

Research

The moderating effects of gender and tenure on the antecedents of employee engagement in local governments

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Received: 18 November 2024 / Accepted: 26 May 2025

Published online: 15 October 2025

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Abstract

Employee engagement is a critical factor in organizational success, particularly in the context of local governments, where effective public service delivery is paramount. Understanding the antecedents of employee engagement is essential for enhancing productivity, job satisfaction, and overall organizational performance. This study aims to identify the factors of organizational structure that contribute to employee engagement among the local government workforce in Malaysia. It is a quantitative study involving a total of 389 employees from 98 local government agencies. The findings indicate that the level of employee engagement, centralized hierarchy, and formalized job codification among the Malaysian local government workforce is high. Furthermore, the results reveal a moderate level of formalized rule observation and centralized decision-making. These findings also suggest a significant relationship between the antecedents and employee engagement. Regression analysis demonstrates that the centralized hierarchy of authority is the most influential factor in employee engagement. Additionally, the results of the moderation analysis show that the relationships between organizational factors and employee engagement are not influenced by gender and tenure in service. In conclusion, this study demonstrates that the employee engagement of the local government workforce in Malaysia is significantly affected by the four factors of organizational structure. These results support the importance of organizational structure, thereby contributing to the current literature on the effectiveness of local governments in Malaysia.

Keywords Employee engagement · Leadership · Organizational structure · Local government workforce

1 Introduction

Today's dynamic workforce demands that every organization incorporate human resource development (HRD) practices into their strategic plans to remain competitive and viable in their industry [1]. This need aligns with the philosophy of organizational development, which emphasizes adaptability, continuous learning, and innovation to meet evolving demands. Organizational development prioritizes fostering employee engagement, skill enhancement, and aligning individual goals with organizational objectives [2]. Originating from the necessity for organizations to adapt to an ever-changing environment, it emphasizes planned change strategies to navigate external forces effectively [3].

Organizational change and development are driven by constant interactions with external forces, such as competitors, customers, government, stakeholders, politics, suppliers, society, and unions [4]. As a result, both public and private

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organizations must continually evolve to remain relevant and sustainable. These changes have a profound impact on employee engagement by shaping employees' roles, attitudes, and job satisfaction. Consequently, employee engagement emerges as a critical determinant of motivation, productivity, and organizational commitment [5].

Employee engagement is defined as the readiness of employees to invest cognitive, physical, and emotional resources into their tasks with passion. It manifests through their competence, effort, and enthusiasm in daily work [6]. Engaged employees demonstrate a profound commitment to their roles, characterized by deep cognitive involvement in their tasks and the ability to perform at a high level of proficiency. Building on this understanding, it is important to explore the various factors that shape employee engagement, including organizational structure elements such as centralized decision-making, hierarchy of authority, and formalized job codification [7]. For instance, while centralized decision-making may enhance goal clarity, rigid hierarchies might limit employee autonomy. Similarly, formalized job codification provides role clarity, fostering confidence and commitment, whereas rule observation promotes fairness and consistency in the workplace. Variables, such as gender and tenure, also play a role, with longer tenure often associated with deeper organizational loyalty and gender dynamics influencing inclusion and recognition [8].

Essentially, employee engagement reflects the sense of belonging those employees feel toward their organization, shaping the discretionary effort they contribute to achieving organizational goals [9]. This concept serves as a cornerstone of organizational development, as employee engagement directly impacts both individual and collective performance. In the broader context of organizational development, fostering employee engagement is crucial for achieving sustainable growth and performance.

Theoretical perspectives, such as the Social Exchange Theory (SET), provide a foundational framework for understanding engagement. SET suggests that social behavior results from negotiated exchanges between parties, aiming to maximize benefits and minimize costs [10]. This theory emphasizes reciprocity and interdependence, proposing that employees feel obliged to reciprocate when organizational resources are provided. Engaged employees, therefore, exhibit deep commitment through heightened cognitive, emotional, and physical efforts. Conversely, disengagement arises when organizational support is insufficient, highlighting the antecedents and consequences of employee engagement [11]. While SET offers valuable insights into the direct effects of organizational resources, other theoretical models further expand the understanding of how dynamics various workplace dynamics influence engagement.

Building on this foundation, the Job Demands-Resources (JD-R) model offers a mediating perspective by emphasizing the interplay between job demands and resources [12]. The JD-R model posits that employee engagement is influenced by the direct provision of resources and how these resources mediate the relationship between job demands and outcomes [13]. For instance, job resources, such as autonomy, support, and developmental opportunities, can buffer the adverse effects of high job demands, fostering engagement even in challenging environments [14]. This framework complements SET by highlighting the critical role of balancing demands and resources to create a sustainable and motivating work environment. This mediating role underscores the importance of balancing organizational demands with adequate support systems to maintain employee motivation and commitment. Thus, incorporating both direct and mediating theoretical perspectives enhances the understanding of employee engagement dynamics within organizations.

In examining these theoretical models, it is essential to consider how they apply to specific organizational contexts. In Malaysia, the context of employee engagement in local governmental organizations presents unique challenges shaped by specific structural and cultural dynamics. Governed by the Local Government Act 1976, these organizations operate within a centralized framework with formalized service schemes that can limit employee mobility, career progression, and overall engagement. Compounding these issues are financial constraints, inefficient service delivery, and public dissatisfaction, underscored by recurring complaints about delays, lack of enforcement, and subpar service quality [8–10]. These contextual factors highlight the pressing need to adapt engagement strategies to address both structural limitations and cultural nuances, paving the way for enhanced organizational performance and public trust.

The issue of performance-related problems among civil servants in local Malaysian governments is a frequently discussed topic that is often reported in the local media [15]. For instance, nearly 40% of civil servants missed annual performance targets, citing reasons such as inadequate training, resource allocation, and unclear performance metrics [16]. Supervisor interviews further reveal widespread dissatisfaction with time management and accountability among staff [17, 18]. These factors, coupled with low levels of employee engagement, detrimentally impact organizational performance, particularly in local governmental organizations [16].

Despite extensive research on employee engagement in broader public and private sectors, there remains a significant gap in understanding the factors that influence engagement within Malaysian local governments. Previous studies have predominantly focused on structural inefficiencies and service quality issues without investigating how organizational

elements such as centralization, hierarchical structures, and rule enforcement directly affect employee engagement [19]. Bridging this gap is essential for developing HRD strategies tailored to the specific needs of this sector.

The lack of employee engagement in investor local Malaysian governments demands urgent attention, as it risks tarnishing the nation's reputation and undermining foreign investors' confidence in local governance. Recognizing the critical role of employee engagement in influencing satisfaction and performance, this study aims to identify the key factors affecting engagement in Malaysia's local governmental organizations. By addressing the barriers and enablers of engagement, this research seeks to provide actionable insights for HRD strategies.

This paper begins by contextualizing the study through a comprehensive literature review, outlining key theories, employee engagement concepts, and organizational structure factors. The methodology section details the research design and data collection process, followed by the presentation of findings. The discussion section interprets these findings in light of existing literature and theoretical frameworks. Finally, the paper concludes with a summary of insights, study limitations, and practical recommendations for policymakers and practitioners.

2 Literature review

2.1 Employee engagement

Turner [13] defines engagement as a positive, fulfilling, work-related state of mind characterized by vigor, dedication, and absorption. According to Ababneh [14], employee engagement involves the cognitive, emotional, and behavioral relationship employees maintain with their jobs and organizations, along with the effort and enthusiasm they invest in their daily work. It encompasses being psychologically present while conducting organizational functions. Additionally, it involves fulfilling job roles with a high level of personal energy and resources. This dedication is reflected in employees' thoughts, feelings, and actions, subsequently enhancing both organizational performance and individual well-being. For example, employees demonstrating vigor often take the initiative to exceed their performance targets, such as completing projects ahead of deadlines or offering innovative solutions to workplace challenges [20]. Similarly, dedication can be seen when employees display a strong commitment to organizational values, actively participating in team collaborations and volunteering for additional responsibilities. Absorption is evident when employees lose track of time while deeply engaged in their tasks, maintaining focus, and delivering high-quality outcomes. These behaviors collectively contribute to improved workplace dynamics and individual satisfaction. The concept of employee engagement influences employees' cognitive thoughts, emotional feelings, and physical actions, impacting their commitment and thereby affecting both individual and organizational performance [21].

2.2 Organizational structure factors as antecedents of employee engagement

The theoretical framework for this study draws upon Social Exchange Theory and the Job Demands-Resources model to explore how organizational structure factors act as antecedents of employee engagement. Previous studies have identified a range of antecedents to employee engagement, including job characteristics, perceived organizational and supervisor support, rewards and recognition, leadership, and opportunities for learning and development [11]. These antecedents are considered resources that promote engagement, as employees tend to reciprocate higher engagement levels when they perceive these factors as supportive.

Weber [22] further suggested that employee engagement is influenced by organizational structure, which encompasses decision rights, information technologies, the quality of line managers, performance measures and rewards, and opportunities for growth and development. In line with this, the current study focuses specifically on four organizational structure variables: centralized decision-making, hierarchy of authority, formalized job codification, and rule observation, which are viewed as resources that can influence employee engagement. According to SET, these factors are seen as organizational "gifts" that employees reciprocate with higher levels of engagement [23]. When employees perceive their organization as providing clarity in roles, decision-making processes, and rule adherence, they are more likely to engage in return.

The JD-R model further supports this framework by categorizing organizational structure elements as either job resources or job demands. In this context, hierarchy, formalized job codification, and rule observation are conceptualized as job resources, as they help employees understand their roles, reduce ambiguity, and create a supportive work

environment that fosters engagement. However, centralized decision-making, which limits employees' autonomy and involvement in decision-making, is considered a job demand that can potentially reduce engagement. Therefore, this study utilizes the combined insights of SET and JD-R to examine how these organizational structure factors contribute to employee engagement, taking into account the dual role of organizational elements as either supportive resources or limiting demands.

2.2.1 Centralized decision-making and employee engagement

Decision-making refers to how centralized an organization is in allocating resources and creating policies. In contrast, the sub-construct of the hierarchy of authority examines the extent to which employees depend on their superiors when making decisions, including how this dependence influences their autonomy, efficiency, and overall effectiveness in the workplace [24]. For example, a highly hierarchical structure might restrict employees' ability to make independent decisions, potentially slowing down processes and reducing innovation [24]. Centralized decision-making can offer clear and consistent direction for the organization. When employees grasp top management's goals and decisions, it fosters a sense of purpose and alignment. However, centralized decision-making significantly influences employee engagement [25]. While it enhances clarity, efficiency, and consistency, it also has the potential to limit autonomy, stifle creativity, and erode trust. For instance, a lack of autonomy can diminish employee motivation by reducing their sense of ownership and control over their work. Similarly, stifling creativity may hinder innovation within the organization, as employees are less likely to propose novel solutions or improvements when they feel constrained by rigid structures.

2.2.2 Hierarchy of authority and employee engagement

The hierarchy of authority refers to the levels of power and responsibility in an organization, outlining who makes decisions and how communication flows [26]. In recent years, the conventional top-down approach of rigid hierarchies has shifted toward more inclusive organizational structures. For example, many companies now adopt flat hierarchies or matrix structures, where decision-making is decentralized, and cross-functional collaboration is encouraged. These modern approaches foster better communication, innovation, and employee empowerment. Modern organizations recognize that fostering empowerment, transparency, and open communication enhances employee engagement significantly within various hierarchical levels. Consequently, employees exhibit higher productivity, creativity, and resilience, thereby improving overall organizational performance [27]. Balancing a structured hierarchy with an engaged workforce remains a contemporary challenge for forward-thinking organizations. To address this, many companies embrace new organizational theories, such as agile management, leverage advanced technologies to streamline communication, and prioritize employee well-being through flexible work policies and supportive cultural initiatives. Managing hierarchy significantly influences employee engagement; a supportive, transparent, and empowering structure enhances engagement, while a rigid, closed, and authoritarian hierarchy may lead to disengagement [28]. This assertion aligns with principles from the JD-R model, which highlights those supportive organizational structures serve as job resources that foster engagement by buffering against job demands. Empirical studies, such as those by Bakker and Demerouti [29], provide evidence that transparent communication and empowerment in hierarchical settings contribute to higher levels of employee motivation and reduced burnout.

2.2.3 Formalized job codification and employee engagement

The formalized job codification, as explained by Johari and Yahya [19], delineates an organization's explicit establishment of rules and procedures associated with jobs and the scope of work in various contexts. This process significantly aligns with the precision evident in employees' job descriptions, dictating their expected duties in compliance with established regulations. By offering clear and standardized job descriptions, roles, and responsibilities [30], formal job codification aids in enhancing employees' understanding of their job expectations, thereby reducing ambiguity and confusion. For example, organizations like Toyota have successfully implemented job codification through their standardized work processes, which have improved employee engagement by fostering a clear understanding of expectations and reducing operational inefficiencies. Similarly, Google uses formal job codification within its project teams to clarify roles while maintaining flexibility, which has been linked to high levels of collaboration and employee satisfaction. Furthermore, a structured job codification system often incorporates well-defined career paths and advancement opportunities, contributing positively to employee engagement through increased clarity, fairness, and prospects for career development.

2.2.4 Rule observation and employee engagement

Rule observation denotes the practice of adhering to established rules, regulations, guidelines, procedures, or policies within an organization or specific context [31]. To ensure that employees not only follow rules but also perceive them as meaningful and aligned with organizational goals, leaders can actively communicate the rationale behind these rules, demonstrating their connection to broader objectives such as efficiency, fairness, and safety. For instance, framing compliance with safety protocols as a commitment to employee well-being fosters a sense of purpose and alignment with organizational values. Additionally, involving employees in the development or refinement of rules can enhance their relevance and acceptance. It involves individuals or groups consistently obeying prescribed rules in their daily activities and decision-making. Adherence to organizational policies significantly impacts overall organizational functioning by offering clear work guidelines promoting consistency in processes and expectations [32]. Clarity and security in roles arise when employees understand expectations and consistently follow the rules, thereby potentially boosting engagement. Employees aligning with these values and observing associated rules are more likely to experience purpose and connection to the organization, enhancing engagement.

2.3 Moderation of gender

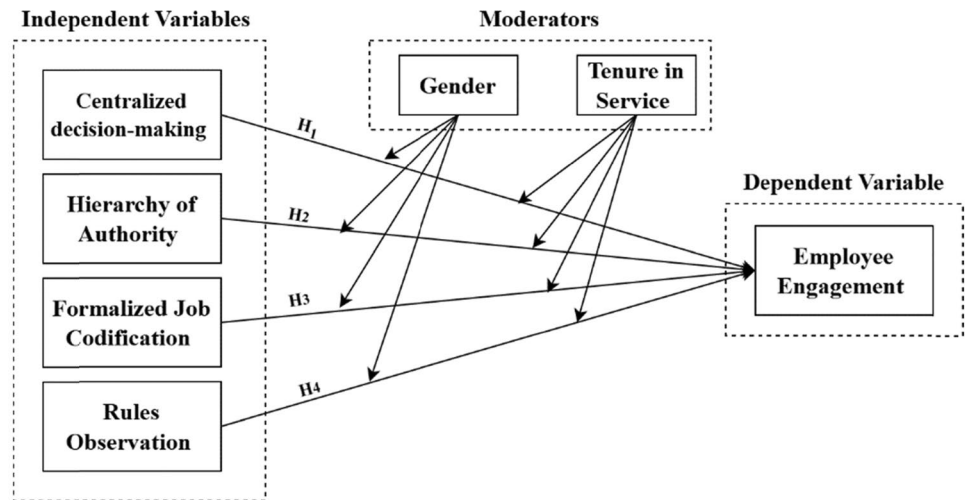
Gender significantly shapes individual experiences and perceptions within the workplace [33, 34]. Gender-related dynamics have been widely explored in organizational behavior [35]. For instance, gender differences in communication styles significantly impact employees' perceptions and responses to centralized decision-making within organizations. Research suggests that women may prefer more participatory decision-making processes. Organizational culture plays a vital role: inclusive cultures promote positive perceptions of centralized decision-making [36]. The connection between the hierarchy of authority and employee engagement is influenced by gender dynamics, resulting in varying individual experiences. Traditional hierarchies, often male-led, can lead females to perceive inequality and a lack of representation, affecting their engagement as they may feel undervalued [37]. Formalized job codification, encompassing job classification and salary structures, can contribute to gender pay gaps significantly when roles traditionally held by women are undervalued compared to similar positions predominantly occupied by men. Perceptions of inequity in job categorization and advancement due to gender biases can lead to decreased engagement, hindering career progression.

2.4 Moderation of tenure in the service

In organizational dynamics, the duration of one's service, commonly known as tenure, significantly intertwines with various organizational elements [38]. Centralized decision-making, hierarchy of authority, formalized job codification, and adherence to rules emerge as influential factors shaping employee engagement. The interaction between tenure and these factors is profoundly significant, examining how service duration interacts with centralized decision-making processes, hierarchical structures, job roles, and rule adherence. This exploration aims to elucidate the intricate relationship between service tenure and the precursors of employee engagement, shedding light on how organizational structures and decision-making frameworks impact employees' commitment and involvement levels. Understanding these dynamics becomes crucial for organizations seeking to optimize workforce engagement within the evolving professional landscape (Fig. 1). The current study proposes the following hypotheses based on an extensive literature review:

- H₁. Centralized decision-making significantly predicts employee engagement in Malaysian local governments.
- H₂. The hierarchy of authority significantly predicts employee engagement in Malaysian local governments.
- H₃. Formalized job codification significantly predicts employee engagement in Malaysian local governments.
- H₄. Rules observation significantly predicts employee engagement in Malaysian local governments.
- H₅. Gender moderates the relationship between independent variables (centralized decision-making, hierarchy of authority, formalized job codification, and rule observation) and employee engagement in Malaysian local governments.
- H₆. Tenure in service moderates the relationship between independent variables (centralized decision-making, hierarchy of authority, formalized job codification, and rule observation) and employee engagement in Malaysian local governments.

Fig. 1 Conceptual framework



3 Methodology

3.1 Participants

This research was conducted in local government agencies across 11 states of Peninsular Malaysia, encompassing 14 City Councils, 31 Municipal Councils, and 53 District Councils. The local government agencies were selected for this study due to their critical role in public service delivery and their direct impact on community well-being [39]. These agencies represent a diverse range of organizational sizes, local contexts, and service scopes, providing a robust sample to examine the antecedents of employee engagement across varying operational environments.

These entities comprise 15,286, 15,607, and 9149 employees, respectively, totalling 40,042 employees governed by the Local Government Act 1976 (Act 171) across the 98 local governments. Local government selection was based on its position as the third-tier government, the closest entity to the people, thereby increasing the necessity for ongoing organizational diagnosis and intervention to ensure the effective delivery of public goods and services.

3.2 Procedures

According to Creswell [40], the target population, also known as the sampling frame, represents the specific group of people that researchers can approach within the overall population of interest for making inferences from the acquired data. Given the disparity in the target population categories (i.e., fewer City Councils with more significant employee numbers compared to more District Councils with fewer employees) and the differing employee counts within each local government, a simple random sampling method was employed in this study. The minimum sample size, as per Krejcie and Morgan's [41] table, was determined to be 381 respondents.

Subsequently, the study instrument comprised a web-based questionnaire distributed via Google Forms to employees across all 98 local governments to ensure meeting the required sample size. Google Forms is a user-friendly and cost-effective tool for distributing questionnaires, requiring minimal technical skills. It offers broad accessibility, allowing respondents to complete surveys from any device with internet access. The platform collects data in real-time and automatically organizes responses in a spreadsheet, simplifying data management. Customization options, such as diverse question formats and themes, enhance survey design, while built-in features ensure data quality. Google Forms also supports anonymity, and strong data security, and integrates seamlessly with other Google services, streamlining data analysis and storage. A total of 398 employees responded to the questionnaire. However, only 389 responses were deemed usable after the data-cleaning process.

3.3 Measurement

3.3.1 Organizational structure

This study employs a modified 16-item instrument based on Hage and Aiken's [38] well-known organizational structure measure, adapted for the Malaysian context by Johari et al. [42]. The instrument assesses the centralization and formalization of organizational structure, comprising four dimensions: centralized decision-making (4 items), centralized hierarchy of authority (5 items), formalized job codification (5 items), and formalized rules observation (2 items). All items evaluating the organizational structure construct used a five-point Likert-type scale, ranging from (1) strongly disagree to (5) strongly agree. Cronbach's alphas for the dimensions were as follows: Decision-making (0.938), Hierarchy of authority (0.710), Job codification (0.787), and Rule observation (0.754) (Table 1).

3.3.2 Employee engagement

The third part of the instrument measures a single dimension: employee engagement, achieved by modifying Thomas's [43] 9-item employee engagement scale. All items assessing employee engagement were rated on a five-point Likert-type scale from (1) strongly disagree to (5) strongly agree. The Cronbach's alpha for this scale was 0.876 [44].

3.4 Data analysis

Preliminary analysis and missing data assessment were carried out using Statistical Package for Social Sciences (SPSS) software (v.26). Missing data across all items were minimal (< 2%) and addressed using the regression imputation method. No outliers were identified based on visual inspection of boxplots and statistical tests such as Mahalanobis distance and Cook's distance. The data analysis was conducted to examine direct and moderating effects between organizational factors and employee engagement. Pearson's Product Moment Correlation Coefficient was used to examine the relationship between independent variables and employee engagement. To validate the moderation model, variance-based structural equation modeling (SEM) with a partial least squares (PLS) approach was utilized. Data analysis was conducted in SmartPLS 3.3.3, employing the partial least squares algorithm with a bootstrapping set at 5,000 subsamples [49]. The PLS-SEM method was chosen for its effectiveness in handling interaction moderation models and its suitability for exploratory research objectives rather than theory confirmation [50].

The direct analysis tested relationships between independent variables (centralized decision-making, hierarchy of authority, formalized job codification, rule observation) and employee engagement (H_1-H_4). The measurement model assessed reliability and validity using factor loadings (> 0.70), composite reliability (CR > 0.7), Cronbach's alpha (> 0.7), and average variance extracted (AVE > 0.5), with discriminant validity confirmed via Fornell-Larcker and HTMT criteria. The structural model estimated path coefficients (β) using the PLS algorithm, checked VIF (< 5) for multicollinearity, and determined significance via bootstrapping. Model fit was evaluated using R^2 , effect sizes (f^2), Q^2 for predictive relevance, and fit indices (SRMR < 0.05, NFI > 0.88). The moderating analysis tested gender and tenure effects on these relationships (H_5-H_6) using the interaction-moderation approach [51]. Interaction terms were created in SmartPLS 3.3.3 by multiplying independent variables with moderators (gender, tenure). The PLS algorithm was rerun with interaction terms, estimating β and significance via bootstrapping (5,000 subsamples). Interaction term significance ($p < 0.05$), R^2 change, and f^2 were assessed. Non-significant terms ($p > 0.05$) indicated no moderation; significant terms would imply varying relationship strength by moderator levels. Model fit (SRMR, NFI) and predictive relevance (Q^2) validated the direct and moderating analyses.

4 Findings

4.1 Demographic findings

The study's results revealed that 61.4% of the male respondents, totaling 239 individuals, constituted the gender composition. Concerning the age distribution among respondents, the majority, comprising 50.9% (198 respondents), fell

Table 1 Study variables and related items

No	Variable	resources-person name(s)	Year	Item
Organizational structure				
1	Centralized decision-making	Hage and Aiken [45]	1967	<ol style="list-style-type: none"> 1. The management in this organization does not consider employee input or feedback when making key decisions 2. Leadership in this company fails to ask for employee opinions, especially when making choices that affect their job satisfaction and welfare 3. Employees here are not given opportunities to contribute to important decisions 4. This organization excludes employees from having a voice in decisions that affect them
2	Centralized hierarchy of authority	Aghion and Tirole [46]	1997	<ol style="list-style-type: none"> 1. No action may be implemented without prior supervisory authorization 2. Independent decision-making without supervisory consultation is actively discouraged within our organizational structure 3. All decisions, regardless of scope or significance, require escalation to higher authority for resolution 4. Virtually all operational decisions require prior supervisory approval in my position 5. Per organizational guidelines, my decision-making authority is contingent upon supervisor approval
3	Formalized job codification	Dewar et al. [47]	1980	<ol style="list-style-type: none"> 1. I'm granted significant autonomy in my daily decision-making and operations 2. Our structure enables independent decision-making at all levels 3. Employees are entrusted with full autonomy in determining their work methods 4. Team members enjoy significant discretion in how they approach their work 5. Employees here exercise considerable discretion in establishing their work approaches
4	Formalized rule observation	Bodewes [48]	2002	<ol style="list-style-type: none"> 1. Management maintains rigorous oversight to ensure strict compliance with all workplace regulations 2. The constant oversight creates an atmosphere where I feel under continuous evaluation
Employee engagement				
1	Employee engagement	Thomas [43]	2007	<ol style="list-style-type: none"> 1. I am committed to exceeding expectations and achieving demanding work objectives 2. I dedicate myself wholeheartedly to executing my responsibilities with excellence 3. I thrive on innovating and finding more efficient ways to enhance my work 4. I take great pride in delivering outstanding quality in every product or service I provide 5. Consistently strive beyond basic requirements to ensure exceptional performance 6. Continuous improvement in my work is a top priority for me 7. I take deep personal satisfaction in the work I do 8. I approach every task with meticulous attention to detail and completeness 9. I am ready to put my heart and soul into my work

within the 36 to 50 age bracket. Regarding educational background, 44.0% (171 respondents) held an SPM certificate as their highest academic qualification. Moreover, the study's findings indicated that the most significant proportion of respondents, accounting for 39.3% (153 individuals), belonged to the Support Group category, specifically within Grade 19. As depicted in Table 2, a significant portion of respondents (42.9%) had served in their positions for 11 to 20 years. Additionally, the results highlighted that the majority of respondents, totaling 53.0% (206 individuals), represented District Councils.

4.2 The relationship between factors that influence employee performance

Findings from the Pearson Correlation Coefficients indicate a negative and low correlation between decision-making and employee engagement, $r(389) = -0.341, p < 0.05$. Conversely, a positive and moderate correlation is observed between hierarchy of authority and employee engagement, $r(389) = 0.456, p < 0.05$. Additionally, a positive and low correlation exists between job codification and employee engagement, $r(389) = 0.387, p < 0.05$, and similarly between rules observation and employee engagement, $r(389) = 0.292, p < 0.05$. Consequently, a significant correlation is established between rules observation and employee engagement.

Table 2 Demographic profile of respondents (N = 389)

Demographic variables	<i>f</i>	%
Gender		
Male	239	61.4
Female	150	38.6
Age		
Less than 25 years	10	2.6
25–35 years	138	35.5
36–50 years	198	50.9
More than 50 years	43	11.1
Highest academic qualification		
PMR/PT3	35	9.0
SPM	171	44.0
STPM/Diploma	111	28.5
Bachelor's Degree	66	17.0
Master's Degree	6	1.5
Doctoral Degree (PhD)		
Job Category		
Support Group (Grade 11–18)	148	38.0
Support Group (Grade 19–28)	153	39.3
Support Group (Grade 29–40)	61	15.7
Management and Professional Group (Grade 41–54)	27	6.9
Top Management Group (Premier Grade C and above)		
Service Tenure (years)		
Less than 5	88	22.6
5–10	85	21.9
11–20	167	42.9
More than 20	49	12.6
Local Government category		
City council	104	26.7
Municipal council	79	20.3
District council	206	53.0

Table 3 The Heterotrait-monotrait Ratio of Correlations (HTMT) and Fornell-Larcker

No	Constructs	α	CR	AVE	1	2	3	4	1	2	3	4	5
1	DM	0.76	0.75	0.56					0.89				
2	EE	0.74	0.73	0.54	0.363				0.346	0.877			
3	HA	0.81	0.79	0.60	0.196	0.503			0.175	0.462	0.848		
4	JC	0.76	0.75	0.65	0.296	0.42	0.441		0.27	0.393	0.383	0.84	
5	RO	0.79	0.78	0.75	0.173	0.344	0.473	0.282	0.158	0.304	0.388	0.24	0.892

α Cronbach's alpha, CR Composite reliability, AVE average variance extracted, DM centralized decision-making, EE employee engagement, HA hierarchy of authority, JC formalized job codification, RO rule observation

Table 4 Parameter estimates for the path model predicting positive youth development

Decision	Path	VIF	β	t	Sig	f^2	Decision
H ₁	DM → EE	2.29	-0.224	5.64	0.00	0.16	Supported
H ₂	HA → EE	1.69	0.311	6.578	0.00	0.18	Supported
H ₃	JC → EE	1.69	0.188	4.255	0.00	0.39	Supported
H ₄	RO → EE	2.14	0.103	2.219	0.027	0.08	Supported

DM centralized decision-making, HA hierarchy of authority, JC formalized job codification, RO rule observation, EE employee engagement

4.3 Preliminary analysis

The study assessed the reliability, convergent validity, and discriminant validity of the measurement scales to evaluate the model's properties. Factor loading values exceeded 0.70, indicating sufficient convergent validity for each construct. Composite reliability (CR), Cronbach's alpha, and average variance extracted (AVE) values were all above the recommended thresholds of 0.7 and 0.5, respectively [52], as detailed in Table 3. Discriminant validity was evaluated using the heterotrait-monotrait ratio of correlations (HTMT) and the Fornell–Larcker criterion. The Fornell–Larcker results showed that the square root of each construct's AVE was higher than its correlations with other constructs, while the HTMT values fell within the acceptable range of 0.173–0.503.

4.4 Structural model

The coefficients of determination (R^2), effect size (f^2), and Stone–Geisser (Q^2) values were utilized as indicators of effect sizes [52]. The results indicated a good model fit, with all SRMR values below 0.05 and NFI values exceeding 0.88 [53]. The R^2 value for employee engagement was 0.73, showing that centralized decision-making, hierarchy of authority, formalized job codification, and rule observation collectively explained 73% of the variance in employee engagement. The PLS-SEM analysis revealed that all four hypothesized relationships were significant (Table 4). Specifically, centralized decision-making ($\beta = -0.224, t = 5.64, p < 0.001$), hierarchy of authority ($\beta = 0.311, t = 6.578, p < 0.001$), formalized job codification ($\beta = 0.188, t = 4.255, p < 0.001$), and program engagement ($\beta = 0.103, t = 2.219, p < 0.001$) predicted employee engagement. The effect size (f^2) for rule observation was 0.08 indicating a slight effect, and centralized decision-making and hierarchy of authority were 0.16 and 0.18, respectively, indicating moderate effects, while formalized job codification had a large effect size of 0.39 (Henseler et al. 2016). The predictive relevance of employee engagement, as measured by Q^2 , was 0.49, indicating substantial predictive relevance (Table 4 and Fig. 2).

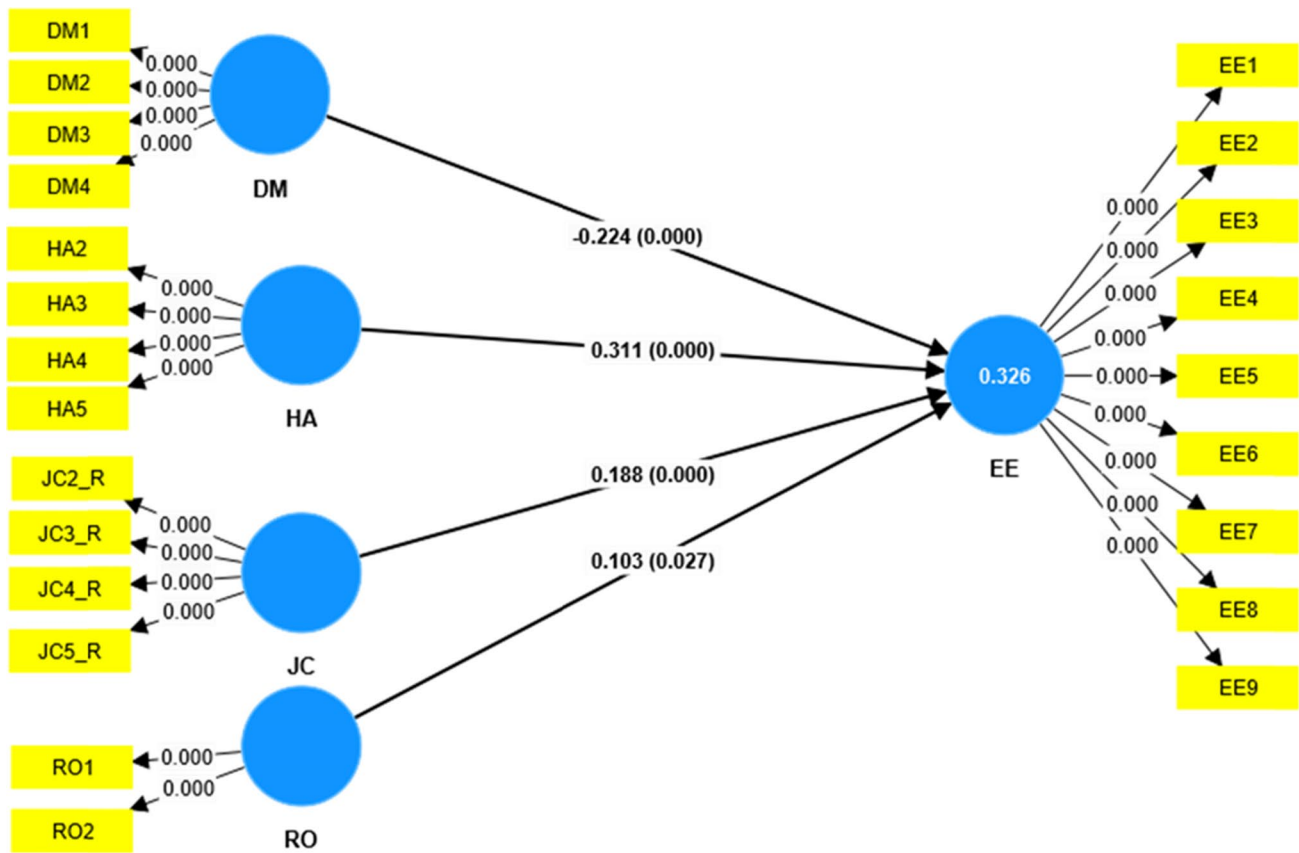


Fig. 2 Structural model

4.5 Test for moderation

4.5.1 Moderation effect analysis result of gender

The interaction-moderation method in SmartPLS 3 software was employed to assess the moderating effect of gender on the associations between organizational factors (centralized decision-making, hierarchy of authority, formalized job codification, and rule observation) and employee engagement. The results showed that gender did not significantly moderate any of these relationships: centralized decision-making ($\beta = 0.071$, $t = 0.848$, $p = 0.397$), hierarchy of authority ($\beta = -0.1062$, $t = -1.222$, $p = 0.222$), formalized job codification ($\beta = 0.0407$, $t = 0.491$, $p = 0.623$), and rule observation ($\beta = -0.0877$, $t = -1.119$, $p = 0.263$). The change in R^2 from the main effect model to the interaction effect model was minimal, increasing by only 2.0%. Furthermore, the f^2 results for each interaction revealed negligible effect sizes (Cohen, 1988). Thus, gender did not play a moderating role in the association between organizational factors and employee engagement and H_5 was rejected.

4.5.2 Moderation effect analysis result of tenure in service

The interaction-moderation method in SmartPLS 3 software was utilized to evaluate the moderating effect of tenure on the relationships between organizational factors (centralized decision-making, hierarchy of authority, formalized job codification, and rule observation) and employee engagement. The analysis revealed that tenure did not significantly moderate any of these relationships: centralized decision-making ($\beta = -0.144$, $t = 2.672$, $p = 0.068$), hierarchy of authority ($\beta = -0.112$, $t = 1.889$, $p = 0.712$), formalized job codification ($\beta = -0.037$, $t = 0.601$, $p = 0.548$), and

rule observation ($\beta = -0.024$, $t = 0.419$, $p = 0.675$). Consequently, tenure was not found to moderate the relationship between organizational factors and employee engagement, and H_6 was not supported.

5 Discussion

This study aimed to explore the relationship between employee engagement and organizational structure factors, including centralized decision-making, hierarchy of authority, formalized job codification, and rule observation, within Malaysia's local government workforce. The findings support most of the formulated hypotheses and contribute to the broader understanding of employee engagement within bureaucratic contexts. To analyze these relationships, the study utilized SET and the JD-R model, both of which provide distinct yet complementary perspectives on how organizational structures influence employee engagement.

The analysis revealed that hierarchy of authority had the most significant positive relationship with employee engagement, suggesting that employees who perceive a well-defined and functional hierarchy are more likely to engage with their work. This finding aligns with the JD-R model, which posits that organizational structures can provide employees with necessary resources—such as clarity of roles and responsibilities—thereby reducing job demands and enhancing engagement [29]. A clear and supportive hierarchical structure offers employees the resources they need to feel confident in their roles, reducing ambiguity and enhancing both performance and job satisfaction. This relationship is particularly important in public sector organizations where roles and responsibilities are often well-defined and the work environment is formalized.

The positive relationship between formalized job codification and employee engagement further supports the JD-R model, which emphasizes that clear job resources (such as well-defined roles and expectations) can buffer the impact of job demands and increase engagement [54]. When job tasks, roles, and responsibilities are clearly defined, employees experience reduced uncertainty and feel more competent in their work. This clarity helps employees to focus on their tasks and fosters a sense of accomplishment, which, in turn, promotes higher levels of engagement. However, this study also emphasizes the need to balance job codification with flexibility, as excessive rigidity can lead to disengagement, especially if employees feel their autonomy is compromised. This observation resonates with the JD-R model's assertion that the lack of job resources, such as autonomy, can lead to burnout and disengagement [55].

Interestingly, *rule observation* emerged as a significant positive predictor of engagement. This finding can be interpreted through the lens of SET, which suggests that employees who perceive fairness and consistency in the organization's practices are more likely to feel trusted and supported. When employees observe that rules are followed consistently, they perceive a higher level of fairness and transparency in the organization, leading to a greater sense of trust and, ultimately, higher levels of engagement. Consistency in rule enforcement fosters a sense of predictability and security, which are essential elements for employee motivation and engagement [56].

In contrast, centralized decision-making was found to have an inverse relationship with employee engagement. This aligns with both SET and the JD-R model, but from different perspectives. From a SET perspective, centralized decision-making can limit the exchange of resources and autonomy between employees and the organization, which can lead to a sense of disengagement. When decision-making is concentrated at the top, employees may feel disconnected from the organizational process and less valued, as they have less influence over decisions that impact their work. This reflects the idea that employee engagement is enhanced when there is mutual trust and a sense of reciprocity, both of which are diminished in a highly centralized environment [57].

From the JD-R model's perspective, centralized decision-making can be seen as a job demand that increases employee stress and limits access to the necessary resources (e.g., autonomy, decision-making power) to cope effectively with the demands of their roles [29]. When employees feel they have little control over the decision-making process, it can lead to increased job strain and a decrease in engagement. This is particularly relevant in the public sector, where employees may feel their roles are more bureaucratic and less flexible, leading to reduced intrinsic motivation and engagement.

The study also investigated the moderating effects of gender and organizational tenure on the relationship between organizational structure and employee engagement. Interestingly, the analysis revealed that neither gender nor tenure significantly moderated this relationship. This finding challenges some previous studies which suggested that gender and tenure could influence how employees respond to organizational structures and policies [58]. For example, gender differences in decision-making preferences, autonomy, and work-life balance have been noted in previous research, with women often placing more emphasis on participative decision-making and work flexibility [58]. Similarly, employees

with longer tenure may perceive job codification and hierarchical structures differently, perhaps due to their deeper understanding of organizational processes and rules.

However, the findings of this study suggest that organizational factors such as hierarchy, job codification, and rule observation have a more universal influence on employee engagement across both gender and tenure groups. This may be because these structural elements provide core job resources that impact engagement, regardless of individual differences. Employees in different gender and tenure groups may experience these resources similarly, indicating that the structure of the organization may play a more central role in driving engagement than individual characteristics. This aligns with the JD-R model's assertion that organizational resources (e.g., clear roles, supportive leadership) have a universal effect on employee engagement, irrespective of personal factors [54].

The integration of SET and the JD-R model provides a comprehensive understanding of the dynamics between organizational structures and employee engagement. SET contributes by highlighting the importance of trust, fairness, and reciprocity within the organizational exchange, suggesting that employees who perceive fairness in rule enforcement and decision-making are more likely to engage with their work. On the other hand, the JD-R model focuses on how organizational factors, such as hierarchy and job codification, serve as job resources that support engagement by reducing uncertainty, enhancing role clarity, and providing opportunities for employees to excel in their roles [59].

In this study, the combination of both theories reveals that organizational structures can serve both as resources (in the form of clear roles, support, and consistency) and demands (in the form of centralized decision-making and rigid formalization) that influence employee engagement. By considering both theories, the study offers a more nuanced understanding of the factors that promote or hinder employee engagement in local government organizations. The contribution of this study lies in its demonstration that organizational structures, especially in the public sector, must strike a balance between clarity and flexibility. A well-defined hierarchy and formalized roles provide essential resources for employees, but excessive centralization and rigidity can lead to disengagement by limiting autonomy and reducing the exchange of resources between employees and the organization.

6 Conclusion

The study findings validate the relevance of the organizational model for human resource practitioners and organizational leaders, particularly within local governments. It contributes to a better comprehension of organizational structure as a critical factor influencing employee engagement. Considering the crucial role of local governments in advancing economic growth and social development within their areas, the study recommends proactive measures and organizational modifications to address performance concerns and enhance efficiency. This research emphasizes the significance of these insights for local government managers, decision-makers, and relevant stakeholders in promoting effective governance at the grassroots level.

7 Limitations and directions for future research

The scope of this study is limited to Malaysian local governments, preventing the generalization of results to the broader context of public service. Exclusions of other public service categories, such as Federal and State government agencies and statutory bodies, from data collection may affect the study's applicability. Additionally, variations between respondents and non-respondents due to diverse geographical locations might limit the study's generalizability. Despite confidentiality measures, potential bias could arise as respondents might have felt compelled to provide socially acceptable answers. This study acknowledges limitations, including its focus on specific organizational factors and the possibility of unexplored variables influencing employee engagement differently across genders. Future research could delve into additional organizational dimensions, such as organizational culture, leadership styles, or job design, to provide a more comprehensive understanding of employee engagement. Furthermore, studies could investigate how demographic variables like age, education level, tenure, or marital status interact with organizational factors to influence engagement. For example, researchers could examine whether younger employees respond differently to centralized decision-making compared to older employees, or how educational background impacts perceptions of rule observation. Additionally, intersectionality could be explored to assess how combinations of demographic factors, such as gender and ethnicity, collectively shape employee experiences and engagement levels. These approaches would yield richer insights and enhance the generalizability of findings across diverse populations.

8 Implications

8.1 Methodological implications

The study underscores the importance of using mixed-method approaches to capture the multifaceted impact of organizational structure on employee outcomes. Researchers should consider qualitative for a better understanding of employee engagement in the Malaysian context. Furthermore, longitudinal designs examine how changes in local government policies and organizational structures affect employee engagement over time. Moreover, comparative studies across different regions or countries could provide insights into the generalizability of the findings.

8.2 Practical implications

For practitioners, particularly local government managers, and stakeholders, the study underscores the need to prioritize strategic planning alongside the development of organizational structures and human resource systems. Policymakers should address the challenges of career development and employee mobility within local government by establishing a specific single scheme for local government employees. This could enhance job mobility, career advancement opportunities, and ultimately improve employee competencies, engagement, and commitment. Additionally, integrating structural reforms with targeted training and development programs could result in higher innovation and organizational effectiveness.

8.3 Implications for theory

The findings highlight the pivotal role of organizational structure in influencing employee engagement and organizational effectiveness. These results contribute to organizational theory by emphasizing structural variables as critical components in enhancing employee outcomes. Future theoretical frameworks could integrate organizational structure and human resource systems as mediating or moderating variables in studies of employee performance and engagement.

In theoretical terms, this study has demonstrated the applicability of Social Exchange Theory (SET) to deepen the comprehension of employee engagement within local government. While these theories are commonly employed in analyzing public and private sector organizational contexts, their efficacy has been established in evaluating employee engagement within the local government workforce. The study's outcomes highlight the utility of Social Exchange Theory in predicting employee engagement among Malaysia's local government employees. Furthermore, it was revealed that organizational structure factors significantly influence employee engagement. However, it is essential to note that this study only applied a portion of this theory.

Authors Contribution Ahmad Aizzuddin Md Rami contributed to the conception of the study, collection of data, analysis and writing of the manuscript. Erda Roslan Khairi and Seyedali Ahrari helped perform the analysis with constructive discussions and validation. Asmawi Ibrahim and Ahmed Ahmed Olaitan contributed to the writing and preparation of the manuscript. All authors have read and approved the final version of the manuscript.

Funding This study was conducted without any financial support.

Data availability All data set during the study are available upon reasonable request from the corresponding author.

Declarations

Ethics approval This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. Ethical approval for the research was obtained from Ethics Committee for Research involving Human Subjects of University Putra Malaysia (JKEUPM) with a reference no JKEUPM-2022–227. Prior to participation, all participants were provided with detailed information about the study's objectives, procedures, and their rights, including the right to withdraw at any time without any repercussions. Informed consent was obtained from all participants before the interviews were conducted. Confidentiality and anonymity were strictly maintained throughout the study, and the collected data were securely stored and used solely for research purposes.

Informed consent Informed consent was taken from the informants for conducting the study.

Consent to publish We, Ahmad Aizuddin Md Rami, Erda Roslan Khairi, Seyedali Ahrari, Asmawi Ibrahim, and Ahmed Ahmed Olaitan, grant Discover Psychology permission to publish our paper titled "The Moderating Effects of Gender and Tenure on the Antecedents of Employee Engagement in Local Governments". We confirm that the content is original, does not infringe on any rights, and has not been submitted elsewhere. All necessary permissions for third-party content have been obtained.

Competing interest The authors declare no competing interests.

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