hu (1999).

Descriptive statistics and correlations

Table 3 shows the present study variables' descriptive statistics and correlation values. All variables exhibit a positive and significant correlation between the study variables. Further, the mean, standard deviation, and correlation of control variables are reported as part of the research design (Carlson & Wu, 2012).

Direct effects

Table 4 illustrates the estimated direct effects. In Model-1, SSG positively and significantly influences PE ($\beta=0.300$, $p<.001$, $t = 7.729$), while in Model-2, SSG significantly and positively affects IWB ($\beta=0.233$, $p<.001$, $t = 13.353$), and in Model-3, PE significantly and positively influences IWB ($\beta=0.317$, $p<.001$, $t = 8.676$). Moreover, the results of Model-4 indicate that SSG positively and significantly affects WE ($\beta=0.360$, $p<.001$, $t = 10.128$), and Model-5 shows that PE

significantly and positively influences WE ($\beta=0.398$, $p<.001$, $t = 11.715$). Hence, H1a and H1b are supported.

Moderation effects

Table 5 reports the moderation results. The moderation of TIS is tested using a bootstrapping sample of 5000 observations. In Model-1 (Hayes, 2018), the impact of the interaction (SSG x TIS) on PE is significant ($\beta=0.36$, $p<.001$), indicating that a high level of TIS strengthens the relationship between SSG and PE. Thus, H2 is supported.

The interaction (SSG x TIS) slope was plotted to further elaborate on the moderation results. Fig. 2 shows that a higher level of employees' TIS strengthens the relationship between SSG and PE.

Indirect effects

The indirect effect of PE is tested using the methods proposed by Hayes (2018) and (Sobel, 1982). Table 6 reports the results for the mediation effect of PE in the relationship between SSG and IWB (DV-I). The zero value is found between the lower and upper lower-level class intervals ($\beta=0.05$, LL&UL=-0.03; 0.07), which indicates a lack of PE mediation (Hayes, 2018). These results are further supported by Sobel (1982), as the p-values are greater than 0.05 ($\beta=0.05$, $p>.05$), indicating no significant mediation. Thus, H3a is not supported. Table 6 also reports the mediation effect of PE in the relationship between SSG and WE (DV-II). No zero is found between the lower and upper lower-level class intervals ($\beta=0.19$, LL&UL=0.14; .24), which indicates that PE mediates the association between SSG and WE (Hayes, 2018). These results are also in line with Sobel (1982). The p-values are lower than 0.001, demonstrating a significant PE mediation in the relationship between SSG and WE ($\beta=0.19$, $p<.001$). Thus, H3b is supported.

Moderated mediation effects

The significance of the indirect relationship between SSG and IWB, and WE via PE with low and high TIS levels are calculated with a 95% confidence interval using Model-7 (Hayes, 2018). Table 7 reports conditional indirect effects and moderated mediation index values. SSG is indirectly and positively related to IWB (DV-I) when employees exhibit higher TIS levels, as no zero is found between the values of the 95% CIs (Effect=0.01, LL & UL=0.05, 0.03). However, SSG is also indirectly and positively related to WE (DV-II) when employees exhibit a higher level of TIS as no CIs exhibit zero values (Effect=0.03, LL&UL=0.03, 0.09). The moderated mediation index indicates that a higher level of TIS is linked to a more significant positive indirect effect of SSG on IWB via PE (index=0.07, LL&UL=0.11, 0.04). In comparison, a higher level of TIS is linked to a more significant positive indirect effect of SSG on WE via PE (index=0.31, LL&UL=0.38, 0.23). Thus, H4a and H4b are supported.

Table 3
Descriptive Statistics, Reliability, and Correlations.

		Mean	SD	1	2	3	4	5	6	7	8	9	10
1	Gender	1.18	0.383	1									
2	Age	1.74	0.784		1								
3	Edu	1.98	0.814			1							
4	Exp	4.43	0.734				1						
5	SSG	4.2136	.57834					1					
6	PE	4.1276	.51511						1				
7	TIS	4.5078	.49928							1			
8	IWB	3.9439	.67159								1		
9	WE	4.2089	.48781									1	

Note: SSG; supervisor subordinate guanxi, PE; psychological empowerment, TIS; trust in supervisor, IWB; innovative work behavior, WE; work engagement, ** $p < .05$, * $p < .01$.

Table 4
Direct Effects.

Direct Paths	β	SE	t	R ² /R ² Change	F
Model-1	SSG → PE	.300***	.04	7.729	.136 (0.133)
Model-2	SSG → IWB	.233***	.03	13.353	.345 (0.340)
Model-3	PE → IWB	.317***	.07	8.676	.265 (0.263)
Model-4	SSG → WE	.360***	.03	10.128	.245 (0.243)
Model-5	PE → WE	.398***	.03	11.715	.214 (0.210)

Note: SSG; supervisor subordinate guanxi, PE; psychological empowerment, TIS; trust in supervisor, IWB; innovative work behavior, WE; work engagement, *** $p < .001$.

Table 5
Moderation Analysis.

Variable	Psychological Empowerment		
	β	SE	t
Intercept	2.581***	.20	12.892
Gender	.351***	.04	10.034
Age	−0.090***	.02	−4.214
Marital Status	−0.053***	.01	−3.937
Education	.023	.01	1.690
Experience	.337***	.03	10.989
SSG	.148***	.02	6.342
TIS	.094**	.03	2.794
SSG x TIS	.364***	.06	6.436
R ²	.803		
Adjusted R ²	.799		
F	190.658***		

Note: SSG; supervisor subordinate guanxi, PE; psychological empowerment, TIS; trust in Supervisor, *** $p < .001$; ** $p < .01$.

Discussion

In an attempt to resolve the puzzle caused by the ambiguous empirical findings on SSG and employees' work behaviors in the existing literature, this study assesses the moderating and mediating role of TIS and PE in the association between SSG and employees' work behaviors, namely, IWB and WE in the Chinese work environment. The results largely support our proposal that SSG has a positive on employees' work behaviors. Moreover, TIS serves as a moderating, and PE acts as a mediating construct that enhances the link between SSG and employee work behavior. The results of the H1 revealed, as expected that SSG had a significant direct impact on employee IWB

and WE. The findings were supported (Zhang, Zhou & Kwan, 2017) and showed that SSG influences employee work behaviors by encouraging IWB and positive WE. Premised on SET, it is implied that staff members who have positive supervisor-subordinate relationships display highly positive behaviors that are advantageous to both leaders and the entity (Cropanzano et al., 2017). Subordinates are positively affected and motivated by their supervisors, which improves their performance, interpersonal interactions, and work behaviors (Ding & Yu, 2020; Guan & Frenkel, 2020; Liu et al., 2019). Moreover, the present study also looked into how important factors influence the relationship between SSG and employees' work behaviors. TIS demonstrated that the association between SSG and PE is strengthened when TIS is high, as hypothesized in H2 by moderating the relationship between PE and SSG. The findings supported (Javed et al., 2018; Wong, 2017) and showed that when supervisors gain employees' trust and comprehend their requirements, workers will respond positively to achieve organizational objectives. Additionally, SET claims that when two parties, such as subordinates and supervisors, exchange mutual benefits in order to further their individual or organizational interests, both parties gain advantageous resources, such as TIS, which strengthens the bond between SSG and PE. To put it another way, a high level of TIS would make the bonds between SSG and PE stronger.

Besides that, we did not find evidence to support the mediated effect of PE in the relationship between SSG and the employees' IWB in H3a. Unexpectedly, the findings were contradictory with previous studies on supervisors and subordinates, which supported the supervisors' and subordinates' role in developing positive work behaviors through PE (Dedahanov et al., 2019; Liu et al., 2019). The possible reason why this hypothesis was not supported as guanxi could be that an informal favor exchange occasionally prevents

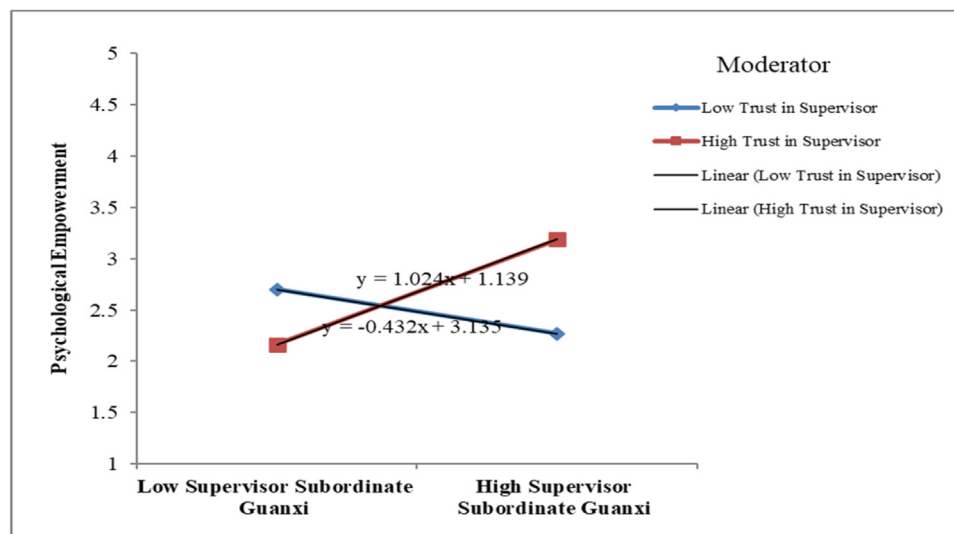
**Fig. 2.** Interaction Effects.

Table 6
Indirect Effects.

Model	SSG → PE → IWB			z (p)
	β	SE	LL/UL	
Indirect Effect (Bootstrap)	.05	.01	−0.03, 0.07	3.59 (0.07)
Indirect Effect (Normal theory test-Sobel)	.05	.01		
Model	SSG → PE → WE			z (p)
	β	SE	LL/UL	
Indirect Effect (Bootstrap)	.19***	.03	.14, 0.24	7.50*** (0.00)
Indirect Effect (Normal theory test-Sobel)	.19***	.02		

Note: SSG= supervisor subordinate guanxi, PE= psychological empowerment, TIS= trust in supervisor, IWB; innovative work behavior, WE; work engagement, LL, lower limit; UL, upper limit, *** $p < .001$.

formal or standard procedures from making the best human resource management choices (Yang et al., 2019). Subordinates occasionally fail to put forth their best efforts because having good guanxi with their superiors ensures benefits. As a result, subordinates' capacity to develop and apply novel ideas is compromised. The results of the H3b were supported that indicated the mediating effect of PE on SSG and employees' WE. According to the findings, PE acts as a mediating variable in the association between SSG and WE of employees, which is consistent with earlier studies (Yang et al., 2019) demonstrating how relationships based on mutual benefit sharing encourage productivity and support WE. Finally, TIS moderated the mediated effect of PE in the association between SSG and employee work behaviors, supporting the findings of our final moderated mediation model, H4. The findings highlighted the critical factors (TIS and PE) that strengthen the ties between supervisor and subordinates and encourage employees' work behaviors.

Theoretical implications

This study makes several contributions to organizational psychology and leadership literature. The current investigation indicated the significant impact of SSG on employees' work behaviors by employing SET theory. This theory, which originated in the western world, was employed to further understand the guanxi phenomena in Chinese organizations. The exchange-based relationship between supervisors and subordinates, that is, SSGs, assists the workforce in acquiring skills to achieve vested interests and structuring work relationships (Xian, Atkinson & Meng-Lewis, 2017). Corroborating this, the relationship between leaders and subordinates is key to organizational success and leads to higher productivity levels.

Moreover, the present study revealed SSG as a significant predictor of IWB and WE in Chinese organizations. The findings

demonstrated that supervisors and subordinates' high-quality exchange led to IWB and WE (Özsungur, 2019). Consequently, a dynamic framework offers a new empirical contribution to IWB and WE. Employees work autonomously to handle tasks, and this helps enhance self-motivated learning to find opportunities to develop and accomplish innovative ideas (Kim & Park, 2017).

Further, the study indicated how TIS intensifies the SSG-PE association. The results demonstrated that TIS is an essential factor that strengthens the bond between supervisors and subordinates. As a result, when subordinates have high degrees of cognition-based confidence in their leaders, work-related knowledge, direction, and guidance offered by leaders are viewed as more trustworthy and beneficial. This research expands the scope of investigation on TIS, ensuring productive work behaviors (Afsar & Masood, 2018).

Moreover, the mediating role of PE was examined in the SSG and employees' work behaviors relationship. Consequently, when bosses develop high exchange quality with subordinates, the employees view their work as important and reciprocate with positive work behaviors. Organizational members are more willing to seek new technologies, working methods, procedures, techniques, and innovations if they have this feeling and perception and high WE. Research added to the existing studies that recommended exploring the impact of internal psychological or cognitive processes affecting the association between SSG and employee outcomes (Liu et al., 2017).

The holistic moderated mediation model of TIS and PE in the link between SSG- employee work behaviors were analyzed to further understand the interplay of relationships. The findings of this hypothesis provided new insights into how TIS and PE interplay affect the study variables' direct relationship. The integrated model's findings added to the literature on how specific mechanisms may enhance or inhibit SSG effects on employee work outcomes.

Table 7
Conditional Indirect Effects and Index of Moderated Mediation.

Mediator	(IWB as Dependent Variable)			(WE as Dependent Variable)		
	TIS (Moderator)	Effect (SE)	Boot LLCI/ULCI	TIS (Moderator)	Effect (SE)	Boot LLCI/ULCI
PE (−1 SD)	−0.50	.08 (0.02)	.00, 0.12	−0.50	.33 (0.03)	−0.27, 0.40
PE (+1 SD)	.50	.01 (0.01)	.05, 0.03	.50	.03 (0.03)	.03, 0.09
Moderated Mediation Index (SSG as Independent Variable)						
Mediator	(IWB as Dependent Variable)			(WE as Dependent Variable)		
	Index	Boot SE	Boot LLCI/ULCI	Index	Boot SE	Boot LLCI/ULCI
PE (TIS as Moderator)	.07	.02	.11, 0.04	.31	.04	.38, 0.23

Note: SSG; supervisor subordinate guanxi, PE; psychological empowerment, TIS; trust in supervisor, IWB; innovative work behavior, WE; work engagement, LL, lower limit; UL, upper limit; CI, Confidence Interval.

Practical implications

SSG is an informal exchange of mutual benefits that helps employees achieve organizational goals, creating a win-win situation for both parties. Training programs should be designed to support skill-building, high-quality exchange relationships, participation, positive criticism, innovation, collaborative decision-making, and the unconstrained expression of emotions.

Leaders nurturing personal relationships with subordinates generate affective responses in the work environment (Ali et al., 2019). Hence, organizations should create opportunities for supervisors and subordinates to mingle informally on ceremonial occasions, official retreats, and outdoor meetings, building a family-like atmosphere at the workplace (Guan & Frenkel, 2019). Further, direct supervisors should develop a social bond by remembering important events or occasions for the workforce, such as birthdays and anniversaries. Building an environment that creates trust, and respect, and boosts employees' confidence is crucial to encouraging learning, personal growth, and freedom of speech, thus promoting IWB and WE.

Additionally, supervisors communicate with their familiar subordinates more frequently to extend social and practical support (like coaching and feedback). Additionally, by being able to better recognize employees' requirements and preferences, both at work and at home, managers are perceived as having a greater job-related fit. Strong *guanxi* ties and bosses who genuinely care for their staff members often encourage excellent workplace behaviors. Employees are more likely to view management as fair and feel that their work has a significant impact on the organization. They feel more integrated into the organization as a whole, which helps them succeed at work.

Social implications

In Chinese culture, *guanxi* allows for the growth of inter-business relationships and interactions between the government and companies. This is crucial to the shaping and growth of day-to-day business transactions in a nation where business relations are deeply ingrained in society. This fosters productivity and efficiency. Further, *guanxi* serves as a crucial informal governance tool assisting Chinese businesses in leveraging social and economic channels. *Guanxi* can also be used by businesses as a means of circumventing institutions in China because the structure of local governments and government policies may obstruct the expansion of business contacts. Furthermore, *guanxi* itself is a wide phenomenon that is not restricted to China. We posit that similar effects might also exist in other societies, particularly in collectivist countries that value interpersonal connections.

Likewise, PE is an important source of motivation that could lead to higher levels of enhanced employee engagement and IWB at the workplace. Thus, greater productivity is not only important for organizations but also helps to gain efficiency and improvement in the quality of products/services that impacts the overall progress of society. Additionally, innovation has a crucial role in economic growth as it enables businesses to remain competitive in the marketplace. New ideas are essential for the solution of difficult challenges and for the development of nations in particular, which require them now more than ever. Additionally, TIS has been identified as crucial as it has an effect on collaboration, interpersonal, group solidarity, and the facilitation of social infrastructure.

Limitations and future studies

This study only focused on Chinese organizations, limiting the generalizability of the results. Thus, future studies should address different sectors to validate the study's findings. Further, this study focused on IWB and WE. Hence, future research should explore the

impact of SSG on other work behaviors, such as organizational citizenship behaviors.

Similarly, only TIS and PE were investigated as moderating and mediating factors. Thus, other SSG mechanisms and employees' work behaviors, such as perceived organizational support and leadership styles, should be investigated. Lastly, this study invites research to focus on when and how employees' work behaviors are affected by SSG in different work cultures (and countries).

Conclusion

The present study infused SET to highlight the impact of SSG and employees IWE and WE in the Chinese work environment. It was revealed that when supervisors and subordinates both exchange benefits through *guanxi*, the relationship between supervisors and subordinates strengthens, leading to increased IWB and WE. Further, TIS intensifies the link between SSG and PE so that employees feel more psychologically empowered. Moreover, good *guanxi* between supervisors and subordinates leads employees to feel more psychologically empowered, ultimately yielding positive employee work behaviors such as IWB and WE.

In a nutshell, our holistic model and findings added valuable insights about the contextual contribution (i.e., implications of mutual exchange-based relationships). This study focused on the importance of the SSG relationship leading to positive employee IWB and WE by unveiling the essential moderated mediated effect of TIS and PE in the current study. From this perspective, organizations should not count only on existing formal human resource management policies but also consider building personal *guanxi* among employees by creating an environment that enables workers to engage in social activities. Further, official retreats help supervisors and employees share work-related knowledge and build a new foundation for renewed motivation (Guan & Frenkel, 2019). In line with this, productive discussions between workers and supervisors are likely to foster mutual exchanges. Thus, it is expected that the present model and findings will invite researchers to focus on when and how employees' work behaviors are affected by SSG in varied work cultures.

Data availability statement

The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.

Declaration of Competing Interest

The authors declare no conflict of interest.

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