YANGON UNIVERSITY OF ECONOMICS

DEPARTMENT OF STATISTICS

MASTER OF APPLIED STATISTICS PROGRAMME

ANALYSIS OF INDUSTRIAL RELATIONSHIP AT GARMENT

FACTORIES IN YANGON INDUSTRIAL ZONES

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ANALYSIS OF INDUSTRIAL RELATIONSHIP AT GARMENT FACTORIES IN YANGON INDUSTRIAL ZONES

This thesis is submitted to the Board of Examination as partial fulfillment of the requirements for the Degree of Master of Applied Statistics

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This is to certify that this dissertation entitled "ANALYSIS OF INDUSTRIAL RELATIONSHIP AT GARMENT FACTORIES IN YANGON INDUSTRIAL ZONES" submitted as a partial fulfillment towards the requirements for the Degree of Master of Applied Statistics has been accepted by the Board of Examiners.

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ABSTRACT

Thirty-five per cent of garment factories in Yangon have an instance of strikes between the years 2012 and 2015. The strikes are barriers to industrial relationship in the country. The study analyses the industrial relationship between the labour participation at the strikes and labour rights by using binary logistic regression. The study uses secondary survey data collected in 2018 and covered 402 factory labours from 128 garment factories within the industrial zones in Yangon. The result shows that the labour participating in the labour union has a positive influence on the labour participation at the strikes. The labour who participates in the labour union is 16 times more likely to participate in the strikes than the labour who do not participate in the union. Wages also have a positive influence on the labour strikes. The labour who earns a basic salary less than 150,000 MMK per month is 3 times likely to participate in labour strikes than those who get more than that. Besides, the labour gets bonuses less than 120,000 MMK per month are 3.4 more likely to participate at the strikes than those who get more than that. On the other hand, factory's restrooms are cleaned and tidy has a negative influence on the labour participation at the strike. The labour who answers restroom are clean and tidy is 0.83 times less likely to participate in the strike than those who report rest-room are not clean and tidy. The labour participation in the social group, factory clean and tidy, factories have a doctor or nurse for the labour and factories are too noisy are not affect on the labour participation on the strikes. Hence, the study highlights the labour participation in the labour union, the labour who earn less than 150,000 MMK, bonuses less than 120,000 MMK and rest-room clean and tidy are important contributing factors for the labour strike.

ACKNOWLEDGEMENTS

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LIST OF ABBREVIATIONS

CESD	-	Centre for Economic and Social Development
CMP	-	Cut, Make and Pack
DISI	-	Directorate of Industrial Supervision and Inspection
EC	-	European Commission
EU	-	European Union
GSP	-	Generalised Scheme of Preferences
MGMA	-	Myanmar Garment Manufacturers Association
MIC	-	Myanmar Investment Commission
MMK	-	Myanmar Kyats
MOLIP	-	Ministry of Labour, Immigration and Population
OLS	-	Ordinary Least Square
YCDC	-	Yangon City Development Council
ANOVA	-	Analysis of Variance
ILO	-	International labour Organization
NRC	-	National Registration Card
SPSS	-	Statistical Package for the Social Sciences

CHAPTER I

INTRODUCTION

1.1   Rationale of the Study

Garment factories in Myanmar are primarily set up for the Cut, Make and Pack (CMP) contract manufacturing. Under this model, a foreign buyer pays Myanmar garment factories to carry out the labour-intensive aspects of garment production including cutting fabric and sewing garments together according to a template design. There are 16 industrial zones in Yangon and the list of industrial zones in Yangon can be found in the Appendix (II). Ninety percent of garment factories are in Yangon especially at Hlaing Tharyar and Shwe Lin Ban industrial zones according to Myanmar Garment Manufacturers Association's members list on their website. The Textile and garment sector has grown exceptionally from an export value of 900 million US$ in 2012 to 2.7 billion US$ in 2017. Over 1.1 million workers are currently employed in the garment, textile, footwear, and accessories factories in Myanmar. Additionally, large numbers of workers work in the garment industry at transport services and logistics services. Research commissioned by German Foundation in 2017 predicted that the sector could employ over 1.5 million people by 2020 (Invest Myanmar Summit, 2019).

After the 2010 election, the new civilian government took power. The government made social and political reforms in the country. Because of these reforms, the European Union (EU) lifted sanctions with the exception of an arms scheme and gave the Generalised Scheme of Preferences (GSP) to assess the EU market in 2011 (European Commission, 2019). Alongside with reforms and freedom in the country, people have more rights and voices. Labour also has a chance to make strikes for their needs and rights. The garment worker strikes for their rights and decent wages at the industrial zones in Yangon around 2011.

To address these issues and to update existing labour legislation, the government enacted a new Labour Organization law in 2011 which allows the workers to form labour organizations and to carry out peacefully collective activities and a new

Employment and Skill Development law in 2013 while a new Settlement of Labour Distributes Law became effective in 2012. New Minimum Wage was also enacted in 2013 and set up 3600 MMK which amend 4800 Ks in 2018 (Ministry of Labour, Population and Immigration, 2019).

Despite minimum wage increase and set up necessary labour laws, labour strikes continue which threaten industrial relationships in the country. Thirty-five percent of garment factories at the industrial zones in Yangon have at least one instance of a strike between the years of 2012 and 2015 (Thomas, 2017). Labour strikes are common issues at the industrial zone in Yangon. If there are labour strikes occur frequently, it impacts the stability of industrial relations which is essential to make more investment in the garment sector. Therefore, the study explored the relationship between labour rights and labour strikes in Yangon industrial zones to promote understanding of labour situation and industrial relationship at industrial zones in Yangon.

1.2   Objectives of the Study

The objectives of the study are
*   To explore the garment labour situation at industrial zones in Yangon
*   To analyse the relationship between labour strikes and labour rights at garment factories in Yangon industrial zones

1.3   Method of Study

The study uses secondary data and it is obtained from one of the local think tank organizations, Centre for Economic and Social Development (CESD). The survey covers randomly selected 128 garment factories and 402 garment factories workers within the industrial zones in Yangon from February to June 2018.

The descriptive statistics are used to explain garment factory workers the situations at the industrial zones in Yangon, and the logistic regression is used to analyse the industrial relationship between worker rights and labour participation in the strikes.

1.4   Scope and Limitations of the Study

The study focuses on garment factories workers participation in the strike and their working conditions at the industrial zones in Yangon. The study covers the garment factories at the industrial zones in Yangon. However, the garment factories in the industrial zones without registration, garment factories out of industrial zones and other types of factories are not within the scope of the study.

1.5   Organization of the Study

The study organizes into five chapters which are as follows. Chapter I includes the rationale of the study, objectives, method, scope, and limitations, and organization of the study. This chapter provides motivation for the study and the study's research methodology. Chapter II is literature review that gives the overviews on the labour situation and relationship of labour strikes and labour rights in Yangon industrial zones which are done by other studies and existing literature. Chapter III provides the research methodology along with the logistic regression explanation and its theory and concept. Chapter IV presents descriptive statistics of the labour situation at industrial zones in Yangon, the statistical analysis on logistic regression of the labour rights and labour strikes. Chapter V explains the conclusion of the study and recommendations for further study.

CHAPTER II

LITERATURE REVIEW

2.1 Industrial Relationship

The industrial relationship (IR) is defined as the relationships and interactions between an employee or group of employees and an employer or management body of the organization for engaging themselves in a way to maximize any productive activities. International Labour Organization (ILO) also defined industrial relationship as the individual and collective relations between employees and employers at the workplace in the establishment and arising from the work situation, as well as the relations between the representatives of the business firm and the workers at the factory and country levels (David Macdonald et al, 1997).

"Industrial relations" consist of two words in the meaning: Industry and Relation. The industry refers to any productive activity in which an individual or a group of individuals are engaged whereas relations mean the relationships that exist within the industry between the employer and employee. Industrial relations is an important and complex issue of the present-day industrial sector. Industrial development is impossible without a good industrial relationship in the industrial zones. Hence, it is the vital for the decision-makers to generate and maintain good relations between business firms and workers.

2.2 Industrial Relationship in Myanmar

From 1962 to 2011, both citizens and workers were prohibited from organizing to demand their rights and interests. Social movement and labour protests were also highly prohibited by laws in the country. At that time, there were very limited labour protests for their rights inside the factories. Very limited labour protests which doesn't means labour can demand their rights and industrial relationship in Myanmar is all right. Labour is afraid to demonstrate and claim their rights because of existing laws. So, if they don't like their employee or management body of factory, mostly they change their job without complaints. job hopping is quite high in the garment sector.

In 2011, the new elected government prioritized economic and political reform for economic growth and freedom. The government gave more freedom in the country. The union parliament enacted the labour organization law in 2011 and allow workers to form labour unions and claim their rights. According to Myanmar's Ministry of Labour, Immigration and Population (MOLIP), as of December 2019 there were 2,876 registered trade unions.

In the spirit of freedom and after the formation of labour unions, labours have been given more voice and more rights which led to increasing demands from labour and strikes becoming commonplace at factories in Yangon industrial zones. According Action Labour Right research (2016) revealed that the Ministry of Labour, Immigration and Population (MOLIP) expressed that between 2012-2014 there was 447 workers' strike at the garment industry in Myanmar. Most of the strikes are associated with demand for labour rights and decent wages.

This prompted the government to enact new labor laws, including the Minimum Wage Law (2013) and the 1951 Factory Act Amendment Law (2016). The Minimum Wage Law also was enacted in 2015 and guarantees a minimum wage of 3,600 MMK for an 8-hour work per day. Despite the law coming into effect in September 2015, demands for a decent wage continue from the workers as some factory do not comply the law and workers did not get it according to the law. The majority of the strikes occurred at the labour-intensive garment and food-processing factories. Thirty-five percent of garment factories had at least one instance of a strike between the years of 2012 and 2015, according to the Centre for Economic and Social Development's (CESD) survey conducted in 2015. Other issues, very poor working conditions for employees in the garment factory had a remarkable role in the demonstration at industrial zones in Yangon.

2.3 Related Studies

Labour Activists (2013) reported that 92.5% of garment factory workers are female from rural area of Myanmar. Respondent garment female factory workers reported that there is sexual harassment late at night when they go back home. They work at unsafe, untidy and overcrowded factories without labour rights and decent wages. The report stated that labour strike to get decent wages and better working conditions at industrial zones in Yangon. It complained that government doesn't have

political agenda to solve the issues because industrial incentive for foreign investors are "Low Wage". It concluded that life of factory workers at the industrial zone is similar to modern slavery.

Oxfam research paper (2015) revealed that most of the factory workers in the garment sector are working on average up to 11 hours in a day, six days a week with small amount of wages and often in dangerous conditions but they are caught in a cycle of low wage poverty and debt. Workers were often forced to borrow money to pay for basic needs like food and accommodation. The paper suggested setting up minimum wage to earn enough money for their living and to support their family. The paper also suggests government and private sector to take responsibility to decent work and wages for poor garment factory workers.

Progressive Voice's research report (2016) mentioned that long working hours and not allowing workers to go on holidays are the most common problems in garment industry. Management of the body and owners actively discourage the labour from taking time off work. Besides, most labours face disproportionate wage deductions for taking days off. In the report, garment labours answered that permission to take leave is mostly denied. If a labour take leave more than 3 days without permission, they would be fired. Forty percent of interviewed labours complained that working condition are very poor and toilets being inadequate with lack of clean water, not enough toilets related to the size of labour force in the factory and restrictions on how many times using toilet per day. These lead to dissatisfaction with working conditions causing higher labor turnover rate and workplace instability.

Thomas Bernhardt (2017) revealed that wages have been one of the most controversial issues in Myanmar industrial relations. About half of all garment factory labour strikes in 2016 were created by dissatisfaction with labour daily wages and bonuses. Labour demand for decent wages. On the other hand, factory owners could not effort to pay more because of the high price of electricity, increase the price of material and imported goods. To solve the issue, the government set up Myanmar National minimum wage rate is 3600 MMK per 8 hours in 2015 and amended 4800 MMK in 2018. Although Myanmar minimum wage is set up, the strike keeps continue. Labour demand of decent wages as minimum wage is relatively lower than other ASEAN countries and doesn't meet workers basic needs for their living.

Mai Betty et al (2017) described that low wage is the main cause of labour strikes and root cause of conflict between employee and employer. Despite of minimum

wage law is enacted, labour wages do not increased compare to commodity prices in the country. When minimum wage set up, some of the factories cut out labour other benefits items such as food allowance and attendance bonus to reduce the operation cost. Therefore, labours do not get much benefit from minimum wage increase. That is why, labours demand to review minimum wage according to the inflation rate and commodity prices in the country.

Min Zar Ni Lin (2019) revealed that management of the factory doesn't want labours to participate at the labour union as the fear of labour protest and instability in the workplace. It described that garment labours work 6 days a week full time and labour change the job frequently, so it may find it difficult to participate in labour union activities. The paper analyses that labour union is not source of strike but labour union member may involve in the strike. The paper concluded that the correlation between the presence of selected worker leaders in the factory rather than workers' leaders selected by manager. If there are selected workers' leaders in a factory, they coordinate between employees and employers.

Most of the literature on garment sector industrial relationship in Myanmar described miserable life of garment factory workers rather than analyzing association between the labour rights and labour strikes. Plenty of descriptive studies are available about the life of garment factory workers. But, it is hard to find the study on the association between labour rights and labour strikes at the industrial zones in Yangon. So, this paper analyses the industrial relationship at the industrial zones in Yangon.

2.4 Existing Myanmar Labour Laws

Myanmar Labour laws exist since 1951 to protect labour rights and promote industrial relationships. There are 12 existing active labour laws in the country according to the Ministry of Labour, Immigration and Population's website information. However, the study analyses the laws relating to the garment factories and factory workers in the country. The law defines a system of the rule of a particular country or group while the rule is operation procedure or guidance to take necessary action. In this section, the study analyse existing active labour laws and their benefit to garment factory workers.

- **The Leave and Holiday Act**

    The leave and holiday act was enacted in 1951 and covered all the businesses in the country without classification of small, medium and large enterprises. It was amended 6 times in 1958, 1963, 1964, 1975, 2006 and 2014 respectively. The law defines an employee as a person engage in a business and enterprise but not include shareholders, representatives of the business owner and relatives & family members of the business owner. The law allows an employee to take one-day annual leave if an employee works for the business for one month. All employees entitled to get one-day off for continuous work within a week. 12 days annual leaves with full salary are given to all the employees who work for business a year. Cause leave is given 6 days within a year. It cannot be taken more than 3 consecutive days. Besides 30 days of medical leave and 90 days of maternity leaves provide to individual workers. The law granted labour to receive proper leave according to the law.

- **The Social Security Law**

    The social Security Law was enacted in 2012 August to provide medical services and cash benefits to Myanmar labours. All government department and a business which has more than 5 employees are compulsory to contribute to the social security fund but a business that has less than 5 employees can participate in voluntary contribution. The employees need to contribute 2% while employers need to contribute 3% to the social security fund. The law ensures employees get benefits for sickness, death, employment injury, maternity, giving medical treatment or granting a right to residency. However, unemployment benefits, invalidity benefits, superannuation benefits, and survivors' benefit fund and housing benefits are not implemented yet. Injury employee or employer needs to inform the social security board within 24 hours if when an injury has happened, and the business needs to register within 30 days from the first day of the business operation and when appointed newly an employee.

- **The Minimum Wages Law**

    The minimum wages law was passed by the union parliament in 2013 to fulfil the basic needs of the workers and their families who are working in commercial establishments, servicing, livestock, agriculture and production to the competitiveness of workers and develop their work performance. The minimum wage amount of 3600

Ks per 8 hours was set by National Minimum Wages Tripartite Committee in 2015. The business which has more than 15 employees need to pay their employee minimum of 3600 Ks per 8 hours, but it does not include employees who are in a 3-month training period and unskilled newly hired. The national minimum wage amount was amended, and the committee increased the minimum wage to 4800 per 8 hours in 2018. Anyone who violates the law shall be imprisoned for a maximum of one year or fine five hundred thousand kyats fine or both.

- **The Employment and Skill Development Law**

The employment and skill development law came in force in 2013 to help workers obtain secure employment and to provide stability of employment and skills development for employees, to help employers obtain appropriate employees and to facilitate employment that is appropriate to the age and ability of the job seeker. According to the law, all business needs to have an employment contract with employees as standard practice. All factories are required to use standard format of the employment contract which developed by at National Tripartite Committee. There is a specific fact requirement in the contract. That specific fact shall not be less than in the standard employment contract. Employers can add extra facts with the approval of labour exchange office. Anyone who fails to follow the law shall be imprisoned for up to 7 years.

- **The Labour Organization Law**

Union parliament approved the labour organization law in 2011 to promote good relations between the employers and the workers, to protect the rights of the workers, to allow employees or representatives of the employees to form and implement the labour union freely according to the existing Myanmar laws. Employees can form labour union in the business without business owners approval, draw their constitution, elect union representatives, demand their rights, right to send a representative to dispute resolution council if there is an argument between employees and employers and hold peaceful strikes but all strikes need to have permission for conciliation body and unable to strike during negotiation. If someone does not apply the law, imprisonment may be exceeding one-year maximum.

- **The Settlement of Labour Dispute Law**

The settlement of labour dispute law imposed by the Union Parliament in 2012 to protect the rights of employees and promoting a good relationship between employees and employers and to create a peaceful workplace in order to obtain the rights fairly and quickly. If a business has labour organization or recruits more than 30 employees, it has to nominate two employees as a representative of employees and two people as owner representatives to participate in a workplace dispute settlement committee. The term of the committee is one year and need to re-elect the representative every year. Employees or employers can claim their rights and dispute the conflict first at the workplace peacefully. If someone or somebody does not satisfy the result of dispute resolution at the workplace committee, it may apply to the upper court.

- **The Factory Act**

The factory act was enacted in 1951 for the safety of employees and better working conditions. Businesses are not allowed to run more than 48 hours per week for the work which has to be done continuously. All employees must have a relaxed time a minimum of 30 minutes interval after each 5 working hours. Both interval and working hours shall not exceed 10 hours per day. Each worker must have one day holiday each week. If Sunday (a day-off) have to work, there shall be a substitution of another alternative day-off. The overtime amount should be calculated twice on basic daily incomes. For constant over time, the factory needs permission from the general labour law inspection department from the Ministry of Labour, Statistic and Population but the factory have to in line with overtime and general working hours provisions. The factory must be kept clean, proper ventilation, unhealthy smell, light, heat, no dust or smoke in the hall of the factory and must be situated away from drains, latrines or other things which create a bad. Besides, any women and child workers are not allowed to handle heavy or spinning machines. If the workers in a factory exceed 250, doctors or nurses in the clinic are to be appointed. If the workers of a factory exceed 100, recreation centers and canteens are to be kept for food. Anyone who breaks the law shall be sentenced to up to 2 years of imprisonment.

- **The Payment of Wages Act**

The payment of wages acted by the union parliament in 2016 to replace the payment of wages act 1936 to get the wages regularly without unlawful deduction. For the factories

which have less than 100 workers payment must be made on the last day of the payment period. The wage has to pay within 5 days after the succeeding month for factories that have 100 or more workers. The wage must be paid within working when a worker is terminated from a job. A factory is able to reduce an employee's salary for absences, but it cannot be reduced salary when absence is during a day-off, bank holiday or submitted leave or leave provided according to the Myanmar labour law. Besides, a factory can reduce a worker's salary for damage to the machine or properties due to the failure of the employee concerned with company property to take proper care and negligence of the employee. However, the factory cannot reduce employee who is at the age of under 16. Any establishment which does not follow the law shall be imprisonment for 2 years.

- **The Workplace Safety and Health Law**

The union parliament was enacted in the workplace safety and health law in 2019. This is an updated law among all Myanmar labour laws. According to the law, any garment factories need to register the business at the Department of the Workplace Safety and Health under the Ministry of Labour, Population and Statistics to check safety, health of workers and factory follow the law or not. The government-appointed labour inspectors to inspect occupational safety, health and worked related risks at any establishment. Any inspector can check the factory at any time by showing their inspector identification card. Both the employer is responsible to mitigate occupational risk in the working environment and need to report the government when an accident happens. If an employer fails to follow the law, there shall be 50 lakhs fine or three months imprisonment, or both.

There are many labour laws in the country to protect labour rights and to solve the industrial dispute peacefully at the workplace, get the medical benefit and social support. Most of the laws are new and enacted by Union parliament after 2011 under the newly elected government except the leave and holiday act 1951 and the factory act 1951. Garment factory workers are far behind to get law protection and social welfare. The Labour Union law 2012 granted any labour to form and organize labour unions in their workplace to negotiate with their employers. In reality, several labour union leaders are being forced to resign from the union and do not give a promotion opportunity when they organize and involve a labour union in the workplace (Myanmar

Labour News, 2020). European Union Trade Commissioner commented that Myanmar labour rights situation is going backwards and heading in the wrong direction (Business and Human Rights Resource Centre, 2019).

2.5 Conceptual Framework of the Study

Labour strikes keep continue at the industrial zone in Yangon. It is one of the hardest issues to solve and has a negative impact on industrial relationships. Mostly the labour demand for labour rights. Hence, the study analyses the association between labour rights and labour strikes. Labour strike is a dependent variable while labour rights including participation in the labour union, participation in the social group, clean working environment, leaves and holidays, and wages are independent variables. The following conceptual framework shows the interaction between independent and dependent variables.

Independent Variables   **Dependent Variable**

- Participation at labour union
- Participation at social groups
- Factory clean and tidy
- First aid medicine is provided
- Factory has doctor or nurse   Labour Strikes
- Factory is too noisy
- Rest-room clean and tidy
- Easy to take leave and holidays
- Factory has enough lighting
- Basic salary per month
- Other incomes per month
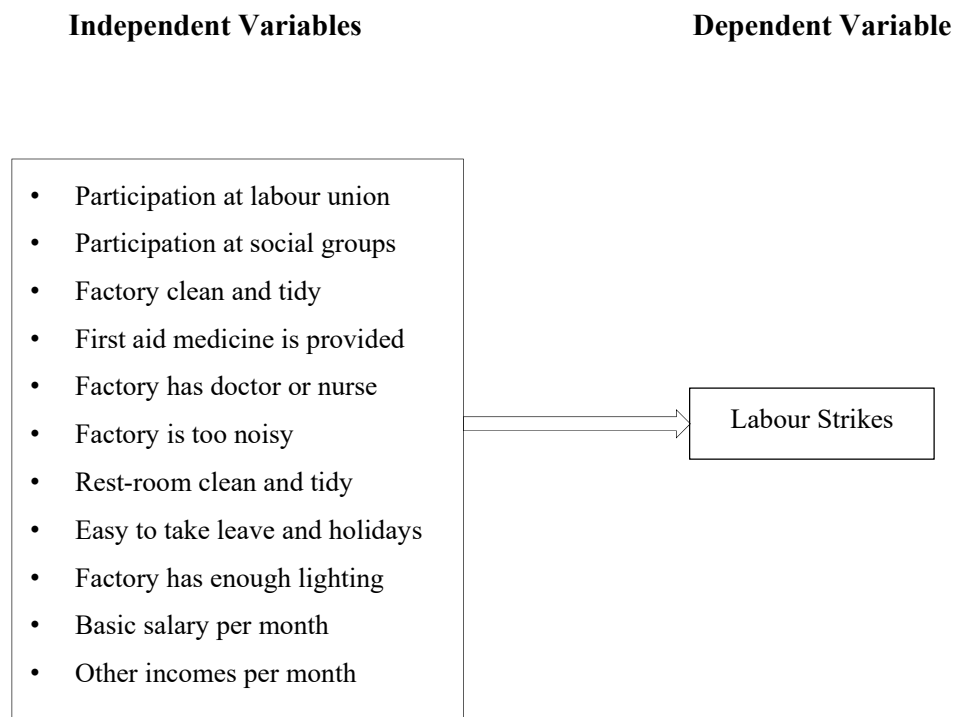
Source: Own compilation (2020)

Figure 1.1 : Conceptual Framework of the Study

2.6 Source of Data

For the data analysis in this study, data sets from the Centre for Economic and Social Development (CESD) survey were used as secondary data. There are 342 garment factories which operated at the industrial zones in Yangon up to July 2018 according to Directorate of Industrial Supervision and Inspection (DISI), Ministry of Industry.

Due to financial, time and resources limitation, the survey targeted to interview about 100 of garment factories. So, 200 factories were randomly with Excel from DISI's factories list. Survey expected that about half of the factories will decline for interview. At that time, the survey does not calculate sample size with statistical method due technical resources limitation, but factories were selected randomly with size classification. The survey contacted 200 factories but able to interview 402 factory workers from 128 garment factories within industrial zones in Yangon from February to June 2018. The sample frame and interviewed factory list can be seen in Appendix (I).

Survey questionnaires were jointly formulated with consultation with key stakeholders and experts in garment sectors. Polit test was conducted with 10 garment factory workers from 5 factories to measure quality of questions and time consumption. The CESD's survey has around 300 questions for workers survey. It covered demographic info, migration, labour union membership, health, leaves and holidays, gender aspect, living condition and working condition and saving. However, the study takes only variables that relevant with labour rights and labour strikes to analyses the data. Details of survey questionnaires available at Appendix (II).

CHAPTER III

RESEARCH METHODOLOGY

This chapter describes Logistic regression, Likelihood ratio test, Wald test, Hosmer-lemeshow test, Nagelkerke R-square, Omnibus tests and Pseudo R-square.

3.1 Logistic Regression

Logistic methods have become an integral component of any data analysis concerned with describing the relationship between a response variable and one or more explanatory variables. Logistic regression, a statistical modelling method for categorical data has expanded from its origins in biomedical research to fields such as business and finance, engineering, marketing, economics, and health policy (Meyers et al, 2006). Logistic regression was proposed as an alternative in the late 1960s and early1970s (Cabrera, 1994), and it became routinely available in statistical packages in the early 1980s. Logistic regression has found two broad applications in applied research: classification (predicting group membership) and profiling (differentiating between two groups based on certain factors) (Tansey, 1996). It is important to understand that the goal of an analysis using this method is the same as that of any model-building technique used in statistics: to find the best fitting and most parsimonious to describe the relationship between the outcome (dependent or response variable) and a set of independent (predictor or explanatory) variables.

3.2 Binary Logistic Regression Model

The dependent variable in logistic regression is usually dichotomous, that is the dependent variable can take value1 with a probability of success, $P(Y=1)= \pi$, or the value 0 with probability of failure $P(Y= 0) =1-\pi$. This type of variable is called a binary variable.

The binary logistic regression model in the usual form is

$$Y_i = E(Y_i) + \varepsilon_i$$

Since the distribution of the error term ε_i depends on the Bernoulli distribution of the response Y_i. The expected value of each Y_i is

$$E(Y_i) = \pi_i = \frac{exp(\beta_0 + \beta_1 + X_1 + \cdots \beta_i X_i)}{1 + exp(\beta_0 + \beta_1 + X_1 + \cdots \beta_i X_i)}$$

Where $E(Y_i)$ = conditional mean given the value of X_i

β_0 = the constant of the equation

β_i = the coefficient of the predictor variable i

An alternative form of the logistic regression equation is :

$$log[\pi(X)] = log\left[\frac{\pi_i}{1 - \pi_i}\right] = \beta_0 + \beta_1 X_1 + \cdots \beta_i X_i$$

3.3 Likelihood Ratio Test

The likelihood ratio test is performed to see where the inclusion of an explanatory variable in a model tell us more about the outcome viable than a model that does not include that variable.

The likelihood ratio test is based on likelihood function. The likelihood ratio is

$$\frac{L(R)}{L(F)}$$

Where L(F) = the likelihood value for full model,

L(R) = the likelihood value for the reduced model.

The actual test statistic for likelihood radio test is denoted by χ^2 .

$$\chi^2 = -2log_e \left[\frac{L(R)}{L(F)}\right] = 2\log_e(L(F) - 2\log_e L(R)$$

3.4 Wald Test

The Wald test has used a test of significance for the coefficients in the logistic regression. Wald statistics follows Chi-square distribution follow by Wald statistics. Agresti (1996) has stated that the likelihood-radio test is more reliable for a small sample size than the Wald test.

The test statistic is

$$W = S.E(\widehat{\beta_i})$$

3.5 The Hosmer-Lemeshow Test

Goodness-of-fit statistics assess the fit of a logistic model against actual outcomes. The inferential goodness-of-fit test for logistic model is the Hosmer-Lemeshow (H-L) test. The H-L statistic, $\hat{C}$, is a person Chi-square statistic, calculated from a g x 2 table of observed and estimated frequencies, where g is the number of groups formed from the estimated probabilities. A formula defining the calculation of $\hat{C}$ is as follows:

$$\hat{C} = \sum_{k=1}^{g} \frac{(O_k - n'_k \bar{\pi}_k)^2}{n'_k \bar{\pi}_k (1 - \bar{\pi}_k)}$$

Where n'_k is the total number of subjects in k^{th} group, C_k denotes the number of covariate patterns in the kth decile,

$$O_k = \sum_{j=1}^{ch} yi$$

is the number of responses among the C_k covariate patterns, and the average estimated probability is

$$\bar{\pi}_k = \sum_{j=1}^{ch} \frac{m_j \pi_j}{n_{k'}}$$

3.6 Cox and Snell R-square

Cox and Snell's defines R-square as a transformation of the statistic of $-2\ln[L(M_{Intercept})/L(M_{Full})]$ that is used to determine the convergence of a logistic regression. The ratio of the likelihoods reflects the improvement of the full model over the intercept model (the smaller the ratio, the greater the improvement). The Cox and Snell R-square is

$$R^2 = 1 - \left[\frac{L(M_{Intercept})}{L(M_{Full})} \right]^{2/N}$$

L(M) is the conditional probability of the dependent variable given the independent variables. If there are N observations in the dataset, then L(M) is the product of N such probabilities. Thus, taking the nth root of the product L(M) provides an estimate of the likelihood of each Y value. Cox and Snell's pseudo R-square has a maximum value that is not 1. If the full model predicts the outcomes perfectly and has a likelihood of 1, Cox and Snell's R-square is $1 - L(M_{Intercept})^{2/N}$, which is less than one.

3.7 Nagelkerke R square

It adjust Cox and Snell's so that the range of possible values extends to 1. To achieve this, the Cox and Snell's R-square is divided by its maximum possible value, $1 - L(M_{Intercept})^{2/N}$.

$$R^2 = \frac{1 - \left[\frac{L(M_{Intercept})}{L(M_{Full})}\right]^{2/N}}{1 - (M_{Intercept})^{2/N}}$$

Then, if the full model perfectly predicts the outcome and has a likelihood of 1, Nagelkerke R-square equal one.

3.8 Omnibus Tests

Omnibus tests are a kind of statistical test. They test whether the explained variance in a set of data is significantly greater than the unexplained variance, overall. In addition, Omnibus test as a general name refers to an overall or a global test. Other names include F-test or Chi-square test. Omnibus test as a statistical test is implemented on an overall hypothesis that regarding coefficients $H_0 : \beta_1 = \beta_2 = {-\!-\!-} = \beta_k$ vs at least one pair $\beta_j \neq \beta_{j\prime}$ in Multiple linear regression or in Logistic regression. Usually, it tests more than two parameters of the same type and its role is to fins general significance of at least one of the parameters involved. Omnibus tests commonly refer to either one of those statistical tests:

- *F* test to test significance between all factor means and/or between their variance's equality in Analysis of Variance procedure:

- The omnibus multivariate test in ANOVA with repeated measures:

- *F* test for equality/inequality of the regression coefficients in Multiple Regression:

- Chi-square test for exploring significance differences between blocks of independent explanatory variables or their coefficients in a logistic regression.

Those omnibus tests are usually conducted whenever one tends to test an overall hypothesis on a quadratic statistic (like sum of squares or variance or covariance) or rational quadratic statistic (like the ANOVA overall *F* test in Analysis of Variance or *F* Test in Analysis of covariance or the *F* Test in Linear Regression, or in Logistic Regression). While significance is founded on the omnibus test, it doesn't specify exactly where the difference is occurred, meaning, it doesn't bring specification on which parameters is significantly different from the other, but it statistically determines that there is a difference, so at least two of the tested parameters are statistically different. If significance was met, none of those tests tell specifically which mean differs from the others (in ANOVA), which coefficient differs from the others (in Regression) etc. The model tested can be defined by $y_{i'}$ where as y_i is the category of the dependent variable for the ith observation and x_{ij} is the j independent variable (j = 1,2,…k) for that observation, β_j is the jth coefficient of x_{ij} and indicates its influence on and expected from the fitted model. The omnibus test relates to the hypotheses

$$H_0 : \beta_1 = \beta_2 = \text{---} = \beta_k$$

$$H_1 : \text{at least one pair } \beta_j \neq \beta_{j'}$$

3.9 Pseudo R square

Pseudo R square use in binary logistic regression model and measure how well variables of the model explain some phenomenon and variation of variable. The model residuals are squared, summed, and divided by the total variability in the dependent variable, and this R square is also equal to the square correlation between the predicted values and actual values. The model residuals from a logistic regression are not comparable to those in ordinary Least square. The dependent variable in a logistic regression is not continuous and the predicted value (a probability) is. The expression of the R-square is very simple. For each of the two categories of the dependent variable and independent variables, calculate the mean of the predicted probabilities of an event. Then, take the difference between those two means. In ordinary least squares (OLS),

the predicted values and the actual values are both continuous and on the same scale, so their differences are easily interpreted. The formula defining the calculation of R-square is follow:

$$R^2 = 1 - \frac{\sum_{i=1}^{N}\left(y_i - \hat{\pi}_i\right)^2}{\sum_{i=1}^{N}\left(y_i - \bar{y}\right)^2}$$

$where - \ \hat{\pi} = $ model predicted probabilities

CHAPTER IV

ANALYSIS OF WORKER RIGHTS AND STRIKES

The study uses descriptive statistics to express garment labour situation and binary logistic regression also use to analyses labour rights & labour strikes at the industrial zones in Yangon.

4.1 Profile of the Garment Factory Workers

The study explains the garment labour situation at industrial zones in Yangon. To explain the garment labour situation, the study provides demographic characteristics of the respondent at the industrial zones within Yangon.

4.1.1 Age of the Workers

The respondent age under 18 is 10.2%. The study finds underage workers in the garment sector although the government of Myanmar ratified International Labour Organization (ILO) convention No 138 elimination of underage labour. The age group between above 18 and 25 is 28.36% which is the largest number of respondents in the study. The respondent age group between 26 and 30 is 24.38% which is the second-largest group of respondents. According to a cumulative percentage, respondents under 30 are 62.94%. It is more than half of the respondents and most of them are young. The age between 31 to 35 is 18.91% while above 36 age is 18.15%.

Table 4.1 : Age of the Garment Factory Workers

Age Group	Number of respondents	Percentage
Under 18	41	10.2
18 - 25	114	28.36
26 - 30	98	24.38
31 - 35	76	18.91
Above 35	73	18.15
Total	**402**	**100**

Source: CESD primary survey data (2019)

4.1.2 Gender of the Garment Factory Workers

The garment factories are female dominate sector because the vast majority of the respondents are female 94.53% while male factory workers are only 5.47%. Female are sewing operators while the male was general workers, heavy machine operators, and security at the garment factories.

Table 4.2 : Gender of the workers

Gender	Number of respondents	Percentage
Male	22	5.47
Female	380	94.53
Total	**402**	**100**

Source: CESD primary survey data (2019)

4.1.3 National Registration Card

National Registration Card (NRC) is important for all people to get citizen rights and voting rights but some of the garment factory workers do not have it although they reached working age and citizen of Myanmar. More than sixteen percent of the respondent does not have a national registration card while 83.58% of the respondent have a national registration card. It can be concluded that respondents get a job at the garment factory although they do not have a national registration card. Some respondents answered that they used fake NRC cards to get a job and human resources managers just check their physical ability rather than mental and age.

Table 4.3 : Access to National Registration Card

National Registration Card	Number of respondents	Percentage
Have NRC	366	83.58
Don't have NRC	66	16.42
Total	**402**	100

Source: CESD primary survey data (2019)

4.1.4 Education Status of the Garment Factory Workers

The respondents who completed the primary-level education is 39.05% which the second largest proportion of total respondents. About 46 percent of the respondents completed middle-level education which the majority of respondents in the study. As per cumulative, 85.32% of the respondents have reached less than higher education. A few numbers of the respondents completed high school and get a degree. Eleven percent of the respondents completed high school whereas only 3.49% of the respondents got a degree. A graduate person is very limited at the garment factory. Therefore, the majority of the respondent in the garment factory completed just primary and middle-level education.

Table 4.4 : Education Status of the Workers

Education Status	Number of respondents	Percentage
Primary	157	39.05
Middle	186	46.27
High	45	11.19
Graduate	14	3.49
Total	**402**	100

Source: CESD primary survey data (2019)

4.1.5 Marital Status of the Workers

Single male respondents are 14 while single females are 261. Married male respondents are 9 whereas married female 118. Total married male and female in the garment factories are 127 of the respondents. Total single garment factory workers are 275 of the total respondents so it can be said that more than half of garment factory workers are single. Therefore, the garment factories are single females dominate sector. Garment factories give jobs to a lot of the single females.

Table 4.5 : Marital Status of the Workers

Marital Status	Male	Female	Total
Single	14	261	275
Married	9	118	127
Total	**23**	**379**	**402**

Source: CESD primary survey data (2019)

4.1.6 Ethnicity of the Garment Factory Workers

The garment sector was dominated by Burmese because it is 83.58 % of the respondent which almost 100%. The second-largest population in the garment sector is Rakhine 10.70%. Follow by Kayin is 3.48% while Mon is 0.50% and Shan is 0.50% respectively. There is 1.24% of Mix ethnic people. Mixed-ethnic means people's ethnicity mixed with more than one ethnic. Ethnic group.

Table 4.6 : Ethnicity of the Garment Factory Workers

Race	Number of respondents	Percentage
Rakhine	43	10.70
Mon	2	0.50
Shan	2	0.50
Mix/other	5	1.24
Burmese	336	83.58
Kayin	14	3.48
Total	**402**	

Source: CESD primary survey data (2019)

4.1.7 Place of Origin of the Workers

The respondent from the Ayawaddy region is 40.55% whereas10.70% are originally come from Rakhine state. The respondent from the Bago region is 13.43% and other state and region come from 19.15%. The respondent from the Yangon region is 16.17%.

Table 4.7 : Place of Origin of the Workers

Place of origin	Number of respondents	Percentage
Rakhine	43	10.70
Bago	54	13.43
Ayawaddy	163	40.55
Yangon	65	16.17
Others	77	19.15
Total	**402**	**100**

Source: CESD primary survey data (2019)

4.1.8 Migration Reason of the Workers

Fifty six percent of the respondent migrated to Yangon because of to get a better job in Yangon whereas 25.12% of the respondent migrated to Yangon because their family reason while 6.97% of the respondent migrate because of education reason, to attend university of distance while they are working at the factory or to attend certificate courses. The rest of the respondents migrated to Yangon with others reason such as improve security and better opportunities.

Table 4.8 : Migration Reason of the Garment Factory Workers

Migration reasons	Number of respondents	Percentage
To find better job	224	55.72
Family affairs	101	25.12
To attend university	28	6.97
Other	49	12.19
Total	**402**	**100**

Source: CESD primary survey data (2019)

4.1.9 Health Situation of the Workers

Seventy six percent of the respondent are social security members, so they received health services from the social security board when they unwell and sick. More than thirty percent of the respondent answered their factory provide a doctor or nurse at their workplace so they received health services from a doctor or nurse at work. About sixty-six percent of the respondent said they have on-site health medical facilities at their factory so they can get first aid medicine at their factory. Only 8.71% have work-related accidents within a year.

Table 4.9 : Occupational Safety & Health of Workers

Occupational safety & health	Yes	No
Social security member	75.87 %	24.13 %
Factory has doctor or nurse	30.8 %	69.2 %
Factory has any on-site medical facilities	66.4 %	33.6 %
Have work-related accidents within a year	8.71 %	91.29 %

Source: CESD primary survey data (2019)

4.1.10 Participation at the Worker Union

Seventy eight percent of the respondent participated at the worker union and 59.5% of the respondent participate the social group in the factory. Many garment factory workers involved in the labour union and social group in the factory to help each other. Nearly fifty-six percent of the respondent reported that participated in labour strikes within 2 years. There is relationship between participation at social group & labour union and participation at labour strike.

Table 4.10 : Labour Participation at Labour Union

Participation at the worker union	Yes	No
Participation at labour union	77.9 %	22.1 %
Participation at social group	59.5 %	40.5 %
Participation at labour strike within 2 years	45.8 %	54.2 %

Source: CESD primary survey data (2019)

4.1.11 Conditions of Work Place

Nighty eight percent of the respondent answered that their factory is clean and tidy but 20.1% claim their factory is not c lean and tidy. Almost sixty-seven percent of the respondent told that their factory rest room is not clean and tidy while 33.8% said clean and tidy. Nearly sixty-four percent of the respondent answered that factory has adequately lighting whereas 36.3% answered that lighting is not enough.

Table 4.11 : Working Conditions of the Garment Factory Workers

Conditions of work place	Yes	No
Factory clean and tidy	79.9 %	20.1 %
Factory has adequately lighting	63.7 %	36.3 %
Rest room in the factory clean and tidy	33.8 %	66.2 %
Easy to take a leave when needed	36.1 %	63.9 %

Source: CESD primary survey data (2019)

4.1.12 Living Condition of Workers

Forty three percent of the garment factory workers stay in the hostel or dormitory provided by their factory as most of them are migrated from other state and region, they don't permanent home Yangon. About thirty-three percent of the garment factory workers get a basic salary below 150,000 kyats so their salary is very limited to live modestly in Yangon and remittance to their host family. They struggle to live in Yangon with that amount of salary. More than sixty-four percent of the respondents get below 120,000 kyats from other total income such as performance bonus and attendant bonus while 26.82% of garment factory workers need to borrow money in last 6 months for their basic needs. Although their salary and total bon us are very merger so they remittance some amount of money to their family within 6 months. However, garment labour wages are influenced on labour participation at labour strikes. Labours who get less salary more likely to participate in a labour strike within two years.

Table 4.12 : Living Condition of Workers

Living Condition	Yes	No
Respondent live in hostel/dormitory	42.72 %	57.28 %
Basic below 150,000 MMK salary pre month	33.3 %	66.7 %
Other total bonuses below 120,000 per month	62.4 %	37.6 %
Borrowed some money in the last 6 months	26.82 %	73.18 %
Support monetary remittance to family in the last 6 months	85.53 %	14.47 %

Source: CESD primary survey data (2019)

4.2 Variables in the Model

Labour strike is dependent variable while labour rights are independent variables which are wages, other income, labour union membership, social groups at the factory, toilet and factory clean, have doctor or nurse, factory too noisy, factory has enough lighting, basic salary and other income.

Y_i	=	Participated in a strike within two years
	=	1, participated in the strike
	=	0, don't participated in any strike
X_{i1}	=	Participate in labour union at the factory
	=	1, participated in the labour union
	=	0, don't participated in any labour union
X_{i2}	=	Participate in the social groups in the factory
	=	1, participated in the social group
	=	0, don't participated in any social group
X_{i3}	=	Factory clean and tidy
	=	1, clean and tidy
	=	0, don't clean and tidy
X_{i4}	=	First aid medicine is provided
	=	1, provide
	=	0, not provide
X_{i5}	=	Factory has a doctor or nurse for labour
	=	1, have
	=	0, don't have
X_{i6}	=	Factory is too noisy
	=	1, too noisy
	=	0, no
X_{i7}	=	Factory has enough lighting
	=	1, has
	=	0, don't has
X_{i8}	=	Factory's rest-room clean and tidy
	=	1, yes clean
	=	0, don't clean

Xi_9 = Basic salary for 8 hours

= 1, less than or equal 150,000 Ks per month

= 0, above 150,000 Ks per month

Xi_{10} = Other incomes such as attendance bonus, performance & loyalty bonus

= 1, less than or equal 120,000 Ks per month

= 0, above 120,000 Ks per month

Xi_{11} = Easy to take leaves and holidays

= 1, yes

= 0, not

4.3 Logistic Regression Analysis for Labour Rights and Strike

The study tests the model fitting criteria with Omnibus Tests of Model Coefficients, Hosmer and Lemeshow (H-L) test, -2 Log Likekihood, Cox & Snell R Square and Nagelkerke R Square.

Table 4.13 : Model Fitting Criteria Labour Rights and Labour Strikes.

Model Fitting Criteria	χ^2 value	df	p-value
Omnibus Tests of Model Coefficients	308.430	11	0.000
Hosmer and Lemeshow (H-L) test	7.382	8	0.496
-2 Log Likekihood	245.981		
Cox & Snell R Square	0.536		
Nagelkerke R Square	0.716		
Overall Correct Prediction	85.1 %		

Source: CESD primary survey data 2019

In fitting the model with Binary Logistic Regression, Omnibus Test of Model Coefficient Chi-square is 308.430 on 11 degree of freedom (df) at the 1% level of significance (p-value = 0.000). Hence, it can be said that model fit and there is association between the worker rights and the worker strikes at garment factories in Industrial Zone within Yangon.

Hosmer and Lemeshow (H-L) test's Chi-square is 7.382 and 8 degree of freedom (df). Besides, -2 Log Likelihood is 245.981 which can interpret that there is relationship between dependent variable and independent variables. Cox & Snell R square and Nagelkerke R square included in the model fitting criteria. These Cox & Snell R square estimate that 54 % variation in the worker participation at the strike while Nagelkerke R Squared is 72 %.

Overall 85.1% of the strikes are correctly predicted. The result of parameters estimation of logistic regression model is shown in Table (4.15).

4.4 Association between Labour Strikes and Labour Rights

Table 4.14 : Pearson Chi-square Test for Labour Strikes and Labour Rights

Independent variable		Chi-square Value	df	Significance (2-sided)
Participation in labour union	Yes	119.116	1	0.000
	No (ref)			
Participation in the social groups	Yes	27.261	1	0.000
	No (ref)			
Factory clean and tidy	Yes	2.654	1	0.103
	No (ref)			
First aid medicine is provided	Yes	100.140	1	0.000
	No (ref)			
Factory has a doctor or nurse for labour	Yes	0.237	1	0.627
	No (ref)			
Factory is too noisy	Yes	12.138	1	0.000
	No (ref)			
Factory's rest-room clean and tidy	Yes	83.740	1	0.000
	No (ref)			
Factory has enough lighting	Yes	114.774	1	0.000
	No (ref)			
Easy to take leaves and holidays	Yes	34.976	1	0.000
	No (ref)			
Basic salary below 150,000 MMK	Yes	44.277	1	0.000
	No (ref)			
Other incomes below 120,000 MMK	Yes	90.871	1	0.000
	No (ref)			

Pearson Chi-square test in table 4.5 shows that association between labour strikes and independent variables, labour rights. Factory has doctor or nurse for the labour and factory clean and tidy are greater than 0.05 and statistically not significance. Hence, there are not association between labour strikes and these variables. However, the rest of the variables are statistically significance and associate with labour strikes.

Table 4.15 : The Parameters Estimation of Logistic Model

Independent variable		B	S.E	Wald	df	Pvalue	Exp(B)	95% Confidence Interval	
								Lower	Upper
Constant		3.020**	1.146	6.942	1	0.008	20.489		
Participation in labour union	Yes	2.765***	0.706	15.339	1	0.000	15.884	3.981	63.385
	No (ref)								
Participation in the social groups	Yes	0.345	0.338	1.041	1	0.308	1.411	0.728	2.736
	No (ref)								
Factory clean and tidy	Yes	-0.454	0.358	1.605	1	0.205	0.635	0.184	0.765
	No (ref)								
First aid medicine is provided	Yes	-1.197***	0.372	10.351	1	0.001	0.302	0.146	0.626
	No (ref)								
Factory has a doctor or nurse for labour	Yes	0.365	0.345	1.115	1	0.291	1.440	0.732	2.833
	No (ref)								
Factory is too noisy	Yes	-0.232	0.377	0.379	1	0.538	0.793	0.378	1.661
	No (ref)								
Factory's rest-room clean and tidy	Yes	-4.083***	1.112	13.474	1	0.000	0.017	0.002	0.149
	No (ref)								
Factory has enough lighting	Yes	-0.980**	0.364	7.265	1	0.007	0.375	0.315	1.282
	No (ref)								
Easy to take leaves and holidays	Yes	-1.239***	0.363	11.615	1	0.001	0.290	0.142	0.591
	No (ref)								
Basic salary for 8 hours									
Below 150,000 Kyats		1.025*	0.439	5.460	1	0.019	2.788	1.180	6.590
Above 150,000 Kyats (ref)									
Other incomes/bonuses									
Below 120,000 Kyats		1.229***	0.401	9.415	1	0.002	3.419	1.559	7.499
Above 120,000 Kyats (ref)									

*** denotes significant at 1%, ** denotes significant at 5%, and * denotes significant at 10%

Source: CESD primary survey data (2019)

4.5 The Analysis of Labour Rights and Labour Strikes

Table (4.10) shows that correlation coefficients between dependent variable – labour strikes and independent variables – labours rights and working conditions. Labour participation in labour union, first aid medicine is provided at the factory, factory's rest-room clean and tidy, factory has enough lighting, easy to take leaves and holidays, basic salary for 8 hours and other income/bonuses are significant factors for the labour participation in the strikes at the garment factory in industrial zones with Yangon. But the labour participation in social groups at the factory, factory clean and tidy, factory has doctor or nurse for the labours and factory is too noisy are not significant and does not affect on labours participation in the labours strike.

With regard to the participation at the union, the labour participation at the union has positive influence on the labour participation at labour strikes. This effect is found to be statistically significant at 1% level. Those the labour who participates in the labour union are nearly 16 times more likely to participate at the labour strikes than those who do not participate in the labour union. The magnitude of the effect is between lower limit 3.981 and upper limit 63.385 at confidence interval 95%. Forming the labour union and the labour participation at the labour union is the potential for the labour strikes at the factory.

As for the labour participation in the social group, it does not influence on the labour participation at the labour strikes because it statistically does not significant. Whether labour participates in social groups at the factory or not does not affect on labour participation at the strikes.

Regarding the factory is clean and tidy, if the labours response the factory is clean and tidy, that labour less likely to participate at the labour strikes than those labours who response the factory is not clean and tidy. However, it statistically does not significant.

Concerning the first aid medicine is provided, it has a statistically significant negative influence on labour participation at labour strikes. if the labour answers the factory provides first aid medicine in the factory, that labour 0.698 time less likely to participate at the strikes than the labour who answers factory does not provides first aid medicine. This effect is found to be statistically significant at 1% level. The magnitude of the effect is between lower limit 0.146 and upper limit 0.626 at confidence interval 95%.

Although the first aid medicine is provided by the factory is statistically significant, the factory has a doctor or nurse for the labours does not statistically significant. Therefore, the factory has a doctor or nurse for the labour does not influence on the labour participation at the strikes. Relating to factory is too noisy, it also statistically does not significant. Hence, the labour participation in the strikes does not associate whether factory is too noisy or not.

With respect to factory's rest-rooms clean and tidy, it has a negative influence on the participation at the strike. The coefficients of factory's rest-rooms clean and tidy are statistically significant at 1% level. If the respondent answers the factory's rest-rooms clean and tidy, the respondent is 0.983 times less likely to participate in strike more than those who answer the factory rest-room are not clean and tidy. The 95% confidence interval suggests that the magnitude of the effect could be anywhere from 0.002 to 0.149.

Respecting factory provides enough lighting, it has a negative influence on participation at the labour strikes. The coefficients of factory provided enough lighting are statistically significant at 5% level. If the labour reveals that factory provided enough lighting, the labour 0.625 time less likely to participate in the strike than the labour who answered factory is not provided enough lighting. The effect could be lower level 0.315 and upper level 1.282 at 95% confidence interval.

With regards to east to take a leave and holidays, it has a negative influence on the labour participation at the strikes. It is statistically significant at 1%. If the labour who is satisfied with taking leaves and holidays are 0.71 times less likely to participate at the labour strikes than those who are not satisfied with their leaves & holidays. It is statistically significant at 95% confidence interval.

Concerning the basic salary, it has a positive influence on the labour participation at the strikes. It is statistically significant at 10%. If the labour earns basic salary below 150,000 MMK per month, that labour 2.79 time more likely to participate at the labour strike than those who earn more than 150,000 MMK per month in their basic salary.

As for other incomes/bonuses, it also has a positive influence on the labour participation at the strikes. If the labour receives other incomes/bonuses such as attendance bonus and performance bonus are below 120,000 MMK per month is 3.4 time more likely participate at the labour strike than who receives other incomes/bonus above 120,000 MMK.

CHAPTER V

CONCLUSION

This study uses secondary survey data from the Centre for Economic and Social Development (CESD). The survey covered 402 garment factory workers from 128 garment factories at the Industrial Zone within Yangon. Descriptive statistics perform to explain the situation of the garment factory workers and binary logistic regression is used to analyse the relationship between labour rights and labour strikes. The Statistical Packages for Social Science (SPSS) software is applied to analyze data.

5.1 Findings

This study finds out that majority of the respondents, garment factory workers, are young single females from rural areas of the country and completed middle-level education. It can conclude that garment factories provide job for plenty of young females from rural area with limited education levels. The garment sector is primary entry job for unskilled rural girls from remote area. As the result, there can be labour shortage in the agriculture industry in long term due to high migration to Yangon industrial zones.

Then, seventy eight percent of the labour participated in the labour union. Those the labour who participates in the labour union are nearly 16 times more likely to participate at the labour strikes than those who do not participate in the labour union. The factory needs to be aware that the labour participation in the union and forming union is potential of the strike. On the other hand, first aid medicine is provided in the factory is statistically significant and negative influence on the strike. If the labour response first aid medicine is provided in the factory, that labours 0.698 time less likely to participate at the strikes than the labour who answers factory does not provides first aid medicine.

Besides, the factory rest-room clean and tidy also statistically significant and negative influence on the strike. If the labour reveals the factory rest-room clean and

tidy, that labour 0.983 time less likely to participate at the strikes than the labour who reveals the factory rest-room clean and tidy.

Factory has enough lighting and easy to take leaves and holidays has negative influence in the strike. If the labour mention factory has enough lighting, that labour 0.625 less likely to participate at the strike. When the labour mentions it is easy to take leaves and holidays, that labour 0.71 less likely to participate at the strike.

Both basic income per month below 150,000 MMK and other incomes/bonuses less 120,000 MMK have a positive effect on the worker strikes. If the labour earns basic salary per month below 150,000 MMK is 2.78 time more likely to participate and other incomes/bonuses such as attendance bonus and performance bonus less than 120,000 MMK is 3.42 times more likely to participate the strike. The minimum wage is set up 4800 MMK per day in 8 hours throughout the country but the worker strikes happen at the industrial zones because income does not meet needs of the workers and cost of the living is higher than their income. Participation in the social groups, the factory clean and tidy, the factory is too noisy and the factory has a doctor or nurse for the worker are not statistically significant. Hence, these factors have no positive or negative effect on the strikes.

5.2 Discussions

Labour participation in the labour union is very high at the garment factories in the industrial zones. Labour participation in labour unions has a significant positive effect on labour strikes. Therefore, this study would like to recommend the business owner or management body of the factory to discuss with labour union leaders and members at the factory to prevent labour. Otherwise, it has a negative impact on factory operation and the relationship between employees and employer.

This study found a similar result with Thomas Bernhardt (2017) that wages issues are one of the most controversial issues in Myanmar's labour relations. Labour always demands decent wages because of the high cost of living and employers want to get profit. According to this study, wage has a positive effect on labour strikes. It would be good to set up proper minimum wages for both employers and employees to avoid conflicts.

Easy to take leaves and holidays is one of the most significant effects on the participation at labour strikes. Only thirty six percent of factory workers reported that it is easy to take leaves and holidays at their factory. If the respondent responses, it is

easy to take leaves and holidays, that respondent 0.71 time less likely to participate at the strike. Factory should provide their labours leaves and holidays according to existing labour law.

5.3 Suggestions for Further Research

This study used secondary data so there is data limitation for analysis and unable to perform multiple regression, factor analysis and so on. Therefore, this study recommends primary data as the best sources and prepares questions based on desire statistics model and analyses. Otherwise, it can take a lot of time to think about a suitable statistical method base on the available data. This study and most of the research focus on factory workers at the industrial zones because it is easy to interview many factory workers at the same place so the study recommends further research to study labour from out of industrial zones as the labour voices from out of the industrial zone are forgotten.

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APPENDIX I

Baseline Survey in Garment and Textile Sector
Questionnaire for workers

My name is ……………………. I am from the Centre for Economic and Social Development (CESD). CESD is conducting a baseline survey of garment and textile enterprises and   study about labor productivities, skill sets of workers, challenges faced by laborers and take note of any recommendations suggested by meeting with Employers, Employees, Managers and Basic Trade Unions. CESD is conducting this study in co-operation with the Ministry of Labour, Immigration and Population (MOLIP), Ministry of Industry (MOI) and IDRC, Canada.

- Interview date ___/____/____   Form UID. _____

- Age _____   Gender _____

- Education   ☐ Primary   ☐ Higher
     ☐ Middle   ☐ Graduate

- Place of origin   ☐ Yangon   ☐ Ayeyarwaddy   ☐ Bago
     ☐ Magwe   ☐ Rakhine   ☐ Other

- Race   ☐ Kayin   ☐ Rakhine
     ☐ Burma   ☐ Other

- Reason of migration   ☐ Employment   ☐ Family matters
     ☐ Education   ☐ Other

- Do you have National Registration Card – NRC?
     ☐ Yes   ☐ No

- Are you a union member in your factory?
     ☐ Yes   ☐ No

- Are you a member of the Social Security Board?
     ☐ Yes   ☐ No

- Have you ever had work-related accidents in the factory over the last 12

months?

☐ Yes   ☐ No

- Are restrooms in the workplace neat and tidy?

  ☐ Yes   ☐ No

- Does your factory have any on-site medical facilities?

  ☐ Yes   ☐ No

- Are noise levels in the workplace acceptable?

  ☐ Yes   ☐ No

- Does the workplace clean and tidy?

  ☐ Yes   ☐ No

- Does the workplace adequately have enough lighting?

  ☐ Yes   ☐ No

- Is it easy to take a leave and holiday when it necessary?

  ☐ Yes   ☐ No

- Do you borrow some money within the last 6 months?

  ☐ Yes   ☐ No

- Please describe your basic salary

  ☐ Below 150,000 Kyats

  ☐ Above 150,000 Kyats

- Please describe your other income from your factory such as bonus

  ☐ Below 150,000 Kyats

  ☐ Above 150,000 Kyats

- Do you support monetary remittance to your family in the last 6 months?

  ☐ Yes   ☐ No

- Have you ever participated labour strike at the factory within 2 years?

  ☐ Yes   ☐ No

Thank you for your time and active participation

APPENDIX II

The List of Industrial Zones in Yangon and Number of Interviewed Factories

Sr. No	Name of Industrial Zone	No. of sub-industrial zones	No. of garment factories	No. of contacted factories	No. of interviewed factories	No. of interviewed workers
1.	South Okkalapa	0	2	2	0	0
2.	Dagon Seikkan	2	10	6	5	15
3.	South Dagon	3	31	20	12	36
4.	North Dagon	7	1	1	0	0
5.	North Okkalapa	4	25	15	9	27
6.	East Dagon	0	9	9	6	18
7.	Shwe Poukkan	0	19	14	8	24
8.	Tharkayta	0	13	8	7	21
9.	Mingalardone	0	17	10	5	15
10.	Yangon	0	9	9	4	12
11.	Hlaing Tharyar	7	114	60	39	124
12.	Shwe Lin Ban	0	63	30	23	80
13.	Shwe Pyi Thar	4	27	16	10	30
		Total	340	200	128	402

Source: Myanmar Industry Association and Myanmar Garment Manufacturers Association (2018)