

Implementation of the Labor Laws in Indonesia for Formulation of Pension Reserves

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Abstract

This study aims to modify the calculation of severance reserves, the benefits of which are paid in accordance with Law number 6 of 2023 concerning Stipulation of a Substitute Law on Job Creation. This study seeks to modify the Projected Unit Credit calculation technique by considering Pension Constant which consists of Pension Factor, Work Term Reward Factor and Entitlement Compensation Pay Factor. In this research, the calculation of severance reserves is applied to PT A which has 24 permanent employees with an average age of employees is 29.67 years and the average work term is 5.83 years. The employee's salary during the valuation period has an average of IDR 2,776,214. This research tries to find the work mortality based on the number of working population and laid-off workers in Indonesia to be the basis for termination probability. The interest rate used in this research is the average return on bonds published by the Indonesian Bond Pricing Agency (IBPA) in five years, which is 0.063467. This research used TMI IV to define the probability of survival and death. This assumption can be used for all companies to maintain the company's financial stability by allocating reserves to pay severance pay in three possible cases, namely severance benefits upon retirement, severance benefit if employee leaves the company between valuation year and severance benefit if employee dies between the valuation year. Based on the calculation results, the reserve that needs to be stored is Rp. 1,186,723,329.18

Keywords: *Pension Reserves, Projected Unit Credit, Law on Job Creation.*

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A. INTRODUCTION

Labor is needed by the company to carry out its operational activities. Ethical business management should be based on fairness, responsibility, honesty, wisdom, loyalty, moral integrity, and not harming others (Philipus, 2021). The company and the employee must respect the labour regulations set out in the Government Regulation. In Indonesia, the regulation that is applied is Law number 6 of 2023 concerning Job Creation. This law was formed with the aim of creating and increasing jobs by ensuring the convenience, protection, and empowerment of labor absorbers, considering the balance and progress between sectors of the business unit, national economy. In addition, this law also aims to ensure that all citizens have jobs and are paid, fair, and appropriate treatment in labor relations (Irianto, 2023). The minimum rights of workers in each region of Indonesia have been stipulated by the Ministerial Regulation of Manpower of the Republic of Indonesia No. 18 of 2022 on Determination of the Minimum Wage in 2023 and benefits for leave retirement are regulated Law number 6 of 2023 concerning Job Creation.



Figure 1. Number of Companies that Conducted Layoffs and Number of Workers Laid Off

Source: Putri (2023)

These regulations can improve employee welfare in the workplace and prepare for old age in the future. From a macroeconomic point of view, the existence of a well-developed pension fund sector promotes economic growth (Egli et al., 2022), maintains the stability of the financial system (Bukwimba, 2022), and complements the banking system in channelling funds to the real sector (Kasri et al., 2020). However, the employee unexpectedly encountered another possibility, which is the termination of the labor contract. By the end of 2022, many companies conducted mass layoffs of their employees, both in Indonesia and internationally. In Indonesia, throughout 2022, the total number of workers affected by layoffs amounted to 154,386 involving 1,026 companies. Meanwhile, from 2023 to February, the number of workers laid off reached 37,526 people related to 122 companies. Over the past year, the most frequent wave of layoffs occurred in November 2022, affecting 52,135 people at 220 companies (Putri, 2023). Full information on the number of layoffs by the company and the number of employees affected by the layoffs is presented in Figure 1.

In Law of the Republic of Indonesia No. 6 of 2023 on Job Creation, Compensation for employees who leave the company will get three aspects, namely regulations are established as company obligations towards workers. However, it is not uncommon for companies to not pay benefits to employees affected by layoffs on time because they consider the company's reserves to be insufficient. In the decision of the Supreme Court of the Republic of Indonesia, through the study of cases of termination of employment, it was proved that there are 23,793 matters with detailed

decisions every year based on Figure 2 and some cases are still in court process (Mahkamah Agung RI, 2023).

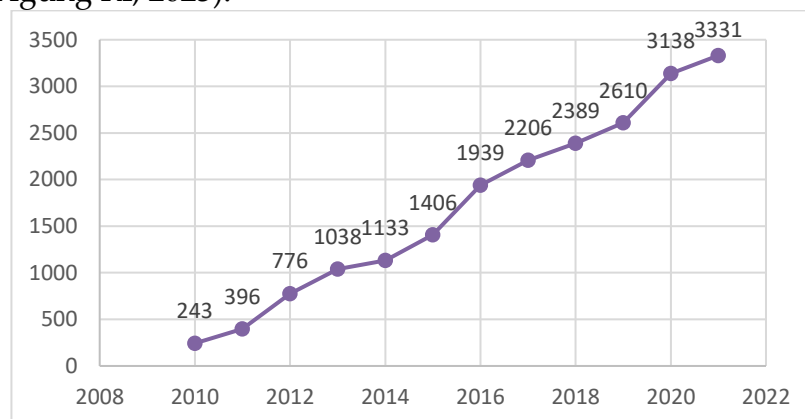


Figure 2. Number of Supreme Court Decisions Related to Pension Funds

The increasing number of decisions regarding severance disputes shows that many companies are not prepared to offer severance pay to their employees, even if it is required by law. This is because the implementation of the reserve for severance and pension funds is incomplete, so companies cannot pay severance and pension funds. Indeed, pension and severance funds are largely exposed to risky assets, especially alternative investments, resulting in highly uncertain returns on investment for institutional development (Giesecke & Rauh, 2022).

In order to maintain the financial stability of the company, protect the interests of employees, and minimize the delay in paying severance pay, it is necessary to allocate a provision from the company's severance fund. There have been many formulas for pension reserves that companies must allocate for workers to enjoy a decent old age (Mircea et al., 2014). When calculating statistical valuations to provide benefits to employees in retirement, the commonly used method is the Projected Unit Credit (PUC) (Angkasa et al., 2021).

Many research suggest that companies must pay pension funds to employees. Research on modelling retirement benefits using the Projected Unit Credit method considers economic variables, namely inflation and bank interest rates, to see the development of different interest rates in Ghanaian banks (Laryea et al., 2022). In addition, another research was also conducted by examining the efficiency of the compulsory pension fund and the performance of the pension fund in Croatia (Dražnović et al., 2019). Other research related to pension fund management improves retirement fund ratios by looking at baseline data on contribution-based management fee ratios (historical returns and wage growth) or planning to manage expense ratios based on total contributions (average profit and average wage growth) by conducting case studies in Latin American countries (Mantilla-Garcia et al., 2023). The calculation of the pension fund can also be done by calculating the expected post-retirement income according to the defined social security up to the time of the beneficiary's death using the stochastic forecasting model (Minney et al., 2022). In addition, it has also been suggested to use a minimal-variance portfolio as a weighted

method to measure the performance of Mexican pension funds (De la Torre Torres et al., 2015).

The Projected Unit Credit (PUC) method is still rarely considered in allocating funds for severance pay. So far, the PUC method has been used by national and international companies and associations to calculate pension funds only (Hendriksen, 2017). PUC is used when evaluating the present value of defined benefit obligations and service costs in calculating pension fund reserves in various countries, for example in Romania (Viorica et al., 2012) and Australia (Institute of Actuaries of Australia, 2009). This study will revise the formula of the PUC by considering the addition of changes in the provisions on severance pay. Unlike previous research that has been done, the novelty of this research is to consider the calculation of severance pay in the calculation of retirement benefits by modifying the Projected Unit Credit method. This modification is done by implementing Government Regulation Law of the Republic of Indonesia No. 6 of 2023 on Job Creation in calculation of severance pay. The basic idea of implementing local Government Regulation is also consistent with research on government-managed pension funds carried out in insurance companies in Russia (Sabitova et al., 2015) and community retirement fund organizations in Florida (Matkin et al., 2019).

Based on this background, the formulation of the problems to be studied are to model severance pay and pension funds using a modified Projected Unit Credit. This modification was made to prevent delays in severance/pension payments and maintain the financial stability of a company based on Government Regulation replacing the Law of the Republic of Indonesia No. 6 of 2023 on Job Creation in calculation of severance pay.

B. METHODS

This research uses a non-experimental quantitative method with a special descriptive design. Quantitative research is a research procedure that produces data in the form of numbers and is generally analysed using descriptive statistics or inference (Creswell, 2014). That is, the numbers obtained are processed and its influence is sought on the formulation of the research problem that has been determined. Special description aims to describe a phenomenon with a clear calculation analysis. In this study, the valuation of severance reserves and pension funds will be carried out using Projected Unit Credit which is modified based on Law of the Republic of Indonesia No. 6 of 2023 concerning Job Creation.

PUC Method

There are 2 main steps in calculating pension reserves using the PUC method, that is calculating the amount of pension benefits and calculating the present value of these benefits, known as pension reserves. In calculating reserves, there is a multiplier factor for severance money which is also known as the benefit factor or pension constant. This factor depends on the employee length of service and needs to be

developed based on assumptions that must be designed by an actuary. The pension benefits at retirement age can be calculated using the formula (Sukono et al., 2018).

$$B_r = k(r - e)S(1 + s)^n$$

Where k is the benefit factor, r is retirement age, e is the entry age, S is the salary at current age, s is the salary increase rate per year, and n is the time period or timeframe. Then, the present value of the benefits to be paid can be calculated using the formula (Angkasa et al., 2021).

$$PVBR = B_r \ddot{a}_r v^{r-x} r - x p_x$$

Where $PVBR$ is present value future benefit of a person aged x years, B_r is defined benefits at retirement age, \ddot{a}_r is life annuity due at retirement age, v^{r-x} is discount factor on $r - x$ years, and $r - x p_x$ is the probability of someone aged x survive up to $(r - x)$ years.

Modified PUC Method

In the original PUC method there is only 1 benefit that is calculated, the pension benefit. The modification of the PUC method in this research was carried out on the calculation of the pension benefits. The pension benefits consist of 3 possibilities, namely benefits upon pension, benefit if leaving the company, and benefit if an employee died during the valuation year. Pension benefit is a benefit when an employee reaches retirement age. While the other two benefits are benefits at the current age or during the valuation period. From these three types of benefits, the present value of each benefit is calculated. The reserves that the company needs to prepare for this modification of the PUC method are a total of 3 present value benefits.

Furthermore, there is benefit factor k in the original PUC method which is usually calculated based on assumptions from the actuary. To modify the PUC method, this value will be developed based on Article 156 of Law of the Republic of Indonesia No. 6 of 2023 concerning Job Creation. The benefit factor or pension constant is calculated based on several other factors, namely the pension factor, work term reward factor, and entitlement compensation pay factor.

Apart from the benefit factor or pension constant, there are additional assumptions required in calculating the severance reserve in the modified PUC method.

1. The probability of the employee's death is calculated using Indonesian Mortality Table IV.
2. The work mortality or probability that an employee will be laid off based on the employee's age. Probability for layoffs are obtained by dividing the number of laid off workers by the number of working people. The number of laid off workers is the sum of the 3 groups of laid off workers; laid off workers who are already working again, laid off workers who become open unemployed, and laid off workers who are not in the labor force. The probability for layoffs are differentiated by gender and age. The data used for this calculation were obtained from the Ministry of Labor report in 2022.

3. The interest rate used to calculate the discount factor is the bond interest rate based on the Indonesia Bond Pricing Agency (IBPA).

Based on these assumptions, it is possible to calculate severance reserves by modifying the PUC method. The first step is calculating severance benefits, which is divided into 3 types, namely severance benefits upon pension, severance benefit if leaving the company, and severance benefit if you die during the valuation year. Each severance benefits calculation is carried out by considering the benefit factor. If the calculation is compared to the original PUC method, the calculation that will be carried out is like calculating B_r .

- a. For severance benefits upon pension, calculations are made by first predicting the amount of the employee's salary at the age at retirement denoted by G .

$$G = S(1 + s)^n$$

Where S is the salary at current age, s is the salary increase rate per year, and n is the time period from the valuation period until retirement. Then, severance benefits upon pension or MPP is the multiplication of the benefit factor with the participant's salary at the age at retirement. The benefit factor depends on the length of the employee's service period until retirement.

$$MPP = (PF + WTRF + ECPF) * G$$

- b. For severance benefits if leaving the company, calculations are made of the amount of the participant's salary at the current age or during the valuation period. Then, severance benefits if leaving the company or MPK is the multiplication of the benefit factor with the participant's salary at the current age. The benefit factor depends on the length of the employee's service period until the valuation period.

$$MPK = (PF + WTRF + ECPF) * S$$

- c. For severance benefits if an employee died during the valuation year, calculations are made of the amount of the participant's salary at the current age multiplied by 3. This quantity is based on Presidential Regulation No. 4 of 1982. Then, severance benefits if an employee died or MPM is the multiplication of the benefit factor with the 3 times participant's salary at the current age. The benefit factor depends on the length of the employee's service period until the valuation period.

$$MPM = (PF + WTRF + ECPF + 3) * S$$

The second step is calculating the present value of those severance benefits. Each present value is calculated at the valuation period and the calculation is carried out by considering the probability values in additional assumptions. If the calculation is compared to the original PUC method, the calculation that will be carried out is like calculating $PVBR$.

- a. For present value of severance benefits upon pension $PMPP$, because severance benefits are given if the employee survives until the retirement age, the value of severance benefits is multiplied by the employee's chance of survival based on Indonesian Mortality Table IV and the discount rate. The chance of survival PS will vary based on the age of the employee, while the discount rate DR

depends on the interest rate and the length of the period from valuation period to retirement.

$$PMPP = MPP * PS * DR$$

- b. For present value of severance reserves if leaving the company $PMPK$, because severance benefits are given if the employee leaves the company at the valuation period, the value of severance benefit is multiplied by the work mortality WM or probability that an employee will be laid off, based on the employee's age.

$$PMPK = MPK * WM$$

- c. For present value of severance reserves if an employee died during the valuation year $PMPM$, the value of severance benefit is multiplied by the probability that the employee will die in the next 1 year or PD .

$$PMPM = MPM * PD$$

The final step is to calculate the total severance reserves TR of the 3 types of reserves. Total severance reserves is the sum of the 3 types of present value benefit.

$$TR = PMPP + PMPK + PMPM$$

In this research, the calculation of severance reserves is applied to calculate the reserves that must be prepared for permanent employees at PT A. There are 24 permanent employees, with 19 male employees and 5 female employees. The average age of employees is 29.67 years and the average length of time worked by employees is 5.83 years. The employee salary during the valuation period has an average of Rp 2,776,214 with the highest salary of Rp 3,844,145 and the lowest salary of Rp 1,350,000.

C. RESULTS AND DISCUSSIONS

1. Actuarial Assumption

The assumption that are needed in this for formulation pension reserve are:

a. Work Mortality

In Indonesia, the data of termination was published by The Ministry of Labor. Data that are used to calculate the probability are the number of working population by age group and gender 2020-2022 (WP), laid-off workers who have re-worked by age group and gender 2020-2022 (LR), laid-off workers who become unemployed by age group and gender 2020-2022 (LU) and laid-off workers who become non-workforce group by age group and gender 2020-2022 (LN). The termination probability was calculated each year by:

$$\text{Termination probability} = (LR+LU+LN)/WP$$

Based on that calculation, then count the average of termination probability for each age group and gender to know the work mortality in Indonesia (Tabel 1)

Table 1 Work Mortality Based on Age Group and Gender

Age Group	Work Mortality	
	Male	Female
15-19	0.009387212	0.007011875
20-24	0.019265074	0.015979982
25-29	0.015044074	0.009058945

30-34	0.011395814	0.006730384
35-39	0.008186916	0.004791661
40-44	0.005593903	0.004057308
45-49	0.005299953	0.00303862
50-54	0.006257498	0.002890882
55-59	0.003216926	0.001927905
60-64	0.002680079	0.000610888
65	0.00133513	0.000021677

b. Interest rate

Interest rate that is used in this research is the average of the return bond that was published by Indonesia Bond Pricing Agency (IBPA) in five years, which is 0.063467.

c. Probability of Survive and Death

Probability of Death (PD) is defined by TMI IV that interprets probability that the employee will die in the next 1 year. Beside, Probability of Survive (PS) PS is determined by calculating the product of a person's chances of living in the last one year (1-PD) in each year until retirement.

d. Pension Constant

There are 3 kinds of pension constant that are used in this research that are pension factor, work term reward factor and entitlement compensation pay factor that have different amounts based on how long the labor works. These pension constants are regulated in Law number 6 of 2023 concerning Job Creation as Chapter 156 described in Table 2.

Table 2 Pension Constant based on Work Term

Work Term	Pension Factor (PF)	Work Term Reward Factor (WTRF)	Entitlement Compensation Pay Factor (ECPF)
0	1	0	0.15
1	2	0	0.3
2	3	0	0.45
3	4	2	0.9
4	5	2	1.05
5	6	2	1.2
...
59	9	10	2.85
60	9	10	2.85

2. Data Calculation

After assumption is made, then do a calculation for all company labor that want to do a valuation. For example, a calculation of pension reserves for female employees who are 29 years old and have worked for 2 years. She has IDR 2,562,500/month assuming a salary increase of 6%/year. We will calculate the benefits that an employee may receive, namely if the employee stops working until retirement age, if the

employee leaves the company during the valuation year or if the employee dies within the valuation year.

a. Severance benefits upon pension

The initial step taken is to calculate the salary at retirement. Employee retirement age is 55 years. So that the working period until retirement age is 26 years. The amount of salary at retirement of the employee is

$$G = Rp2,562,500(1 + 0.06)^{26} = Rp11,657,794$$

Severance pay at retirement includes 3 components, namely the pension factor, work term reward factor, and entitlement compensation pay factor. For 26 years of service, the pension factor is 9, the work term reward factor is 10, and the entitlement compensation pay factor is 2.85. So, the benefits that will be obtained are

$$MPP = (9 + 10 + 2.85) * Rp11,657,794 = Rp254,722,795$$

b. Severance benefit if employee leaving the company (resignation, layoffs or other reasons according to the work copyright law)

To calculate the severance reserves, the valuation also takes into account the possibility that if someone leaves the company, then the amount of salary that is calculated and years of service are the values during the valuation period. For 2 years of service, the pension factor is 3, the work term reward factor is 0, and the entitlement compensation pay factor is 0.45. The benefits to be paid are

$$MPK = (3 + 0 + 0.45) * Rp2,562,500 = Rp8,840,625$$

c. Severance benefit if employee died during the valuation year

The third possibility considered in this calculation is if the employee dies during the valuation year. For this scheme, the pension constant and salary have the same assumptions when the employee leaves the company, but adds funeral money. Based on Presidential Regulation No. 4 of 1982 concerning the provision of bereavement money to families receiving pensions, bereavement money will be given 3 times the salary, so severance pay when you die is

$$MPM = (3 + 0 + 0.45 + 3) * Rp2,562,500 = Rp16,528,125$$

After knowing the amount of benefits in each study, then determine the present value of future benefits for employees divided by three cases above.

a. Present value of severance benefits upon pension (*PMPP*)

The chance of survival PS for this cause is calculated by the probability of an individual living to retirement age is obtained by multiplying the probability at age 29 of living to age 30, and so on until age 55 in TMI IV, for this case, it is 0.867465177697977. Discount rate or *DR* in this case is 0.063467 and she will work for 26 years until retirement. Based on the aforementioned facts so *PMPP* is

$$PMPP = Rp254,722,795 * 0.867465177697977 * (1 + 0.867465177697977)^{(-26)} \\ = Rp52,748,110.10$$

- b. Present value of severance reserves if leaving the company (*PMPK*)
WM is based on Tabel 1, for 29 years old employee that is 0.009058945, so the *PMPK* in this case is

$$PMPK = Rp8,840.62 * 0.009058945 = Rp80,086.73$$

- c. Present value of severance reserves (*PMPM*)
PD for this case is the probability of a female at age 29 dying in the past year based on TMI IV is 0.0007 so the *PMPM* is

$$PMPM = Rp16,528,125 * 0.0007 = Rp8,594.62$$

The total severance reverse for this case are:

$$\begin{aligned} TR &= PMPP + PMPK + PMP \\ &= Rp52,748,110.10 + Rp80,086.73 + Rp8,594.62 \\ &= Rp52,836,791.46 \end{aligned}$$

Then the same calculation steps are carried out for all permanent employees of PT A that are described in Attachment. Based on the calculation results, the reserve that needs to be stored is Rp. 1,186,723,329.

D. CONCLUSION

The modified PUC method based on Law of the Republic of Indonesia No. 6 of 2023 concerning Job Creation differs from the original PUC method in the pension benefits and pension factor. The benefits consist of 3 possibilities; benefits upon pension, benefit if leaving the company, and benefit if an employee died during the valuation year; and the benefit factor or pension constant is calculated based pension factor, work term reward factor, and entitlement compensation pay factor. Based on the results of calculations on the data that has been done, it is concluded that the reserve that needs to be stored by PT. A is Rp. 1,186,723,329.

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