The Impact of Minimum Wage Policy on Employment in Myanmar

By

KYAW, Min Thu

THESIS

Submitted to

KDI School of Public Policy and Management

In Partial Fulfillment of the Requirements

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Committee in charge:

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ABSTRACT

THE IMPACT OF MINIMUM WAGE POLICY ON EMPLOYMENT IN MYANMAR

The government of Myanmar introduced a minimum wage policy in 2015. The issue of Myanmar's minimum wage policy has been at the forefront among the general public, scholars, economists and the government because a recent economic transformation has taken place in Myanmar. There has been a growing interest in the potential for employment due to the minimum wage policy in Myanmar. Also, the impact of the national minimum wage policy implementation on female employment receives attentiveness to investigate as the women are traditionally discriminated against in terms of education and job opportunities in Myanmar. The purpose of this paper is to analyze the impacts of minimum wage policy in Myanmar and how the introduction of minimum wage setting has affected the employment of Myanmar's labor force. Additionally, this paper extends to explore the firm's action in response to the government's minimum wage policy whether installing supplementary machines to substitute labor resources. This paper applies a fixed effect estimation method by using the World Bank's enterprise panel data set surveyed from 2014 to 2016 in Myanmar. Findings suggest that the minimum wage reduces not only full-time but also part-time employment. In contrast, the first minimum wage policy increases overall female employment. However, the adverse impacts pronounce more in female employees of Joint Venture enterprises and the enterprises located in the small populated regions. Manufacturing enterprises destroy full-time employment more than service enterprises do. Investment in capital such as equipment and machinery increase to substitute labor after the minimum wage policy implementation, as a result, the full-time employment slightly decreases. Basically, Myanmar's first and foremost minimum wage policy implementation does not affect

employment substantially. Thus, appropriate measures concerning the minimum wage policy must be undertaken regularly by the government and institutions related to the labor union to be a sound instrument for the government and the well-being of employees as well as employers. Whenever the government of Myanmar fix the minimum wage in a reasonable period based on the fiscal year, it should be a manageable wage for both the employer and the employee to prevent possible issues and losses that could result from the minimum wage being set.

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I. Introduction

The growing body of literature on the evaluation of the impact regarding the minimum wage implementation has been found in most countries recently. The minimum wage is a commonly used public policy instrument and the legislation of a minimum wage has been a contemporary debate among economists and policymakers. Developed nations have already adopted the minimum wage policy, but many developing nations are considering the implementation of minimum wage policy or reforming their existing minimum wage systems. Myanmar has applied the minimum wage policy since 2015. Recently, the employment effects of the minimum wage in Myanmar has achieved much attentiveness.

The previous studies (Harrison & Leamer, 1997; Hamermesh, 2002) state that there is a limited collection of research on the minimum wage in developing countries. Belman and Wolfson (2015) claimed that several kinds of research in the area of the minimum wage focused on the OECD countries have been carried out and the consequences of the minimum wage are of particular concern for these countries. Del Carpio, Nguyen, & Wang (2012) asserted that since many developing countries have involved themselves in legislating minimum wage regulations or amending their current minimum wage systems, investigating to what extent minimum wage changes affect employment is imperative because the circumstances of labor market are not completely the same as those in developed countries.

According to Lemos (2009), the minimum wage will possibly be an advantageous policy instrument to get rid of poverty and inequality. In the context of employment, Menon and Rodgers (2017) have reported that the results in the employment of the minimum wage are varying with positive, negative, and no discernible impact across studies for developing and economic transition environment. In Myanmar, the fact of whether applying the

minimum wage policy would encourage low-level workers to get a living wage is still questionable. Although not much research concerning the minimum wage's effects on employment has been investigated in Myanmar, this question is one of the significant studies of interest.

The World Bank enterprise survey data in Myanmar from 2014 to 2016 will be employed and estimated by applying the fixed-effect model. The purpose of this paper is to analyze the effects of minimum wage policy in Myanmar and how the introduction of minimum wage setting has affected the employment of Myanmar's labor force. In addition, this research is intended to discuss whether the enterprises, especially in the manufacturing sector, substitute the machines for labor due to the rise of the minimum wage. The following research questions will be used in this study:

(i) Does the minimum wage policy have an impact on full-time workers' employment in Myanmar? ;

(ii) Does the minimum wage policy have an impact on part-time workers' employment in Myanmar? ;

(iii) Does the minimum wage policy have an impact on female workers' employment in Myanmar? ; and

(iv) Do the enterprises substitute physical capital such as machines instead of labor after the minimum wage policy implementation?

The paper consists of six sections. The first part focuses on the introduction including the context, aim and research questions, and the organization of the paper. The literature review is described in the second part. After that hypothesis development is clarified in the third section. The next section describes the data and methodology. It is followed by section five in which estimated employment effects, findings, and discussion are presented. Finally,

the last section concludes with some outlines to develop standards and guidance in the design of the minimum wage policy for Myanmar.

II. Literature Review

2.1 Wage Policy

Wage Policy has been described in different ways. Following Levin-Waldman (2010), wage policy is a set of institutions that are intended to bolster the earnings of workers, especially for those workers who have less negotiating power. A national wage policy is one subdivision of a national economic policy (Commons, 1923). Therefore, the wage policy of any country should be justified, credible, and reasonable from the economic and social aspects.

The minimum wage has been a core element of public policy for more than a century (Lin, 2016). Soares (2018) claimed that legislation for setting up a wage floor has long been an effective means of reducing inequality and ensuring social justice. Previous studies (Freeman, 1996; Kuttner, 1997) stated that increasing the amount of the minimum wage is an effective option to alleviate poverty and to supply a decent wage to lower-level workers. New Zealand is the first country which implemented the leading minimum wage in 1896 and the following country is Australia which implemented it in 1899 (Reeves, 1901).

2.1.1 Minimum Wage Policy on Employment

Although a minimum wage is a fundamental aid for the sake of low-earning and disadvantaged families and it contributes for those to earn enough income, there are some disemployment effects resulted: destroying jobs for low-skilled workers, forcing the workers to work less than original working hours, or finding it more difficult to get a job (Neumark, 2018). Concerning the employment impact of the minimum wage, people who are in favor of the policy argue that it ensures living standards in good condition and support the poor to get

the benefits, whereas opponents highlight the disemployment and other adverse effects to the poor (Sugiyarto & Endriga, 2008).

There has been a controversial issue among economists about what impacts the wage policy has on employment. Patridge and Patridge (1999) emphasized the case study on teen employment that the minimum wage increased by 10% reduces teen employment by 1% in the retail sector. In Poland, the analysis used regional data showed that minimum wage harmed employment during 1999-2010 and sizeable minimum-wage increases resulted in unemployment effect for teen workers during 2005-2010 (Majchrowska & Zolkiewski, 2012). Neumark and Wascher (2006) have been receiving much attention due to the study of the impact of the minimum wage. These researchers developed the fact that when the studies are focused on the least skill workers, the evidence for the disemployment effects of this group seems more vivid than the studies focused on broader groups in which the theory of competitive model is used.

According to conventional economic analysis, the minimum wages hikes bring about to a two-way drop in employment: a scale effect and a substitution effect, where, higher salaries in a scale impact decrease jobs for both low-wage and high-wage employees while high wages reduce jobs among low-skilled workers in a substitution impact but increase it among high-skilled workers (Congressional Budget Office, 2014). Del Carpio and Pabon (2017) states that employers in several countries are substituting unskilled labor with more productive workers and in some cases, employers are considering using technology to upgrade their production processes.

The success and outcomes of the minimum wage policy depends partly on the specific circumstances of economic and social conditions and labor market situation of the country, but it also depends a great deal on the policy management and implementation (Bernhardt, De, Thida, & Min, 2016). A minimum wage law is implemented to increase the quality of

low-paid employment, and this is accomplished by economic-wide changes to wages and working habits (Choi, 2018). Besides, Schmitt (2013) discussed that it is plausible that substantial adjustment channels emerge for the higher wage floor for employers and workers.

Choi (2018) states that continued increases and a steep minimum wage rise have more unintended adverse consequences. Katz and Krueger (1992) suggested that under certain conditions, employment increases can be achieved by a small minimum wage raise in monopsony models prediction; while employment decreases may appear because of an extensive raising the minimum wage. According to Neumark and Wascher (2006), there is a trend towards the negative and statistically significant impact on employees due to hiking minimum wages where the researchers concentrate on longer panel studies that include state and time variation in minimum wages; while zero or positive effects on low-skilled employment tend to be found if short panel data or case studies on a particular industry are carried out.

In a developing country context, as having different labor conditions such as less formally educated labor, a high male-female workers ratio and informal firms, there are likely significant heterogeneous effects on employment due to the changes or increases in minimum wages (Del Carpio, Nguyen, & Wang, 2012). Cameron and Alatas (2003) presented that hikes in the minimum wage are linked to no evidence for disemployment in large firms whereas small and domestic firms do show a negative employment impact in low-income countries. Sugiyarto and Endriga (2008) found that the unemployment effects of minimum wages on low-skilled workers are far more serious among small firms, whereas those effects are insignificant among exporting and foreign-owned firms. The empirical evidence presented by Elangkovan (2012) revealed that countries that adopt a minimum wage policy have a tendency towards an effective wage effect but insignificantly adverse employment among workers. Elangkovan (2012) showed the increased unemployment rate by an average

of 0.4% in 2012-14 when the minimum wage is set at RM900/month in Malaysia. In Argentina, the hiking of the minimum wage hurt the low educated workers between 2003 and 2006, and little evidence is found to suggest that the minimum wage policy is generally favorable to reduce effectively poverty (Legge, 2009). A study in India by Menon and Rodgers (2017) observed that there are positive impacts on rural sector employment and tendencies to encourage more formal-sector jobs due to the legislating the minimum wage law and a rise in the minimum wage. Regarding the employment effect depending on the education level in Indonesia, the findings of results by Del Carpio, Nguyen, and Wang (2012) showed a significant negative effect on small businesses and undereducated employees; the positive employment effect associated with large firms and higher-educational workers.

There is relatively limited research on the effect of the minimum wage on working hours when compared with the impact on employment. The finding by McGuiness and Redmond (2018) states that raising the minimum wage is one of the factors in the reduction of working hours that shows a decrease by approximately 0.5 hours per week. Thus, hiking wage makes the average working hours drop among minimum wage workers.

2.1.1.1 Minimum Wage Policy on Employment in Myanmar

The political discourse in most countries has therefore shifted from the issue of whether a compulsory minimum wage is appropriate to the issue of how best to implement and execute a minimum wage program, taking into account national expectations and circumstances (Soares, 2018). The minimum wage issue is still controversial in Myanmar labor relations (Lwin, 2017), there has been conflicting between employers and workers regarding wages and salary before the minimum wage set up. Concerning labor strikes, Win (2012) reported that the number of strikes rose from 395 cases in 2009 to 679 cases in 2011, and increasingly, there were 57 labor disputes for wages and salaries during five months in 2012. Rights (2016) found that further labor strikes take place at the factories, and slow

implementation and enforcement of existing laws including the minimum wage contributed to these protests. In an attempt to settle the wage disputes and show the transparency of institutional reforms, the Government of Myanmar passed the 2013 Minimum Wage Act and the first and foremost enforced rate was MMK 3600 per day in 2015, after two years of tripartite negotiations ((Bernhardt, De, & Thida, 2017; Oo, Min, Kanady, Lin, Nguyen, & Ngwenya, 2019).

Compared to other ASEAN countries, Myanmar's minimum wage is found to be the lowest and it does not have a different minimum wage among states and regions across the country (Lwin, 2017). A study by Bernhardl, De, Thida, and Min (2016) suggested that the minimum wage scheme is generally revised to suit new economic and social conditions, and if the minimum wage rate was too high, it would lead to non-compliance problems. Mungoven (2018) stated that when defining the level of a minimum wage, it is necessary to consider a complex balance of many factors involving the basic requirements of the workers and their families, encouraging the enterprises to be productive and to have sustainable growth, attaining a high level of employment, and ensuring competitiveness in the regional economy.

Myanmar's minimum wage is low when compared with the poverty line and not adequate to meet the objective of the Law; whereas it is high concerning labor productivity, that is, the wage is high by global standard if wages are intended to compensate workers for their contribution to output (Cunningham & Munoz, 2018). As already described in developing countries, the analysis of the effect of Myanmar's first minimum wage conducted by Oo et al. (2019) found positive employment in SMEs and large firms while the negative employment in micro-firms.

In the case of industrialization, Myanmar's industrial structure is still in the initial stage and the industrial base is still weak. The early phase of the industry including labor-

intensive, low-technology industries has contributed to economic growth and has resulted in the augmentation of employment in Myanmar (Naing, 2018). Huynh (2016) highlighted the development of the nascent garment, textile, and footwear (GTF) industries, pointing that the sector has a significant rise following increased foreign direct investment (FDI), stimulate a lot of interest to the global clothing buyers and encourage a boost in employment. Given the introducing minimum wage rate in 2015, the employers have declared that the wage level is too intense, on the other hand, the labor union stressed that the pay rate will not be enough to support a decent life for workers (Theuws & Overeem, 2017). Research on industrial dispute resolution in Myanmar, Lin, Tanaka, Minni, Nguyen, Thet, & Macchiavello (2019) suggested that peaceful negotiation between workers and employers based on mutual benefits and organizing a formal negotiation mechanism like a union can contribute to healthy industrial relations, thereby providing for sustainable productivity growth of industries.

2.1.2 Minimum Wage Policy on Economic Sector

Before proceeding further, it is necessary to clarify the question: Can a rise in the minimum wage or an introduction of the minimum wage contribute to an improvement in productivity in the economic sectors or to the economic growth in sectors? The preceding studies express the employment effect of the minimum wage in both international and domestic contexts. This section reviews the productivity improvement in the economic sectors due to the imposing of a minimum wage.

Regarding this issue, the minimum wage policy has led to a positive impact on productivity (Yuen, 2013). Sabia (2015) highlighted the advantages of the minimum wage on productivity and growth: the minimum wage hikes can stimulate national economic growth if production processes only depend on highly-skilled workers, likely, by triggering capacity building for less qualified workers. By an empirical study of the relationship between raising the national minimum wage and increasing productivity, Rizov, Croucher, and Lange (2016)

proposed that the introduction of the United Kingdom national minimum wages enhances rewards and productivity by means of beneficial wage structures or through alignment of actual wages and legitimated wages.

In contrast, when the wages are significantly raised, it leads to reduce firm productivity and profitability (Draca, Marchin, & Van Reenen, 2008; Bell & Marchin, 2018). In the same vein, the minimum wage increases bring about higher labor costs on firms that operate with low-skilled workers and it can also result in adverse employment effects which are the obstacles for economic growth (Sabia, 2015). Thus, businesses that operate around the profit margin are expected to leave the market due to a steep rise of wage floor (Luca & Luca, 2019). These researchers also showed that restaurants with lower ratings tend to exit, indicating disproportionately affected by minimum wage hikes, but five-star restaurants are not affected. In analyzing the effects of minimum wage rises on firm-level total factor productivity in Chile manufacturing plants during 1998-2000, Alvarez and Fuentes (2018) mentioned that a steep rise in the wage level had an adverse effect on firms' capacity, indicating that increase of 22% in the minimum wage reduced total factor productivity by 5.8% in industries and particularly, decreased by 9.7% in ones where low-skilled workers are used intensively.

Enterprises resort to various strategies to respond and adapt to higher labor costs (Choi, 2018). Whenever there is an increase in the minimum wage, Choi (2018) points out that employers, in general, do not reduce workers instantly but they likely deal with the situation by alternative means such as raising prices, cutting back on employees' benefits or allowances, and making the working hours less or reducing training or labor costs. The study by Del Carpio and Pabon (2017) states that depending on the research into the strategies of companies, along with studies in the areas of business and economics, five adjustment mechanisms are found out: 1) reducing corporate profits; 2) either raising the prices of goods

and services or reducing production costs; 3) reorganizing the internal personnel structure; 4) dropping out of the formal labor market, and; 5) increasing the investment in physical capital such as machinery and technology.

The study in OECD countries, specifically in the US by Sabia (2015) stated that increased minimum wage results lower productivity in the industries generated by a large number of low-skilled workers whereas the industries employed by the large share of high-skill workers do not show the low effect of productivity. Another study in Britain by Croucher and Rizov (2012) reported that due to the introduction of the national minimum wage, the two outcomes are coming out significant; higher labor productivity in all low-paying sectors and productivity is raised in larger firms than those in small firms. Yuen (2013) stated that small firms have less readiness to implement the minimum wage policy compared to big firms. Yuen (2013) further claimed that the legislation of a minimum wage is a great move as it will push the workers to raise their skills and competencies for more intense labor competitions. In the context of skills and competencies, manufacturing employers have a likelihood to provide cross-training to enhance productivity and to nurture competence of employees in their enterprises (Leng Yean, Peck Ling, Chay Yoke, Jayabalan, Wei Fong, & Kandasamy, 2016). If the policy is implemented with an appropriate training program and quality control, it will support workers to be higher productivity in their work and the minimum wage policy can be an aid to be productive in SMEs, focusing on the quality products through skill workers or semi-skilled workers (Yuen, 2013). The evidence presented by Leng Yean et al. (2016) showed that micro-sized and small firms are not well aware of implementing the minimum wage and not ready to implement when compared to larger firms. From the employers' points of view, Yuen (2013) claimed that the increased labor costs might affect the SMEs which are currently struggling and this situation leads to

workers' lay off or even forces some SMEs to be out of business, especially for labor-intensive SMEs, like agriculture, tourism, and manufacturing.

Also, Haepp and Lin (2017) mentioned that the result of the minimum wage policy indicates the negative effect on human capital investments, as a result, that effect has the potential to reduce labor productivity growth. Employers might also change their scheme in their firms in response to an increase in the wage floor by boosting prices and replacing low-wage workers with other inputs (Congressional Budget Office, 2014). Based on Hamermesh's study (2014), higher labor costs such as increasing minimum wages and additional benefits of the employees can reduce the company's profit, employment, and the working hours. The study by Lemos (2004) suggests that firms not only reduce production and employment but also raise prices when the minimum wage is raised.

Regarding the performance and increasing earning among low-wage workers, Umar (2014) pointed out that the higher wages the worker receive, the higher performance the workers show. Thus, Umar (2014) showed that the output of employees increases significantly because of higher wages in the manufacturing sector from the Makassar Industrial area. However, from the employers' perspectives, Hamermesh (2014) mentioned that higher labor costs unaccompanied by technology changes as capital for labor result in employers' unwillingness to hire workers and lead to a decrease in the total amount of work done. Moreover, the study convincingly argued that the employers will spend more capital investment such as substitution capital for labor is a more attractive option when there is a rise in wage costs per individual or per hour.

2.1.3 Minimum Wage Policy with Gender Issue

Following the mathematical meaning from the Organization from Economic Co-operation and Development (OECD, 2020), the gender wage gap is measured to the difference between median earnings of men and women compare with the median earnings of

men. A recent view of the literature on this matter, Ortiz-Ospina (2018) highlighted the four main points why substantial gaps remain in almost all countries: 1) the gap in education because of gender inequality; 2) the characteristics of the jobs that women tend to do; 3) discrimination and social norms affecting the gender distribution of labor, and; 4) differences in psychological attributes and non-cognitive skills.

About the gender wage issue, Rubery and Grimshaw (2011) claimed that minimum wages are not only a single strategy but these are essential elements in a more comprehensive policy approach for narrowing gender wage inequity. Furthermore, to minimize the sizeable gender inequality, Ortiz-Ospina (2018) suggested that public policy and management plays an important role. Since the minimum wage policy is considered as a policy intervention to promote gender equality and to boost shared prosperity, Menon and Rodgers (2017) asserted that the governments have to ensure the enforcement and compliance of the policy, especially in industries generated by a large concentration of female workers.

The study using manufacturing firm-level census data of Indonesia by Hallward-Driemeier, Rijkers, and Waxman (2015) demonstrated that gender wage inequality is related to the educational level when minimum wages are increased. In China, the reduction of working hours occurs remarkably among women, in particular, according to minimum wage adjustments, as employers suppress wage increases for the weakest group of workers (Sun, Wang & Zhang, 2015). It is well-known that minimum wage may have disproportionate effects on employment precisely, among the vulnerable workers who are less productive. Del Carpio, Messina, and Sanz-de-Galdeano (2014) discerned some adverse effects of the minimum wage such as reducing the possibility of being employed among women and elderly workers although the estimated impacts are small, investigating whether the minimum wage improves the welfare in Thailand.

Having discussed the concepts of gender wage inequalities and the proper policy tool to control it, let us now turn to the gender gap inside Myanmar's labor market. The following table shows distinctly the overall gender gaps in Myanmar where the women's ration in underemployment and vulnerable employment is higher than men, but men have higher employment rates than women (Danish Trade Union Development Agency, 2019).

Table 1: Overall Gender Gap in Myanmar

	Men	**Women**	**Gender gap, percentage point (p.p)**
Employment	79%	51%	-28 p.p
Unemployment	0.7%	0.9%	+ 0.2 p.p
Underemployment*	35%	42%	+ 7 p.p
Employees	39%	37%	-2 p.p
Vulnerable employment**	56%	62%	+ 6 p.p

Source: ILO, key indicators of the Labor Market (KILM)

***Those who worked less than 44 hours a week.**

****Aggregate own-account workers and contributing family workers**

Currently, the gender ratio of the entire workforce in Myanmar is overwhelmingly female, serving most of the service sector and retail sector and some labor-intensive manufacturing sectors such as garment industries and food processing industries (Oo et al., 2019). Mungoven (2018) revealed that there is a positive impact on the reduction of poverty and inequality due to the introduction of minimum wage policy in 2015. Surprisingly, the author makes a sound finding for discrimination that the 2015 enforced minimum wage has contributed to reducing the gender gap pay from 25 percent to 12 percent during 2015 and 2017.

This study is intended as an addition to the existing experiments on the subject of gender gap issues. In this paper, the impact of the minimum wage on female employment among types of sectors with different ownership and different population size will be investigated. The above growing body of literature examines the minimum wage policy, its impact on employment. It also reviews the area whether it affects productivity in the

economic sectors as well as it can close the gender gap pay. This study will account for the further outcomes of employment because of the capital substitution when the minimum wage rate is fixed.

III. Hypotheses Development

There has been considerable research on the employment outcomes of a minimum wage policy intervention, although few empirical studies have applied the topics of types of sector, types of ownership and population size to the context of the legislation of a minimum wage. Employment or Disemployment is an essential factor in assessing the consequences of the minimum wage policy and the most interesting area for scholars. The effects on jobs are widely used as a benchmark in the study of the influence of the minimum wage in real-world circumstances (Adema, Giesing, Schönauer, & Stitteneder, 2019).

The imposition of minimum wages was a very significant step to address the requirements of the workers and their families in Myanmar (Lwin, 2017). The issue of workers' wages has come to attention for the Myanmar context and the topic of wage levels has been not only an important labor-relations issue but also an attentive area for many strikes in Myanmar (Bernhardt, De, & Thida, 2017). In early 2015, especially before the introduction of the minimum wage, the Government of Myanmar and International Labor Organization (ILO) carried out a Myanmar Labor Force Survey (LFS), so that, LFS can serve as a reference point in comparing the former situation with the latter one after the minimum wage has legislated (Bernhardt, De, Thida, & Min, 2016). It is imperative to repeat the LFS regularly and comprehensively in future years for employment and economy impact assessment.

3.1 Effects of Policy Intervention on Full-time Employment

For the purpose of transforming the existing outcomes and promoting the validity and better consequences, any countries call for the government or government agency for policy

intervention (Van Katwyk, Grimshaw, Mendelson, Taljaard, & Hoffman, 2017). The innovative policy dealing with the economy is commonly enacted by the government to meet the objectives of economic growth, productivity growth, increased employment, and competitiveness (Chaminade & Edquist, 2006). Especially, after the policy change, the research is vastly carried out to measure the impacts and the aggregate outcomes, in order to compare to the previous condition that is before the policy change, as well as a reduced form relation will be conducted during a policy change (D. Huesch, Østbye, & K. Ong, 2012).

Minimum wage policy legislation is one of the significant cases that can affect the distinction between employment and unemployment when it covered only a part of the economy (Mincer, 1976). Furthermore, Mincer (1976) insists that the conditions creating the distinctions are dominant and must be treated explicitly in the analysis of the minimum wage effect. Minimum wage legislation will not only modify the wage of workers directly affected but also materialize the final effect throughout the wage distribution as firms try to restore at least some of their former wage structure (Majchrowska & Zolkiewski, 2012).

According to Neumark and Wascher (2007), when segments of population, economic circumstances, and contexts are different, minimum wage effects may differ. The relationship between population size and problems of social and economic underdevelopment conditions such as sizeable inequality, extreme poverty, prevalent unemployment (especially among women) must be given high priority (Todaro & Smith, 2014). Thus, the population concern is addressed in the current study with the following hypotheses.

Experiences with minimum wages differ across the world. Due to minimum wages, although firms operating in different sectors and in different sizes have been impacted in unequal ways, the impact is similar for any ranges of workers (Bernhardt, De, Thida, & Min, 2016). Unlike other countries, Myanmar does not divide into three or four minimum wages in the country and the rate of wages fixed by Myanmar is found to be the lowest one among

ASEAN countries (Lwin, 2017). Labor turnover rates in Myanmar are very high before enacting minimum wage policy and these may reflect dissatisfaction in the job, such as much worse working conditions, lengthy working hours, badly-paid wages, or other factors (Bernhardt, De, & Thida, 2017). In order to completely recognize to what extent, the stakeholders experience the consequences of policy intervention, the government is required to apply the reasonable and reliable resources in evaluating and keeping track of the minimum wage policy (Bernhardt, De, Thida, & Min, 2016).

This study hypothesized that the higher expectation of minimum wage policy intervention affects employment/disemployment of the workers.

H1: Minimum wage policy intervention affects full-time employment.

H1a: Minimum wage policy intervention based on types of sector affects full-time employment.

H1b: Minimum wage policy intervention based on types of ownership affects full-time employment.

H1c: Minimum wage policy intervention based on population size affects full-time employment.

3.2 Effects of Policy Intervention on Part-time Employment

According to Rutkowski (2003), firms tend to adjust hours of work and the employment level in the purpose of balancing the operation when there is a hike in the minimum wage. Neumark & Wascher (2008) suggest that whenever there is a change in the minimum wage, employers make adjustments in the employment situation, for example, making the numbers of hours reduce rather than making specific workers redundant. Part-time workers are mostly affected ones in the case of cutting hours and they are nearly about to be unemployed or showing resistance to precarious employment status. However, this

group has been ignored to investigate in the minimum wage literature (McGuinness & Redmond, 2018).

Regarding the conflicts of employment effect of minimum wage implementation, Dickens, Riley, & Wilkinson (2015) suggest that if the research is not carried out on vulnerable groups, it will find no employment effect. And the researchers found that the implementation and rising in the minimum wage in the UK can cause adverse employment effects for these groups. In Myanmar, it is rare to find out part-time jobs, on average, part-time workers only exist less than 5 percent of a company's workforce (Bernhardt, De, & Thida, 2017). The researchers throw light on the skilled-labor shortage which is the fundamental challenge for businesses and investment in human capital development is not common in the country.

By considering policy intervention as a cause of a fall in part-time employment, this study hypothesized that policy intervention affects the level of part-time workers' employment.

H2: Minimum wage policy intervention affects part-time employment.

H2a: Minimum wage policy intervention based on types of sector affects part-time employment.

H2b: Minimum wage policy intervention based on types of ownership affects part-time employment.

H2c: Minimum wage policy intervention based on population size affects part-time employment.

3.3 Effects of Policy Intervention on Female Employment

Since the minimum wage is assumed as a policy of gender-sensitivity and a tool for shared prosperity, Menon and Rodgers (2017) asserted that the governments have to ensure

the enforcement and compliance of the policy, especially in industries generated by a large concentration of female workers.

Policymakers have made an attempt to impose much stricter labor standards since the competition between developing industrial countries and industrializing countries have begun intense, especially, in labor-intensive products like garments (Harrison & Leamer, 1997). In terms of industrial relations in Myanmar, the social dialogue on the minimum wage tended to focus on consignment manufacturing process (cut-make-pack) industries as they employ large numbers of low-wage workers and the enforcement of the minimum wage was geared towards protecting the most vulnerable group of workers such as female rural migrant workers (Oo et al., 2019).

The hike in the minimum wage in China extremely affects women with the lowest income or with high risk (Sun, Wang, & Zhang, 2015). In addition, Jia (2014) finds that the minimum wage increases make employment drop more especially for female workers. In the context of Myanmar, female workers comprise a large proportion of the workers in garment factories, that reflects creating formal employment opportunities to Myanmar women in garment sectors and these sectors are the important factors for a demand for higher minimum wages before minimum wage legislation (Bernhardt, De, & Thida, 2017).

In this research, the third hypothesis focuses on the relationship between the effect of minimum wage policy intervention and female employment.

H3: Minimum wage policy intervention affects female employment.

H3a: Minimum wage policy intervention based on types of sector affects female employment.

H3b: Minimum wage policy intervention based on types of ownership affects female employment.

H3c: Minimum wage policy intervention based on population size affects female employment.

3.4 Effects of Capital Substitution on Employment

The nature of jobs can be transformed by technological progress. In line with the advanced technology such as fully automated machines and the widespread of online platforms, the economy system vastly transforms its situation, that results in a vast array of work, for example, self-employment, part-time job, temporary job and the new kinds of work relationship emerging in the "online gig economy" (Cahuc, 2018). Besides, from the employers' perspectives, Hamermesh (2014) mentioned that higher labor costs unaccompanied by technology changes as capital for labor result in employers' unwillingness to hire workers and lead to a decrease in the total amount of work done. Moreover, this study convincingly described that the employers will spend more capital investment such as substitution capital for labor is a more attractive option when there is an increase in wage costs per employee or per hour.

A potential for labor reallocation, especially low-skilled workers that are particularly vulnerable, away from jobs that are automatable can reveal due to increases in the minimum wage, and automation has been focused as one of the dominant forces that have threatened low-skilled jobs (Lordan & Neumark, 2018).

In the developing economy of Myanmar, automation and artificial intelligence are used in the manufacturing sector but not a large portion. Most manufacturing enterprises are operating the conventional types of machinery, as well as numbers of operators, which are generally allocated much more than their respective workplace depending on their skill.

Accordingly, this study developed the following hypotheses:

H4: Capital substitution affects overall employment.

H4a: Capital substitution based on types of sector affects overall employment.

H4b: Capital substitution based on types of ownership affects overall employment.

H4c: Capital substitution based on population size affects overall employment.

IV. Data and Methodology

4.1 Data

This paper relies on panel data set from the source of the World Bank Enterprise Survey 2014–16 across five major industrial urban centers in Myanmar. In order to represent the whole population and the entire labor force of the country, the selected sample regions covered the five largest industrialized cities and these are quite enough to collect sufficient survey data that can credibly estimate the effect of the minimum wage. The survey used a purposive sampling method by selecting 1239 enterprises including 739 manufacturing enterprises, 221 retail businesses, and 239 other services. In terms of the size of the samples, the selected 1239 enterprises can be categorized into 113 micro-business, 653 small businesses, 299 medium enterprises, and 174 heavy industries.

Basically, the Enterprise Surveys are intended for providing panel data sets. Panel data plays a significant role in finding out the effects on firm-level productivity due to the changes in the business environment over time. This panel data structure has the characteristics of cross-sectional and time-series which gives a unique advantage to control individual and time-invariant specific unobservable effects; and to remove some part of the omitted variable bias that may arise from the correlation of the error term and the explanatory variables. According to Hsiao (2007), combining inter-individual variations and intra-individual dynamics, panel data has several advantages over cross-sectional or time-series data. The contrasting factor between panel data and time-series data is that time-series data has an emphasis only a single individual at multiple time intervals whereas panel data (or longitudinal data) has an emphasis

on multiple individuals at multiple time intervals. In order to mitigate measurement error and to provide data that compares across the world's economies, standardized survey instruments and a uniform sampling methodology are generally used in the surveys.

4.2 Dependent Variables

In this paper, the dependent variables are the log of the number of full-time employment, the number of part-time employment, log of the number of female employment to seek gender inequality will be associated, and log of the net book value of machines to evaluate the causal relationship between the change in employment and capital substitution due to the minimum wage implementation.

4.3 Independent Variables

The independent variables include the effect of minimum wage policy intervention (dummy variable: post=1), types of sectors such as manufacturing and service, types of ownership including domestic ownership, joint venture, and foreign ownership, population size where the observed enterprises are located and the difference in the number of full-time workers during 2014 to 2016.

The variables used in this regression analysis are summarized in Table (2) as follow:

Table 2: Summary Statistics- Types of Variables used in Regression Analysis

Variable	Obs.	Mean	Std. Dev.	Min	Max
Log of no. of full-time employment	1,239	2.94	1.43	0.00	8.16
Log of no. of female employment	1,239	8.08	0.24	0.00	8.10
Number of part-time employment	1,239	5.24	38.86	0.00	750.00
Log of net book-value of machines	457	17.71	2.03	10.82	23.67
Policy intervention (post=1)	1,239	0.49	0.50	0.00	1.00
Types of sector	1,239	0.40	0.49	0.00	1.00
-service	1,239	0.82	0.38	0.00	1.00
-manufacturing	1,239	0.18	0.38	0.00	1.00
Types of ownership	1,239	0.07	0.36	0.00	2.00
-full domestic-owned	1,239	0.96	0.19	0.00	1.00
-joint venture	1,239	0.01	0.10	0.00	1.00
-full foreign-owned	1,239	0.03	0.17	0.00	1.00
Population size	1,239	2.55	0.69	2.00	4.00
-over 1 million	1,239	0.57	0.49	0.00	1.00
-250,000~1,000,000	1,239	0.32	0.47	0.00	1.00
-50,000~250,000	1,239	0.12	0.32	0.00	1.00
Employment Fluctuation (2014 to 2016)	1,239	-12.99	84.29	-1350.00	360.00

4.4 Model Specification

In order to conduct the empirical analysis on the effects of the implementation of minimum wage policy on employment, a panel data study was taken. Arellano (2003) had drawn that a fixed effects regression is an estimation method employed in a panel data set to observe the causal relationship between a vector of observable variables and a dependent variable by allowing one to control for time-invariant unobserved individual characteristics that can be correlated with the observed independent variables.

To estimates the effect of the minimum wage policy, this paper uses the following equation:

$$\gamma it = \beta 1 Xit + \beta 2 Xkt + \alpha i + \epsilon i$$

Where;

Yit is the outcome variable in specific enterprise i, in a specific year t.

Xit and *Xkt* are independent variables

β is the coefficient for the independent variable

αi is the region

ϵi is the error term

The main explanatory variable is the minimum wage (*MW*) that applies to each employment in the enterprise (i) and year (t). The choices of the control variables may include the numbers of enterprises (i) and time (t) effects. This model is typically estimated using data for workers in the enterprises for which the minimum wage is more likely to be binding. The inclusion of the dummy variables reduces the potential bias from unmeasured specific time-invariants. Vector X_{it} and X_{kt} contain independent variables including minimum wage policy intervention, types of sectors, types of ownership, population size respectively.

This study takes into account the bulk of previous literature and introduces the fixed effects model. A Hausman test was run to confirm the superiority of a fixed-effects model over random effects. Essentially, the test looks to see if there is a correlation between the unique errors and the regressors in the model. The null hypothesis is that the preferred model is random effects and the alternate hypothesis is that the model as fixed effects. The null hypothesis is that no correlation among independent variable and error term and test statistics is distributed asymptotically as chi-squared with the degree of freedom equal to the number of independent variables. The Hausman test for choosing the best model between random effect and fixed effect shows that the fixed effects estimation is adequate because interpreting the result from the Hausman test is fairly straightforward: if the p-value is small (less than 0.05), reject the null hypothesis. Therefore, the fixed effect model is good for my regression.

Table 3: Hausman Test (Fixed Effect or Random Effect?)

```
1 . hausman fixed random

                 ---- Coefficients ----
                |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
                |     fixed        random       Difference          S.E.
----------------+----------------------------------------------------------------
       pre_post |    2.456835    -1.439303        3.896138        1.933217
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                  chi2(1) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =          4.06
                Prob>chi2 =        0.0439
```

V. Empirical Results and Discussion

The empirical results of the effect of the minimum wage policy (2015) on employment by employing the World Bank Enterprise Survey panel data set through 2014 to 2016 in Myanmar are presented in this section. To analyze the impact of the minimum wage policy intervention, the Ordinary Least Square method (OLS), fixed effect method (FE), and random effect method (RE) are used in this study.

Table (4) shows the effect of the minimum wage policy intervention on full-time employment with controlling control variables - types of the sector such as manufacturing and services, types of ownership such as firms fully owned by domestic entities, joint venture firms owned partially by the domestic and foreign organization and firms fully owned by foreign companies and population size of the region where the observed enterprises are located. The minimum wage policy intervention reduces the number of full-time workers by 1.1%, 3.3%, and 5.7%, in the columns respectively but statistically insignificant. That can be drawn that the effects of the first and foremost minimum wage policy of Myanmar decrease

full-time workers slightly. Myanmar minimum wage is fixed and passed after due consideration by two years' consultation of tripartite representatives. There are several strikes and disputes regarding wage paid and fixing wage levels in recent years before the minimum wage policy introduction. According to the ILO's suggestion, the government implemented the Labor Force Survey (LSF) to introduce the appropriate rate of a minimum wage. Thus, the impact of the first minimum wage policy introduction on full-time employment, that is the majority of the labor force and the important group to observe the impact, is not very huge.

Observing the effects of minimum wage policy on full-time employment based on the types of sector, where the service sector is controlled group, the effect of minimum wage policy decrease full-time employment of the manufacturing sector than that of the service sector, by 59.3% in OLS column, by 59.6% in FE column and by 56.4% in RE column respectively. The results in the OLS model and RE model are statistically significant at 1% level. That implies that the manufacturing sector, 59.64% of observations in this survey, is much more affected by the minimum wage policy. According to information from the former Ministry of Industry, food and beverage industries and garment industries are the most important manufacturing activities in Myanmar because these industries are the leading roles for a vast range of enterprises and employment. Food and beverage industries generate over 50% to the country's gross manufacturing output while garment industries contribute 4.83% to total manufacturing output in 2011–12. Nonetheless, outputs from the service sector account for a small part of production and jobs. When the minimum wage rate is fixed for the first time, many companies especially the garment sector claimed that they are unable to compete in the international market because of the higher wage level. However, the wage level of Myanmar minimum wage is one of the lowest ranks among the Asia countries, so is the GDP per capita of the country.

Table 4: The Effect of The Minimum Wage Policy on Full-time Employment

VARIABLES	(1) OLS	(2) FE	(3) RE
Policy Intervention (Post=1)	-0.0110	-0.0328	-0.0565
	(0.0756)	(0.0437)	(0.0407)
Types of Sector			
Manufacturing	-0.593***	-0.596	-0.564***
	(0.0691)	(0.642)	(0.101)
Type of Ownership			
Joint Ownership	2.002***	0.0396	1.268***
	(0.399)	(0.377)	(0.274)
Full Foreign Ownership	2.886***	0.121	1.563***
	(0.171)	(0.220)	(0.164)
Population Size			
Over 250,000 to 1 million	-0.892***	0.178*	-0.965***
	(0.0701)	(0.0961)	(0.0810)
50,000 to 250,000	-1.013***		-1.073***
	(0.1000)		(0.100)
Constant	3.338***	2.999***	3.462***
	(0.0700)	(0.121)	(0.0574)
Observations	1,239	1,239	1,239
R-squared	0.326	0.028	
Region FE	Yes	Yes	Yes

Notes: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
Dependent variable is measured as the log of no. of full-time employment.

Regarding the effect of the minimum wage policy based on the types of ownership, where a controlled group is the firms fully owned by domestic entities, the effect of the minimum wage policy increases full-time employment of joint ownership and foreign full ownership than that of domestic full ownership. The results show that full-time employment of joint ownership increase by 200.2% in OLS model, by 3.96% in FE model and by 126.8% in RE model compare with that of domestic full ownership and full-time employment of foreign full ownership rise by 288.6% in OLS model, by 12.1% in FE model and by 156.3% in RE model than that of domestic full ownership. This suggests the positive impact of the minimum wage setting process and minimum wage enforcement in creating a business-friendly environment, which in turn attracts more foreign investors into the country. FDI entries increased rapidly due to Myanmar's outlook economy reform in 2011. According to the Myanmar Investment Commission, only in the manufacturing sector, the government

approved the amount of FDI; 32.254 million USD in 2011-12, 400.716 million USD in 2012-13, 1826.980 million USD in 2013-14 and 1502.013 million USD in 2014-15.

In 2015, Myanmar Garment Manufacturers Association (MGMA) reports that it gained more than 120 new members during 2014 and 2015 and most of them are foreign companies as well as garment producers tend to supply foreign markets. In addition, full or partially foreign ownership comprises almost two-thirds of the enterprises and companies. The more predominant the labor-intensive Cut-Make-Pack (CMP) production model, the greater the number of foreign ownerships. Thus, this condition brings about the larger average workforce size among garment enterprises which can improve the export of the country.

Looking at the employment effect of minimum wage policy on full-time workers based on population size, where the region with a population of over 1 million is based, the results are inconsistent among the estimations by three models. In the OLS model, the enterprises located in the region with a smaller population of 250,000~1,000,000 and 50,000~250,000 reduce full-time workers by 89.2% and by 101.3 % respectively than the enterprises from the largest populated region. In the RE model, both the enterprises located in the region with a smaller population of 250,000~1,000,000 and 50,000~250,000 reduce full-time workers by 96.5% and by 107.3 % respectively compare with the enterprises from the largest populated region with over 1 million people. In the FE model, the result shows the full-time employment increase only in the enterprises located in the region with a population of 250,000~1000000 by 17.8% than the enterprises from the largest populated region.

The results of Table (5) present the effect of the minimum wage policy on part-time employment with controlling control variables same as Table (4). The results in the three models show that the minimum wage policy reduces the number of part-time workers by 6.2, 7.2, and 6.6, respectively at statistically significant.

The results of the employment effect based on types of sectors are inconsistent. The part-time employment of the manufacturing sector decreases by 3.8 in the OLS model as well as decreases by 3.8 in the RE model than that of the service sector. In the FE model, the part-time employment of the manufacturing sector increases by 7.2 than that of the service sector.

Table 5: The Effect of The Minimum Wage on Part-time Employment

VARIABLES	(1) OLS	(2) FE	(3) RE
Policy Intervention (Post = 1)	-6.218**	-7.208**	-6.561***
	(2.548)	(3.117)	(2.211)
Types of Sector			
Manufacturing	-3.843*	7.208	-3.760
	(2.155)	(45.87)	(2.473)
Types of Ownership			
Joint Ownership	15.18	89.83***	19.11*
	(21.95)	(26.93)	(11.09)
Full Foreign Ownership	7.739	-23.30	5.056
	(9.117)	(15.73)	(6.726)
Population Size			
Over 250,000 to 1 million	-7.343***	-7.601	-7.844***
	(2.133)	(6.864)	(2.642)
50,000 to 250,000	-2.682*		-2.573
	(1.534)		(3.874)
Constant	12.08***	8.046	12.54***
	(3.282)	(18.64)	(2.182)
Observations	1,239	1,239	1,239
R-squared	0.019	0.078	
Region FE	Yes	Yes	Yes

Notes: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
Dependent variable is measured as the number of par-time employment.

In the results of the employment effect based on types of ownership, part-time workers increase in joint venture enterprises than that of domestic owners after minimum wage policy implementation. The results in the FE model and the RE model are statistically significant. At foreign-owned enterprises, part-time employment increase by 7.7 in the OLS model and 5.1 in the RE model than domestic-owned firms but decrease by 23.3 in the FE model. However, the results are insignificant.

Foreign-owned firms experienced higher growth than domestically owned firms. Foreign direct investments and exports achieved very rapidly after releasing sanctions and boycotts imposed by the United States and the EU due to the political and economic reforms of the Government of Myanmar.

Looking at the employment effect of minimum wage policy on part-time workers based on population size, where the region with a population of over 1 million is based, the results are consistent among the estimations by three models. In the OLS model, the enterprises located in the region with a smaller population of both 250,000~1,000,000 and 50,000~250,000 reduce part-time workers by 7.3 and by 2.7 respectively than the enterprises from the largest populated region. In the RE model, both the enterprises located in the region with a smaller population of both 250,000~1,000,000 and 50,000~250,000 reduce part-time workers by 7.8 and by 2.6 respectively than the enterprises from the largest populated region with over 1 million people. In the FE model, the result shows the part-time employment decrease only in the enterprises located in the region with a population of 250,000~1,000,000 by 7.6 than the enterprises from the largest populated region with a population of over 1 million.

Most of the business owners established their enterprises easier access to the labor market, export facilities such as ports and banking facilities, and other productivity factors. The results suggest that the enterprises from large cities resist the effect of minimum wage policy implementation and the enterprises with a smaller investment, lack of better market facilities receive adverse impact than the larger ones.

Table (6) results show that the effect of the policy on female employment. All of the control variables are the same as in Table (4). In Column (1) to (3), the minimum wage policy intervention increases female workers by 3.9%, by 1.7%, and by 2.1% respectively at a statistically significant level.

In the manufacturing sector, employment increases than the service sectors. The results in the OLS model and the RE models are statistically significant at a 1% confidence level while it has shown negative employment in the manufacturing sector at the FE model but not significant.

Table 6: The Effect of The Minimum Wage Policy on Female Employment

VARIABLES	(1) OLS	(2) FE	(3) RE
Policy Intervention (Post = 1)	0.0391**	0.0174***	0.0206***
	(0.0165)	(0.00429)	(0.00434)
Types of Sector			
Manufacturing	0.0177***	-0.0174	0.0339**
	(0.00372)	(0.0632)	(0.0170)
Types of Ownership			
Joint Ownership	-0.112**	-0.0997***	-0.122***
	(0.0541)	(0.0371)	(0.0351)
Full Foreign Ownership	-0.266	0.178***	0.0936***
	(0.210)	(0.0217)	(0.0207)
Population size			
50,000 to 250,000	-0.0146*	-0.0169*	-0.0176*
	(0.00843)	(0.00945)	(0.00935)
Constant	8.063***	8.074***	8.053***
	(0.00882)	(0.0255)	(0.0113)
Observations	1,239	1,239	1,239
R-squared	0.048	0.300	
Region FE	Yes	Yes	Yes

Notes: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
Dependent variable is measured as the log of no. of female employment.

In the case of types of ownership, the joint venture firms owned by local and foreign reduce female employment while the foreign-owned enterprises increase the female workers but the result in the OLS model for foreign firms insignificantly shows negative.

Looking at the population size, the firms located in the region with a population size between 50,000 to 250,000 reduce the female workers than the firms from the larger populated region.

Myanmar embarks on an exciting economic development journey and women have a crucial role to play in realizing the economic potential of the country. As the economy rises, more women will have to enter the workforce to meet labor demands. The facts reflect that due to the consequences of Myanmar opened up the economy and FDI before introducing the minimum wage policy, the majority of foreign investors established the labor-intensive industries like garment factories, and the job opportunities for females improved. These factories are founded in large industrial cities where exist in vast labor supply and export-oriented facilities.

Table 7: The Effect of Capital Substitution on Employment

VARIABLES	(1) OLS	(2) FE	(3) RE
Employment Fluctuation (2014 to 2016)	-0.00249***	-0.0000296	-0.00235***
	(0.000571)	(0.00230)	(0.000890)
Types of sector			
Manufacturing	0.347		0.301
	(0.502)		(0.434)
Types of Ownership			
Joint Ownership	1.712**	0.359	1.181*
	(0.849)	(1.178)	(0.673)
Full Foreign Ownership	2.196***	0.725	2.129***
	(0.334)	(0.883)	(0.390)
Population Size			
50,000 to 250,000	-0.885***	1.082*	-0.626**
	(0.235)	(0.543)	(0.245)
Constant	17.62***	17.50***	17.62***
	(0.106)	(0.129)	(0.110)
Observations	457	457	457
R-squared	0.134	0.075	
Region FE	Yes	Yes	Yes
Number of panelid		395	395

Notes: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1
Dependent variable is measured as the log of net book-value of machinery and equipment.

Table (7) shows how much the additional capital investment of the enterprises as well as the substitution of machines and equipment for the labor force affects the overall

employment due to the impact of minimum wage policy. The effect of capital substitution reduces the number of employments by 0.25% in OLS, by 0.003% in FE, and by 0.24% in RE respectively at the 1 percent significant level. Regarding the base of the types of the sector, the manufacturing sector increases employment by 34.7% in the OLS model and 30.1% in the RE model than the service sector according to the improvement of capital.

In types of ownership, where the controlled group is the firms fully owned by domestic entities, the effect of capital substitution increases the overall employment of joint ownership and foreign full ownership than that of domestic full ownership. The results show that labor increasement of joint venture enterprises rise by 171.2%, by 35.6% and by 118.1% in columns respectively compare to the domestic enterprises. The employment of foreign-owned enterprises increases by 219.6%, by 72.5% and by 212.9% in the estimation models respectively compare to the domestic enterprises.

Looking at the employment effect of capital substitution for the workers based on population size, where the region with the population of over 1 million and over 250,000 to 1 million are based, the enterprises located at the region with a smaller population of 50,000~250,000 reduce full-time workers by 88.5% in OLS model and by 108.2% in FE model and 62.6% in RE model respectively than the enterprises from the larger populated region.

That reflects the consequences of the labor wage changes on increasing automation. If the situation with the wages of labor are rising and prices of equipment and technology has dropped, firms searching for a decent deal wouldn't see one of those in new workers. Worker's expenses are rising as the recoupment period for the machine is no longer given or the prices of machines are cheaper, and the combination causes businesses to spend more on machines than on labor. Myanmar's industrial structure is still in the initial stage and the industrial base is still weak. Besides, the government of Myanmar is always encouraging the

industrial sector growth. Especially, the agriculture sector of Myanmar is struggling to promote mechanized farming. Mechanized farming strategy's first priority is to make full provision of farm machinery and services in agricultural activities. With machines prices declining, and government incentives to subsidize capital investments due to the attraction of investments by the regulation of national investment law, these trends seem likely to continue.

VI. Conclusion

This paper is intended as a contribution from a Myanmar viewpoint to the ongoing discussion about the introduction of minimum wage policy. This paper also aimed to set out a policy framework examining the impact of Myanmar's minimum wage on jobs. Based on past world literature, whether hypothetical or statistical, the introduction (or increase) of statutory minimum wages does not have a major systematic effect on employment, either positive or negative. This paper has concentrated in particular on the effect of full-time employment and part-time employment in response to the minimum wage setting in Myanmar. The issue of female employment is also explored. And, this study has also extended to accomplish its last goal that is the effects of capital substitution on employment due to the implementation of the minimum wage. The empirical results indicate that the legislation of the minimum wage has a negative impact on full-time workers but it is insignificant irrespective of gender. This study has used Myanmar Enterprise survey data 2014 and 2016. Despite using a panel data set of Enterprise survey 2014 and 2016, it appears the negative impact. Hence, the finding is also consistent with the studies by Neumark and Wascher (2006) that if researchers concentrate on long panel studies that both state and time variation in minimum wages, it likely produces negative and statistically significant employment outcomes.

Based on the type of sectors, the minimum wage policy brings about the reduction of full-time employment in manufacturing sectors compared to service sectors. The empirical

results in regard to types of ownership describe that the full-time employment of joint ownership and foreign full ownership can be seen as a more increase than that of domestic full ownership. Thus, it may be an attraction to boost foreign investments. Regarding the full-time employment depending on population size, the results are inconsistent among three estimations. In general, the minimum wage policy results in disproportionate effects on full-time employment, such a significant decrease in the less populated area relative to a much more populated area.

In addition, the finding shows that an introduction of the minimum wage brings part-time workers to lose their jobs at statistically significant. However, the part-time employment of Joint Venture enterprises increases compared to domestic-owned enterprises. Concerning female employment effects, the empirical results show that the numbers of female workers increase at a statistically significant level. However, the employment effects based on types of sector differ: the legislated minimum wage has a positive impact on female workers in the foreign-owned enterprises, whereas it has negative impacts for female workers in the joint venture firms. Besides, the firms located in the region with a population size between 50,000 to 250,000 reduce the female workers than the firms from the larger populated region. Thus, the relatively adverse impact of the minimum wage on women is also consistent with the review by Del Carpio and Pabon (2017) that states minimum wage policy does have disproportionate effects on the most vulnerable groups of workers, and the effects are observable in both developed and developing economies. On the whole, the empirical results presented in this paper suggest that the employment of the enterprises from the cities with less population receives the adverse impact of minimum wage policy implementation than larger ones.

The finding indicates that the legislation of the minimum wage brings about a slight decrease in the labor force because of capital substitution such as machinery and technology.

The effect of capital substitution indicates heterogeneity by population size, type of sectors, and types of ownership, leading to the increase in employment in manufacturing sectors, the overall employment increases in joint ownership, and foreign own ownership whereas the reduction of employment in the enterprises from the region with less population size. The effect of capital substitution in this study is consistent with the previous work that discerns the reduction of automatable employment held by low-skilled workers due to the minimum wage increase (Lordan & Neumark, 2018). And, the evidence reveals that there is a tendency for low-skilled workers to be replaced by machines and technology in the future.

In general, Myanmar minimum wage aims to make progress the quality of low-earning jobs and to minimize inequality. However, if a steep hike in minimum wage occurs every two years, the level of employment exhibits a substantial drop distorting the wage structure. Hence, the unexpected negative effects of the minimum wage implementation are reduced by appropriate measures for the impacts of the wage, and efforts are made to be more positive in the employment effects (Choi, 2018).

The minimum wage policy introduction is naturally needed for a nation to solve the issues of employees and businesses at their lower ends, which leads to a reasonably competitive solution to the market balance. It should also be used as a tool to get rid of imperfections in the labor market. However, when the minimum wage continues to increase, some employees are likely to be driven off and enterprises would be closed. Del Carpio and Pabon (2017) suggest that whenever changes are made in a minimum wage policy, in turn, it brings about damaging effects on the most vulnerable workers. It is, therefore, a good idea to accompany these changes with the instruments such as providing access to unemployment insurance, supporting programs for re-employment, and social protection that will help affected workers to deal with the negative consequences. On the other hand, the minimum wage policy is not acceptable and is a must tool for increasing the productivity and

competitiveness of enterprises. Also, it cannot fully resolve the rate of poverty because of the increased laid-off rate whenever there is a hike in the minimum wage. The important dilemma, though, is how much the minimum wage policy will reduce the poverty rate.

The survey data set applied in this study is only from 2014 to 2016 to examine the impact of the first and foremost minimum wage legislation in 2015 and the findings indicate no significant adverse impact on employment. The rate of minimum wage was raised from 3600 MMK to 4800 MMK in 2018. Therefore, there is a need for further study of the effects due to the minimum wage hike in Myanmar. In addition, future research to investigate the extent of the poverty rate and the inflation rate whenever the minimum wage increases and how they affect the workers' earnings is needed in the Myanmar context.

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