



# Factors Influencing Job Commitment of Operational Workers in Electronics Factories, Wuhan, China

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## ABSTRACT

The objectives of this study were to analyze factors that influence the job commitment of operational workers in electronic factories in Wuhan, China, using Herzberg's two-factor theory. The sample group consisted of 400 operational workers from electronic factories in Wuhan, China. At the statistical significance level of 0.05, descriptive statistics such as frequency, percentage, mean, and standard deviation were employed to analyze data, as were inferential statistics such as Independent Samples t-test, One-way ANOVA, LSD, and Multiple Linear Regression. The results found that most respondents were female, married, had a high school or lower educational background, were operational staff, and had been working for 6 months to one year. The hypotheses found that marital status, educational background, and job position differences affect commitment. The motivation factors, including appreciation, duty, achievement, and possibility of growth, influenced job commitment. The maintenance factors, including pay, status, work safety, interpersonal relationships, and policy and administration, influenced job commitment.

**KEYWORDS:** Motivation Factors, Maintenance Factors, Job commitment, Operational Workers, Electronics Factory.

## 1. INTRODUCTION

China's economic development has made it a significant manufacturing country globally. However, this growth has increased costs and employee turnover, particularly in essential roles due to repetitive work and long working hours. The manufacturing industry is primarily operational, with high turnover rates, particularly during the Spring Festival and summer vacations. According to 51 Job.com, the overall turnover rate in 2021 was 18.8% (51 Job Human Resources, 2022) with the high-tech industry having the highest voluntary yearly turnover rate of 15.9%. The ideal turnover rate for most companies is 5%-10% (Chao & Deng, 2023).

Losing operational workers in manufacturing enterprises is a significant issue, affecting production, training, and technology accumulation. In some factories, operational workers have no reasonable salary system and poor welfare, leading them to quit. Addressing this issue is crucial for the development of transformation and upgrading in manufacturing enterprises. Lu et al. (2023) find that the frequent turnover of operational workers in manufacturing enterprises affects the average production and manufacturing of products and is not conducive to long-term training of talents and the accumulation of technologies (Lu et al., 2023). However, there is still a lack of specific learning about the status quo of employees in Wuhan Electronics Factories. The loss of operational workers in Wuhan's electronics factories is a growing concern as skilled workers leave for better opportunities. Understanding the factors influencing job commitment among these workers is crucial for the factories' success and sustainability and the electronics industry's overall productivity.

## 2. LITERATURE REVIEW

### 2.1. Two-factor theory

The two-factor theory, also known as the motivation-maintenance theory, was proposed by Herzberg et al. (2011) as a theory about employee motivation and satisfaction. Based on research on employee job motivation, this theory suggests that two factors affect job satisfaction and dissatisfaction: motivating and maintenance factors (Ewen et al., 1966).

Alrawahi et al. (2020) applied the two-factor theory to job satisfaction in clinical laboratories in Omani hospitals. The study found that different maintenance and motivation factors apply to different occupations. Lee et al. (2022) used corporate review data spread over nine industries to identify motivation factors and hygiene factors affecting job satisfaction in each sector and determine whether there is a significant effect on job satisfaction by applying the two-factor theory. The study found that the two-factor theory does not universally apply to all organizations and workers. Koncar et al. (2021) applied the two-factor theory to online employer reviews to systematically study influential factors for employee satisfaction.

## **2.2. Job Commitment**

Job commitment is crucial for employee engagement and productivity, demonstrating enthusiasm, dedication, and responsibility towards their work and a solid connection to the organization's goals and mission. Alexandrov et al. (2007) highlighted that commitment has countless effects on the successful performance of an organization. Min and Hong (2021) found that job stress has a negative impact on job commitment. However, reasonable stress may help with job commitment. Mapuranga et al. (2021) found that organizational commitment had the most significant impact on intent to stay, followed by job satisfaction and job-embeddedness. The study also found that a high organizational commitment level promotes employee loyalty to the company and has a significant positive relationship to employees' job performance.

## **2.3. Demographic factors**

This study focuses on six critical demographic factors: gender, age, marital status, educational background, job position, and tenure. Kipkebut (2013) suggested that gender differences exist in job commitment levels, and older employees tend to exhibit higher levels of job commitment compared to younger employees. Salami (2008) suggested that married individuals generally demonstrate higher levels of job commitment than unmarried individuals or divorced or widowed individuals. A stable support system at home may contribute to greater satisfaction and engagement in one's work. Iqbal (2010) found that educational background was negatively correlated with job commitment. The study also indicated that employees in higher-ranking positions display higher levels of job commitment than those in lower-ranking positions.

## **2.4. Motivation factors**

Maican et al. (2021) found that motivation and job satisfaction are positively associated. The study found that effective motivation and job satisfaction significantly affect individual and organizational performance. Akosile and Ekemen (2022) found that intrinsic motivation positively impacts job satisfaction. In this study, motivating factors include appreciation, duty, achievement, progress, work, and the possibility of growth. Spiro et al. (2021) discussed the role of appreciation systems in the workplace and found that managers do not always act on that recognition in ways that employees expect. Lin and Huang (2020) found that employees with a higher level of job satisfaction tended to fulfill their job duties and be more inclined to be loyal to the organization. When employees feel their need for achievement is being met, they are likelier to remain engaged and keep working in the organization (Deci et al., 2017). If operational workers are not satisfied or bored with their work, they may lose interest and motivation in the job and thus consider leaving the current business (Kang & Malvaso, 2023).

## **2.5. Maintenance factors**

Maintenance factors refer to the factors that can maintain employees staying in an organization. Maqballi (2015) reviewed the influencing factors of nurses' job satisfaction, including maintenance factors. Nagpaul et al. (2022) explored the role of work hygiene and motivator factors in job satisfaction and intentions to quit security officers. The study proposed that job satisfaction is a subjective manifestation of a worker's contentment with hygiene factors such as wages, policies, and workplace abuse. This study considers Pay, Status, Work safety, Working environment, Interpersonal relationships, Management mode, and Policy and Administration to provide specific guarantees against employee turnover.

Huang et al. (2016) explore the impact of safety climate on employee turnover. The study found that safety climate, which is the degree to which employees perceive that safety is prioritized in their company, can directly and differentially predict employee outcomes. Higher-rank and lower-

rank employees adapt to career building differently (Berg & Dutton, 2010). When policies are perceived as unfair or administrative processes are inefficient, operational workers may become frustrated and disillusioned with their work environment (Kim, 2002).

### 3. METHODOLOGY

This paper analyzes and studies the job commitment of operational workers in electronics factories in Wuhan from three influencing factors: Demographics, Motivation, and Maintenance. The questionnaires were used to collect relevant data for analysis. The questionnaire is divided into four parts.

Part 1: Demographic Information (check-list type)

Part 2: Motivation Factors (Likert scale)

Part 3: Maintenance Factors (Likert scale)

Part 4: Job commitment (Likert scale)

The questionnaires underwent content validity and reliability tests using Item Object Consistency (IOC) and Cronbach's Alpha. Experts assessed content and measurement, resulting in IOC indexes above 0.67. Cronbach's Alpha ( $\alpha$ ) tested reliability, with values for motivation, maintenance, and job commitment above 0.925, 0.927, and 0.93. The study used online questionnaires distributed through HR departments in Wuhan, China's top three electronics factories, with a proportional stratified random sampling method. The total sample size was calculated using Cochran's formula and proposition, with simple random sampling performed in each factory. The total valid data was 400 samples. Inferential statistics was used to analyze data to test the hypotheses at the statistical significance level of 0.05. An analysis to test the relationship or interplay between one dependent variable and several independent variables, which will test the independent sample t-test and one-way ANOVA (F-test) were used to analyze data to test hypothesis 1. Multiple linear regression analysis (MLR) was used to analyze data to test hypotheses 2 and 3.

### 4. RESULT AND DISCUSSIONS

#### 4.1 Descriptive analysis

The descriptive analysis found that 57.5% are females and 42.5% are males. Most of the respondents are less than 30 years old (35.8%), married (81%), an educational background in high school or lower (35%). 76.3% of respondents are operational staff, and 23.8% are operational management staff. For job tenure in the company, 44.5% of respondents are 6 months - to 1 year, and 14% are more than 6 months. The results on the opinion level in the motivation and maintenance factors found that all variables are moderate. *Work* is in the highest ranking, and achievement is at the lowest. For maintenance factors, it was found that the *working environment* is the highest ranking and *work safety* is the lowest level. For job commitment, the results found that the job commitment of operational workers in electronics factories is moderate.

#### 4.2 Inferential Statistics

This part presents the results based on the research objectives by splitting into 2 parts. Part I tests hypothesis 1, and part II tests hypotheses 2 and 3. Hypothesis 1: The difference in demographic factors affects the job commitment of operational workers in electronic factories differently. Table 1 demonstrates that marital status, educational background, and job position significantly affect operational workers' commitment. However, gender, age, and job tenure do not significantly affect operational workers' job commitment in Wuhan electronics factories.

**Table 1: Result for Demographic Factors Effect on job commitment**

Demographic factors	Job Commitment
Gender	t(398) =1.632, p=0.103
Age	F=1.324, p=0.266
Marital status	F=3.372, p=0.019*
Educational background	F=6.435, p=0.000*
Job position	t(398) =-5.454, p=0.000*
Job tenure	F=1.96, p=0.119

\*at the significant level of 0.05

The results of the Least Significant Difference (LSD) test for marital status and educational background are shown in Table 3 and Table 4. The divorced respondents have a lower mean than those who are single and married, with a significant value of 0.004 and 0.011, respectively. The respondents who have a high school or lower have a higher mean than those who have a two-year College and Bachelor's degree or above, with the significant value of 0.000 and 0.008. The respondents from the special school have a higher mean than those with a two-year college and bachelor's degree or above, with significant values of 0.001 and 0.008.

**Table 2: Pairwise Comparison of the Means of Marital Status**

Marital status		Mean Difference (I-J)			
		Group J			
		Single	Married	Divorced	Widowed
Group I	$\bar{X}$	3.019	2.855	2.3	2
Single	3.019	-	0.164 (0.239)	0.719 (0.004*)	1.019 (0.135)
Married	2.855		-	0.555 (0.011*)	0.855 (0.203)
Divorced	2.3			-	0.3 (0.669)
Widowed	2				-

\*at the significant level of 0.05

**Table 3: A Pairwise comparison of the means of the educational background**

Educational background		Mean Difference (I-J)			
		Group J			
		High School or Lower	Special school	Two-year college	Bachelor's degree or above
Group I	$\bar{X}$	3.036	3.2	2.623	2.721
High School or Lower	3.036	-	-0.164 (0.353)	0.413 (0.000*)	0.315 (0.008*)
Special school	3.2		-	0.577 (0.001*)	0.479 (0.008*)
Two-year college	2.623			-	-0.098 (0.432)
Bachelor's degree or above	2.721				-

\*at the significant level of 0.05.

Hypothesis 2 Motivation factors have influenced the job commitment of operational workers in electronics factories.

Multiple linear regression was performed, and the results show in Table 5 that motivation factors positively influence job commitment as the multiple correlation coefficient (R) = 0.610. It can be interpreted that the relation between the predicted variables and the dependent variable is relatively high in the same direction, with the predicted value of the analysis equal to 36.6%. The forecasting equation was developed from the results in Table 6.

$$\hat{Y} = 0.766 + 0.187X_1 + 0.238X_2 + 0.174X_3 + 0.183X_6$$

(0.000\*) (0.000\*) (0.000\*) (0.000\*)

Where  $X_1$ = Appreciation,  $X_2$ = Duty,  $X_3$ = Achievement,  $X_6$ = Possibility of grow

The equation shows that operational workers' motivation factors, including appreciation, duty, achievements, and possibility of growth, have influenced job commitment. Duty is the most substantial influence on job commitment, with a regression coefficient of 0.256, followed by the possibility of growth, appreciation, and achievements, respectively, with coefficient values of 0.202, 0.199, and 0.184.

**Table 4: Model Summary of Motivation and Maintenance Factors**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1. Motivation factors	0.61	0.372	0.366	0.759
a. Predictors: (Constant), Duty, Appreciation, Possibility of growth, Achievements				
2. Maintenance factors	0.584	0.341	0.333	0.779
a. Predictors: (Constant), Pay, Work Safety, Status, Interpersonal relationships, Policy and Administration				

**Table 5: Regression Result on Motivation Factors**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.766	0.142		5.403	0.000
Appreciation (X <sub>1</sub> )	0.187	0.043	0.199	4.401	0.000
Duty (X <sub>2</sub> )	0.238	0.043	0.256	5.556	0.000
Achievements (X <sub>3</sub> )	0.174	0.044	0.184	3.98	0.000
Possibility of growth (X <sub>6</sub> )	0.183	0.041	0.202	4.507	0.000

a. Dependent Variable: Job Commitment

Hypothesis 3 Maintenance factors have influenced the job commitment of operational workers in electronics factories.

Table 5 shows that maintenance factors positively correlate with job commitment as the multiple correlation coefficient (R) = 0.779. It can be interpreted that the relation between the predicted variables and the dependent variable is relatively high in the same direction, with the predicted value of the analysis equal to 33.3%. The forecasting equation was developed from the results in Table 7

$$\hat{Y} = 0.807 + 0.169X_1 + 0.156X_2 + 0.182X_3 + 0.1143X_5 + 0.095X_7$$

(0.000\*) (0.001\*) (0.000\*) (0.001\*) (0.032\*)

Where: X<sub>1</sub>= Pay, X<sub>2</sub>= Status, X<sub>3</sub>= Work safety, X<sub>5</sub>= Interpersonal relationship, X<sub>7</sub>= Policy and Administration

The equation shows that operational workers' maintenance factors, including pay, status, work safety, interpersonal relationships, and policy and administration, have influenced Job commitment. Work safety is the essential variable influencing job commitment, with a regression coefficient of 0.197, followed by pay, status, interpersonal relationship, and policy and administration, respectively, with coefficients of 0.195, 0.168, 0.158, and 0.104.

**Table 6: Multiple Linear Regression Results on Maintenance Factors**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.807	0.149		5.408	0.000
Pay(X <sub>1</sub> )	0.169	0.042	0.195	4.001	0.000
Status(X <sub>2</sub> )	0.156	0.045	0.168	3.483	0.001
Work safety(X <sub>3</sub> )	0.182	0.044	0.197	4.175	0.000
Interpersonal relationships(X <sub>5</sub> )	0.143	0.043	0.158	3.344	0.001
Policy and administration(X <sub>7</sub> )	0.095	0.044	0.104	2.148	0.032

a Dependent Variable: Job Commitment

#### 4. DISCUSSION

##### 4.1 Demographic factors

The findings suggest that marital status, educational background, and job position play essential roles in determining the level of job commitment of operational workers in electronics factories in Wuhan. The results of the findings comply with the previous study (Salami, 2008; Iqbal, 2010). The study found that divorced employees reported lower mean job commitment levels than single or married employees. This could be attributed to the challenges and emotional turmoil

associated with divorce, which may spill over into the workplace. The employees with educational backgrounds of high school or lower and special school demonstrated higher mean levels of job commitment compared to those with two-year college and a bachelor's degree or above. This indicates that employees with low education depend more on obtaining and keeping job opportunities, so they are more inclined to show a high sense of responsibility and loyalty at work. Operational management staff tend to exhibit a higher level of job commitment than operational staff. This may be because operational management staff often have better access to training and development opportunities that enhance their skills and knowledge.

#### **4.2 Motivation factors**

Duty emerges as the most influential variable. This implies that when operational workers have a strong sense of duty towards their work and responsibilities, they are more likely to demonstrate higher levels of job commitment. The finding results comply with the previous study (Lin & Huang, 2020) highlighting the importance of instilling a sense of responsibility and obligation in employees, as it can significantly impact their dedication and engagement in their jobs. By fostering a culture that emphasizes the significance of duty, organizations can encourage operational workers to take ownership of their roles and perform their tasks with greater commitment and enthusiasm. The possibility of growth, appreciation, and achievements have also significantly influenced job commitment. The results of the findings comply with the previous study (Alwarahi et al., 2020; Spiro et al., 2021; Deci et al., 2017). Employees who perceive opportunities for personal and professional development within the organization are more likely to be committed to their jobs. Failure by management to provide timely appreciation and recognition to operational workers may result in a decline in the on-the-job commitment of these workers. When the organization meets the employees' needs for achievement, employees are more willing to stay there.

#### **4.3 Maintenance factors**

Work safety emerges as the most important variable influenced by the job commitment of operational workers in electronics factories. In electronics factories, where employees may encounter hazards such as exposure to chemicals, repetitive motion injuries, or accidents related to machinery or equipment, prioritizing work safety becomes paramount. Organizations prioritizing safety measures and providing proper training and protective equipment demonstrate their commitment to employee well-being. When employees perceive that their organization values their safety, it fosters trust and loyalty towards the company. The results of the findings comply with the previous study (Huang et al., 2016). When operational workers feel safe and secure in their work environment, they are more likely to exhibit higher levels of job commitment. Payment, status, interpersonal relationships, and policy and administration also influence the job commitment of operational workers. The results of the findings comply with the previous study (Lee et al., 2022; Kang & Malvaso, 2023; Berg et al., 2010; Kim, 2002). Adequate compensation and rewards for their efforts can motivate employees to remain committed and perform at their best. When individuals feel valued and respected within their organization, they are more likely to be committed to their role. Positive interpersonal relationships foster a sense of belonging and camaraderie among employees. When employees perceive that policies are applied consistently and fairly across all levels of the organization, it fosters a sense of trust and confidence in the management. This, in turn, enhances their commitment to the organization.

### **5. CONCLUSION**

In order to reduce the loss of operational workers, single employees have higher job commitment than others, so the organization should support this group for their career advancement, e.g., job training and higher education. Develop training programs and career advancement opportunities customized to employees' educational backgrounds, offering tailored support and resources. Cultivate a sense of duty by emphasizing integrity, professionalism, and ethical behavior, providing clear job descriptions, and recognizing employees' efforts. Setting clear goals and expectations provides regular feedback and support to help employees stay on track and progress. Review and evaluate compensation packages regularly to ensure competitiveness and alignment with industry standards, considering employee feedback and expectations. Prioritize work

safety by implementing proper safety protocols, providing adequate training, maintaining equipment, and promoting open communication channels. Foster positive interpersonal relationships by promoting teamwork, collaboration, and open communication among employees.

The study's limitations include its focus on three top electronic factories in Wuhan, China, which may limit its generalizability to a broader population of operational workers. Future research should include larger and more diverse samples to improve external validity. The study also highlights the need for similar studies in different industries and regions to capture variations in factors influencing job commitment among operational workers. Comparative studies across different industries, regions, or countries could enhance generalization.

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