Asean International Journal of Business

Vol.5 No.1 (2026)
e-ISSN 2809-6673
pp.1-17

Enhancing Work Engagement Through Glass Ceiling and Professional Self-Efficacy: The Mediating Role of Sustainable Career Development

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DOI: https://doi.org/10.54099/aijb.v5i1.1527

ARTICLE INFO

Research Paper

Article history:
Received: 25 July 2025
Revised: 15 August 2025
Accepted: 12 September 2025

Keywords: Glass Ceiling, Self-Efficacy, Career Development, Work Engagement, Female Employees

ABSTRACT

Purpose – This study aims to investigate the influence of Glass Ceiling and Professional Self-Efficacy on Work Engagement, with Sustainable Career Development as a mediating variable, among female staff-level civil servants at the Ministry of Industry, Republic of Indonesia. **Methodology/approach –** A quantitative approach was employed using a survey method. Data were collected from 114 female employees through validated questionnaires. The data were analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS). **Findings –** The results show that Glass Ceiling has a significant negative effect on Sustainable Career Development but does not directly influence Work Engagement. In contrast, Professional Self-Efficacy positively and significantly affects both Sustainable Career Development and Work Engagement. Furthermore, Sustainable Career Development is proven to mediate the effect of Professional Self-Efficacy on Work Engagement but does not mediate the effect of Glass Ceiling. **Novelty/value –** This study contributes to the literature by examining the integrated influence of gender-based career barriers and psychological resources on Work Engagement in the public sector. Its novelty lies in positioning Sustainable Career Development as a mediating variable—an area rarely explored in studies involving female civil servants. The findings offer new insights into how organizational and personal factors jointly shape employee engagement in bureaucratic settings.

INTRODUCTION

In recent years, the discourse on gender equality in the workplace has gained significant attention, particularly within public sector institutions. Although women increasingly dominate the civil service workforce in Indonesia, their representation in strategic leadership roles remains limited. This phenomenon reflects the persistent presence of the *glass ceiling*, an invisible barrier that prevents qualified women from ascending to higher career levels despite having comparable competencies.

Simultaneously, the concept of *professional self-efficacy*, or individuals' belief in their capability to perform work-related tasks, has emerged as a crucial psychological resource influencing career advancement and work engagement. Employees with high self-efficacy are more resilient in the face of organizational challenges and more likely to remain engaged in their roles.

Work engagement itself characterized by vigor, dedication, and absorption, has become a key determinant of organizational performance, particularly in bureaucratic settings. However, engagement is not shaped solely by internal motivation, thus organizational support for *sustainable career development* also plays a vital role. This concept emphasizes long-term career growth supported by learning opportunities, mentoring, and equitable access to advancement.
Despite growing interest in these variables, limited research has explored how sustainable career development mediates the relationship between structural barriers (such as the glass ceiling) and psychological factors (such as self-efficacy) with work engagement, especially among female civil servants in Indonesia. Therefore, this study aims to fill that gap by investigating the integrated influence of glass ceiling and professional self-efficacy on work engagement, with sustainable career development as a mediating variable within the Ministry of Industry.

Previous studies have reported mixed findings regarding the influence of *Glass Ceiling* and *Professional Self-Efficacy* on *Work Engagement*, as well as the mediating role of *Sustainable Career Development*. For instance, Azwar (2023) and Nasution (2022) found that the glass ceiling negatively affects women's career progression, while Budiarti et al. (2023) reported no significant influence in the public sector context. In terms of professional self-efficacy, Aulia (2022) and Morales-García et al. (2024) emphasized its positive impact on both career advancement and work engagement, although Hartman & Barber (2019) noted that the effect varies between male and female employees. Furthermore, the role of sustainable career development as a mediating variable remains underexplored. While De Vos et al. (2020) and Adegbite & Hoole (2024) acknowledged its influence on employee outcomes, very few studies have examined its position between structural barriers and psychological factors in shaping engagement. These inconsistencies reveal a gap in the literature, particularly in bureaucratic institutions where gender dynamics and organizational constraints are more pronounced. Therefore, this study seeks to address these gaps by exploring the integrated effects of *Glass Ceiling* and *Professional Self-Efficacy* on *Work Engagement*, with *Sustainable Career Development* as a mediating factor, specifically within the context of female civil servants in Indonesia's Ministry of Industry.

LITERATURE REVIEW

This study is grounded in the Job Demands-Resources (JD-R) Model, which continues to be widely applied in recent organizational research. According to Bakker & van Woerkom (2022), the JD-R Model explains how job demands (e.g., glass ceiling) can lead to burnout or disengagement, while job and personal resources (e.g., self-efficacy, career development) foster motivation and work engagement. The model also emphasizes the dynamic interaction between demands and resources, showing that resources can buffer the negative impact of demands. In this study, *sustainable career development* is positioned as a key resource mediating these relationships.

Glass Ceiling

The *glass ceiling* refers to invisible barriers that hinder women from advancing to higher leadership positions despite equal qualifications and performance. According to Hymowitz and Schellhardt (1986), these barriers are often systemic, rooted in organizational culture, stereotypes, and unequal access to networks or mentoring. Smith et al. (2012) highlight that *glass ceiling* effects are especially prevalent in male-dominated institutions, reducing women's career opportunities. Recent studies (e.g., Wijethunga et al., 2023; Giguère et al., 2023) emphasize that such barriers negatively affect career development and motivation, especially in bureaucratic environments, making it a critical issue for gender equity in public institutions.

Professional Self-Efficacy

Professional self-efficacy refers to an individual's belief in their capability to perform job-related tasks successfully according to Bandura (1997). It plays a crucial role in shaping work behavior, motivation,

and resilience. According to Hartman & Barber (2019), women with high self-efficacy are more likely to pursue career advancement despite organizational barriers. Morales-García et al. (2024) also found that self-efficacy enhances work engagement and career satisfaction, particularly in high-demand environments. As a personal resource within the JD-R framework, professional self-efficacy supports sustained performance and buffers the negative effects of workplace challenges, including structural constraints like the *glass ceiling*.

Sustainable Career Development

Sustainable career development refers to the continuous growth and adaptability of an individual's career over time, supported by both personal capabilities and organizational resources according to De Vos et al., (2020). It emphasizes long-term employability, learning opportunities, and work-life integration. According to Heijden & De Vos (2015), sustainable careers are driven by professional competencies, organizational support, and time-related adaptability. Research by Adegbite & Hoole (2024) shows that sustainable career development enhances employee engagement and retention, particularly in dynamic and complex work environments. It also serves as a critical mediating factor linking psychological resources and structural conditions to work-related outcomes.

Work Engagement

Work engagement is a positive, work-related psychological state marked by energy (vigor), involvement (dedication), and deep focus (absorption) (Schaufeli et al., 2002). Recent research by Van Wingerden et al. (2021) highlights that engaged employees are more productive, resilient, and committed to organizational goals. According to Bakker & Van Woerkom (2022), engagement increases when individuals have access to sufficient job and personal resources. Moreover, Morales-García et al. (2024) emphasize that self-efficacy and career development opportunities significantly drive engagement, particularly in high-demand public sector roles. Therefore, *work engagement* remains a vital outcome in modern human resource management and organizational sustainability.

HYPOTHESIS DEVELOPMENT

The Influence of Glass Ceiling on Work Engagement

The *glass ceiling* represents invisible organizational barriers that limit women's career progression despite equal competence (Hymowitz & Schellhardt, 1986). According to Social Role Theory, such barriers can diminish women's psychological connection to work by undermining their perceived value and future prospects. Giguère et al. (2023) and Wijethunga et al. (2023) found that the perception of *glass ceiling* negatively affects motivation and engagement. In contrast, Budiarti et al. (2023) reported an insignificant effect in certain bureaucratic contexts.

H1: Glass Ceiling has a negative and significant effect on Work Engagement.

The Influence of Professional Self-Efficacy on Work Engagement

Professional self-efficacy refers to an individual's belief in their ability to perform tasks effectively (Bandura, 1997). Within the JD-R framework, it functions as a personal resource that promotes intrinsic motivation and persistence (Bakker & Van Woerkom, 2022). Morales-García et al. (2024) confirmed that higher self-efficacy enhances work engagement, especially in high-pressure environments. Hartman & Barber (2019) also emphasized its role in encouraging career initiative and job involvement.

H2: Professional Self-Efficacy has a positive and significant effect on Work Engagement.

The Influence of Glass Ceiling on Sustainable Career Development

Barriers related to the *glass ceiling* not only affect current job satisfaction but also restrict long-term career growth. According to De Vos et al. (2020), sustainable career development depends on equal access to learning, mobility, and decision-making. Azwar (2023) and Nasution (2022) reported that *glass ceiling* significantly hinders women's career sustainability, while Budiarti et al. (2023) found contextual exceptions.

H3: Glass Ceiling has a negative and significant effect on Sustainable Career Development.

The Influence of Professional Self-Efficacy on Sustainable Career Development
Employees with high *professional self-efficacy* are more proactive in seeking career opportunities and navigating workplace challenges (Hartman & Barber, 2019). According to Career Construction Theory, self-efficacy shapes adaptive career behaviors that lead to sustainability (Heijden & De Vos, 2015). Morales-García et al. (2024) and Adegbite & Hoole (2024) found that self-efficacy contributes positively to sustainable career paths.
H4: Professional Self-Efficacy has a positive and significant effect on Sustainable Career Development.

The Influence of Sustainable Career Development on Work Engagement
Sustainable career development provides employees with long-term opportunities for growth, recognition, and purpose—all of which foster engagement (De Vos et al., 2020). Based on the JD-R Model, career sustainability serves as a job resource that buffers job demands and enhances energy, dedication, and absorption. Studies by Muchibi et al. (2022) and Morales-García et al. (2024) support its positive influence on engagement.
H5: Sustainable Career Development has a positive and significant effect on Work Engagement.

The Mediating Role of Sustainable Career Development between Glass Ceiling and Work Engagement
The *glass ceiling* may indirectly reduce engagement by obstructing access to sustainable career development. Without equal opportunities, long-term career growth is stifled, which weakens motivation and attachment to work. However, evidence on this mediating effect remains limited. While De Vos et al. (2020) suggest the link is plausible, Budiarti et al. (2023) found no mediation in government institutions.
H6: Sustainable Career Development significantly mediates the relationship between Glass Ceiling and Work Engagement.

The Mediating Role of Sustainable Career Development between Professional Self-Efficacy and Work Engagement
Professional self-efficacy enhances sustainable career development by encouraging proactive learning and opportunity-seeking behaviors (Adegbite & Hoole, 2024). In turn, such development strengthens work engagement. This pathway aligns with JD-R Model, where
personal resources translate into outcomes through job resources. Morales-García et al. (2024) confirm this indirect effect in public sector professionals.
H7: Sustainable Career Development significantly mediates the relationship between Professional Self-Efficacy and Work Engagement.

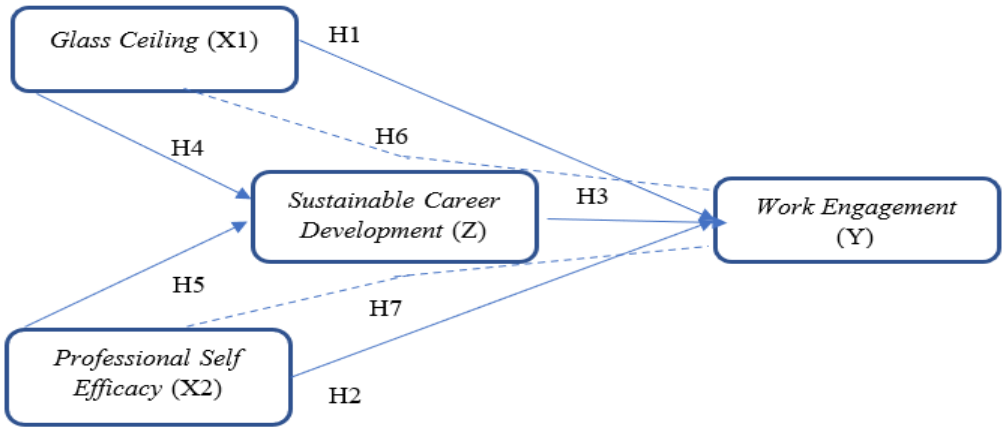

Figure 1. Conceptual Framework

METHOD

The author employs a quantitative approach to examine the causal relationships among the study variables, referring to the framework suggested by Sugiyono (2019). This research adopts a causal-explanatory design to analyze the influence of *glass ceiling* and *professional self-efficacy* on *work engagement*, with *sustainable career development* as a mediating variable. Data were collected using structured questionnaires distributed to female staff-level employees at the Ministry of Industry, Republic of Indonesia. The total population of the study consists of 114 civil servants at the staff level. Given the specific and limited population scope, the researcher uses a saturated sampling technique (census), ensuring that all members of the target population are involved as respondents.

Operational Variables

This study involves four main variables:

Glass Ceiling (X1): Measured using indicators adapted from Giguère et al. (2023) and Wijethunga et al. (2023), which include perceptions of organizational barriers, unequal opportunities for advancement, lack of representation in leadership, and gender-based bias in decision-making.

Professional Self-Efficacy (X2): Measured based on Morales-García et al. (2024), focusing on employees' confidence in accomplishing professional responsibilities, overcoming job-related challenges, and achieving performance targets.

Sustainable Career Development (Z): Measured using the framework developed by Adegbite & Hoole (2024) and De Vos et al. (2020), including career adaptability, continuous skill development, and long-term career support from the organization.

Work Engagement (Y): Measured through the three dimensions proposed by Schaufeli et al. (2006) and reaffirmed by Van Wingerden et al. (2021): vigor (energy and resilience), dedication (involvement and pride), and absorption (concentration and immersion in work).

A structured questionnaire using a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*) was distributed to all respondents for primary data collection.

Analysis

The collected data were analyzed using Structural Equation Modeling – Partial Least Square (SEM-PLS) with the aid of SmartPLS 4.0 software. The analytical procedure includes: Testing the measurement model (outer model) :Assessed indicator reliability (outer loadings), convergent validity (AVE), and discriminant validity (Fornell-Larcker and cross-loading).Testing structural relationships between latent variables (inner model) : Tested the relationships between latent variables using R^2, effect size (f^2), and predictive relevance (Q^2). Hypothesis Testing with bootstrapping**.**Employed 5,000 resamples to examine the significance of path coefficients, including direct, indirect, and mediating effects.This method is suitable for complex models with mediation, such as Sustainable Career Development.

RESULT AND DISCUSSION

Description of Respondent

The respondents of this study comprised 114 individuals, all of whom were female civil servants (Aparatur Sipil Negara) occupying executive or general functional positions with a minimum tenure of more than six years. In terms of age distribution, the respondents were categorized into four groups, with the largest proportion falling within the 31–40 years age range, totaling 61 individuals (53.51%), while the smallest proportion was observed in the 51–60 years category with 6 individuals (5.26%). With respect to marital status, the majority of respondents were married, accounting for 79 individuals (70%), whereas 35 respondents (30%) were unmarried. Regarding educational attainment, the largest group consisted of respondents holding a Bachelor's degree (Strata I) with 80 individuals (70.18%), followed by 22 individuals (19.3%) with a Master's degree (Strata II), and 12 individuals (10.53%) with a Diploma III qualification. In terms of tenure, the majority of respondents had served between 6–10

years, totaling 55 individuals (48.25%), followed by 51 individuals (44.74%) with 10–20 years of service, while the smallest group comprised 8 individuals (7.02%) with more than 20 years of service.

Table 1. Respondent Data

Category	Sub-Category	n	%
Gender	Female	114	100%
Age	20–30 years	34	29.82%
	31–40 years	61	53.51%
	41–50 years	13	11.40%
	51–60 years	6	5.26%
Position	Executive/General Functional	114	100%
Marital Status	Married	79	70%
	Unmarried	35	30%
Education	Diploma III	12	10.53%
	Bachelor's Degree (S1)	80	70.18%
	Master's Degree (S2)	22	19.30%
Years of Service	6–10 years	55	48.25%
	10–20 years	51	44.74%
	More than 20 years	8	7.02%

OUTER MODEL

The outer model assessment was conducted to evaluate reliability and validity through indicator loadings, AVE, Cronbach's alpha, and composite reliability. As suggested by Hair et al. (2019), satisfactory values confirm that the constructs are reliably measured and valid for further analysis.

Convergent Validity

a. Loading Factor

The measurement model results confirm acceptable convergent validity, with most loadings above 0.70, Composite Reliability values over 0.80, and Cronbach's Alpha between 0.830 and 0.919. AVE values ranged from 0.531 to 0.656, exceeding the 0.50 threshold. Overall, the model is valid and reliable for further structural analysis.

Table 2. Loading Factor

Variable	Dimentions	Indicator Code	Loading Factor	Result
Glass Ceiling	**Internal**	GC 1.1	0.867	Valid
		GC 1.3	0.778	Valid
		GC1.4	0.806	Valid
		GC 1.5	0.785	Valid
		GC 1.6	0.873	Valid

		GC 3.4	0.872	Valid
	Family	GC2.3	0.843	Valid
		GC2.4	0.814	Valid
	Organization	GC3.1	0.729	Valid
		GC3.2	0.792	Valid
		GC3.3	0.740	Valid
	Social Culture	GC 4.1	0.848	Valid
		GC 4.2	0.800	Valid
		GC 4.3	0.815	Valid
		GC 4.4	0.765	Valid
		GC 4.6	0.803	Valid
Professional Self Efficacy	***Confidence***	PSE 1.1	0.832	Valid
		PSE 1.2	0.838	Valid
		PSE 3.1	0.799	Valid
	Self Reliance	PSE 2.2	0.809	Valid
		PSE 2.3	0.750	Valid
		PSE 3.2	0.742	Valid
		PSE 3.3	0.808	Valid
		PSE 4.1	0.761	Valid
Variable	**Dimentions**	**Indicator Code**	**Loading Factor**	**Result**
Professional Self Efficacy	***Utilization of Resources***	PSE 4.2	0.756	Valid
		PSE 4.3	0.772	Valid
Sustainable Career Development	***Organizational Support***	SCD 1.1	0.840	Valid
		SCD 1.2	0.788	Valid
		SCD 1.3	0.776	Valid
		SCD 1.4	0.755	Valid
		SCD 2.1	0.802	Valid
		SCD 2.2	0.822	Valid
		SCD 2.3	0.808	Valid
	Person	SCD 3.3	0.719	Valid
		SCD 3.4	0.730	Valid
	Time	SCD 3.1	0.761	Valid
		SCD 3.2	0.734	Valid
Work Engagement	***Vigor***	WE 1.1	0.780	Valid
		WE 1.2	0.779	Valid
		WE 1.3	0.718	Valid
	Dedication	WE 2.1	0.840	Valid

		WE 2.2	0.842	Valid
		WE 2.3	0.807	Valid
		WE 2.4	0.774	Valid
		WE 2.5	0.791	Valid
	Absorption	WE 3.3	0.749	Valid
		WE 3.4	0.786	Valid

Average Variance Extracted

To assess the convergent validity of the measurement model, the Average Variance Extracted (AVE) values for each construct were examined. AVE indicates the proportion of variance in the indicators that is explained by the underlying latent construct. According to Hair et al. (2019), an AVE value of 0.50 or higher suggests adequate convergent validity.

Table 3. Average Variance Extracted

	Average Variance Extracted (AVE)
Glass Ceiling	**0,655**
Professional Self Efficacy	**0,621**
Sustainable Career Development	**0,568**
Work Engagement	**0,620**

As presented in the table, all constructs in this study demonstrated AVE values above the recommended threshold of 0.50. Specifically, the Glass Ceiling construct achieved an AVE of 0.655, Professional Self-Efficacy recorded an AVE of 0.621, Sustainable Career Development had an AVE of 0.568, and Work Engagement obtained an AVE of 0.620. These results indicate that the indicators used in the study adequately capture the variance of their respective constructs, thereby confirming that the measurement model meets the requirement for convergent validity.

Reliabilities

To evaluate the internal consistency and reliability of the constructs, Cronbach's alpha and composite reliability (rho_a and rho_c) were assessed. According to Hair et al. (2019), reliability values above 0.70 are considered acceptable, indicating that the measurement items consistently represent the underlying construct.

Table 4. Construct Reliability and Validity

	Cronbach's alpha	Composite reliability *(rho_a)*	Composite reliability (rho_c)
GC	0,965	0,969	0,968
PSE	0,932	0,939	0,942
SCD	0,924	0,925	0,935
WE	0,932	0,935	0,942

As shown in the table, all constructs demonstrated excellent reliability. The Glass Ceiling construct obtained a Cronbach's alpha of 0.965, rho_a of 0.969, and rho_c of 0.968, all of which exceed the recommended threshold. Similarly, Professional Self-Efficacy recorded values of 0.932 (Cronbach's

alpha), 0.939 (rho_a), and 0.942 (rho_c). Sustainable Career Development also showed strong reliability with a Cronbach's alpha of 0.924, rho_a of 0.925, and rho_c of 0.935. Lastly, Work Engagement reported values of 0.932, 0.935, and 0.942, respectively. These results confirm that all constructs exhibit a high level of internal consistency, ensuring that the measurement model is reliable for further structural analysis.

Discriminant Validity

To assess discriminant validity, this study employed both the cross-loadings approach and the Fornell–Larcker criterion. Discriminant validity ensures that each construct is empirically distinct, thereby confirming that the indicators of one construct are not excessively correlated with those of other constructs (Fornell & Larcker, 1981; Hair et al., 2019).

a. Cross Loading

Table 5. Cross Loading

	GC	PSE	SCD	WE
GC 4.1	**0,848**	-0,107	-0,39	-0,254
GC 4.2	**0,8**	-0,146	-0,362	-0,249
GC 4.3	**0,815**	-0,174	-0,274	-0,255
GC 4.4	**0,765**	-0,212	-0,304	-0,224
GC 4.6	**0,803**	-0,266	-0,403	-0,293
GC1.1	**0,867**	-0,214	-0,456	-0,194
GC1.3	**0,778**	-0,056	-0,316	-0,143
GC1.4	**0,806**	-0,283	-0,457	-0,328
GC1.5	**0,785**	-0,164	-0,397	-0,248
GC1.6	**0,873**	-0,201	-0,463	-0,251
GC2.3	**0,843**	-0,22	-0,481	-0,242
GC2.4	**0,814**	-0,179	-0,435	-0,303
GC3.1	**0,729**	-0,272	-0,377	-0,282
GC3.2	**0,792**	-0,127	-0,248	-0,203
GC3.3	**0,74**	-0,146	-0,165	-0,193
GC3.4	**0,872**	-0,155	-0,407	-0,21
PSE 1.1	-0,159	**0,832**	0,424	0,549
PSE 1.2	-0,238	**0,838**	0,33	0,393
PSE 2.2	-0,182	**0,809**	0,316	0,388
PSE 2.3	-0,216	**0,75**	0,264	0,451
PSE 3.1	-0,111	**0,799**	0,361	0,457
PSE 3.2	-0,091	**0,742**	0,218	0,287
PSE 3.3	-0,166	**0,808**	0,439	0,444
PSE 4.1	-0,123	**0,761**	0,302	0,396
PSE 4.2	-0,227	**0,756**	0,313	0,26
PSE 4.3	-0,293	**0,772**	0,545	0,453
SCD 1.1	-0,418	0,391	**0,84**	0,41
SCD 1.2	-0,447	0,389	**0,788**	0,386
SCD 1.3	-0,377	0,308	**0,776**	0,347

SCD 1.4	-0,235	0,351	**0,755**	0,383
SCD 2.1	-0,432	0,412	**0,802**	0,43
SCD 2.2	-0,36	0,368	**0,822**	0,376
SCD 2.3	-0,366	0,367	**0,808**	0,427
WE 1.1	-0,324	0,444	0,329	**0,78**
WE 1.2	-0,151	0,516	0,299	**0,779**
WE 1.3	-0,168	0,343	0,325	**0,718**
WE 2.1	-0,326	0,409	0,409	**0,84**
WE 2.2	-0,258	0,377	0,474	**0,842**
WE 2.3	-0,237	0,458	0,482	**0,807**
WE 2.4	-0,232	0,463	0,462	**0,774**
WE 2.5	-0,166	0,358	0,254	**0,791**
WE 3.3	-0,223	0,315	0,454	**0,749**
WE 3.4	-0,287	0,475	0,356	**0,786**

The cross-loadings results indicate that all items load higher on their respective constructs than on other constructs. Glass Ceiling items load between 0.729 and 0.873, Professional Self-Efficacy between 0.742 and 0.838, Sustainable Career Development between 0.755 and 0.840, and Work Engagement between 0.718 and 0.842. These values confirm that each indicator is strongly associated with its intended construct, thereby supporting discriminant validity.

Fornell-Larcker Criterion

To further establish discriminant validity, the Fornell–Larcker criterion was employed. This criterion compares the square root of the Average Variance Extracted (AVE) for each construct with its correlations with other constructs. Discriminant validity is achieved when the square root of the AVE is greater than the inter-construct correlations, indicating that each construct shares more variance with its own indicators than with other latent variables (Fornell & Larcker, 1981; Hair et al., 2019).

Table 6 Fornell-Larcker Criterion

	GC	PSE	SCD	WE
GC	**0,809**			
PSE	-0,234	**0,788**		
SCD	-0,487	0,560	**0,754**	
WE	-0,305	0,532	0,562	**0,787**

The Fornell–Larcker criterion results demonstrate that the square root of the AVE for each construct is higher than its correlations with other constructs. Specifically, the values were 0.809 for Glass Ceiling, 0.788 for Professional Self-Efficacy, 0.754 for Sustainable Career Development, and 0.787 for Work Engagement. Since each diagonal value exceeds the corresponding inter-construct correlations, these findings provide strong evidence of discriminant validity within the measurement model.

INNER MODEL

To evaluate the structural relationships among the latent variables, the inner model assessment was conducted. This stage examines the predictive capability and explanatory power of the model by analyzing the path

coefficients, coefficient of determination (R^2), effect size (f^2), and predictive relevance (Q^2). According to Hair et al. (2019), these criteria provide a comprehensive understanding of how well the proposed model explains the variance in the endogenous constructs and the strength of the hypothesized relationships.

R-Square

According to Sarstedt et al. (2022), R-Square (R^2) values in PLS-SEM are interpreted as follows: above 0.75 indicates substantial, 0.50–0.75 is moderate, 0.25–0.50 is weak, and below 0.25 is very weak explanatory power.

Table 7. R-Square (R^2) and R-Square Adjusted

Variable	R-square	R-square adjusted
SCD	0,448	0,438
WE	0,387	0,371

F-Square

To complement the analysis of path coefficients and R^2 values, the effect size (f^2) was assessed. This measure evaluates the extent to which an exogenous construct contributes to the explained variance of an endogenous construct. Following Cohen's (1988) guidelines, f^2 values of 0.02, 0.15, and 0.35 are considered small, moderate, and large, respectively.

Table 8. F-Square

Variabel	f-square
GC -> SCD	0.244 (Moderate)
GC -> WE	0.004 (Sangat Kecil)
PSE -> SCD	0.382 (Tinggi)
PSE -> WE	0.114 (Kecil)
SCD -> WE	0.113 (Kecil)

The findings show that Glass Ceiling has a moderate effect on Sustainable Career Development but a negligible effect on Work Engagement. Professional Self-Efficacy strongly influences Sustainable Career Development and has a small effect on Work Engagement. Similarly, Sustainable Career Development exerts a small effect on Work Engagement. Overall, Professional Self-Efficacy emerges as the most influential predictor of career development, while Glass Ceiling plays only a limited role.

Q-Square

The Q-Square can be calculated using the blindfolding procedure in Smart PLS, where part of the data is omitted and then predicted again through the estimated model. The interpretation of the Q-Square (Q^2) value is as follows: if $Q^2 > 0$, it indicates that the model has good predictive relevance, whereas if $Q^2 \leq 0$, it indicates that the model does not have predictive relevance or its predictive ability is very low. The Q-Square (Q^2) values from the data processing using the Smart PLS program are presented in the following formulas.

$$Q^2 = 1 - (1 - R^2 1)(1 - R^2 n).$$

$$Q2=1-(1-0,448)(1-0,387)$$

$$Q2=1-(0,552)(0,613)$$

$$Q2=1-0,338$$

$$Q2=0,662$$

Table 9. Hypothesis Result

H	Hypothesis	Original Sample	T *Statistics*	P Values	Decision
Direct Effects					
H_1	*Glass ceiling* has a negative effect on *work engagement*	-0,058	0,502	0,308	Rejected
H_2	*Professional self-efficacy* has a positive effect on *work engagement*	0,320	1,888	0,03	Accepted
H_3	*Sustainable career development* has a positive effect on *work engagement*	0,355	1,872	0,031	Accepted
H_4	*Glass ceiling* has a negative effect on *sustainable career development*	-0,377	3,445	0,000	Accepted
H_5	*Professional self-efficacy* has a positive effect on *sustainable career development*	0,472	4,526	0,0000	Accepted
Indirect Effects					
H_6	The mediating role of Sustainable Career Development in the relationship between Glass Ceiling and Work Engagement	-0,134	1,323	0,093	Rejected
H_7	The mediating role of Sustainable Career Development in the relationship between Professional Self-Efficacy and Work Engagement	0,168	1,743	0,041	Rejected

Table 9 show that The hypothesis testing results reveal that not all proposed direct and indirect relationships are statistically significant. Among the direct effects, glass ceiling has a negative but non-significant effect on work engagement ($p = 0.308$), leading to the rejection of H1. Conversely, professional self-efficacy ($p = 0.030$) and sustainable career development ($p = 0.031$) both have significant positive effects on work engagement, supporting H2 and H3. In addition, glass ceiling shows a significant negative effect on sustainable career development ($p < 0.001$), while professional self-efficacy has a strong positive effect ($p < 0.001$), confirming H4 and H5. For the mediating effects, sustainable career development does not significantly mediate the relationship between glass ceiling and work engagement ($p = 0.093$), leading to the rejection of H6. However, it significantly mediates the influence of professional self-efficacy on work engagement ($p = 0.041$), thus supporting H7.

DISCUSSION

This study aimed to examine the influence of glass ceiling and professional self-efficacy on work engagement, with sustainable career development as a mediating variable among female staff-level employees at the Ministry of Industry. The findings offer both theoretical and practical insights into how psychological and structural factors affect employee engagement in a bureaucratic public sector environment.

The results indicate that the glass ceiling does not have a significant direct effect on work engagement. This finding contrasts with several previous studies that reported a negative and significant influence of perceived career barriers on employee motivation and engagement. One possible explanation is that, while gender-based barriers exist, they may not directly reduce engagement unless they severely impact perceived career progression or workplace inclusion. Another possible interpretation is that the respondents have adapted to existing organizational structures and do not allow external limitations to affect their personal level of involvement in work. This finding may also suggest the presence of strong

individual coping mechanisms or institutional policies that partially mitigate the effect of the glass ceiling on daily engagement.

On the other hand, professional self-efficacy is found to have a significant and positive effect on work engagement. This result is consistent with Bandura's (1997) social cognitive theory and empirical findings by Lent et al. (2022), which emphasize that employees with higher self-efficacy are more confident in their ability to complete tasks and pursue goals, thereby enhancing their motivation and commitment to work. In the context of public organizations, where bureaucratic procedures and fixed career paths often limit extrinsic rewards, self-efficacy becomes an important internal resource that drives employees to remain engaged despite structural limitations.

Sustainable career development also has a positive and significant influence on work engagement. This supports the Job Demands-Resources (JD-R) model by Demerouti et al. (2001), which asserts that career resources, such as continuous development opportunities and long-term support, serve as job resources that can enhance employee motivation. In bureaucratic settings, where structural promotions may be limited, development programs, mentoring, and clear career pathways offer alternative avenues for maintaining high levels of engagement.

Furthermore, the findings show that glass ceiling negatively affects sustainable career development. This supports previous literature that recognizes how gender-based career barriers can limit access to organizational resources necessary for continuous career growth. Conversely, professional self-efficacy has a strong and positive effect on sustainable career development, implying that employees who believe in their capabilities are more likely to take initiative in managing their careers, even in less flexible institutional contexts.

Finally, the mediating effect of sustainable career development was significant in the relationship between professional self-efficacy and work engagement, but not in the relationship between glass ceiling and work engagement. This suggests that internal psychological resources are more likely to be channeled through career development initiatives to influence engagement, compared to structural barriers that may operate through more complex or indirect mechanisms.

In summary, this study highlights the importance of enhancing self-efficacy and investing in sustainable career development programs as practical strategies to foster work engagement among female employees, especially in public sector environments where structural challenges such as the glass ceiling may persist.

CONCLUSION

This study investigated the influence of glass ceiling and professional self-efficacy on work engagement, with sustainable career development as a mediating variable, among female staff at the Ministry of Industry. The findings provide a comprehensive understanding of how structural barriers and personal psychological resources interact to shape engagement levels in a public sector context.

The results revealed that the glass ceiling does not have a direct and significant effect on work engagement. This suggests that although gender-based career limitations may exist, they do not necessarily reduce the level of employee involvement unless mediated by other factors. In contrast, professional self-efficacy was found to have a positive and significant influence on both sustainable career development and work engagement. This underscores the critical role of internal beliefs in one's ability to succeed as a driver of motivation and performance, especially within rigid institutional structures.

Sustainable career development was also shown to significantly enhance work engagement and mediate the relationship between professional self-efficacy and engagement. However, it did not significantly mediate the relationship between the glass ceiling and work engagement, implying that the influence of perceived career barriers on engagement may require more complex or indirect pathways to manifest.

Overall, the study confirms that fostering self-efficacy and providing continuous support for career growth are essential in promoting employee engagement. While addressing structural barriers such as the glass ceiling remains important, empowering individuals through personal development and sustainable career pathways may yield more immediate impacts. These insights can inform public sector institutions in designing targeted strategies to retain and engage female employees, especially at the operational level.

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