

Work engagement and work procrastination among Ethiopian civil servants: Social loafing mediation and job crafting moderation

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Abstract: This study investigated whether and how social loafing mediates the relationship between work engagement and work procrastination, and if this pathway is moderated by job crafting. Data from 322 civil servants (58% male; mean age = 29.52 years, SD = 2.78) were analyzed using PROCESS macro (Model 14). The results confirmed a partial mediation model, indicating that work engagement reduces procrastination both directly and indirectly by diminishing social loafing. Furthermore, job crafting significantly moderates this relationship, with higher work engagement and less social loafing among employees who engaged in high levels of job crafting. These findings position job crafting as a critical mechanism that strengthens engagement's capacity to mitigate counterproductive behaviors. Findings align with the Job Demands-Resources (JD-R) theory, which proposes that job resources such as work engagement and job crafting activate motivational processes that reduce negative workplace behaviors (e.g., social loafing and procrastination) while enhancing employee well-being and performance. By implication, the study findings suggest a need for fostering both work engagement and job crafting initiatives as a dual-pronged strategy for public sector organizations to curb procrastination and improve organizational performance.

Keywords: Work engagement; decent jobs; social loafing; job crafting; procrastination

Introduction

Work engagement is critical to organizational performance. Yet, counterproductive work behaviors, such as procrastination, are present in work settings and are a cost to organizational productivity (Rucker et al., 2011). Social loafing is associated with work procrastination in ways yet to be examined by the industry sector, of which civil servant jobs may be more vulnerable due to the presence of bureaucratic structures, reduced performance monitoring, and limited competitive pressure that may unintentionally allow employees to rely on others' efforts and delay task completion (Berg et al., 2013; Benlahcene et al., 2026). However, if people crafted their jobs and the ways to carry them out, they may be with less work procrastination. This remains an open question. Our study aimed to clarify these relationships in a civil service sector setting (Eddy et al., 2010; Ferrari, 2010; Tensay & Singh, 2020).

Work engagement versus work procrastination

Work engagement is related to the appearance of enthusiasm, perseverance, and a strong sense of identification in the workforce. Research revealed the positive relationship between work engagement and job performance, creativity, organizational commitment, and turnover intentions (Bakker & Demerouti, 2017; Saks, 2006; Tims et al., 2013).

In the modern fast-paced world, the sustainability of performance and the welfare of employees have emerged at the forefront in the public and private sectors (Ali et al., 2024; Kooskora et al., 2024). This dual imperative requires

work engagement rather than procrastination. Procrastination is an intentional postponement of goal-oriented behavior despite the person's acknowledgment that the postponement would only worsen the situation (Gupta & Shaheen, 2017; Sunarta et al., 2025). It may significantly diminish work engagement.

While they may appear to be polar opposites, engagement and procrastination are not simply two extremes of the same continuum. Recent research indicates that highly engaged workers may, under certain social or organizational conditions, exhibit procrastination tendencies (Asikullah et al., 2025; Metin et al., 2018). This indicates that there are possibly mediating and moderating factors between engagement and actual work behavior.

These factors may include social loafing, where individuals contribute less when in a group than they would if alone (Karau & Williams, 1993). Another may be job crafting, which is the active process of redesigning one's job to better fit personal strengths, motives, and passions (Wrzesniewski & Dutton, 2001), which would minimize social loafing at the workplace. Social Impact Theory of Latané (1981) proposes that the motivational pull of social forces depends upon the strength, immediacy, and number of the sources. In a team or group work situation, where individual contributions cannot be easily identified, the motivational pull to exert high effort is low. Using the JD-R model, we can view the effects of social loafing in terms of a lack of personal return on investment in effort because individual contributions cannot be identified.

Social loafing mediation

Social loafing has been widely documented as a social phenomenon where individuals tend to contribute less when their efforts are incorporated within a group as opposed to when they are working individually (Karau & Williams, 1993). Social loafing has generally been observed under situations where individual contributions are not traceable or are perceived as redundant within a group (Keyko et al., 2016; Liden et al., 2004). In an organizational setup, social loafing has been known to result in a low level of motivation, causing a decline in overall group performance and contributing to counterproductive behaviors such as procrastination.

A highly engaged individual with the motivational energy to complete tasks may be less inclined to do so if they believe that their individual contribution will be lost in the overall group effort. A highly engaged individual who believes that their individual efforts are being ignored or made redundant by being part of a group may, in fact, experience lower individual motivation. A possible result of this is that highly engaged individuals may procrastinate individual components of tasks, waiting for other individuals or group definitions of shared responsibility to be enacted (Wider et al., 2025). Thus, the motivational energy of engagement is channeled towards social loafing, which manifests as procrastination. Such mediation is supported by empirical evidence that directly links social loafing with task procrastination and productivity (Simms & Nichols, 2014; Stouten & Liden, 2020).

Job crafting moderation

Job crafting, which is described as “the physical and cognitive changes individuals make in the task or relational boundaries of their work” (Wrzesniewski & Dutton, 2001, p. 179), represents a proactive approach to which employees engage to shape their job demands and job resources to a more favorable alignment with their personal strengths, capabilities, and preferences (Tims & Bakker, 2010). While physical job crafting refers to changing the form, scope, or amount of job tasks, cognitive job crafting refers to changing how employees frame or construe their work (Demerouti & Bakker, 2014; Metin et al., 2018). In JD-R theory, job crafting represents a personal resource mobilization approach (Tims & Bakker, 2010). Employees who engage in job crafting behaviors proactively build their structural and social job resources (e.g., seeking autonomy support, asking for feedback), build their challenging job demands (e.g., seeking new projects), and reduce their hindering job demands (e.g., avoiding interactions that cause emotional exhaustion). By doing this, job crafting employees create their personal job resources that energize the motivational process and sustain their engagement even in unfavorable situations.

Theoretical framework

This study is based on the Job Demands-Resources (JD-R) model (Bakker & Demerouti, 2007, 2017) categorizes every feature of a job into two large categories: demands and resources. Job demands are those aspects of a job that require you to invest physical, mental, or emotional effort and result in costs to your body and mind, including

high workload, deadlines, and emotional pressures. Job resources, on the other hand, are those aspects of a job that enable you to achieve your work goals, reduce the impact of demands, or contribute to your personal growth and development, including autonomy, social support, and feedback.

There are two psychological paths in the JD-R model. First, there is the motivational path, which suggests that resources satisfy basic needs for autonomy, competence, and relatedness, leading to work engagement. Engagement, which entails high energy, enthusiasm, and absorption at work (Schaufeli et al., 2002), is the core outcome of the JD-R model. When employees are engaged, they will perform better, be more proactive, and show organizational loyalty. Second, there is the health impairment path, which suggests that high or poorly designed demands cause a drain on mental and physical resources, leading to burnout and negative work-related outcomes, including absenteeism, poor performance, and counterproductive work behavior.

According to the JD-R model, procrastination is an employee's failure in self-regulation due to a motivational or resource deficit (Sunarta et al., 2025). When resources are low, an employee will not have the required energy (vigor), dedication (dedication), or absorption to carry out tasks.

The combination of the JD-R model and the Social Impact Theory can offer a comprehensive account for the role of social loafing in the relationship between engagement and procrastination. From the perspective of the JD-R model, the process of social loafing can be characterized by the loss of resources, where employees tend to withdraw because they perceive that the investment of resources does not generate an appropriate rate of return, i.e., individual effort is not valued. In teams where individual accountability is low, the motivational potential of job resources is undermined because employees cannot make the connection between individual effort and valued outcomes (Shimazu et al., 2018; Wan et al., 2014). This leads to the conservation of resources, where the lack of appropriate rewards for effort causes employees to procrastinate, i.e., to delay work because the expected outcome is not worth the effort.

The Ethiopian Civil Service Context. A good example of an environment that could be used to examine these processes is that of the Ethiopian civil service. In countries such as Ethiopia, where the success of the economy and the provision of services rely on the population and the effectiveness of the public sector, the performance and commitment of public servants can make a significant difference to the success of the country. However, public institutions seem to be facing the same challenges, such as delays in the provision of services, failure to meet set standards, and the lack of accountability, which can be attributed to procrastination and low work engagement by public servants.

In the civil service domain, it is possible that this phenomenon could be especially evident. This is because, in most instances, clients visiting public institutions to access services, especially in countries such as Ethiopia,

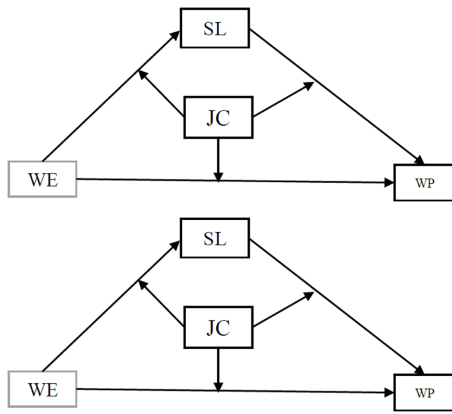


Figure 1. Conceptual model. *Note.* “WE = Work engagement; SL = Social loafing; JC = Job crafting; WP = Work procrastination”.

where distances to these services can be long, often experience long waiting times, delays, and uncompleted services, leading to frustration for the clients and the institutions (Lema, 2017; Gede & Huluka, 2023; Tensay & Singh, 2020; Gede & Huluka, 2024).

Goals of Study

This research addresses a gap in literature by investigating the interplay between work engagement, work procrastination, social loafing, and the under-explored moderating influence of job crafting. Based on our conceptual model (see Figure 1), we tested the following hypotheses.

H1: Work engagement is associated with less work procrastination.

H2: Social loafing mediates the relationship between work engagement and work procrastination for higher work procrastination.

H3: Job crafting moderates the indirect relationship between work engagement and work procrastination via social loafing for higher work procrastination when job crafting is high.

Methods

Participants and setting

A total of 322 permanent government employees in the Wolaita Zone, Southern Ethiopia were participants. Of the sample, 58% were male, while 42% were female. Their ages ranged from 22 to 45 years, with an average of 26.45 years ($SD = 2.78$). Of the sample, 65% had bachelor's degrees, 22% had master's degrees, while 13% had diplomas. Additionally, the sample had an average of 4.8 years of organizational tenures ($SD = 2.3$). These variables were treated as control variables. The sample size of 322 exceeds the minimum of 250, which is recommended for the application of moderated mediation analysis (Hair et al., 2019; Faul et al., 2009).

Measures

Work engagement

Work engagement was measured using the revised 17-item Utrecht Work Engagement Scale (UWES) developed by Schaufeli and Bakker (2004). Sample items include statements such as “At my work, I feel bursting with

energy.” Participants rated each item on a five-point Likert scale ranging from 1 (Never) to 5 (Always), with higher scores indicating greater levels of work engagement. The reliability of UWES scores was 0.88 in the present study.

Work procrastination

Work procrastination was assessed using the 12-item scale developed by Metin et al. (2016). A sample item includes statements such as “When I work, even after I make a decision, I delay acting upon it.” Participants rated each item on a five-point Likert scale ranging from 1 (Rarely) to 5 (Always), with higher scores reflecting greater tendencies toward procrastination at work. The scale demonstrated excellent internal consistency, with a Cronbach's alpha coefficient of 0.92.

Social loafing

The construct of social loafing was measured using a 6-item scale developed by George (1992). Participants indicated their level of agreement with statements such as, “I put forth less effort on the job when other group members are around to do the work,” on a five-point Likert scale ranging from 1 (Not at all characteristic) to 5 (Very characteristic). The reliability and validity of the scale were assessed to ensure measurement quality. The measure demonstrated excellent internal consistency, with a Cronbach's alpha coefficient of 0.93. Furthermore, a confirmatory factor analysis (CFA) was performed to evaluate the structural validity of the translated scale. The CFA results supported a good model fit for the one-factor structure, as indicated by the following. These results confirm that the scale is a psychometrically sound instrument for measuring social loafing within the study's sample.

Job crafting

Job crafting was measured using the 15-item scale developed by Slemp and Vella-Brodrick (2013). This instrument assesses the frequency of proactive behaviors aimed at reshaping one's job. Participants rated items such as “Introduce new approaches to improve your work” on a six-point Likert scale ranging from 1 (hardly ever) to 6 (very often). The psychometric properties of the scale were examined to ensure its suitability for the current sample. The measure demonstrated good internal consistency, with a Cronbach's alpha coefficient of 0.82.

Procedure

Ethical approval for this study was obtained from the Institutional Review Committee of Wolaita Sodo University (WSU41/30/812) prior to data collection. The heads of the participating government sectors provided study permission. Participants consented to the study with assurances of voluntary participation and confidentiality. They completed the measures during normal work hours.

Data analysis

The hypothesized relationships were tested using Hayes' PROCESS macro (Version 4.0) for SPSS 25.0. First, to verify the validity of scores from the measure, a confirmatory factor analysis (CFA) was performed, indicating an acceptable model fit to the data, as shown by the

following indices: $\chi^2/df = 2.34$, CFI = 0.97, TLI = 0.96, SRMR = 0.03, and RMSEA = 0.044 for the UWES, fit indices: $\chi^2/df = 3.23$, CFI = 0.97, TLI = 0.96, SRMR = 0.04, and RMSEA = 0.05 for the work procrastination measure, and fit indices: $\chi^2/df = 3.23$, Comparative Fit Index (CFI) = 0.96, Tucker-Lewis Index (TLI) = 0.94, Standardized Root Mean Square Residual (SRMR) = 0.04, and Root Mean Square Error of Approximation (RMSEA) = 0.05 for the social loafing measure. These results confirm that the measures were both reliable and psycho-metrically sound for use in the present study.

Simple mediation model (Model 4) was employed to examine whether social loafing mediates the relationship between work engagement and work procrastination. Subsequently, a moderated mediation model (Model 14) (Hayes, 2018) was constructed to test the hypothesis that job crafting moderates the pathway from work engagement to social loafing, thereby establishing a conditional indirect effect on procrastination. For both models, significance of the direct, indirect, and conditional effects was assessed using bias-corrected confidence intervals derived from 5000 bootstrap samples. An effect is considered statistically significant if its 95% confidence interval does not include zero. Prior to these analyses, the dataset was screened for missing values on the primary study variables, and none were found, resulting in a complete data set for analysis.

Results

Preliminary analysis

Table 1 presents the means, standard deviations, and bivariate correlations for all study variables. Preliminary examination of the correlation matrix revealed significant relationships consistent with the proposed theoretical framework. Work engagement was negatively correlated with work procrastination ($r = -0.54, p < 0.01$) and social loafing ($r = -0.37, p < 0.01$) and positively correlated with job crafting ($r = 0.31, p < 0.01$). Social loafing showed a positive correlation with work procrastination ($r = 0.42, p < 0.01$) and a negative correlation with job crafting ($r = -0.35, p < 0.01$). Job crafting was negatively correlated with work procrastination ($r = -0.32, p < 0.01$). All correlations were in the expected directions and provided initial support for further hypothesis testing.

Table 1. Descriptive and bivariate correlations results of study variables

Variable	1	2	3	4
WE	—			
SL	-0.37**	—		
JC	0.31**	-0.35**	—	
WP	-0.54**	0.42**	-0.32**	—
M	2.67	2.82	2.53	2.47
SD	0.76	0.91	0.52	0.55

Note. WE = Work engagement; SL = Social loafing; JC = Job crafting; WP = Work procrastination; ** $p < 0.01$.

Work engagement and work procrastination

To test Hypothesis 1, which posited that work engagement negatively predicts work procrastination, a Pearson correlation analysis was conducted to examine the main effect between the two variables. The results revealed a significant negative correlation between work engagement and work procrastination ($r = -0.54, p < 0.01$). This finding indicates that civil servants with higher levels of work engagement tend to exhibit lower levels of work procrastination, whereas those with lower work engagement are more susceptible to delaying their work tasks. Therefore, Hypothesis 1 was supported.

Social loafing mediation

Hypothesis 2 stated that social loafing would mediate the relationship between work engagement and work procrastination. To examine the mediation role of social loafing, a mediation analysis was performed by means of PROCESS Model 4, with 5000 bootstrap resamples (Hayes, 2018). Table 2 displays the unstandardized and standardized coefficients, and Figure 2 illustrates the mediation model with the effects. As can be seen in Table 2, work engagement had a significant negative effect on social loafing (a path: $b = -0.41, \beta = -0.37, SE = 0.05, p < 0.001$), and social loafing had a significant positive effect on work procrastination (b path: $b = 0.35, \beta = 0.42, SE = 0.04, p < 0.001$). The total effect of work engagement on work procrastination was significant (c path: $b = -0.54, \beta = -0.54, SE = 0.04, p < 0.001$), suggesting that work engagement is negatively related to work procrastination. When the mediation role of social loafing was included, the direct effect of work engagement on work procrastination remained significant but decreased in magnitude (c' path: $b = -0.32, \beta = -0.32, SE = 0.04, p < 0.001$).

The indirect effect of work engagement on work procrastination through the mediation of social loafing was significant ($ab = -0.14, \beta = -0.16, SE = 0.03, 95\% CI -0.20$ to -0.09). The confidence interval for the indirect effect not crossing zero indicates that the relationship between work engagement and work procrastination is

Table 2. Specific indirect effects of work engagement on work procrastination through social loafing

Model path ways	Effect	Boot SE	Bias-corrected 95% CI	
			Lower	Upper
WE → SL → WP	-0.14	0.03	-0.20	-0.09

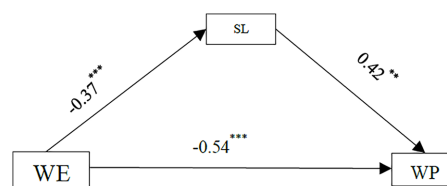


Figure 2. Mediation summary. Note. WE refers work engagement, SL social loafing and WP work procrastination, *** $p < 0.001$ and ** $p < 0.01$.

indeed mediated by social loafing. The completely standardized indirect effect ($\beta = -0.16$) indicates that when work engagement increases by one standard deviation, work procrastination would decrease by 0.16 standard deviation through the mediation role of social loafing. The proportion of the total effect mediated by social loafing is 26% ($PM = 0.26$), suggesting that one-quarter of the relationship between work engagement and work procrastination is mediated by social loafing. The hypothesis is supported.

Job crafting moderation via social loafing mediation

Hypothesis 3 proposed that job crafting moderates the indirect relationship between work engagement and work procrastination via social loafing. This moderated mediation model was tested using PROCESS Model 14 (Hayes, 2018) with 5000 bootstrap resamples.

Work engagement negatively predicted social loafing (a path: $\beta = -0.32$, $p < 0.01$). The total effect of work engagement on work procrastination was significant (c path: $\beta = -0.54$, $p < 0.001$). Supporting the moderation hypothesis, the interaction between social loafing and job crafting significantly predicted work procrastination ($\beta = -0.23$, $p < 0.01$). The inclusion of the interaction term explained an additional 3% of the variance in procrastination ($\Delta R^2 = 0.03$, $p < 0.01$). The overall model accounted for 41% of the variance in work procrastination ($R^2 = 0.41$, $F = 78.76$, $p < 0.001$).

Simple slope analysis revealed that the positive relationship between social loafing and work procrastination was significant at both high ($b = 0.21$, $\beta = 0.25$, $SE = 0.04$, $p < 0.001$, 95% CI [0.13, 0.29]) and low ($b = 0.28$, $\beta = 0.34$, $SE = 0.04$, $p < 0.001$, 95% CI [0.20, 0.36]) levels of job crafting. However, consistent with the buffering hypothesis, the relationship was weaker when job crafting was high.

The conditional indirect effects of work engagement on work procrastination through social loafing were significant at both high job crafting ($ab = -0.07$, $\beta = -0.08$, $SE = 0.02$, 95% CI [-0.12, -0.04]) and low job crafting ($ab = -0.10$, $\beta = -0.11$, $SE = 0.03$, 95% CI [-0.16, -0.05]). The index of moderated mediation was significant (index = 0.03, $SE = 0.01$, 95% CI [0.01, 0.06]), confirming that the indirect effect varies significantly across levels of job crafting. These results support H3.

Discussion

The study's results confirm that work engagement serves as a powerful deterrent to counterproductive work behaviors, demonstrating significant negative relationships with both procrastination and social loafing. Employees who exhibit high levels of vigor, dedication, and absorption in their work are inherently more inclined to direct their efforts toward timely task completion rather than delay. This finding corroborates an established body of research that links engagement to enhanced performance and reduced withdrawal behaviors (Schaufeli et al., 2006; Bakker & Albrecht, 2018). The inverse relationship with social loafing further reinforces that engaged employees sustain a strong sense of personal accountability, mitigating the temptation to reduce their effort in group settings.

Social loafing played partial mediation role between work engagement and procrastination through two distinct pathways: a direct negative effect, and an indirect effect by curbing the tendency to engage in social loafing. In essence, highly engaged employees are not only more proactive in managing their tasks but are also less inclined to withdraw effort or rely excessively on colleagues in group settings. This reduced propensity for social loafing subsequently translates into lower levels of procrastination. This finding extends the Job Demands-Resources (JD-R) theory (Bakker & Demerouti, 2007, 2017) in three important ways. First, while JD-R theory traditionally emphasizes job resources as direct antecedents of engagement and positive outcomes, our findings demonstrate that the motivational pathway is more complex. By identifying social loafing as a social-contextual mediator, we show that even when employees possess the motivational energy of engagement, this energy may fail to translate into productive behavior if social loafing dynamics are present.

The results confirm that job crafting significantly moderates the indirect pathway between work engagement and procrastination through social loafing. This finding offers a powerful extension of the Job Demands-Resources (JD-R) theory. While JD-R positions job crafting as a proactive behavior to optimize one's job (Tims & Bakker, 2010), our results demonstrate its specific function as a personal resource mobilization strategy that protects against contextual threats to motivation. From a JD-R perspective, this finding refines our understanding of how personal resources function. Traditionally, personal resources are conceptualized as individual characteristics (e.g., self-efficacy, optimism) that directly foster engagement (Nguyen et al., 2013; Nissinen et al., 2022).

Implications for research and practice

The antecedents and consequences of social loafing are crucial, especially within a setup that requires overall group performance and bureaucratic processes, such as the civil service. In such a setup, social loafing can result in a complete breakdown of personal accountability and ownership. The effect of social loafing has been known to be contagious. When employees observe that members within a team are engaging in social loafing, it can spread throughout the team, causing overall malfunctioning (Robinson & O'Leary-Kelly, 1998). This process is often set in motion by a perceived lack of equity or a breach of trust, leading to feelings of frustration and anger that express themselves through behavioral withdrawal or decreased individual effort (Felps et al., 2006; Stouten et al., 2006).

It is worth mentioning that, in addition to traditional teams, social loafing is also an important phenomenon in the context of virtual teams (Bryant et al., 2009; Furumo, 2009), where it can also express itself through cyberloafing (Henle & Blanchard, 2008; Henle et al., 2009). Integrating with Social Impact Theory, this finding also illuminates how job crafting counteracts the identifiability problem underlying social loafing. Social Impact Theory suggests that effort diminishes when individual contributions are not identifiable. Job crafting enhances identifiability by enabling employees to create distinctive contributions,

craft relational connections that highlight their inputs, and shape roles that increase their visible impact. The weaker social loafing-procrastination relationship among high job crafters ($b = 0.21$) compared to low job crafters ($b = 0.28$) suggests that job crafting effectively counteracts the anonymity that triggers social loafing.

Furthermore, this finding contributes to the emerging literature on job crafting as a self-regulatory resource. While previous research has established that job crafting enhances engagement and performance (Zhou et al., 2026; Rudolph et al., 2017), our study demonstrates that job crafting also serves a protective function it buffers employees against the negative cascade that can occur in collaborative settings. This positions job crafting not merely as a tool for individual satisfaction but as a critical mechanism for sustaining performance in interdependent work structures.

Limitations and future research directions

While this study offers meaningful insights, several limitations warrant caution and suggest directions for future research. The primary limitation is its cross-sectional design, which prevents firm causal conclusions. Longitudinal or experimental studies are needed to establish temporal order and examine how engagement, social loafing, job crafting, and procrastination evolve over time. Second, generalizability may be limited by the multi-stage sample drawn from three towns within a single Ethiopian region. Future research should enhance external validity through stratified random sampling across diverse regions of Ethiopia and other East African contexts. Third, the exclusive reliance on self-reported measures raises the possibility of common method bias, including social desirability and mood effects. Incorporating multi-source data such as supervisory ratings of procrastination or peer assessments of social loafing would strengthen the robustness and objectivity of future findings. Future studies should also examine additional moderators and mediators relevant to the Ethiopian public sector. For example, public service motivation may moderate the engagement–social loafing relationship, while leadership styles (e.g., transformational or ethical leadership) may shape the effectiveness of job crafting. Cross-cultural comparisons with other African or Global South public sectors would help clarify boundary conditions, and qualitative approaches could provide deeper insight into how civil servants experience social loafing and practice job crafting within bureaucratic constraints.

Conclusion

In conclusion, this study elucidates a pivotal psychological process within the workplace, demonstrating that work engagement curbs procrastination not only directly but also indirectly by reducing the tendency to engage in social loafing. Crucially, this entire pathway is fortified by the proactive strategy of job crafting, which acts as a buffer by weakening the link between social loafing and subsequent procrastination. These findings underscore that employee performance is not merely a function of initial motivation but is sustained through a dynamic interplay between personal resources, proactive behaviors, and social-contextual

factors. For the Ethiopian public sector, where service delivery has tangible impacts on citizens' daily lives, these insights offer actionable pathways for enhancing employee effectiveness and organizational performance. By addressing both motivational states and social dynamics, and by empowering employees to craft meaningful roles within bureaucratic constraints, organizations can build more resilient, productive workforces capable of meeting the demands of public service in developing contexts.

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Availability of Data and Materials: The data supporting the findings of this study are available from the corresponding authors upon request.

Ethics Approval: For this study, informed consent was obtained from all the participants, and the ethics committee of Wolaita Sodo University (WSU41/30/812) granted ethics approval.

Conflicts of Interest: The authors declare no conflicts of interest.

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