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Leadership styles, employee engagement, and job performance: Evidence from real estate frontline employees in Hefei, China

Sheng Hou^{1,2,*}, Hamrila binti Abdul Latif¹

¹ Faculty of Economics and Business, Universiti Malaysia Sarawak (UNIMAS), Kota Samarahan 94300, Sarawak, Malaysia

² Anhui Finance and Trade Vocational College, Hefei 230601, China

* Corresponding author: Sheng Hou, 21010263@siswa.unimas.my

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Abstract: This study examines how transformational leadership (TFL) and transactional leadership (TL) influence job performance (JP) among frontline employees in China's real estate industry, and whether employee engagement (EE) functions as a key mediating mechanism. Drawing on social exchange theory, we propose that leadership styles shape performance both directly and indirectly by strengthening employees' psychological investment in their work. Survey data were collected from 500 frontline employees in Hefei across developers, real estate agencies, and asset management firms. Using CB-SEM in AMOS with bootstrap mediation tests (5,000 resamples), the results show that both TFL and TL have significant positive effects on JP, with similar effect sizes. EE is positively related to JP and significantly mediates the relationships between both leadership styles and JP. These findings suggest that in high-pressure and volatile frontline settings, leaders can improve performance by combining inspirational support with clear goals, timely feedback, and transparent reward rules, while actively cultivating employee engagement. The study contributes context-specific evidence from a high-competition city setting and clarifies the mechanism through which leadership translates into performance via engagement.

Keywords: transformational leadership; transactional leadership; employee engagement; job performance; frontline employees; China's real estate industry

1. Introduction

In China's ongoing macroeconomic transition and sectoral restructuring, the real estate industry has entered a period of heightened uncertainty and intensified performance pressure. National statistics show that nationwide real estate development investment fell by 15.9% year on year from January to November 2025 (National Bureau of Statistics of China, 2025). while the World Bank reports that although some major-city markets are stabilizing, many cities—especially lower-tier ones—still struggle with inventory absorption and demand recovery, and real-estate-related risks continue to weigh on firms and employment expectations (World Bank, 2025). Such uncertainty can elevate employees' stress and ambiguity, reducing engagement and job performance through affective fluctuations and attentional disruption.

These challenges are particularly salient for frontline real estate employees, whose work is directly exposed to fluctuating customer demand, short-cycle targets, and intensive emotional labor. As a city-level context, Hefei represents a dynamic and competitive market: in 2024, it reported a GDP of RMB 1,350.769 billion, 6.1% GDP growth, and a permanent resident population of 10.002 million (Hefei Municipal Bureau of Statistics, 2025). This setting therefore provides a relevant case for

examining how leadership can stabilize and enhance frontline performance under pressure.

Leadership is a well-established driver of employee performance, and both transformational leadership (TFL) and transactional leadership (TL) have been consistently linked to job performance (Judge & Piccolo, 2004; Young et al., 2021). Yet in high-pressure real estate frontline contexts, further explanation is needed regarding how leadership is translated into performance. Beyond goal setting and contingent rewards, leadership also shapes psychological cues such as perceived support, fairness, and psychological safety, which influence whether employees sustain engagement and cope proactively with uncertainty (Bakker et al., 2023).

Employee engagement (EE) provides a plausible mechanism. Meta-analytic evidence shows that engagement is positively associated with both task and contextual performance (Corbeanu & Iliescu, 2023; Neuber et al., 2022). and leadership—particularly TFL—has been shown to relate strongly to engagement across studies (Decuyper & Schaufeli, 2021). Engagement has also been theorized as a core pathway through which employees invest energy and affective commitment in their work (Kahn, 1990), and can be viewed as an observable psychological investment reflected in employees' energy, focus, and emotional connection to work (Ariyanto et al., 2025). However, in frontline real estate settings characterized by volatility and emotional labor, it remains unclear whether engagement can effectively transmit leadership effects, and whether TFL and TL differ in the strength of this indirect pathway (Corbeanu & Iliescu, 2023b; Neuber et al., 2022).

Although the relationships among leadership styles, employee engagement (EE), and job performance (JP) have been widely discussed, a key theoretical gap remains in high-pressure frontline business settings. Specifically, the mechanism underlying the leadership–performance linkage is still not well understood. Much of the existing evidence is correlational and offers limited systematic testing of how leadership translates into performance through employees' psychological states. As a core mechanism through which employees invest energy and affective commitment in their work, engagement has been theorized as an important pathway linking leadership to performance (Kahn, 1990). Meta-analytic studies have also consistently confirmed a robust positive association between engagement and both task and contextual performance (Corbeanu & Iliescu, 2023; Neuber et al., 2022).

To address this gap, this study examines frontline employees in Hefei's real estate sector and tests the parallel effects of TFL and TL on job performance (JP), with EE as a mediating mechanism. Practically, this is relevant because supervisors must both inspire and tightly manage performance, yet firms often lack guidance on balancing inspirational leadership with reward-and-sanction management to build engagement and sustain performance under pressure; evidence from sales research also suggests that perceived fairness and procedural management can enhance engagement (Rajabi et al., 2024). The study contributes by providing city- and industry-specific evidence, comparing two classic leadership styles within one model, and offering actionable implications for frontline management during the industry's adjustment period. The remainder of the paper is organized as follows: Section 2 develops the hypotheses and model; Section 3 describes the methods; Section 4 reports results; Section 5 discusses implications; and Section 6 concludes.

2. Literature review and conceptual framework

This study is guided by a central question: how leadership styles influence individual job performance through employees' psychological investment processes. Accordingly, the literature review and theoretical model focus on two classic leadership approaches, transformational leadership (TFL) and transactional leadership (TL). Drawing on the Full Range Leadership Theory, transformational leadership emphasizes vision-based inspiration, intellectual stimulation, and individualized consideration, whereas transactional leadership highlights goal clarification, performance feedback, and exchange-based managerial tools such as contingent rewards (Bass, 1985; Judge & Piccolo, 2004). These two leadership styles often coexist in real organizations and may operate differently under varying levels of work pressure and performance systems. From an organizational psychology perspective, their differences are not limited to managerial techniques; they also reflect distinct psychological cues conveyed to employees. Therefore, it is important to compare TFL and TL within the same framework, rather than treating one as a simple control condition for the other (Judge & Piccolo, 2004; Young et al., 2021).

To explain how leadership styles translate into performance outcomes, this study adopts social exchange theory as the primary mechanism perspective. Social exchange theory suggests that when leaders provide positive signals such as support, recognition, fairness, and access to resources, employees are more likely to reciprocate with higher levels of involvement and better performance (Cropanzano & Mitchell, 2005a). This reciprocity is not only behavioral but also psychological. When employees feel valued, they become more willing to invest effort, maintain positive affect, and stay focused on work goals.

Within this logic, employee engagement (EE) is viewed as a key psychological investment mechanism linking leadership behaviors to performance. Engagement reflects employees' energy investment and psychological connection to their work roles (Kahn, 1990). Recent meta-analyses have consistently confirmed robust positive associations between engagement and both task performance and contextual performance (Corbeanu & Iliescu, 2023; Neuber et al., 2022). Accordingly, engagement can be understood as an observable positive psychological state in which employees are more cognitively focused, emotionally involved, and motivationally willing to exert extra effort, thereby increasing the likelihood of stable performance outcomes.

In addition, cumulative evidence on leadership and engagement indicates that multiple positive leadership approaches are significantly related to engagement, providing both theoretical and empirical support for engagement as a key mediating variable (Decuyper & Schaufeli, 2021). Taken together, this study proposes the conceptual model shown in **Figure 1**. Transformational leadership (TFL) and transactional leadership (TL) jointly predict employee engagement (EE) and job performance (JP), and the mediating role of engagement in the leadership–performance relationship is further examined. Based on the above literature and theoretical reasoning, the remainder of this chapter reviews (1) the relationships between the two leadership styles and job performance, (2) the relationships between the two leadership styles and engagement, and (3) the relationship between

engagement and performance. Hypotheses and the conceptual model are then developed accordingly.

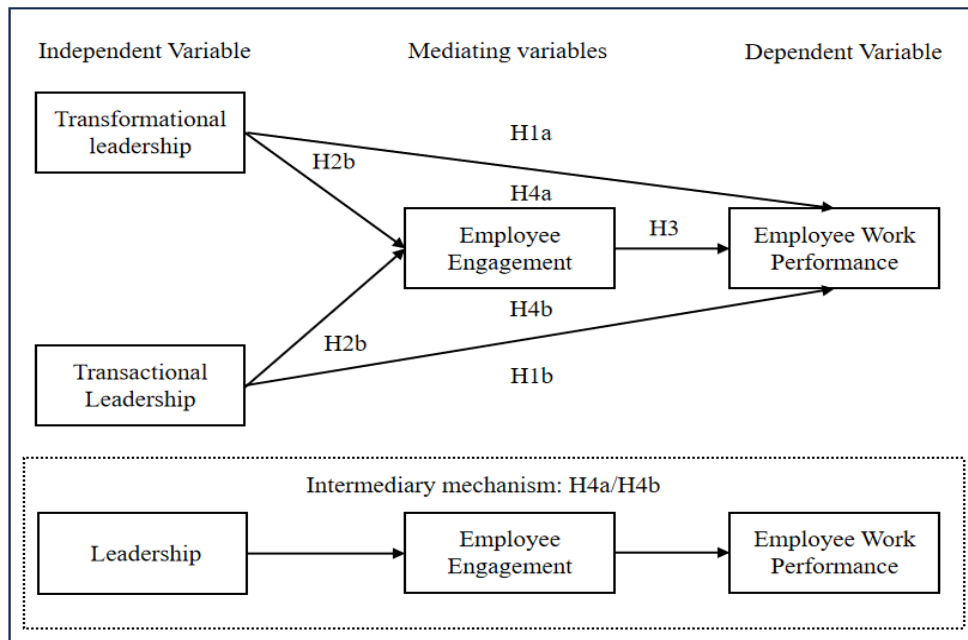


Figure 1. Conceptual model of the study.

2.1. Transformational leadership and job performance

Transformational leadership (TFL) emphasizes motivating employees through vision-based inspiration, role modeling, intellectual stimulation, and individualized consideration. In doing so, it encourages employees to move beyond short-term exchange relationships, strengthens their identification with organizational goals, and increases their willingness to contribute proactively (Bass, 1985). From a social exchange perspective, when employees perceive that leaders provide support, recognition, and developmental resources, they are more likely to reciprocate with greater effort, stronger role responsibility, and more stable role performance (Cropanzano & Mitchell, 2005a). Accordingly, TFL may not only improve the quality of task accomplishment but also enhance contextual performance, such as teamwork, proactive service, and organizational citizenship behavior.

Existing studies generally support a positive relationship between transformational leadership (TFL) and employee job performance, and suggest that TFL is a stable predictor of performance outcomes (H.-Y. Wang et al., 2025; Widiyanto & Wilderom, 2023). In high-pressure, target-driven frontline settings, TFL may help employees cope more effectively with customer-related uncertainty and performance fluctuations by providing meaning and confidence and by strengthening psychological empowerment and positive affect. As a result, employees are more likely to maintain and improve their job performance (JP). Accordingly, this study proposes the following hypothesis:

H1: Transformational leadership (TFL) is positively related to job performance (JP) among frontline real estate employees in Hefei.

2.2. Transactional leadership and job performance

Transactional leadership (TL) is based on exchange. Leaders use clear goals, feedback, and contingent rewards to direct employees. When needed, they also correct deviations through management by exception. The core of this leadership style is not to inspire a vision, but to communicate predictable behavioral boundaries and performance expectations through rules and reward mechanisms. In doing so, TL shapes employees' psychological expectations and directs where they allocate effort and attention at work (Gazi et al., 2025).

Recent research generally indicates a stable relationship between transactional leadership (TL) and employee job performance (JP). On the one hand, TL can enhance performance by strengthening employees' trust, satisfaction, and commitment toward the organization and their supervisors (Gazi et al., 2025). On the other hand, TL uses contingent rewards. It shapes employees' motivation. Clear rules make the effort–reward link visible. Employees then show stronger task commitment and higher productivity.

TL can reduce uncertainty and role ambiguity in Hefei's competitive and volatile real estate market. It does this by setting clear goals and giving timely feedback, which act as psychological anchors. Clear rules and behavioral boundaries can also help employees manage emotions during service interactions. As a result, performance becomes more stable. Accordingly, this study proposes the following hypothesis:

H1b: *Transactional leadership (TL) has a significant positive effect on job performance (JP) among frontline real estate employees.*

2.3. Leadership styles and employee engagement

Employee engagement (EE) is commonly defined as a positive state of psychological investment in one's work role. It is reflected in sustained energy, focus, and involvement (Bakker et al., 2023). For frontline roles, engagement is not a static personal trait. It is a dynamic process that shifts with target pressure, emotional labor, and gains or losses in resources. This process strongly depends on whether employees perceive sufficient support, recognition, goal clarity, and reward fairness. These conditions are critical for maintaining high psychological energy and sustained investment (Bakker & Demerouti, 2024). When such conditions are lacking, employees are more likely to experience psychological depletion and reduced engagement.

From the perspective of leadership style, both transformational leadership (TFL) and transactional leadership (TL) may enhance employee engagement (EE) through different pathways. Recent studies provide strong evidence for the leadership–engagement link. Using a longitudinal design and diary methods, Bader et al. (2023) found that transformational leadership behaviors foster subsequent increases in engagement by eliciting positive emotional experiences and satisfying employees' basic psychological needs. Their findings suggest a serial mechanism. Leadership behaviors first help satisfy employees' psychological needs and resources. This then increases employees' investment in their work roles. Evidence from high-intensity service settings shows a similar pattern. Managers' leadership styles are significantly associated with frontline employees' engagement. This implies that even under heavy

workloads and high emotional labor, leadership can still shape employees' work states by affecting their psychological investment (Alluhaybi et al., 2024).

Building on this study's framework, two mechanisms are proposed. Transformational leadership (TFL) can enhance work meaning and positive affect, which supports psychological energy and employee engagement (EE) (Bakker et al., 2023; Bass, 1985). Transactional leadership (TL) can increase perceived control and fairness through clear goals, feedback, and contingent rewards, thereby reducing uncertainty and strengthening engagement (Bass, 1985; Cropanzano & Mitchell, 2005). In a highly competitive and volatile frontline context such as Hefei's real estate market, these meaning-based and rule-based leadership signals are important for stabilizing employees' psychological resources and sustaining engagement (Bakker & Demerouti, 2024). Accordingly, this study proposes the following hypothesis:

H2a: *Transformational leadership (TFL) is significantly and positively related to employee engagement (EE).*

H2b: *Transactional leadership (TL) is significantly and positively related to employee engagement (EE).*

2.4. Employee engagement and job performance

Job performance (JP) refers to an individual's effective work outputs and behavioral performance within a job role. It commonly includes task performance, contextual performance, and counterproductive performance (Tran, 2025). In frontline real estate roles, performance is reflected not only in achieving sales targets but also in the quality of customer communication, the speed of problem solving, and consistent service delivery during customer interactions.

Existing research consistently shows a stable positive relationship between employee engagement (EE) and job performance (JP). Recent meta-analytic evidence suggests that engagement is robustly associated with performance indicators, and that this relationship remains consistent across different contexts (Lyons & Bandura, 2024). Therefore, engagement is not merely a positive work attitude. It can also be viewed as a key psychological state that helps explain and predict differences in employees' outputs and performance.

From a mechanistic perspective, employee engagement (EE) reflects a process of psychological investment in one's work role (Bakker et al., 2023). When employees are highly engaged, they tend to show stronger attentional focus and more proactive positive affect, which supports sustained effort on critical tasks and better self-regulation when facing customer rejection, market volatility, or negative emotions (Bakker & Demerouti, 2024). In the frontline real estate context of Hefei, where performance pressure and uncertainty are high, engagement helps employees maintain a positive work state and sustain key behaviors such as customer follow-up, while also supporting teamwork and other contextual contributions. Consistent with meta-analytic evidence, engagement is positively associated with job performance across contexts (Lyons & Bandura, 2024). Accordingly, this study proposes the following hypothesis:

H4: *Employee engagement (EE) is significantly and positively related to job performance (JP).*

2.5. The mediating role of employee engagement

Within this study's theoretical framework, employee engagement (EE) is positioned as a key pathway linking leadership styles to job performance (JP). Leadership does not only influence performance directly. It can also shape employees' psychological investment processes, which leads employees to perform at higher levels. Drawing on social exchange theory, when leaders provide positive signals such as support, recognition, fairness, and access to resources, employees' reciprocity motives are strengthened (Cropanzano & Mitchell, 2005). Employees then become more willing to invest psychological energy in their work, which increases engagement and, in turn, improves performance. Recent research has also emphasized that engagement is a key mediating mechanism through which leadership behaviors influence organizational outcomes (Santosa et al., 2025).

Empirical research further supports the mediating role of employee engagement (EE) in the relationship between leadership behaviors and job performance (JP). Wang et al. (2023) showed that positive leadership approaches can effectively stimulate employee engagement and generate significant performance gains. In research that is closer to the high-pressure context of China's service industry, evidence also indicates that transformational leadership (TFL) can indirectly improve job performance through employee engagement, supporting engagement as an important mediating mechanism between leadership style and performance (Wang et al., 2022).

When applied to the frontline real estate context of Hefei, this mechanism becomes particularly relevant. Frontline employees often operate under strict performance requirements and substantial socioemotional demands from customers, while the property market remains uncertain and volatile (X. Wang et al., 2025). Performance depends not only on what employees do, but also on whether they are willing to sustain effort and stay committed. In pressure-intensive settings, transformational leadership (TFL) can raise engagement through vision and inspiration, which then improves job performance. Transactional leadership (TL) can also raise engagement by clarifying goals and linking effort to rewards, which reduces uncertainty and encourages continued effort. Therefore, using engagement as a shared psychological mediator in high-pressure, high-performance contexts is theoretically and practically justified (Rakic & Barjaktarovic Rakocevic, 2025).

Accordingly, this study proposes the following hypotheses:

H4a: *Employee engagement (EE) mediates the relationship between transformational leadership (TFL) and job performance (JP).*

H4b: *Employee engagement (EE) mediates the relationship between transactional leadership (TL) and job performance (JP).*

3. Methods

3.1. Research design and sample

This study adopted a quantitative, cross-sectional survey design to examine how employees' perceptions of leadership behaviors influence job performance (JP) through employee engagement (EE). The sample was drawn from frontline real estate positions in Hefei, including sales employees from property developers, real estate

agencies, and asset management firms. The questionnaire was administered using a combination of online and offline channels, and data collection lasted for four months. To reduce the risk of common method bias, the study emphasized anonymity and academic use, minimized evaluation pressure, and used procedural remedies to reduce defensive responding (Podsakoff et al., 2024).

A stratified multistage sampling strategy was used. First, a sampling frame of real estate firms in Hefei was established based on publicly available government information, industry association records, and data from real estate service providers. Second, the sample was stratified by geographic area, with 60% allocated to urban districts (four districts) and 40% to county-level areas (four counties and one county-level city). Within each geographic stratum, firms were further stratified by type. In the urban stratum, 10 developers, 20 property management firms, and 30 real estate agencies were selected. In the county-level stratum, 5 developers, 10 property management firms, and 25 real estate agencies were selected. Third, within each participating firm, simple random sampling was used to select five eligible frontline employees as survey respondents.

A total of 540 employees participated. After excluding refusals and invalid questionnaires (8%), 500 valid responses were retained for analysis. A priori power analysis indicated a minimum required sample size of 483, suggesting that the final sample was adequate for subsequent structural equation modeling. Data were analyzed using SPSS and AMOS. Following standard CB-SEM procedures, both the measurement model and the structural model were assessed (Kline, 2023).

3.2. Measures

All variables in this study were measured using established scales and were slightly adapted to fit the frontline real estate context in Hefei. The adaptation followed two principles: maintaining the original construct definitions and dimensional boundaries, while making only contextual wording adjustments and semantic streamlining. This approach was intended to improve respondents' interpretability and consistency in understanding the items, and to reduce measurement error arising from industry-specific terminology differences.

The adaptation process involved three steps. First, items were semantically calibrated and contextualized by replacing generic wording with expressions more common in frontline work, such as targets, feedback, and customer service. Second, two experts in organizational behavior evaluated the items in terms of relevance, clarity, and content coverage. Third, a pilot test was conducted ($N = 95$) to collect feedback on item comprehension and response burden, and minor wording revisions were made accordingly. In the formal survey, all items were rated on a 10-point Likert scale. In the Results section, confirmatory factor analysis was used to assess the factor structure as well as reliability and validity indicators (Kline, 2023). Details are reported in **Tables 1** and **2**.

Table 1. Reliability Analysis Results of Pilot Studies.

Construct	Number of questions	Cronbach's α
Transformational Leadership	12	0.972
Transactional Leadership	7	0.921
Employee Engagement	9	0.801
Employee Job Performance	9	0.785

Table 2. Summary of Kaiser-Meyer-Olkin, Bartlett's Test & Total Variance Explained.

Test	Transformational leadership	Transactional leadership	Employee job performance
Kaiser-Meyer-Olkin (KMO)	0.938	0.898	0.767
Bartlett's Test	<0.001	<0.001	<0.001
Total Variance Explained % (TVE) [Number of Component]	76.48% [1]	68.18% [1]	70.43% [3]

3.3. Transformational leadership & Transactional leadership

Leadership style was measured using items from the MLQ-5X (Bass & Avolio, 1995) and was slightly adapted to the frontline real estate context. Because the respondents were frontline employees, their evaluations of leadership behaviors relied on psychological cues derived from day-to-day interactions. Accordingly, this study retained items that were more observable in frontline work and semantically clear, so that respondents could make judgments based on stable mental representations of their leaders' behaviors.

The original MLQ-5X includes 28 items. In this study, 19 items were retained and 9 items were removed. Items were excluded for three main reasons: (1) the behavior was difficult for frontline employees to observe or showed low contextual fit; (2) the wording was highly redundant, which could increase cognitive burden and encourage uniform responding; and (3) during the pilot test, the item was reported as ambiguous or weakly related to frontline job tasks. Using the full sample, confirmatory factor analysis (CFA) was conducted to validate the measurement structure of transformational leadership (TFL) and transactional leadership (TL), and internal consistency as well as convergent and discriminant validity indicators were reported (Kline, 2023).

3.4. Employee engagement

Employee engagement (EE) is a typical positive state of psychological investment that reflects employees' energy, focus, and emotional connection to their work roles. In this study, EE was measured using the three-dimensional structure of the UWES-9, including vigor, dedication, and absorption. The measurement approach was informed by recent evidence supporting the structural stability and measurement quality of the UWES-9 (Zheng et al., 2024).

3.5. Employee job performance

Job performance (JP) was measured using the Individual Work Performance

Questionnaire (IWPQ) and was slightly adapted to the frontline real estate context (Koopmans et al., 2014). In frontline real estate roles, performance often involves both quantifiable task outputs and service-related behaviors. Self-reported performance therefore relies largely on employees' subjective judgments about whether core tasks were completed and whether high-quality service and cooperation were maintained. Accordingly, without changing the conceptual boundaries of the performance construct, this study retained items that frontline employees could perceive clearly and recall reliably.

The original IWPQ contains 18 items. In this study, 9 items were retained and 9 items were removed. Item selection was based on contextual fit with frontline job tasks, semantic clarity, and feedback from the pilot test. In the main analysis, confirmatory factor analysis (CFA) and reliability and validity tests were conducted to confirm the measurement quality (Kline, 2023). To provide a clearer overview of the questionnaire structure, **Table 3** summarizes the overall questionnaire composition.

Table 3. Structure of Questionnaire.

Section	Measure	Dimension	Items	Scale	Source (adapted)*
1	Demographic Questions	N/A	8	N/A	Self-Developed
2	Leadership Behaviours	Transformational Leadership	12	10-Point Likert Scale	(Bass & Avolio, 1995)*
		Transactional leadership	7		
		Vigor	3		(Schaufeli et al., 2006)
		Dedication	3		
3	Employee Engagement	Absorption	3		
		Curiosity	4		
		Control	4		
		Confidence	4		
4	Employee Job Performance	Task Performance	3		(Koopmans et al., 2012)*
		Contextual Performance	3		
		Counterproductive Work Behaviours	3		
		Total	45		

4. Data analysis and findings

4.1. Preliminary analyses

Before conducting the main model analyses, this study first performed preliminary descriptive statistics and data screening. After data cleaning and filtering, 500 valid questionnaires were retained, meeting the sample size requirement for subsequent structural equation modeling. As shown in **Table 4**, the sample was relatively well distributed across gender, age, marital status, education level, tenure, job level, and organization type. Specifically, male respondents accounted for 53.6% and female respondents accounted for 46.4%. Respondents were mainly aged 25–35 (about 50%), and most held a junior college diploma or a bachelor's degree (87.4% combined). In terms of work experience, most respondents had worked in their current

organization for no more than three years. The sample also consisted primarily of frontline employees and first-line supervisors, reflecting the typical workforce profile of frontline practitioners in China's real estate industry.

Table 4. Dcmographic Profile.

Demographic	Characteristics	Frequency	Percentage
Gender	Female		232
	Male		268
Marital status	Married		253
	Single		247
Age	<25		42
	25–30		117
	31–35		133
	36–40		41
	41–45		45
	46–50		64
	>50		58
	High school and below	34	6.8
	College	207	41.4
	Bachelor's degree	230	46
Education	Master's degree and above	29	5.8
	High school and below	34	6.8

Table 5 reports the descriptive statistics for the main study variables. The results show that the mean values of transformational leadership (TFL), transactional leadership (TL), employee engagement (EE), and job performance (JP) range from 5.97 to 6.22, indicating a moderate-to-high level overall. The standard deviations range from 1.81 to 2.02, suggesting a reasonable degree of variability across respondents. Overall, the data quality appears adequate and the variable distributions are acceptable, providing a sound basis for subsequent measurement model and structural model analyses.

Table 5. Descriptive Statistics of the Main Variables.

Main Variables (N = 500)	Mean	Median	Standard deviation	Variance	Minimum	Maximum
Transformational Leadership (TFL)	6.035	5.917	1.983	3.931	1.420	9.750
Transactional Leadership (TL)	6.223	6.286	1.892	3.580	1.860	9.860
Employee Engagement (EE)	5.973	5.889	1.870	3.498	1.220	9.780
Employee Job Performance (EJP)	6.018	6.000	2.017	4.068	2.110	9.890

4.2. Hypotheses testing

Before examining the direct and indirect effects of the independent variables on the dependent variable, this study first assessed the overall fit of the structural model. The key fit indices were within acceptable ranges, indicating a good match between the model and the sample data (see **Figure 2**). Based on this, structural equation

modeling (SEM) was used to test the hypotheses.

The direct-effect results show that transformational leadership (TFL) has a significant positive effect on employee job performance (EJP) ($\beta = 0.142$, CR = 2.815, $p = 0.005$; see **Table 6**), supporting H1a. Transactional leadership (TL) also has a significant positive effect on employee job performance (EJP) ($\beta = 0.145$, CR = 2.838, $p = 0.005$; see **Table 6**), supporting H1b. In addition, the structural path estimates indicate that both leadership styles have significant effects on employee engagement, and that the mediator also shows a significant effect on employee job performance (see **Table 6**). These results provide statistical support for the subsequent mediation tests.

For the indirect effects, mediation was tested using the bootstrap method (5,000 resamples). The results indicate that employee engagement (EE) plays a significant mediating role in the relationships between leadership styles and job performance. Specifically, the indirect effect of transformational leadership (TFL) on employee job performance (EJP) via EE was 0.057 (95% CI = 0.032 to 0.099; see **Table 7**), supporting H4a. The indirect effect of transactional leadership (TL) on EJP via EE was 0.066 (95% CI = 0.032 to 0.114; see **Table 7**), supporting H4b. Overall, the SEM results confirm both the direct positive effects of leadership styles on employee performance and the indirect effect mechanism through employee engagement.

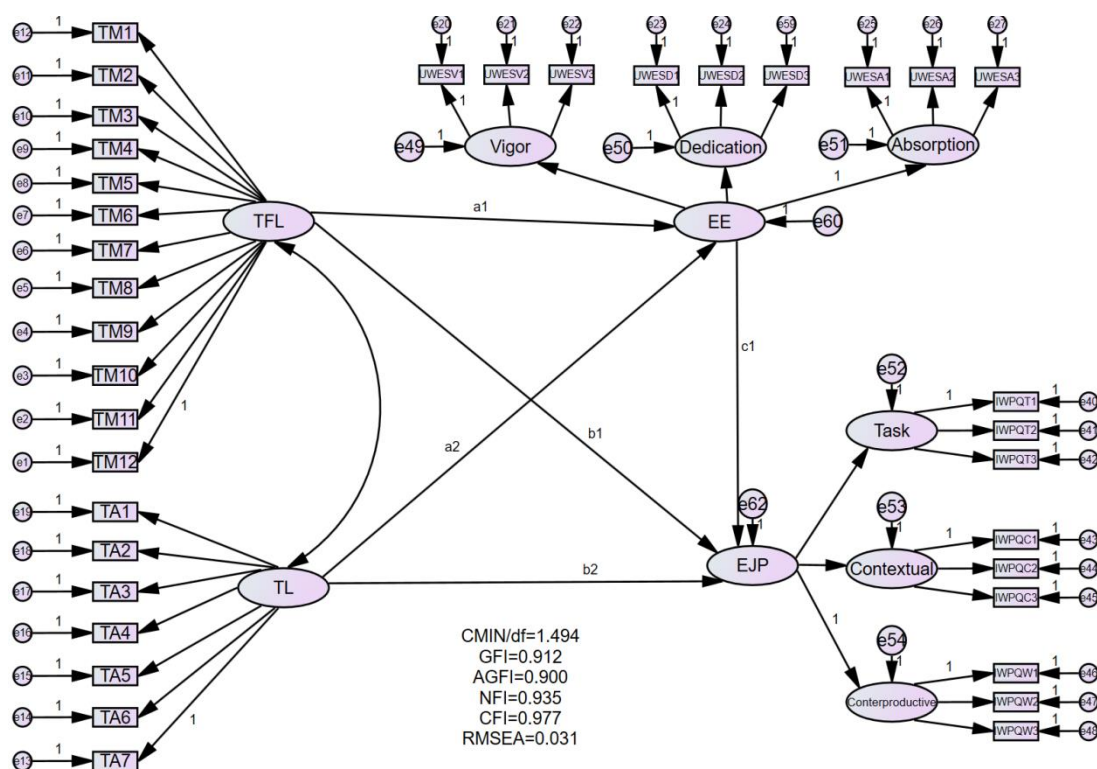


Figure 2. Structural model and model fit index.

Table 6. Direct effects.

Hypothesis No.	Path relationship	β	CR	p-value	Result
H1a	TFL→EJP	0.142	2.815	0.005	Significant
H1b	TL→EJP	0.145	2.838	0.005	Significant
H2a	TFL→EE	0.249	4.853	***	Significant
H2b	TL→EE	0.257	4.901	***	Significant
H3	EE→EJP	0.223	4.463	***	Significant

Table 7. Indirect/mediating effect.

Hypothesis	Path	β	95%CI	Significance
H4a	TFL → EE → EJP	0.061	[0.032, 0.099]	Significant
H4b	TL → EE → EJP	0.066	[0.032, 0.114]	Significant

In simple terms, this study found that both transformational leadership (TFL) and transactional leadership (TL) have significant positive effects on employees' job performance (JP). Employee engagement (EE) also plays a key mediating role. Both leadership styles not only improve performance directly, but also boost performance indirectly by increasing employees' engagement. Overall, in this research context, leaders' inspirational support and clear goals both encourage employees to stay engaged at work, which leads to better performance outcomes.

4.3. Discussion and conclusion

This study examines whether transformational leadership (TFL) and transactional leadership (TL) influence job performance (JP) among frontline employees in China's real estate industry, and further tests the indirect mechanism through employee engagement (EE). Using survey data and structural equation modeling (SEM), the study assesses both the direct effects of leadership styles on job performance and the indirect effects operating through engagement. In doing so, it provides a more complete explanation of how leadership behaviors translate into employee performance.

The SEM results show that transformational leadership (TFL) has a significant positive effect on employee job performance (JP), supporting H1a. Transactional leadership (TL) also has a significant positive effect on JP, supporting H1b. These findings are consistent with recent research on the leadership–performance link. In frontline work settings, leaders may enhance performance by inspiring a shared vision, providing support and empowerment, and increasing engagement. Leaders may also strengthen behavioral effort by clarifying goals, giving timely feedback, and applying transparent reward and sanction rules. Together, these mechanisms contribute to improved job performance.

At the same time, prior studies suggest that the relationship between leadership style and performance can be context-dependent, with weaker or even nonsignificant effects observed in some industries or organizations. Therefore, finding that both leadership styles are significantly effective in the high-pressure frontline real estate context provides practical explanatory value (Li et al., 2025).

The results further support the positive effect of employee engagement (EE) on

job performance (JP), supporting H3, and show that EE plays a significant mediating role in the relationships between leadership styles and JP, supporting H4a and H4b. In other words, leadership styles not only improve job performance directly, but also increase employees' vigor, involvement, and focus at work, which then translates into better performance outcomes. This pathway aligns closely with recent evidence. Recent systematic reviews and meta-analyses generally conclude that engagement is stably and positively associated with performance and is often viewed as an important psychological mechanism underlying performance differences (Corbeanu & Iliescu, 2023).

Overall, this study suggests that in the frontline context of the real estate industry, both transformational leadership (TFL) and transactional leadership (TL) effectively enhance employee job performance (JP). Employee engagement (EE) also serves as a key bridge that translates leadership behaviors into performance outcomes. From a managerial perspective, frontline supervisors should strengthen both types of leadership behaviors. They should provide clear goals and timely feedback, while also offering meaningful support and motivation. In addition, firms and managers should treat employee engagement as a core lever for sustaining and improving performance (Li et al., 2025).

5. Contribution, limitations and future research

From a practical perspective, this study provides actionable insights for frontline management in the real estate industry. Employees' perceptions of leadership behaviors are meaningfully related to performance outcomes. Managers can strengthen engagement by combining clear goals, timely feedback, and transparent reward rules with supportive and motivating behaviors. This recommendation is consistent with meta-analytic evidence showing robust links between positive leadership styles and employee engagement (Decuyper & Schaufeli, 2021). Engagement, in turn, is reliably associated with task and contextual performance across contexts, which further supports using engagement as a key managerial lever for improving performance (Corbeanu & Iliescu, 2023).

From a theoretical perspective, this study contributes by testing transformational leadership (TFL) and transactional leadership (TL) simultaneously in a high-pressure frontline setting and by validating employee engagement (EE) as a mediating mechanism. Foundational theory positions engagement as a form of psychological investment in one's work role, which provides a clear rationale for the mediation logic (Kahn, 1990). In addition, prior meta-analytic research has established that both transformational and transactional leadership are predictive of performance outcomes (Judge & Piccolo, 2004). More recent meta-analytic evidence also highlights that transactional leadership can relate to follower performance through multiple pathways, underscoring the value of examining TL alongside TFL rather than treating it as a simple control (Young et al., 2021).

This study has several limitations. First, it relies on cross-sectional survey data. Although this design is suitable for testing associations among variables, it has limited ability to establish causal direction. Second, the key variables were mainly measured using self-reported data, which may still be influenced by common method bias and

social desirability (Kock et al., 2021). Third, the sample focuses on frontline employees in the real estate industry. The industry characteristics and sampling context may limit the generalizability of the findings to other industries or occupational groups.

Future research can extend this study in three directions. First, longitudinal or multi-wave designs could be used to examine the dynamic process through which leadership behaviors influence employee engagement and job performance over time. Second, researchers could incorporate multi-source data to reduce the risk of single-source and common method bias. Third, comparative studies across regions, firm types, or other service industries are encouraged. Future work could also include additional mechanisms and boundary conditions to build a more comprehensive model with stronger explanatory power.

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