

# Analysis of Development of High School, Vocational School, and Total Unemployment in Indonesia and its Solutions in Response to Industrial Revolution 4.0

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Unemployment is a major macroeconomic problem that can disrupt the peace of the Indonesian people and must be handled properly. The purpose of this study is to analyse the development of high school, vocational and total unemployment in Indonesia and the solution in responding to the industrial revolution 4.0. The research methodology used a quantitative descriptive approach to the development of these three variables. From the calculation results, the results show that the development of high school and total unemployment in Indonesia has decreased. On the contrary, vocational unemployment actually increased due to skill limitations and the inability to use the vocational training center to increase creativity outside of students' fields. Solutions made by the government to reduce the three types of unemployment by completing skills in the high school curriculum, improving the quality of vocational teachers and regenerating productive workforce through early retirement programs.

**Key words:** *Unemployment, skill, government.*

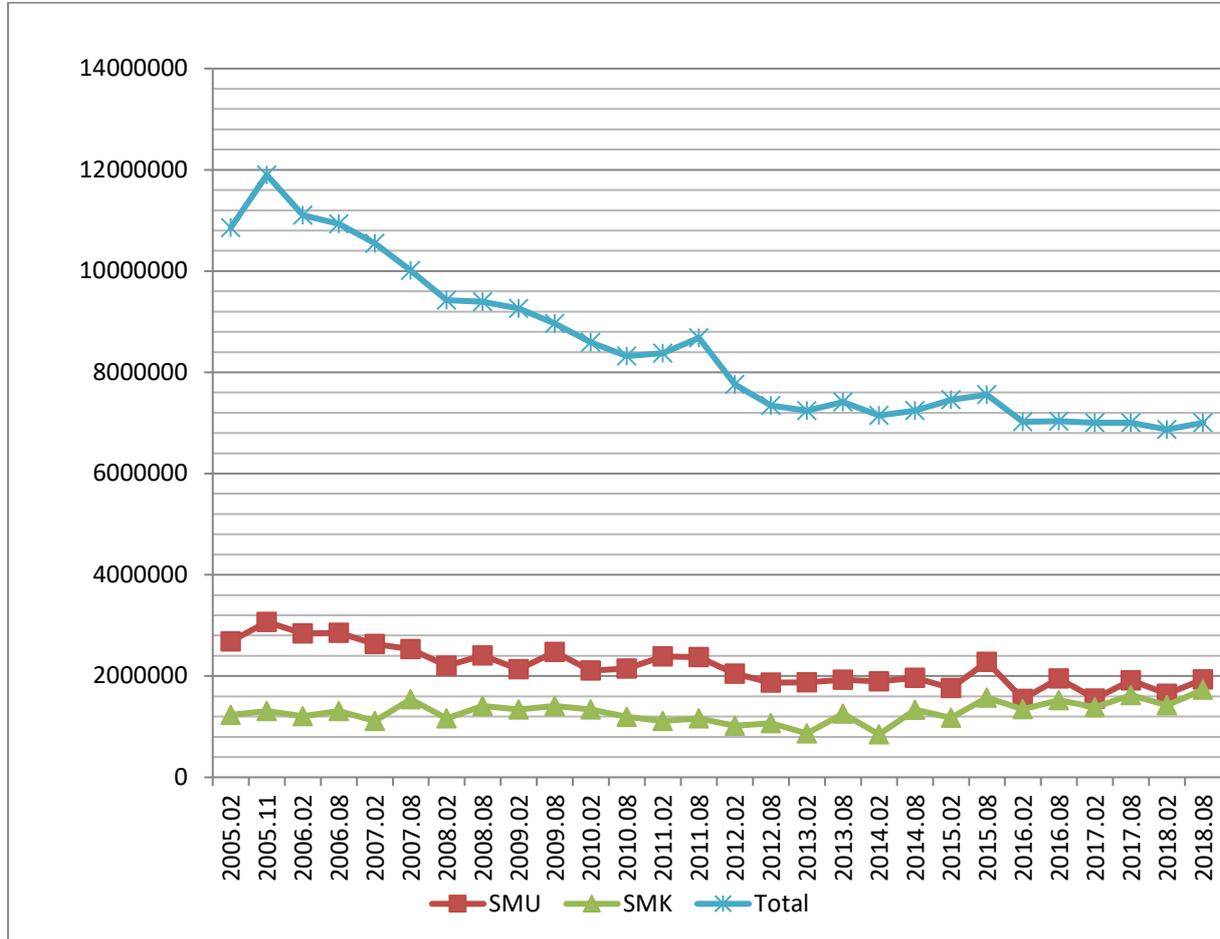
## **Preliminary**

The economic life of a country is very much influenced by the factors of production that are owned; among others, qualified Human Resources (HR). Especially with the demands of the 4.0 industrial revolution, the possibility of human work routines will be replaced with machines (Ridwan Kamil, 2019). This condition certainly affects the Indonesian workforce, especially students who have just graduated from high school (SMA) and Vocational High School (SMK), which represents a very large number of students in Indonesia.

The high population growth rate in Indonesia has increased the number of productive age people which is more dominant than the unproductive age. This demographic bonus should be able to improve people's welfare by creating the ability of the labour market to absorb these jobs in sectors with high productivity. But in practice we find that there is still a large number of unemployed people in Indonesia both from high school, vocational schools and in total. Therefore, it becomes a burden on the government to be able to overcome it after the reform era.

The description of unemployment in Indonesia from 2005 to 2018 can be seen in Figure 1 below:

**Figure 1.** High School, Vocational and Total Unemployment in Indonesia



From Figure 1 above, it can be seen that the rate of high school unemployment fell from 2,680,752 in 2005.02 to 1,930,320 in 2018.08. Conversely, vocational unemployment increased from 1,230,752 to 1,731,743 in the same period. Whereas open unemployment in 2005.02 still amounted to 10,854,254 and has decreased to 7,000,001 in 2018.08. In absolute terms, the number of the three types of open unemployment is quite large, where the number of high school unemployment is still higher compared to vocational unemployment SMK. But seen from its development, it turns out that SMK has a growth rate of 0,48%. While high school unemployment (SMA) and total unemployment only experienced growth of -1,02% and -0,97%.

From this information, a crucial problem arises in Indonesia; why does SMK unemployment seem to have an increasing trend when compared to high school unemployment? This is important to study more deeply, considering that SMK graduates should have greater potential to work. Even the government has appealed to the community a few years ago not

to be ashamed of continuing to vocational schools. It turns out that the reality that has happened lately is that the workforce of vocational graduates is more difficult to find employment than high school.

From the results of previous studies, it is proven from the side of fiscal policy that government spending has not been seen optimally in overcoming open unemployment in Indonesia, especially for SMK graduates in obtaining training/vocational work (Sugiarti, 2018). Various issues that stick out are the low general knowledge of those who come from vocational schools. This condition is not in accordance with the demand in the labour market, especially from large companies that demand a broad insight from their workforce. Besides that, from the supply side it is proven that the mentality of the SMK graduates is not well adapted, so that many SMK graduates are changing careers at a fast pace.

Meanwhile, in terms of total unemployment, it appears to be declining but has not been supported by qualified human resources. Most of the workers who contribute still provide mostly physical labour, so that the wages received are low. This condition has not been able to provide high work productivity which means that it has not succeeded in increasing prosperity. At first glance, the population is able to work but are not able to meet the necessities of life.

Based on this phenomenon it is very interesting to examine the factors that cause high unemployment of SMA, SMK and Total student unemployment as well as what solutions must be made both from the demand and supply side, especially in response to the industrial revolution 4.0.

### ***Formulation of the Problem***

Based on all the descriptions in the background of the problem, the formulation of the problem is:

1. What factors cause the number of unemployed high school, vocational and total students in Indonesia?
2. What solutions should be made to be able to optimize the use of high school, vocational school and total graduates in Indonesia to be able to respond to the industrial revolution 4.0?

### ***Research Purposes***

The objectives expected from this study are:

1. To find out the factors that cause the large number of unemployed high school, vocational and total students in Indonesia.
2. To find out the right solution to be able to optimize the use of workforce graduates of SMA, SMK and Total in Indonesia to be able to respond to the industrial revolution 4.0.

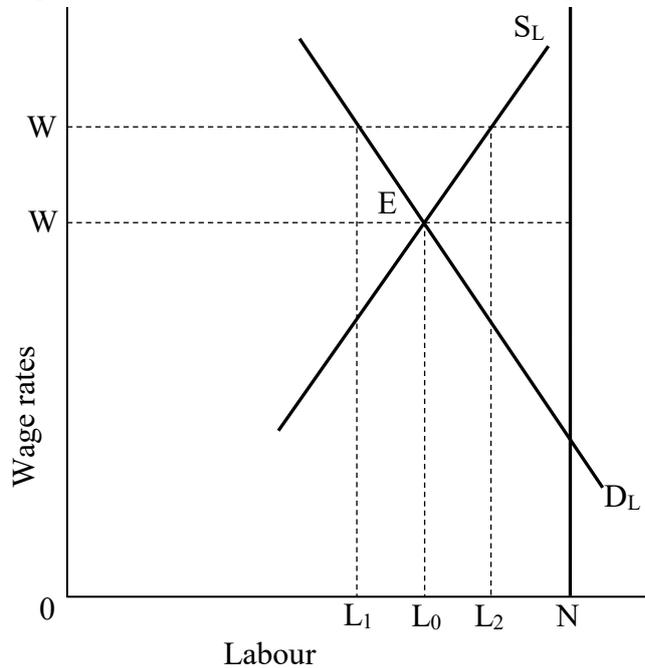
### **Theoretical Review**

#### ***Unemployment Theory***

The definition of unemployment refers more to the condition of someone who has entered working age and is looking for employment but cannot find it. Seen from the type of unemployment, this is classified as open unemployment. Factors that cause open unemployment can be divided into three types, namely conjuncture unemployment, structural unemployment and normal unemployment. Of the three types of unemployment, the most severe unemployment is the conjuncture and the lightest is normal unemployment. In addition to open unemployment in developing countries there are types of closed unemployment such as hidden unemployment, seasonal unemployment and underemployment (Sadono Sukirno, 2000).

Specific unemployment can be divided into two, namely voluntary and involuntary unemployment. Voluntary unemployment is a population of the working age the does not seek work at a certain wage level. If at a certain wage level, the workforce actively seeks work, but they do not get it, the workforce is classified as possessing involuntary unemployment or forced unemployment. This can be seen in Figure 2 below:

**Figure 2.** Voluntary and Involuntary Unemployment



From Figure 1 it can be seen that  $S_L$  is labour supply and labour demand. While the vertical line  $N$  is the working age population. Classical economists argue that labour market conditions are always balanced as indicated by the balance of the  $D_L$  with  $S_L$  at the point  $E$  where the number of the work forces that works is  $OL_0$  and wages that apply are as high as  $OW_0$ . Under these conditions there are a number of labour forces that do not work for  $L_2N$ , this is voluntary unemployment. The most concrete example is students and housewives. The position at the equilibrium point is due to the wage level flexibility which is an important classical assumption.

On the contrary, Keynes argues that unemployment that is certain to become a problem for the state is involuntary unemployment. Logically every workforce wants an increase in wages to be  $OW$  so that there is an excess of labour supply because  $S_L$  is greater than  $D_L$ . The impact was that involuntary unemployment reached  $L_1L_2$ . While voluntary unemployment is only relatively small, which is equal to  $L_2N$  (Sadono Sukirno, 2000).

### ***Framework***

A country's economic growth, seen from the increase in real national income per capita, requires supporting production factors, namely land and other natural wealth, the amount and quality of the population and labour, capital goods and technological levels, social systems and attitudes of society and market area (Todaro, 2011). Human Resources (HR) is the most

important production factor and is the key to the success of a country to be able to transform into a developed country.

The government's obligation is to progress superior human resources so that they become the drivers of development. Conversely, if the large population is not directed properly, it will be a barrier to development that ends in the large number of unemployed people. Indonesia as a developing country experienced high unemployment cases, especially for high school (SLTA) for both public and vocational schools. This condition will cause total unemployment to be quite large and if it is not immediately addressed it is feared that it will adversely affect the economy and society.

Thus, the role of the government is very important to pay attention to employment so that Indonesia's development process can achieve prosperity as expected.

### **Research Methodology**

In this study using a quantitative descriptive approach regarding the analysis of the development of high school, vocational high school and total unemployment and its solution to respond to the industrial revolution 4.0.

The type of data used in this study is secondary data sourced from Sakernas for the period of 2005.02 to 2018.08. Data selection in 2005.2 was due to the beginning of the SBY I government after the Tsunami hit Indonesia. This caused the biggest post-reform unemployment rate and so was an important moment in the Indonesian economy. The period ends in 2018 because this is considered one of the best times to describe the Indonesian economy, in terms of unemployment, before entering the 2019 political year.

Based on the data collected, the regression equation used is as follows:

$$UE = a + bt$$

where: EU = number of unemployed high school and vocational and total in Indonesia

t = time

Thus, there is one independent variable and one dependent variable. In accordance with the econometric provisions, the Old Least Squares method is used (Gujarati, 2009).

### **Results and Discussion**

In calculating the regression coefficient on structural equations based on unemployment data for the period 2005.02 to 2018.08 the results are:

$$UE_{SMA} = 2785364,23810 - 41857,93021 t$$

$$UE_{SMK} = 1175533,12698 + 7559,48632 t$$
$$UE_{TOT} = 10994800,56349 - 173367,98221 t$$

Where  $UE_{SMA}$ ,  $UE_{SMK}$  and  $UE_{TOT}$  are the large number of unemployed high school, vocational and total students in Indonesia. While  $t$  is the time that is February and August of the year studied. The number of high school and total unemployed before the development was 2785364,23810 and 10994800,56349. While the number of vocational unemployment before development is lower, 1175533.12698. Then at the end of the high school unemployment period and total fell to 41857,93021 and 173367,98221. Conversely, SMK unemployment actually increased to 7559,48632 in the same period.

From the results of calculations obtained, economic analysis will be carried out as follows:

1. Economic Analysis of Development of High School, Vocational and Total Unemployment in Indonesia; period 2005.02 - 2018.08

**a. Analysis of Development of High School Unemployment in Indonesia; period 2005.02 - 2018.08**

In the equation of the development of unemployment in high schools in Indonesia above, there is an intercept value of 2785364,23810. The high number of unemployed is due to the large number of high school graduates each year. The results of the observation indicate that generally the parents of students feel satisfied if their children can finish their education at a high school level. The main priority in high school or public schools is to have many employment opportunities for the future.

A good attitude towards high school contributes to a large high school educated workforce in Indonesia. This condition will increase the competitiveness of the high school workforce to be able to fight for the recruitment of the corporate sector. But this imbalance between supply and demand for labour for, high school graduates, causes difficulties for students to penetrate the labour market and results in a large number of unemployed graduates.

The reality in the field is that there are still many high school graduates who want to find their identity by pursuing the expected ideal conditions, such as entering the Indonesian Armed Forces (ABRI) or working in State-Owned Enterprises (BUMN) in areas of interest. It takes a long time from the registration process to the gradual selection and if the selection fails it will add a large number of unemployed high school graduates to the statistics. Thus, it is very natural that before the development there were high numbers of unemployed high school graduates.

While seen from its development the number of unemployed high school students, based on the period under study, has decreased. The main factor is that high school students have a general and comprehensive curriculum. Even most of the courses in higher education have been taught at the high school level even though only at a basic level. This condition has spurred their courage to try to penetrate companies / agencies that might be able to receive high school graduates. For example, after high school a person diligently seeks employment opportunities both in the government and the private sectors for any type of work for experience and avoids unemployment. This optimistic attitude has led to high levels of high school workforce acceptance in various private companies in Indonesia.

As a realization of the statement above, the Sakernas report (2018) in the city of Malang showed a decline in the SMA unemployment rate after being informed of the receipt of Civil Servants (PNS) by the local government. Furthermore, there was a high number of absorptions of high school workers because they had successfully penetrated the challenging world of work, even though sometimes it was not in accordance with the field of expertise they possessed.

Furthermore, this potential will be profitable for the company to provide low remuneration. This is in accordance with the theory of labour according to the classical perception that the magnitude of the amount of labour supply will push the wage level to relatively decline. The nature to work with low wages has eroded the number of high school unemployed and ended with declining developments.

From various reasons, it is very appropriate if the development of unemployment in high schools in Indonesia decreases because high school graduates have the potential to be more flexible and to easily adjust to the work requirements that must be faced.

#### **b. Analysis of Development of Vocational Unemployment in Indonesia Period 2005.02 - 2018.08**

In the equation of the development of vocational unemployment in Indonesia, there is an intercept value of 1175533.12698. The number of unemployed Vocational High School students was lower than the high school statistics. Based on experience during the New Order, the vocational workforce has indeed been prepared to have the skills according to the chosen department so as to facilitate their steps to work in agencies that need their expertise. For example, graduates of pharmacy and nursing schools can immediately work in hospitals in big cities. The nurse's progress in the village can set up a clinic that provides high welfare benefits. This condition has encouraged the high interest of the community to prefer to continue to Vocational High School.

Based on the data book report of Vocational Schools, the number of SMKs in Indonesia reached 13,926, consisting of 10,398 private Vocational Schools and 3,527 state Vocational Schools. The number of vocational students is 4.91 million (<https://www.antaraneews.com/berita/766948/mencermati-angka-penagngguran-2018>).

According to the law, the number of graduates produced from Vocational Schools is relatively high and it is probable that not all can be accommodated by the economy. This reality raises the number of unemployed SMKs.

Then in its development, SMK unemployment is seen to increase by 7559,48632. The limited skills that have had an impact on their selfishness to want to work outside their field of expertise. For example, many vocational graduates who do not want to work in the agricultural sector because of a sense of prestige. While for the urban sphere Indonesian human resources must have high knowledge, experience and skills. The existence of government program assistance through the Vocational Training Center (BLK) has actually opened up opportunities for those willing to work for companies that need expertise that graduates did not have before. But the cost is that they are less patient in the process / apprenticeship, so graduates are more likely to resign shortly after entering the workforce. (Emil Estianto Dardak, 2019).

This is considered detrimental to a company if it has to recruit a vocational workforce that is proven as fragile to accept challenges in the field. Low vocational quality of work will reduce work productivity which in the long run has the effect of reducing investment and Indonesia's economic growth. From the micro side, it will reduce the production of goods and services, followed by a decrease in the use of labour, especially vocational school labour. The weakness of the supply side, which is not supported by the suitability of the competencies and desires of these companies, has impacted the development of vocational unemployment in Indonesia, which will always increase.

### **c. Analysis of the Development of Total Unemployment in Indonesia for the Period 2005.02 - 2015.08.**

In the equation of total unemployment in Indonesia, there is very high intercept value that is equal to 10994800,56349. This result shows how large open unemployment is in Indonesia, in both urban and provincial levels. Famous cities have a strong attraction and push for the process of urbanization for villagers because of high inequality. The impact is that the number of urbanites continues to increase so that half of Indonesia's population lives in cities. Besides providing a positive impact, because urbanization is needed to grow into a middle-

income country, it also requires adequate employment in the city. If it does not succeed, the job competition in the city will become more stringent. (<https://www.indonesia-investments.com/enuangan/angka-ekonomi-makro/unemployment/item255>).

Similarly, in terms of the provincial side, the highest unemployment was seen in West Java Province (8.16%) and Bali has the lowest unemployment (0.86%). The superiority of Bali is inseparable from tourism and art potential which attracts both foreign and domestic tourists to visit the province. This reality has educated the Balinese people to become successful entrepreneurs. The growth of entrepreneurial spirit characteristic has promoted the low unemployment rate in Bali. On the other hand, the productive age population in Bandung prefers a high-class appearance but is less capable of high creativity. This condition has affected the high total unemployment in West Java.

Seen from its development, total unemployment in Indonesia actually shows a decline with a number of 173367,98221. This achievement is encouraging because the supply value of labour is quite high in Indonesia. One factor that drives it is the ease of registering business licenses. At present the government is intensively running business license registration through an online system so that companies can more easily register their businesses. This potential will have an impact on the ability of companies to more quickly absorb formal labour. Besides that, a number of development projects and infrastructure improvements carried out by the government make it easier for companies to operate and this has an impact on reducing the unemployment rate (<https://ekonomi.bisnis.com/read/20180923/12/841154/2019-pengangguran-diproeksi-turun-ke-level-47>)

From a macroeconomic perspective, the decline in rapid unemployment between 2006 and 2012 stemmed from the 2000s commodities boom. Where the Indonesian economy is growing rapidly resulting in many new jobs amid growing economic activity. While the trend in 2011-2015, despite the economic slowdown, has been dealt with by reducing Indonesia's dependence on commodity exports and this is predicted to have a positive impact on unemployment in Indonesia.

Then in terms of women's emancipation, about half of Indonesian women, who are of working age, have worked in formal employment. This figure is shown to be higher than the level (average) of the world's female labour force participation rate of 49% in 2017. This advantage has continually reduced the unemployment rate of women. The progress made by women is mainly in the education and health sectors, but most work in the informal sector with lower employment rates and lower wages than men who do the same work

(<https://www.indonesia-investments.com/id/keuangan/angka-ekonomi-makro/penangguran/item255?>)

Until now urban unemployment has reached 6.45% while in rural areas only 4.04%. The unemployment rate in rural areas is due to a reduction in the workforce in the agricultural sector. Workers in the villages have left the agricultural sector but have not obtained new jobs and thus became a burden on unemployment. (<https://www.antaraneews.com/berita/766948/mencermati-angka-pengangguran-2018>)

The crush of poverty in the village will encourage urbanization and grow the informal sector in Indonesia, which is filled with 74.08 million workers who are either underemployed and/or suffer from hidden unemployment. Various strategies to reduce unemployment in the city have had a positive effect on the development of total unemployment in Indonesia.

***The unemployment solution of SMA, Vocational and Total Schools in Indonesia in Responding to the Industrial Revolution 4.0***

Bearing in mind that we have entered the millennial era, which is the industrial revolution 4.0, the competitive advantage of the Indonesian workforce must be improved (Jabarullah and Hussain, 2019). In accordance with the program of President Joko Widodo's administration, to reduce inequality as a national priority, employment is the main policy because it gives three big contributions. First, ensuring the realization of redistribution through work and wages. Second, ensuring economic productivity and competitiveness. Third, ensuring social cohesion and recognition of citizenship. Government actions according to experience in various developed countries in Europe, America, South Korea and Taiwan have arranged employment issues as a priority issue in achieving success (M. Hanif Dhakiri, 2017).

The right step to settle unemployment is the supply-side approach through state contributions to create a massively skilled workforce. This statement is supported not only by the limited skilled and professional workforce, but also high job competition, both at the ASEAN and Global levels. On the other hand, the results of the International Research Institute, MC Kinsey Global Institute, estimate that Indonesia will become the number seven economic power in the world by 2030. The prediction refers to Indonesia's stable economic growth rate, and the demographic bonus that will be experienced between the years 2025-2030.

The demographic bonus will be a blessing if the productive age population has competitive work skills which will increase the country's productivity. To be able to make it happen, Indonesia needs a skilled workforce of at least 113 million people. In 2015, Indonesia only

had 56 million skilled workers. Thus, by 2030, 3.7 million new skilled workers are needed each year to meet demand (Ministry of Manpower, 2017). Solutions that can be done by the government to reduce unemployment and create skilled labour can be described as follows:

#### ***a. High School Unemployment Solution***

With the awareness that the number of unemployed high school graduates in Indonesia is quite large, the government must provide high skills in the curriculum, implemented in public schools. This is predicted to increase the competitiveness of the high school workforce because it has high general knowledge accompanied by adequate skills. Armed with these skills, it is possible that the quality of high school workers is equal to vocational schools and is more easily absorbed in the labour market. For example, PT Telkom is more likely to receive a high school workforce that has technical skills and is able to be assigned to the equivalent field of vocational high school.

From the demand side, integration was carried out with various related parties starting from the private sector, the government and the community to produce qualified labour force candidates. Especially for private high schools, under the auspices of the Foundation, can work with private parties both at home and abroad who are partners in recruiting high school workers. Likewise, State High Schools that have high rankings will get bids from government agencies that require a high school graduate workforce, through achievement pathways. Further, cooperation with the community can be taken to educate successful entrepreneurs.

The high school workforce, who wish to work abroad or become Indonesian Workers (TKI), must be given optimal service. The government's role is to establish a One-Stop Integrated Service (LTSA) aimed at providing certainty and convenience in the service of placing Indonesian migrant workers abroad. Currently there are 32 LTSA built in various regions in Indonesia. In 2015, 3 LTSAs were inaugurated in Kab. Gianyar, East Java and NTB. In 2016 6 LTSAs were built in West Kalimantan, Kupang, Southwest Sumba, Nunukan, NTT Province and the Riau Islands. Throughout 2017 the government has inaugurated 13 LTSAs in Cilacap, Brebes, Pati, Kendal, Tulungagung, Sambas, Loteng, Lobar, Lotim, Sumbawa, Karawang, Sukabumi and Cirebon Regencies. In 2018 LTSAs were established in Banyumas, Grobogan, Wonosobo, Ponorogo, Madiun, Banyuwangi, Bima and Sika. The existence of the LTSA is important to improve governance placement services and to protect Indonesian migrant workers (PMI) abroad (M. Hanif Dhakiri, 2018).

In detail, the role of an LTSA is to help people who want to work abroad, to provide job information services and to take care of required documents such as passports, population documents and insurance BPJS. The integration of LTSA services includes Kemenker,

Kemkumham, Ministry of Home Affairs, Manpower Agency, Employment BPJS, Professional Certification Institutions (LSP) and BPN2TKI. This synergy is important in providing services to people who need services. Thus, the service process must be measured and set forth in standard services that are easy, cheap, fast, safe but not in conflict with the applicable laws and regulations. The LTSA service also penetrated efforts to provide protection to Indonesian Migrant Workers (PMI) and their family members before work, while working and until the workers return to their home areas. It is hoped that these efforts will be able to reduce the number of illegal workers and ensure the safety and well-being of the PMI.

To encourage the placement of formal sector workers abroad, local governments must maximize the Vocational Training Center (BLK) as a means of accelerating the improvement of competence. Thus, PMI who will work abroad have pocketed skills and are certified. The positive impact of LTSA is felt by Indonesian Migrant Workers (P3MI). A LTSA is very helpful in saving time and energy for prospective migrant workers. Before the existence of LTSAs, it took up to 2-3 weeks to complete the process of all prospective TKI documents, but with the LTSAs, this timeframe is shortened to days (Dwi Cahyono, 2018).

### ***b. Vocational Unemployment Solution***

Vocational unemployment reduction programs are highlighted in vocational education and work skills education and training. The role of the teacher as an educator must be increased in quantity and quality by several methods, among others by recruiting new graduates, in accordance with the law through the profession and training of vocational school teachers called dual skills teacher training. The dual expertise teacher training program is the implementation of Presidential Instruction Number 9 of 2016 concerning Revitalization of Vocational Middle School. The government's task is to create a vocational development roadmap, improve and harmonize the Vocational curriculum with competencies that are in line with graduate users (link and match), increase the number and competence of Vocational educators and education staff, enhance collaboration with ministries / institutions, regional governments, and the world business / industry, increasing access to certification for graduates to form vocational development work groups (Sumarna Surapranata, 2017).

In accordance with Perpres number 2 of 2015, teacher competency in 2019 must reach an average of 80. The reality is that Indonesia still lacks 41,851 vocational educators (civil servants / PNS). Of the 52 expertise programs, teachers need 94,553, while the availability is only 52,692 teachers. This condition is coupled with the number of needs of private

vocational school teachers; as many as 50,000 people. This means that Indonesia still needs 91,861 productive vocational school teachers. Government has engaged in efforts to fulfil this need in the short term by direct recruitment and addition of productive teachers through the Multi-Subject Teaching method. While the 2017-2019 long-term program continues to recruit new PNS teachers for state and private vocational schools.

As a result, as many as 12,741 people have signed integrity pacts and provided training modules made based on collaboration between the Center for Development and Empowerment of Educators and Education Personnel (P4TK) and the industrial world. It is expected that the training results will be more applicable and in accordance with the needs of the industrial world. This program involves the active role of practitioners from various industries, including hotel managers, electronics experts, network systems and so on. Thus, the quality of vocational school graduates will increase, and the SMK unemployment trend can be improved.

The following solutions are to increase government investment in increasing employee competencies through a program of reorientation, revitalization and rebranding of Work Training Centers (BLK); abbreviated as 3R (M. Hanif Dhakiri, 2017). Reorientation of the BLK aims to direct training programs at BLK to focus on labour market needs and be implemented massively. Previously, each BLK presented various skills majors, now each BLK only focuses on a number of majors. Training programs that are not needed by the labour market, must be liquidated. Besides that, considering the increase in competence requires the existence of competent training managers and instructors; the instructor staff is drawn from professionals. Training facilities and infrastructure must also use equipment that refers to current technology used by industry.

This statement is very relevant to the demands of the industrial revolution 4.0 that Indonesia must face by providing a quality workforce. In response to the government program, graduates of BLK training relate to the world of work and are truly ready to enter the workforce; the curriculum used must refer to industry needs. Even to ensure BLK graduates are ready to work, participants must take the competency test (certification) as a graduation requirement. Furthermore, the reorientation and revitalization was enhanced by the rebranding of BLK in an effort to build the image of BLK as a solution for individuals who want to improve their competencies and get decent jobs. This rebranding was carried out through the publication of BLK performance to the public.

Besides the BLK, the government promoted a competency-based work apprenticeship program. This program is in collaboration with the Indonesian Employers Association (Apindo) and the Chamber of Commerce and Industry (Kadin). Through the apprenticeship

process, prospective workers gain experience of increasing expertise consisting of 75% practice, and expertise certificates. This program involved 2,648 companies. In 2017, there was a targeted 163,000 interns. With this step it is expected that the problem of inequality can be eroded, and the demographic bonus can be a blessing to respond to the 4.0 industrial revolution.

### *c. Total Unemployment Solution*

Based on the reality, the majority of Indonesia's population is only a labourer or employee (39.70%). Labour absorption up to August 2018 is still dominated by the working population with lower elementary level education; as many as 50.46 million people (40.69%), so that the unemployment rate for elementary and junior high schools (SMP) is relatively low at 2.43% and 4.80 %. While unemployment of high school and vocational high school graduates is overshadowing, at 7.95% and 11.24%. These conditions caused total unemployment in Indonesia to reach seven million people and each year the workforce increases by two million people. (<https://www.bps.go.id/pressrelease/2018/11/05/1485/agustus-2018-tingkat-pengangguran-terbuka-tpt-sebesar-5-34-persen-html>).

The best solution is to utilize employment policies by offering early retirement for both civil servants and private workers voluntarily. The purpose of this policy is to eliminate saturation in the workplace and can open up new business opportunities with capital from the pension. Support of entrepreneurial education, that may have been previously obtained, can increase graduate creativity to open a productive business, which may be able to absorb a high number of workers. Suppose one retired person could create ten workers for Micro, Small and Medium Enterprises (MSMEs) which they pioneered, then they have helped reduce the total unemployment rate in Indonesia. If this behaviour is carried out by fifty thousand pensioners who are self-employed, then the total unemployment rate can be reduced.

Synergy between industrialists, government and students in the future must be improved in order to save the skills created and to improve the quality of human resources in response to the industrial revolution 4.0.

## **Conclusions and Suggestions**

### ***Conclusion***

Based on all the information provided, starting from the background and problem formulation and economic analysis, the following can be concluded:

1. Factors that encourage high unemployment in high school are high bargaining values and the desire to pursue idealized work conditions. The decrease in the number of unemployed high school students is due to tenacity to look for work outside the field of expertise and the intelligence to obtain labour market information and the willingness to accept existing work with low wages.
2. Factors driving high vocational unemployment are quite high responses because of the ease of work in accordance with the direction taken. The increase in vocational unemployment is due to high selfishness to want to work outside the field of expertise and a lack of patients in proceeding in the formation of BLK.
3. Factors that drive high total unemployment are the magnitude of urbanization and the lack of growth of entrepreneurial spirit which results in relatively low work productivity. The decline in the total number of unemployed people is due to the high supply of labour in Indonesia as a result of the ease of registration of business permits, the commodities boom and the emancipation of women in the labour market.
4. The solution to overcome high school unemployment is by adding skills in the high school curriculum, integrating with relevant parties namely foundations, industry and society, providing the formation of LTSA for graduates who want to work abroad and maximizing the role of the BLK to stabilize competency.
5. The solution to addressing vocational unemployment is by increasing the role of vocational teachers to aligning the curriculum with graduate competencies, increasing the role of the BLK to improve the competence of graduates, with 70% practice and competency testing and competency-based work apprenticeships.
6. The solution to total unemployment is to rejuvenate / regenerate the working age population through early retirement programs and direct entrepreneurship.

### ***Suggestion***

Suggestions submitted for future research are:

1. Completing the variable unemployment analysis of universities in Indonesia in order to get better insight into total Indonesian unemployment.
2. Adding unemployment solutions from the soft-skill side of the workforce for both high school, vocational and total unemployment categories.

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