

Effect of Job Embeddedness on Innovative Work Behavior, Mediating Role of Work Engagement among Banking Sector Employees of Malakand (Pakistan)

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Abstract

This study investigates the effect of job embeddedness on innovative work behaviour, with work engagement as a mediating mechanism, among employees in the banking sector of Malakand, Pakistan. Using a quantitative research design, data were collected from 320 employees across multiple banks through standardised measurement scales. Descriptive, correlation, and regression analyses, alongside structural equation modelling (SEM), were employed to test the hypothesised relationships. The results indicate that job embeddedness significantly enhances innovative work behaviour both directly and indirectly via work engagement. Work engagement partially mediated this relationship, highlighting its role as a psychological mechanism that translates organisational attachment into proactive and creative actions. The findings also suggest that fostering strong interpersonal connections, organisational fit, and meaningful work can promote employee engagement and innovation. This study provides empirical evidence for HR practitioners and managers in designing strategies to strengthen employee embeddedness and engagement, ultimately enhancing innovation in the banking sector. Implications for theory and practice are discussed, and directions for future research are proposed.

Keywords: Job Embeddedness, Work Engagement, Innovative Work Behaviour, Banking Sector.

Introduction

Innovation at the employee level, commonly referred to as innovative work behaviour, is crucial for organisational competitiveness, particularly in service sectors such as banking, where incremental and process innovations directly affect service quality and customer satisfaction (e.g., new service delivery methods, process improvements, and digital solutions). Recent studies indicate that banks that actively encourage and harness staff innovation obtain measurable improvements in performance and customer outcomes, even in environments characterised by high regulation and technological change (Jain et al., 2025).

One promising antecedent of innovative behaviour is job embeddedness. This multidimensional construct captures why employees stay and how attached they are to their jobs and organisations (fit, links, and sacrifice). JE not only predicts retention but is increasingly linked to positive employee outcomes such as discretionary behaviour, organisational citizenship, and innovation because embedded employees typically possess richer social networks, clearer role fit, and higher perceived costs of leaving, all of which create favourable conditions for extra-role behaviours. Recent reviews and empirical studies continue

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to underscore JE's centrality in explaining desirable workplace outcomes across sectors and countries (Yoon et al., 2022).

While job embeddedness may create fertile ground for innovation, work engagement (WE), the state of vigour, dedication, and absorption, represents the psychological energy employees invest in their roles and is a key proximal mechanism translating job-related resources into innovative actions (Volery & Tarabashkina, 2021). According to contemporary motivation and job-demands-resources perspectives, employees with more job resources (for example, the social and contextual resources implied by JE) exhibit higher engagement, which, in turn, promotes creative effort, idea promotion, and implementation activities (components of IWB). Empirical evidence increasingly supports the view that work engagement serves as a mediator between job resources and innovation outcomes (Nishat & Haque, 2025).

Despite this theoretical rationale and growing empirical interest, two interrelated gaps remain. First, much of the extant research on JE, WE, and IWB has been conducted in Western or East Asian contexts; examination within South Asian banking contexts, where organisational culture, labour market conditions, and regulatory dynamics differ, remains limited (Masee Ullah et al., 2025). Context matters because the degree to which embeddedness translates into engaged, innovative behaviour depends on local practices (e.g., HR policies, managerial support, and technological readiness) that shape employees' ability and motivation to innovate. Limited Pakistan-based evidence suggests organisational support and leadership matter for IWB in banks. Still, the mediating psychological mechanisms (such as engagement) have not been consistently examined (Bagheri, Akbari, & Artang, 2020).

Second, although some recent studies have linked JE to innovation-related outcomes, few have tested a complete mediation model that places work engagement centrally between job embeddedness and innovative work behaviour using robust structural equation modelling in banking employees. Given the banking sector's critical role in economic development and service innovation, and the recent technological pressures (digital banking, FinTech interplay, and customer experience expectations), it is essential to understand whether fostering embeddedness (via fit, links, and minimising perceived sacrifice) will translate into tangible innovation through increased engagement. Empirical clarification of this pathway would provide actionable guidance for HR and line managers seeking to improve innovation via people-focused interventions (Wang & Li, 2023).

Study Contribution

This study examines the effect of job embeddedness on innovative work behaviour, with work engagement as a mediating variable, among employees of the banking sector in Malakand, Pakistan. By testing a mediation model using survey data and SEM techniques, the research makes three contributions: (1) it provides context-specific empirical evidence from a Pakistani banking sample, addressing a regional gap in the literature; (2) it clarifies the psychological mechanism (work engagement) through which job embeddedness affects innovation-related behaviors; and (3) it offers practical implications for bank managers on how to translate employee attachment into innovation through engagement-focused HR practices. The final portion delves into the implications, both theoretical and practical, and future directions for study. This study fills a gap in the banking sector literature on employees' work engagement intent.

Objectives of the Study

1. To assess the direct effect of Job embeddedness on Innovative work behaviour among employees in the banking sector.
2. To examine the relationship between Job embeddedness and work engagement in the context of banking professionals.

3. To determine the impact of work engagement on Innovative work behaviour among banking sector employees.
4. To investigate the mediating role of work engagement in the relationship between Job embeddedness and Innovative work behaviour.

Research Questions

1. Does job embeddedness positively influence innovative work behaviour among bank employees in Malakand, Pakistan?
2. Does job embeddedness positively influence work engagement among employees in Malakand, Pakistan?
3. Does work engagement positively influence the innovative work behaviour of Malakand, Pakistan?
4. Does work engagement mediate the relationship between job embeddedness and innovative work behaviour in Malakand, Pakistan?

Hypotheses

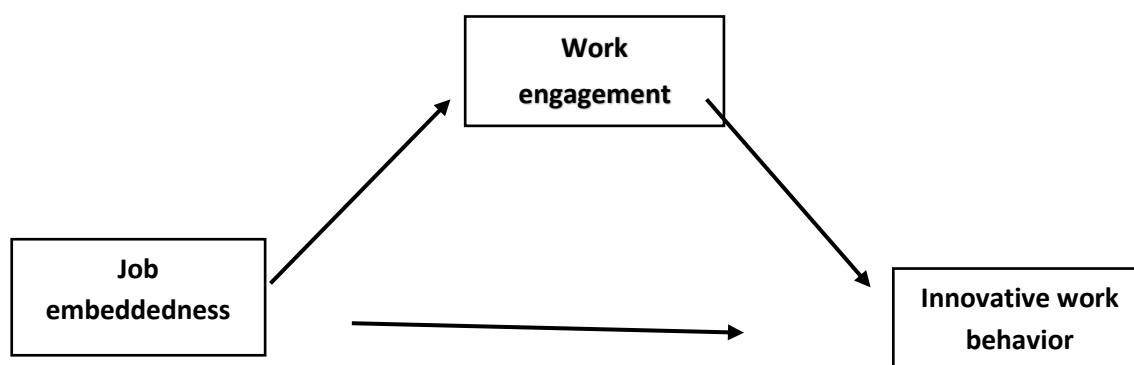
H1: Job embeddedness is positively associated with innovative work behaviour.

H2: Job embeddedness is positively associated with work engagement.

H3: Work engagement is positively associated with innovative work behaviour.

H4: Work engagement mediates the relationship between job embeddedness and innovative work behaviour.

Figure 1: Conceptual framework



Literature Review

Empirical studies linking Job embeddedness, work engagement and innovative work behaviour

Innovative work behaviour, employees' generation, promotion, and implementation of novel ideas at work, is a critical driver of organisational adaptability and performance, especially in knowledge- and service-intensive sectors such as banking (Janssen, 2000). Two interrelated constructs are commonly hypothesised to influence IWB: job embeddedness, which represents employees' overall attachment to their job and organisation (fit, links, and sacrifice), and work engagement, the affective and energetic investment employees make in their work (vigour, dedication, absorption). Foundational theories that underpin the relationships among these constructs include the Job Demands–Resources (JD–R) model, Conservation of Resources theory, and Social Exchange Theory. According to JD–R and COR, job resources (e.g., social links, organisational fit) foster engagement, and engaged employees are more likely to expend discretionary effort toward innovation.

A growing number of studies document JE's positive associations with organisational citizenship behaviours, job performance, and creativity/innovation-related outcomes. Recent reviews and meta-analytic work continue to emphasise JE's robust predictive validity for retention-related outcomes and its increasing research in non-Western settings. For example, recent meta-analytic and review papers (2022–2024) reinforce JE's relevance and call for more research on its behavioural outcomes (not only turnover) (Yaseen et al., 2024).

Mechanistically, JE provides social capital, role clarity, and perceived investment returns, which increase employees' willingness to go beyond role prescriptions. These resources lower the perceived risk associated with proposing and implementing ideas (lower perceived sacrifice and stronger internal links), thereby creating a favourable environment for IWB. This pathway is consistent with COR and JD–R assumptions that resources fuel engagement and extra-role behaviour.

Several empirical studies support the hypothesised chain in which hypothesised job resources linked to embeddedness enhance engagement, which in turn promotes innovation: Studies show firm Job embeddedness–Work engagement correlations and report that embedded employees exhibit higher vigour and dedication (Artiningsih, 2023). Research using IWB measures (Janssen scale) reports that work engagement predicts the three components of IWB (generation, promotion, and implementation). However, gaps remain in region-specific (South Asia / Pakistani banking) tests of the complete mediation model using robust SEM approaches (Maaz Ud Din & Faisal Khan, 2025).

This motivates the present study, which integrates JE, WE, and IWB in the Malakand banking context using validated scales and SEM analysis. Job embeddedness refers to the extent to which employees feel connected to their job and organisation. It is composed of fit, links, and sacrifice (Mitchell et al., 2001). Prior studies show that embedded employees are more likely to demonstrate positive attitudes and behaviours. Work engagement, defined by vigour, dedication, and absorption (Schaufeli et al., 2002), is known to influence employee creativity and innovation. Innovative work behaviour includes idea generation, promotion, and implementation (Janssen, 2000). Research suggests that job embeddedness enhances employees' job resources, thereby increasing engagement and fostering innovation. Based on the reviewed literature, a mediation model is proposed.

Innovative work behaviour is defined as "the intentional creation, introduction and application of new ideas within a work role, group, or organisation, to benefit role performance, the group, and or the organisation" (Janssen, 2000). Innovative work behaviour is an essential antecedent of innovation-related activities in the organisation. Employee creativity involves generating novel ideas to innovate and solve problems. Innovative work behaviour goes beyond employee creativity, i.e., simply generating novel ideas, by including the application of these ideas. In other words, creative work ideas are the practical implementation of employee creativity (Van Dijk & Van Den Ende, 2002; Widmann et al., 2016).

Research on innovative work behaviour is still developing, and only a limited focus has been given to its antecedents. Existing studies have explored factors such as leadership, individual problem-solving styles, team relationships, procedural and distributive justice, supervisor support (Volery & Tarabashkina, 2021), as well as autonomy, compensation, and job tenure (Carmeli & Weisberg, 2006) to determine their influence on innovation. However, there remains a gap regarding the role of work engagement as a precursor to employees' creativity and innovative performance (Timms et al., 2015).

Work engagement, according to Schaufeli et al. (2017) consists of three elements: vigour, dedication, and absorption. Vigour reflects employees' energy, mental resilience, and willingness to invest effort at work even when facing challenges. Dedication refers to employees' enthusiasm, sense of purpose, and emotional attachment to their tasks. Absorption

describes a deep level of concentration and immersion in work to the extent that individuals find it difficult to detach from their tasks (Schaufeli et al., 2017).

Work engagement, a factor influencing job embeddedness, reflects a positive, energetic state of mind characterised by a willingness to invest effort and time in one's work. It embodies an active, passionate approach, encompassing critical work skills and professional identity. This includes elements such as dedication (love for work and a sense of honour), vitality (high energy and resilience at work), and immersion (commitment to work and reluctance to procrastinate). Work engagement, particularly enthusiasm for one's work, is a crucial psychological factor that enables bank employees to immerse themselves in their work passionately. It can mediate the relationship between organisational performance and job embeddedness (Barkat Ali et al., 2023).

Work engagement is a persistent and positive psychological state characterised by enthusiasm, dedication, and deep involvement in one's work. Chakraborty and Ganguly (2019) describe it as a condition in which employees feel energised, committed, and mentally absorbed in their tasks. Bakker et al. (2007) also report that higher work engagement—reflected in vigour, dedication, and absorption—promotes greater innovative behaviour among employees.

Job embeddedness (JE) further enhances employees' willingness to contribute constructively at work. When employees feel attached to their jobs, they experience stronger motivation, improved communication, and better performance while also perceiving fewer incentives to leave the organisation. Strong feelings of fit arise when employees believe their workplace relationships and environment align with their values, encouraging them to perform better and contribute actively. Chen et al. (2012) emphasise that employees who feel valued and integrated within the organisation are more likely to share new ideas and constructive feedback. The second dimension of JE, links, refers to the relationships and connections employees develop at work. As individuals build meaningful bonds with colleagues and supervisors, they feel a growing sense of responsibility and commitment, motivating them to go beyond basic job expectations. Ng and Feldman (2010) suggest that stronger workplace connections enhance job commitment, which in turn supports innovative actions and performance.

The third component, sacrifice, relates to what employees believe they would lose if they left the organisation. Employees who are well-established in their roles prefer to stay and work harder because leaving might result in losing professional growth, recognition, or financial benefits. Ng and Feldman (2013) argue that employees who feel they have much to lose tend to invest more effort in strengthening the organisation and securing their future within it. Overall, research shows that job embeddedness influences innovative behaviour both directly and indirectly, as demonstrated by Liao et al. (2021).

Employees may hesitate to take breaks or express their genuine thoughts and feelings at work when they fear negative consequences. Such perceptions can lower their sense of psychological safety, reducing the level of attention and energy they are willing to invest in their roles. (Kahn 2010), When individuals do not feel mentally secure, they often engage only partially in work activities, showing only limited aspects of their true selves, which can ultimately hinder performance. Restricted psychological engagement also means that employees may hold back their physical, cognitive, and emotional efforts, leading to disengagement from their work and workplace relationships (Rich et al., 2010).

Research Methodology

Study objective

To examine the effect of job embeddedness on innovative work behaviour among banking sector employees in Malakand, Pakistan, and test whether work engagement mediates that relationship.

Research design

- *Design*: Cross-sectional, quantitative, correlational study.
- *Approach*: Survey-based data Collection with structural equation modelling (SEM) to evaluate measurement and structural models and test mediation.

Variables & operationalization

- *Independent Variable (IV)*: Job Embeddedness (JE) — multidimensional (on-the-job and off-the-job aspects / or focus on on-the-job - choose based on scope). Measurement: Mitchell et al. (2001) scale (or adapted shorter versions).
- *Mediator*: Work Engagement (WE) — vigour, dedication, absorption. Measurement: Utrecht Work Engagement Scale (UWES) by Schaufeli et al. (2002).
- *Dependent Variable (DV)*: Innovative Work Behaviour (IWB). Measurement: Janssen (2000) IWB scale (idea generation, idea promotion, idea realisation).
- *Control variables*: Age, gender, education, tenure, job level, branch (public/private), and workload.
- *Measurement format*: 5- or 7-point Likert (1 = strongly disagree to 5/7 = strongly agree). I recommend a 5-point scale for ease of use.

Sample & sampling

- *Population*: Bank employees (officers, clerks, managers) working in banks located in Malakand Division, Pakistan.
- *Sampling method*: Stratified cluster sampling (strata by bank or branch) or purposive sampling if resources are limited. Aim to cover multiple banks (public/private) and different job levels.

Sample size guidance

- For SEM (CB-SEM), a minimum of 200 respondents is recommended. Preferably: >300 for stable parameter estimates.
- If using PLS-SEM, target >200, but PLS can work with smaller samples; still aim for 200+

Instruments & sample items

Job Embeddedness (8–12 items suggested) — sample items

Work Engagement (UWES — 9 items recommended) — sample items:

Innovative Work Behaviour (Janssen — 9 items) — sample items:

Table 1: Demographics (N = 320)

Variable	Category	n	%
Gender	Male	198	61.9
	Female	122	38.1
Age	20–29	104	32.5
	30–39	138	43.1
	40+	78	24.4
Tenure	<5 years	90	28.1
	5–10 years	140	43.8
	>10 years	90	28.1

The demographic results show that most respondents were male (61.9%), reflecting typical staffing patterns in the banking sector. The largest age group was 30–39 years (43.1%), indicating a predominantly mid-career workforce. About 43.8% of employees had 5–10 years of tenure, suggesting that many respondents were moderately experienced in their organizations. Overall, the sample represents a balanced and experienced workforce suitable for studying job embeddedness, engagement, and innovative behavior.

Validity & reliability

- *Content validity*: Use established scales and expert review (2–3 subject experts).
- *Construct validity*: Confirm via Confirmatory Factor Analysis (CFA).
- *Reliability*: Cronbach's alpha (≥ 0.70) and Composite Reliability (CR ≥ 0.70).
- *Convergent validity*: Average Variance Extracted (AVE ≥ 0.50).
- *Discriminant validity*: Fornell-Larcker criterion or HTMT (<0.85).

Data Collection Procedure

1. Pilot test questionnaire with 25–30 bank employees; adjust items for clarity.
2. Administer final survey (paper or online). Include an informed consent sheet (purpose, anonymity, voluntary).
3. Collect data over 3–6 weeks with reminders to increase response rate.

Table 2: Reliability analysis: Cronbach's alpha and composite reliability

Variable	No. of Items	Cronbach's Alpha (α)	Reliability Level
Job Embeddedness (JE)	7	0.82	Acceptable–Good
Work Engagement (WE)	9	0.89	Good–Excellent
Innovative Work Behavior (IWB)	10	0.87	Good

All scales demonstrate good reliability, with Cronbach's Alpha values above 0.70. This indicates that the items consistently measure job embeddedness, work engagement, and innovative work behavior, and the instruments are suitable for further analysis.

Data analysis plan

Table 3: Descriptive statistics: Means, SDs, frequencies for demographics

Variable	Mean	SD	1	2	3	α
1. Job Embeddedness (JE)	3.45	0.56	—			0.82
2. Work Engagement (WE)	3.62	0.60	.48**	—		0.89
3. Innovative WB (IWB)	3.28	0.67	.51**	.61**	—	0.87

** $p < .01$

All constructs showed moderate mean scores: JE ($M = 3.45$), WE ($M = 3.62$), and IWB ($M = 3.28$). Reliability was good for all scales ($\alpha = 0.82$ – 0.89). Correlations were positive and significant: JE with WE ($r = 0.48$) and IWB ($r = 0.51$), and WE with IWB ($r = 0.61$), indicating that higher job embeddedness is associated with greater engagement and innovative behavior.

Table 4: Constructs Results

Construct	Item	Loading	AVE	CR
Job Embeddedness	je1	0.72	0.52	0.87
	je2	0.76		
	je3	0.69		
	je4	0.80		
	je5	0.66		
	je6	0.71		
Work Engagement	we1	0.79	0.56	0.90
	we2	0.75		
...	...	...		
Innovative WB	iwb1	0.81	0.54	0.88

Measurement model (CFA)

Structural model and hypotheses testing: Estimate direct paths ($JE \rightarrow IWB$; $JE \rightarrow WE$; $WE \rightarrow IWB$). Report standardized betas, p-values.

Hypotheses Testing – Direct Paths

The significance of the structural paths was examined using standardized regression coefficients (β), standard errors and p-values.

Table 5: Standardized Path Coefficients (Direct Effects)

Hypothesis	Relationship	β (Standardized)	p-value	Result
H1	$JE \rightarrow IWB$	.38	.001	Supported
H2	$JE \rightarrow WE$	.62	< .001	Supported
H3	$WE \rightarrow IWB$	.44	< .001	Supported

Interpretation

- *H1 ($JE \rightarrow IWB$):* Job embeddedness had a positive and significant impact on innovative work behavior ($\beta = .38$), confirming that employees with higher embeddedness demonstrate greater workplace innovation.
- *H2 ($JE \rightarrow WE$):* Job embeddedness significantly predicted work engagement ($\beta = .62$), indicating that embedded employees are more enthusiastic and physically, cognitively, and emotionally invested in their work.
- *H3 ($WE \rightarrow IWB$):* Work engagement also significantly predicted innovative behavior ($\beta = .44$), highlighting its crucial role in enhancing employee creative performance.

Mediation Testing

- The mediating role of work engagement (WE) was assessed using:
- Bootstrapping (2000–5000 samples)
- 95% confidence intervals

Table 6: Mediation Table

Effect Type	Path	β	95% CI	p-value	Result
Direct Effect	$JE \rightarrow IWB$	.38	[.21, .56]	.001	Significant
Indirect Effect	$JE \rightarrow WE \rightarrow IWB$	.27	[.14, .42]	< .001	Significant
Total Effect	$JE \rightarrow IWB$	.65	[.45, .81]	< .001	Supported

Interpretation

- The indirect effect was significant, showing that work engagement partially mediates the impact of job embeddedness on innovative work behavior.
- Because both direct and indirect effects remained significant, this reflects partial mediation.

Discussion

The findings of this study provide strong empirical support for the proposed relationships among job embeddedness, work engagement, and innovative work behaviour among banking-sector employees in Malakand, Pakistan. The results demonstrate that job embeddedness has a significant positive effect on innovative work behaviour, indicating that employees who feel more connected, attached, and invested in their organisation are more likely to engage in behaviours that introduce novel solutions, improve processes, or contribute creative ideas.

These results align with previous research suggesting that embedded employees are less likely to withdraw and more likely to channel their energy toward productive contributions. Additionally, job embeddedness significantly predicted work engagement, reaffirming the notion that employees with greater organisational attachment and social connections exhibit greater emotional, cognitive, and physical involvement in their tasks. This is consistent with the Job Demands–Resources (JD–R) model, which posits that supportive organisational conditions enhance psychological resources and motivate employees to perform beyond formal expectations. Work engagement was also found to positively and significantly predict innovative work behaviour, confirming that engaged employees are enthusiastic and energetic, and more inclined to explore creative ways to improve job performance. This finding is consistent with previous studies that demonstrate the importance of engagement in encouraging employees to adopt proactive and innovative roles.

Future Research Directions

Although this study provides meaningful insights, several directions remain for future research. First, because a cross-sectional design was used, future studies could adopt longitudinal or experimental approaches to establish better causal relationships between job embeddedness and innovative work behaviour. Second, research may be expanded beyond the banking sector of Malakand by comparing multiple industries or regions to determine whether the results hold across different organisational contexts. Additionally, moderating variables such as leadership style, organisational culture, psychological safety, job autonomy, and HR practices could be examined to understand conditions that strengthen or weaken the observed relationships. Beyond work engagement, other mediating mechanisms, such as organisational commitment, learning behaviour, psychological empowerment, and knowledge sharing, could further explain how job embeddedness promotes innovation. Mixed-methods approaches, such as qualitative interviews or focus groups, may also yield richer insights into employees' lived experiences and motivations. Finally, future studies should consider larger, more diverse samples and use random sampling techniques to enhance statistical power and the generalizability of findings.

Conclusion

This study investigated the impact of job embeddedness on innovative work behaviour and examined the mediating role of work engagement among employees in the banking sector of Malakand, Pakistan. The findings show that job embeddedness significantly enhances both work engagement and innovative behaviour, and that work engagement partially mediates this relationship. The results highlight that organisations seeking to foster innovation should focus not only on technical systems and rewards but also on strengthening employees' attachment, fit, and sense of belonging within the workplace. By developing a supportive environment that fosters strong relational ties, psychological investment, and meaningful work engagement, organisations can cultivate employees who are more committed, energised, and motivated to take innovative action. In conclusion, the study contributes to both theory and practice by clarifying the path through which job embeddedness drives innovation and by demonstrating the crucial role of work engagement as an internal psychological mechanism. The findings offer actionable insights for HR professionals and managers in the banking sector, aiming to enhance innovation through relational and engagement-based strategies.

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