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Should women in logistics stay or switch? An application of the moderating effect of work-life balance in the self-determination theory to Malaysian young women

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Abstract

The transport and logistics sector is described as non-traditional for women because the industry mostly employs men and the tasks undertaken are viewed as masculine. Therefore, the difficulties that women face when working in the transport and logistics sector are recognized as different from women working in traditional areas. Women continue to be under-represented, especially in the transport and logistics sector. Inequity and career barriers continue to be an issue within this sector. A lack of interest toward the issue of inequality of genders in the logistics industry in Malaysia will further worsen the disinterest in the issue. The challenges faced by women in the logistics industry are framed by the community which sees the industry as not belonging to women. However, the number of women involved in this industry increases on a yearly basis. Despite the issue of work-life balance due to round the clock working conditions, women remain in this challenging industry. Hence, to address this issue, the authors unearth the factors influencing the intention to stay among women in the logistics industry by extending the self-determination theory with job satisfaction and family supervisor supportive behavior as additional predictors, and work-life balance as a moderator. By adapting a purposive sampling method, a total of 248 usable questionnaires were gathered from women in the logistics industry in Malaysia. The findings indicate that extrinsic motivation, intrinsic motivation, job satisfaction, and family supportive supervisory behavior have a positive relationship with the intention to stay in the logistics industry. Furthermore, work-life balance moderates the relationship between job satisfaction and extrinsic motivation toward the intention to commit to the logistic industry. The present study provides a foundation for human resource departments to reduce the prevalence of retention issues and decrease the number of talented employees who leave their work, especially women in the logistics field.

Keywords: Women in logistics; Intention to stay; Self-determinant theory; Work-life balance

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1. Introduction

Advancement in technology has made the logistics industry attractive not only for men but also for women who start to play a role in this field. The logistics industry is labeled as a male-dominated industry and is not seen as women-friendly due to several factors. These include dirtiness, high physical requirements (Maloni *et al*., 2019), and the limited number of women who elect to pursue a career in this industry. Although it was demonstrated that women have equivalent competencies as men in the logistics industry (Vo *et al*., 2023), this industry suffers from a gender bias as women represent only 35% of the workforce. Moreover, they receive lower pay and suffer from a lack of career progress (Maloni *et al*., 2019a; Nix & Stifler, 2016).

Despite multiple challenges such as hardship (Vo *et al*., 2023), gender inequalities, lack of opportunities to reach top management positions (Zinn *et al*., 2018), lower salaries (Ruel & Jaegler, 2021), the number of women in logistics industries increases on a yearly basis. The percentage of women in the industry was 36% in 2016 and reached 41% in 2021 (Gartner, 2021). The nature of the industry and the global supply chain requires round the clock working hours. This is at odds with the Malaysian traditional family-centered role of women which affects their work-life balance (Nix & Stifler, 2016) and creates conflicts within their home environments (Maloni *et al*., 2019). In the Malaysian setting, women have more obligations regarding family roles than men. These include taking care of household work, raising children, and other tasks related to the family. Meanwhile, men are more concerned with the financial burden and house-hold requirements (Malaysia Population Research Hub, 2023). Although most women tend to choose their family over their career in the logistics industry, statistics highlight a different situation, suggesting that studies are required to unearth factors influencing the retention among women in logistics. Most studies are focused on factors influencing the intention to stay or turnover intention in general, but there is a lack of research focusing on women in the logistics industry. Furthermore, only a handful of publications had women at their core (Hazeen Fathima & Umarani, 2023; Kuvaas *et al*., 2017; Maloni *et al*., 2019; Ruel & Fritz, 2021), thus resulting in a lack of understanding on their behavior in the logistics industry (Azlin *et al*., 2023), especially in term of their work-life balance through the lens of the self-determination theory (SDT).

Hence, to fill the gap in the literature, the researchers identify in the current study the factors that influence the intention to continue to commit among women in the logistics industry in Malaysia using the SDT theory and introduce work-life balance as a moderator in the research model. Besides variables representing the SDT, job satisfaction and family supervisory support behavior are included as additional predictors to enhance the predictive power of the model. This is a novel approach as there is a scarcity of studies where work-life balance is employed as a moderator in the SDT to explain the intention to stay in the logistics industry. Furthermore, since the logistics industry is colossal and different from other industries, it is crucial to conduct a study based on women's perception of this industry. Moreover, as the purpose of the study is to prevent women from leaving this field, it is pertinent to unearth the factors influencing them to stay.

It is vital to discover factors that promote awareness among logistics companies in Malaysia to address women's issue in the logistics industry. Besides contributing to the body of knowledge, this study benefits the logistics industry which is challenged by turnover problems in various ways. One of these, which is extremely important for human resource management in the logistics industry, is to understand the factors that could influence the intention of women to stay in the logistics industry. By identifying the predictors, human resource departments could address the intention to leave this industry by crafting better policies supporting their requirements. The study provides a foundation to reduce the prevalence of retention issues and decrease the number of talented employees leaving their work in the logistics field.

1.1. Literature review

1.1.1. Self-determination theory

The self-determination theory (SDT) developed by Ryan & Deci (2017) is a macro theory of human motivation that is successfully applied across domains including parenting, education, healthcare, sports and physical activity, psychotherapy, and virtual worlds, as well as in the fields of work motivation and management. The SDT specifically suggests that both employees' performance, well-being, and future behavior are affected by the type of motivation they have in their job activities (Deci *et al*., 2017). The theory is centered on two types of motivation that influence employees' goals in their work setting. First, intrinsic motivation relates to employees' actions as inherently interesting or pleasurable. Second, extrinsic motivation relates to external factors which produce different outcomes (Deci & Ryan, 2000). The SDT theory, commonly used to determine human need, is widely employed across the field to predict employees' intention to leave.

1.1.2. Intention to stay

Continuance of commitment or the intention to stay refers to the assumption or the likelihood of individuals staying

in their current jobs or remaining with their current organizations (Pressley & Garside, 2023). Based on the context of the current study, continuance of commitment refers to the willingness of women to remain employed in the logistics industry. Besides the importance of revealing employee future commitment, most studies are concerned with the intention to quit, and few studies address the issue of continuance of commitment or the intention to stay (Bolt *et al.*, 2022). This is especially true for the logistics industry where employees should overcome a variety of industry-specific difficulties. Moreover, since the introduction of new technologies should raise the ability for women to work in this men-oriented field, the low numbers of women employed, and their retention should not be taken lightly by the industry and academics.

1.1.3. Intrinsic motivation

Intrinsic motivation is a form of autonomous motivation which refers to an individual's intention to perform a task for its own sake, as opposed to completing it for any other external reason (Gagné & Deci, 2005). Intrinsic motivation includes fun, enjoyment, interest, novelty, aesthetic value, and challenges and is opposed to external pressures or monetary rewards. Employees whose autonomy and competency are supported are more likely to develop intrinsic motivation. While women are greatly intrinsically motivated to work in the logistics industry, they should have a higher willingness to stay in this field. Maryam *et al.* (2021) highlight that intrinsic motivation has a positive effect on the continuance of commitment to stay in a specific industry. Based on that, the authors propose that:

H1: Intrinsic motivation of women in logistics has a positive relationship toward the intention to stay in the logistics industry.

1.1.4. Extrinsic motivation

In SDT, externally motivated people may become self-determined through the internalization and integration of externally motivated tasks (Ryan & Deci, 2000). Extrinsic motivation is a form of controlled motivation which refers to an individual's intent to perform a task when triggered by an external influence or outcome distinct from the task (Gagné & Deci, 2005). Since extrinsically motivated behavior is externally prompted, the primary reason people are willing to perform in a particular way is to feel valued by important people in their surroundings (Ryan & Deci, 2000).

According to Kuvaas *et al.* (2017), extrinsic motivation has varying employee outcomes based on the study setting. Higher extrinsic motivation can produce positive outcomes. A past study (Maryam *et al.*, 2021) revealed that extrinsic motivation has a positive relationship with the continuance of commitment. Based on this postulation, the authors propose that:

H2: Extrinsic motivation of women in logistics has a positive relationship toward the intention to stay in the logistics industry.

1.1.5. Job satisfaction

Job satisfaction (JS) refers to affective responses on multiple aspects of a job (Ladelsky & Lee, 2022). Several authors claim that JS plays a major role in employees' future behavior. Furthermore, JS is also considered a powerful predictor of the intention to stay. According to Buitendach & Rathmann (2009), satisfied employees are motivated to perform better in their jobs and stay longer with their organizations. Studies in fields sharing traits with the logistics industry, such as long or unspecified working hours, as in the medical field (Chen & Zhou, 2016) and in the construction industry (Xie *et al.*, 2022), confirm that job satisfaction positively relates to the intention to stay. Thus, the authors propose that:

H3: Job satisfaction has a positive relationship toward women's intention to stay in the logistics industry.

1.1.6. Family supportive supervisory behavior

Family-supportive supervisory behavior refers to supervisors or managers empathizing with the requirements to find balance between work and family responsibilities (Thomas & Ganster, 1995). Despite the importance of family-supportive supervisory behavior, Schorsch *et al.* (2017) claim that the work culture of the supply chain management (SCM) is not well understood due to limited research exploring organizational support for employees and their retention. The core value of family-supportive supervisory behaviors is to serve family-friendly behavior for an employee to perform their family commitments. For women, being cared for by their management, fulfills their psychological needs to cope with their role as family members (Rofcanin *et al.*, 2018), especially in problematic families. Women with family-supportive supervisory behavior deal better with family issues and thus can focus on their jobs' responsibilities without diversions (Zhang *et al.*, 2020). Researchers highlight that family-supportive supervisory behavior has a negative relation with turnover intention (Liu *et al.*, 2020; Zhang *et al.*, 2020).

Based on this postulation, the authors propose that:

H4: Family-supportive supervisory behavior of women in logistics has a positive relationship toward the intention to stay in the logistics industry.

1.1.7. Moderating effect of work-life balance

Moderating effect has been used by several scholars in social science to justify their contribution to their studies (Hafaz

Ngah *et al.*, 2020). To enhance the model's predictive power, the authors introduce work-life balance as a moderator within the research framework. Figure 1 illustrates the research framework of the study with work-life balance as a moderator. Work-life balance refers to the degree with which individuals manage diverse roles in their daily lives, such as job requirements, family's responsibilities, and any other roles to balance their professional requirements and personnel responsibilities (Aloulou *et al.*, 2023). For women, having a work-life balance is crucial to ensure they can meet the expectations of family members and work requirements. Women want to perform at their offices and as mothers, wives, and daughters in their families. In the Malaysia context, women play a leading role in ensuring that their families are in an ideal situation. However, working in the logistics industry, which is known as a day-and-night working environment, has the potential to strain the work-life balance, as more time is spent on professional requirements. Work-life balance leads not only to greater productivity but also improves company loyalty and reduces the level of intent to leave the organization (Moore, 2007). As mentioned by Dousin *et al.* (2021), work-life balance improves employees' emotional well-being and reduces turnover intention. Moreover, Vo *et al.* (2023) suggest that based on institutional logic, a good work-family balance helps to retain women talent. Hence, the authors believe that work-life balance could increase the intention to commit in the logistics industry among women. As such:

H5a: Work-life balance moderates the relationship between intrinsic motivation and the intention to stay in the logistics industry, and the relationship between intrinsic motivation and the intention to stay will be stronger when work-life balance is high.

H5b: Work-life balance moderates the relationship between extrinsic motivation and the intention to stay in the logistics industry, and the relationship between extrinsic motivation and the intention to stay will be stronger when work-life balance is high.

H5c: Work-life balance moderates the relationship between job satisfaction and the intention to stay in the logistic industry and the relationship between JS and the intention to stay will be stronger when work-life balance is high.

H5d: Work-life balance moderates the relationship between family-supportive supervisory behavior and the intention to stay in the logistics industry, and the relationship between family-supportive supervisory behavior and the intention to stay will be stronger when work-life balance is high.

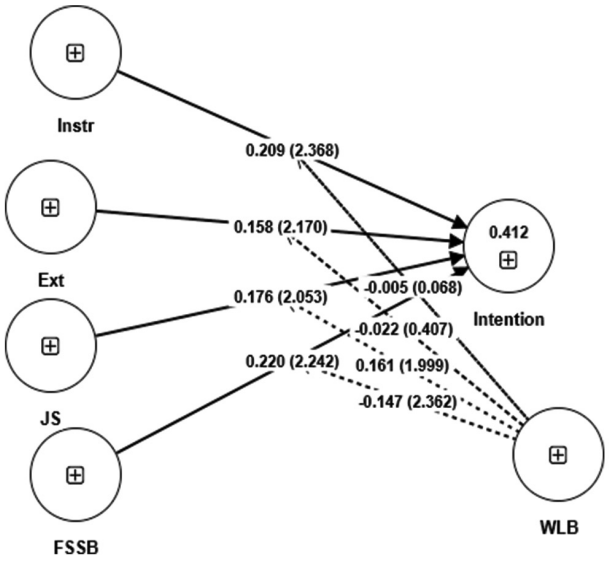


Figure 1. Structural model
Abbreviations: Ext: Extrinsic motivation; FSSB: Family supportive supervisory behavior; Intention: Intention to stay; Instr: Intrinsic motivation; JS: Job satisfaction; WLB: Work-life balance.

2. Data and methods

2.1. Sampling method and data collection

A purposive sampling method was applied in this study as the authors focus on recruiting women in the logistics industry. Moreover, besides the specific criteria of the respondents, unavailability of the sampling frame also forced the authors to employ this sampling technique (Hassan *et al.*, 2023; Rowley, 2014). An online survey was used to collect the data in the present study. To ensure sufficient sample size, the authors used numerous channels to share a link to the questionnaire. In the early stage, the link was shared through Facebook and Instagram to seek women respondents from logistics companies. Using personal contacts, the authors also used WhatsApp to distribute the link to the questionnaire. Last, the authors also contacted logistics companies by approaching their human resource departments to share the link with women in their organizations. From these contacts, the authors managed to collect 280 completed questionnaires. However, after screening, only 248 answers were valid and usable for the data analysis. The reasons for discarding respondents included the inclusion of men respondents, high missing values, and respondents with the same score from the beginning till the end (Ngah *et al.*, 2023).

In determining the minimum sample size as suggested by Albtoosh & Ngah (2022) and Hair *et al.* (2019), the authors conducted power analysis. In the case for nine predictors, 80% power, and a medium effect size as suggested by Gefen *et al.* (2011) and Ngah *et al.* (2021), the minimum sample size of our research is 114. Since

248 samples were collected, the sample size was considered sufficient to test the research model of the study.

2.2. Research instruments

To ensure item validity, all items used to measure the constructs in the study were adopted from established sources in the field. Items for extrinsic motivation and intrinsic motivation were adopted from Kuvaas *et al.*, (2017), job satisfaction and family-supportive supervisor behavior from Maloni *et al.* (2019b), work-life balance from Fontinha *et al.* (2018), and items for intention to stay from Presbitero & Teng-Calleja (2020). Details are provided in Table A1 of the Appendix. Since the authors gathered the data from a single source, the risk of common method variance could arise (Ngah *et al.*, 2022; Tuan Mansor *et al.*, 2022). As suggested by Podsakoff *et al.* (2012) and Syafiq *et al.* (2023), the authors employed different anchor scales. The exogenous variables were measured using 5-point Likert scales, whereas the endogenous variable was measured with a 7-point Likert scale.

2.3. Statistical analysis

The authors employed the Statistical Package for the Social Science (SPSS) to illustrate the respondent's profile and structural equation modeling (SEM) with smart partial least squares (PLS) (Ringle *et al.*, 2022) for hypotheses testing. Since the nature of the study was solely for predictive purposes, Smart PLS was deemed appropriate for the study (Hair *et al.*, 2019; Ngah *et al.*, 2021).

Furthermore, it has been evidenced that using a single source of data may result in common method variance (CMV) (Tuan Mansor *et al.*, 2022), which may have an impact on the quality of the findings (Halimi *et al.*, 2021). To address this problem, both procedural and statistical methods of analysis were applied. A different anchor scale to measure constructs for the procedural method (Ngah *et al.*, 2021; Podsakoff *et al.*, 2012) was used. As such, a 7-point Likert scale was employed to determine the intention to commit. Meanwhile, 5-point Likert scales were used to determine the other constructs. For the statistical method, the authors utilized full collinearity analysis (Albtoosh & Ngah, 2022; Kock, 2015) to remedy the potential issue of CMV. A VIF value less than or equal to 3.3 indicates that there is no bias in a single source of data. The analysis revealed VIF values lower than 3.3, indicating that the CMV was not a serious problem in the present study. Table A2 of the Appendix depicts a summary of full collinearity testing for each construct.

2.3.1. Validity tests

For the analysis, the authors followed the two-step approach proposed by Hair *et al.* (2017) and Ngah *et al.* (2022) with a measurement model and a structural model. For the measurement model, the convergent validity and discriminant validity needed to be established before developing the structural model. According to Ngah *et al.* (2022), convergent validity is a test that determines whether the items used can measure the same construct. The loading and composite reliability must be ≥0.7, while average variance extracted must be ≥0.5 to confirm the convergent validity (Hair *et al.*, 2017). Table A3 of the Appendix shows the results of convergent validity.

The heterotrait – monotrait ratio of correlations (HTMT) was used to establish the discriminant validity, as recommended by Henseler *et al.* (2015). As shown in Table A4 of the Appendix, all HTMT values were lower than 0.85, indicating that the discriminant validity was established (Franke & Sarstedt, 2019).

The authors proceeded to the structural model to test the hypotheses after the measurement model was established. As shown in Figure A1 of the Appendix, a bootstrapping procedure (Hair *et al.*, 2017) with a 5,000 resampling technique was used to test the hypotheses developed. A hypothesis is considered supported if the beta value is aligned with the hypothesis, with a t-value of ≥1.645, a *p*-value of ≤0.05, and no null values for the confidence interval between lower and upper levels (Ngah *et al.*, 2021).

3. Results

Based on the data obtained from the 248 usable responses, most respondents are between the ages of 26 and 33 years old (39.1%), and 71.4% of respondents are single women. Most respondents have a degree (61.3%). The majority of respondents in the survey are Malays (60.6%). In terms of income levels, the highest proportion of income level is between MYR 1,000 and MYR 3,000, (50%). Exactly 46.8% of the respondents have between 1 and 3 years of experience. Table 1 shows the characteristics of the 248 respondents in terms of their demographic background.

The authors developed four direct hypotheses and four moderating hypotheses. The results of the direct effect in Table 2 show that intrinsic motivation ($\beta = 0.209$, $p < 0.01$), extrinsic motivation ($\beta = 0.158$, $p < 0.05$), JS ($\beta = 0.176$, $p < 0.05$), and family-supportive supervisory behavior ($\beta = 0.220$, $p < 0.05$) have a positive relationship with the intention to stay in the logistic industry, thus supporting H1 – H4 of the study. This indicates that these four variables are crucial factors to increase the intention to commit in the logistics industry among women in Malaysia. For the moderating effect, the analysis revealed that two hypotheses were unsupported, and another two hypotheses were supported.

Table 1. Respondent's characteristics

Characteristic	Frequency	%
Age		
18–25 years	95	38.3
26–33 years	97	39.1
34–41 years	35	14.1
42–49 years	18	7.3
>50 years	3	1.2
Marital status		
Single	177	71.4
Married	70	28.2
Other	1	0.4
Qualification		
High school education	10	4.0
Certificate	7	2.8
Diploma	73	29.4
Degree	152	61.3
Master	4	1.6
PhD	2	0.8
Race		
Malay	200	80.6
Chinese	34	13.7
Indian	9	3.6
Other	5	2.0
Income (MYR)		
1000–3000	124	50
3001–6000	108	43.5
6001–9000	8	3.2
>9001	8	3.2
Experience in logistics industry		
1–3 years	116	46.8
4–6 years	82	33.1
7–9 years	26	10.5
More than 10 years	24	9.7

The result shows that work-life balance moderates the relationship between job satisfaction and intention to stay ($\beta = 0.161$, $p < 0.05$), and for the relationship between family-supportive supervisory behavior → intention to stay ($\beta = 0.147$, $p < 0.01$), thus supporting H7 and H8 in the study. Meanwhile, for H5 intrinsic motivation → intention to stay ($\beta = -0.005$, $p = 0.473$) and extrinsic motivation → intention to stay ($\beta = -0.022$, $p = 0.342$), work-life balance failed to moderate these relationships; hence, H5 and H6 were unsupported. Thus, confirming that two moderation hypotheses were supported, and another two moderation hypotheses were unsupported. Table 2 and Figure 1 illustrates the analysis for the hypotheses of the study; meanwhile, Figures 2 and 3 illustrate the Dawson (2014) plots for the supported moderating effect.

3.1. PLS prediction

In accordance with Rashid *et al.* (2022) and Shmueli *et al.* (2019), the nature of the current study was focused on the predictive purpose. As such, PLS prediction analysis with a holdout sample-based procedure that generates case-level predictions on an item or construct level using the PLS Predict was performed to assess predictive relevance. This analysis was based on the root mean square error. A low level of error indicates a strong predictive power (Ngah *et al.*, 2023). Shmueli *et al.* (2019) indicate that a strong predictive power is obtained when all item differences (PLS-LM) have negative values, thus indicating a lower error level from PLS modeling when compared to linear modeling (LM). As illustrated in Table 3, the data indicate that the results of PLS minus LM are all negative values, consequently indicating lower error from the PLS modeling. This indicates that the model has a strong predictive power.

4. Discussion

The authors aimed to unearth factors influencing women's intention to stay in the logistics industry. To enhance the

Table 2. Hypotheses testing

Hypothesis	Relationship	Beta	SE	T value	p values	LLCI	ULCI	VIF	f2
H1	Instr -> Intention	0.209	0.088	2.368	0.009	0.071	0.356	1.979	0.025
H2	Ext -> Intention	0.158	0.073	2.170	0.015	0.034	0.272	1.279	0.053
H3	JS -> Intention	0.176	0.086	2.053	0.020	0.054	0.328	1.741	0.004
H4	FSSB -> Intention	0.220	0.098	2.242	0.013	0.068	0.397	1.533	0.028
H5	WLB×Instr -> Intention	−0.005	0.072	0.068	0.473	−0.121	0.105		
H6	WLB×Ext -> Intention	−0.022	0.053	0.407	0.342	−0.100	0.078		
H7	WLB×JS -> Intention	0.161	0.080	1.999	0.023	0.022	0.282		
H8	WLB×FSSB -> Intention	0.147	0.062	2.362	0.009	0.028	0.236		

Abbreviations: Ext: Extrinsic motivation; FSSB: Family supportive supervisory behavior; Intention: Intention to stay; Instr: Intrinsic motivation; JS: Job satisfaction; WLB: Work-life balance.

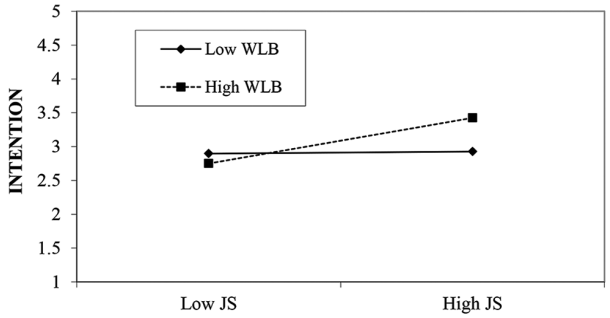


Figure 2. Moderating effect of work-life balance (WLB) for the relationship between job satisfaction (JS) and intention to stay (Intention).

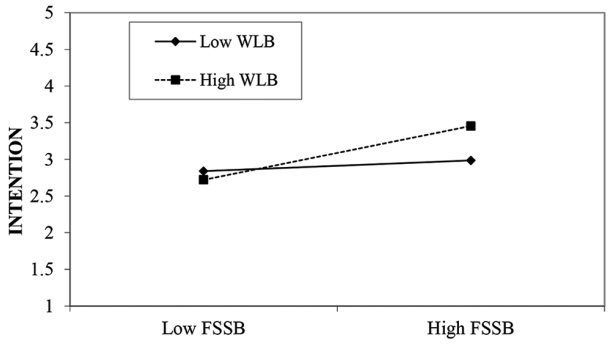


Figure 3. Moderating effect of work-life balance (WLB) for the relationship between family supportive supervisory behavior (FSSB) and intention to stay (Intention).

Table 3. PLS prediction

Item	Q^2predict	PLS-SEM_ RMSE	LM_RMSE	PLS-LM	Decision
CI1	0.35	0.923	0.983	−0.06	Strong
CI2	0.248	0.987	1.081	−0.094	
CI3	0.264	0.985	1.055	−0.07	

Abbreviation: RMSE: Root mean square error.

predictive power, the authors introduced the moderation effect of work-life balance as a moderator for intrinsic motivation, extrinsic motivation, job satisfaction, and family support supervisory behavior on the intention to stay. The findings indicate that intrinsic motivation has a positive relationship with intention, which is consistent with Maryam *et al.*'s (2021) conclusions. The findings confirm the importance of intrinsic motivation to enhance the intention to stay in the logistics industry for women in Malaysia. Consequently, three basic psychological needs that promote intrinsic motivation (relatedness, competency, and autonomy) (Deci et al., 2017) should not be neglected by logistics companies that truly value the role of women staff in their organization.

The analysis also reveals that extrinsic motivation has a positive effect on the intention to stay in the logistics industry for women in Malaysia. The findings support a previous study by Maryam *et al.* (2021), thus suggesting the prominent role of extrinsic motivation towards the intention to stay in the logistics industry. Despite tough challenges faced by women in the logistics industry, either in their daily routine tasks or in their career growth, extrinsic motivation factors, including good salaries and appropriate recognition, contribute to women having a higher intention to stay in this industry.

The analysis also reveals that job satisfaction has a positive effect on women's intention to stay in the logistics industry. The results are similar to a past study conducted by Xie *et al.* (2022) who found that construction workers are also willing to stay if they are satisfied with their jobs. It also indicates that despite the perceived difficulties inherent to an industry, job satisfaction is an important factor promoting employee retention. Thus, it is the role of all stakeholders to ensure that not only women, but all employees remain satisfied with their jobs. It should be noted that salary is not the only enhancing factor. A good work environment and compatible colleagues are also essential to enhance job satisfaction.

Family-supportive supervisor behaviors are found to have a positive effect on the intention to stay in the logistics industry for women in this field. Positive family-supportive supervisor behaviors negatively affect the intention to quit (Liu *et al.*, 2020), thus suggesting that it positively influences the intention to stay. Besides their positions in their office, having a good management that is concerned with women's roles in their families creates a positive incentive to stay with the same management, organization, or industry. Women who feel that they are looked after by their supervisors do not hesitate to contribute further to ensure their organizations' success.

Besides the direct effect, the authors also looked at the effect of work-life balance as a moderator within the model. There are mixed findings on this issue since work-life balance only moderates the relationship between job satisfaction and family-supportive supervisor behaviors and fails to moderate for intrinsic motivation and extrinsic motivation toward women's intention to stay in the logistics industry. Work-life balance strengthens the relationship between job satisfaction and intention and between family-supportive supervisor behaviors and the intention to stay in the logistics industry. This suggests the level of prominence of work-life balance in strengthening the relationship between these factors. However, even though work-life balance fails to moderate the relationship between intrinsic

motivation and extrinsic motivation toward the intention to stay in the logistics industry, it indicates that women have a good level of intrinsic motivation and extrinsic motivation and that work-life balance does not have any moderating effect on the intention to stay in this industry. This scenario can be explained by the fact that women are already aware of the situation in the logistics industry when joining. Due to good understanding, preparation, and pertinent knowledge gained from lectures and industrial experiences, women's commitment to this industry can prevail. This can explain why the number of women in this industry is continuously on the rise.

4.1. Strengths

The present study is a pioneering effort to explore the influence of the SDT theory with the extension of job satisfaction and family-supportive supervisor behaviors on women's intention to stay in the logistics industry. On a theoretical level, examining the factors influencing the intention of women to stay in the logistics industry will benefit academics and logistics organizations to better understand the factors influencing the intention to stay among women in the logistics industry. The present publication contributes to the body of knowledge on the factors influencing women to stay in the logistics industry. The results also confirm the capability of the SDT theory to explain future commitment of women in this industry, which could also be applicable to other industries. Moreover, the results also confirm the role of job satisfaction and family-supportive supervisor behaviors to enhance women's commitment to the logistics industry. Furthermore, the present article enriches the literature in this field of study by introducing the role of work-life balance as a moderator in SDT and for job satisfaction and family-supportive supervisor behaviors.

4.2. Managerial implications

The findings of the study provide meaningful information for organizations. It is the duty of human resource departments to tackle this issue to ensure that women play a role in the logistics industry. The literature shows the value of women, their capabilities, and their role in supporting the development of the logistics industry. Thus, human resource managers should craft better policies to ensure that women who have been trained in this field will not shift to another industry due to the limitations of the logistics industry.

4.3. Limitations

Although this study was carefully designed, several limitations remain. First, since the researchers employed a non-probability sampling method with a purposive sampling technique, representativeness and generalizability are generally not achieved. Hence, it is strongly suggested that this study be replicated to provide better generalizability (Sarstedt *et al.*, 2018). Furthermore, the same model should be tested in different contexts, either in Malaysia or outside Malaysia, to ensure the model is further validated and the findings can be generalized in other settings. Second, the study was limited to the variables from the SDT theory, and an extension of job satisfaction, family-supportive supervisor behavior, and the moderating effect of work-life balance. Other potential pertinent variables were excluded in the study, and thus future studies could extend their model with compensation and personnel job-fit factors since these variables also have a significant impact on women staying in the logistics industry. Last, the sample comprises nearly 40% of respondents under the age of 25. This is a group which might face fewer work-life balance issues. This can be explained by how the data were collected with a survey method, and how responding to the questionnaire was voluntary in nature. Control over this aspect of the study was limited. Hence, future studies should be designed to focus further on older women working in this industry who have different responsibilities in their families. This would provide insightful information on how work-family conflicts play a role in the intention to stay in logistics industry, and how work-life balance is more crucial for more mature women.

5. Conclusions

To ensure that the onus on women staying in this industry is not solely placed on them, all parties, such as families, managers, and regulations, should follow the same direction to protect women's rights and support their career and capability to strengthen the logistics industry. If all parties play their role professionally, there is no reason why women should leave the logistics industry. Although the study sheds light on this issue, limitations remain. The study is limited to the SDT theory which is extended with job satisfaction and family-supportive supervisor behaviors. Other crucial variables such as industry commitment, personnel job-fit, and justice should be explored to provide better explanatory power to the model and to better understand women's behavior in the logistics industry. Besides work-life balance as a moderator, work-life conflicts or work-family conflicts, which are commonly used as predictors, are also potential moderators. This should be investigated in future studies on this issue. Having a different setting such as in Western or in developed countries could also be important and provide different perspectives. Hence, it is the role of academics in other countries and regions to explore this

issue and provide meaningful information for the logistics industry and researchers in the field.

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Conflict of interest

The authors declare that they have no competing interest.

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Appendix

Table A1. Measurements of the study

No.	Intrinsic motivation
1.	The job I carry out is itself a driving force in my career.
2.	The tasks that I do at work are enjoyable
3.	My job is meaningful
4.	My job is very exciting
5.	My job is so interesting that it is a motivation in itself
6.	Sometimes I get so motivated by my work that I almost forget about everything else around me.
No.	**Extrinsic motivation**
1.	If I have to put extra effort into my job, I need to get extra pay.
2.	It is important for me to have an external incentive to strive for a good job.
3.	External benefits, such as rewards and provisions are important to how well I do my work.
4.	If I were offered better pay, I would have done a better job.
No.	**Work-life balance**
1.	I could achieve a healthy balance between work and home life.
2.	My current working hours/patterns are in keeping with my personal circumstances.
No.	**Job satisfaction**
1.	Generally speaking, I'm very satisfied with my job.
2.	Most of the day, I'm excited about my work
3.	I consider my job to be rather unpleasant.
No.	**Intention to stay**
1.	I intend to continue to work in logistics industry in the future.
2.	I will always try to apply my knowledge in logistics in my career life.
3.	I plan to continue to work in logistics industry in the future.
No.	**Family supportive supervisory behavior**
1	My supervisor makes me feel comfortable talking to him/her about conflicts between work and non-work
2	My supervisor demonstrates effective behaviors in how to juggle work and non-work issues
3	My supervisor works effectively with employees to creatively solve conflicts between work and non-work
4	My supervisor organizes the work in my department or unit to jointly benefit employees and the company

Table A2. Full collinearity testing

Construct	Ext	JS	WLB	Instr	Intention	FSMB
VIF	1.258	1.577	1.587	1.729	1.498	1.485

Abbreviations: WLB: Work-life balance; JS: Job satisfication.

Table A3. Convergent validity

Construct	Item	Loading	CR	AVE
Commitment intention	CI1	0.945	0.960	0.889
	CI2	0.934		
	CI3	0.950		
Extrinsic motivation	Ext1	0.831	0.911	0.720
	Ext2	0.873		
	Ext3	0.852		
	Ext4	0.837		
Family support supervisor behavior	FSMS1	0.865	0.917	0.734
	FSMS2	0.840		
	FSMS3	0.863		
	FSSB4	0.860		
Intrinsic motivation	Instr1	0.767	0.927	0.680
	Instr2	0.821		
	Instr3	0.875		
	Instr4	0.851		
	Instr5	0.869		
	Instr6	0.756		
Job satisfaction	JS1	0.919	0.932	0.821
	JS2	0.872		
	JS3	0.926		
Work-life balance	WLB1	0.885	0.908	0.767
	WLB2	0.883		
	WLB3	0.860		

Abbreviations: Ext: Extrinsic motivation; FSSB: Family supportive supervisory behavior; Intention: Intention to stay; Instr: Intrinsic motivation; JS: Job satisfaction; WLB: Work-life balance.

Table A4. Discriminant validity HTMT

Construct	Ext	FSMB	Instr	Intention	JS	WLB
Ext						
FSMB	0.352					
Instr	0.327	0.493				
Intention	0.446	0.523	0.410			
JS	0.268	0.213	0.540	0.290		
WLB	0.274	0.268	0.567	0.285	0.622	

Abbreviations: Ext: Extrinsic motivation; FSSB: Family supportive supervisory behavior; Intention: Intention to stay; Instr: Intrinsic motivation; JS: Job satisfaction; WLB: Work-life balance.

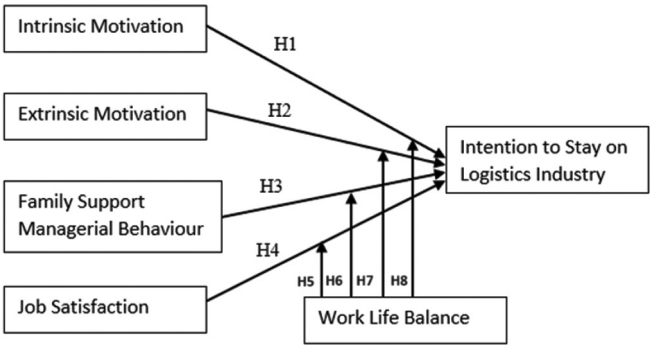


Figure A1. Research framework