Research Article

Scholarship's Payment Modelling for Work Accident Insurance Program (JKK) in Indonesia

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Abstract: Work Accident Insurance (JKK) is a protection for the risk of accidents or illness due to work during the service period. JKK is divided into two benefits, namely care and compensation. Law of the Republic of Indonesia Number 102 Year 2015 regulates that scholarship assistance is given in lump sum (at once). Giving lump sum scholarship assistance is felt to be less on target. Some cases that have occurred, the recipient (heir) has not attended school when given scholarship assistance so it is probable that the scholarship assistance is not used properly. This study discusses 3 models, namely the lump sum model based on Law of the Republic of Indonesia Number 102 Year 2015, alternative model 1 (IDR 30,000,000.00 and given when entering a new level of education), and alternative model 2 (IDR 40,000,000.00 and given when entering a new level of education). There are three criteria in determining the best model, which has a greater benefit value, the burden that must be borne by the company is smaller or the same as the lump sum method and payment is more targeted. By using these three criteria, it was found that alternative model 2 was the best model.

Keywords: JKK, lump sum model, alternative model 1, alternative model 2

Introduction

The opening of the 1945 Constitution of the Republic of Indonesia, the fourth paragraph, mandates that one of the goals of the state is to improve people's welfare and social justice. The purpose is realized in the form of government programs through legislation as a form of state responsibility to realize the mandate of the 1945 Constitution of the Republic of Indonesia [1]. In this regard, the Declaration by the United Nations on Human Rights in 1948 and the International Labor Organization (ILO) Convention Number 102 of 1952 encouraged all countries to provide minimum protection for each workforce [2].

In the era of globalization, people experience the progress of the development of Science and Technology which encourages increasing the necessities of life in the short and long term. This aims to be used if there is a sudden risk such as fire risk, health risk, accident risk, and others. A very important need to respond to these risks is insurance services. Thus a company is needed that can provide insurance to health, education, and old age for the community [3].

In 2013, one worker in the world died every 15 seconds due to work accidents and 160 workers experience occupational diseases. Duric, et.al (2018) in Serbia states that accidents are the number five cause of death and injury to informal sector workers [4]. China has experienced an increase in the number of workplace accidents since 2004 and finally made a regulation requiring all companies to have work accident insurance and pay relevant contributions, both permanent workers and part-time workers involved in work relationships are entitled to benefit from the insurance [5]. In contrast to Zimbabwe (South Africa), the relationship between work accident insurance and its prevention with compensation schemes is considered to be unfavorable compared to the focus on work accident prevention itself [6]. In Indonesia, the number of work accident cases in 2011 until 2014 was 9,891 people (in 2011), 21,735 (in 2012), 35,917 (in 2013) and 24,910 (in 2014). Based on the annual BPJSTK report, there were 123,040 workplace accidents in 2017 [7].

Insurance is an agreement between the two parties, the insurance company and the payer is the basis for the acceptance of insurance premiums by insurance companies in exchange for giving compensation to the insured or the payer for loss, damage, costs incurred, loss of profits, or legal liability to the party the third may be suffered by the insured or the payer due to the occurrence of uncertain events, provide payment

based on the death of the insured or a payment based on the life of the insured with the benefits that the amount has been established and/or based on the results of the management of funds [8]–[10]. One type of insurance is social insurance. Based on the Law of the Republic of Indonesia Number 40 Year 2004 [11], the social insurance fund is a mechanism for collecting mandatory derived from contributions to protect against the risk of socioeconomic befall participants and/or their family members. An insurance company is a company engaged in the field of insurance services through someone binding themselves on the company to get protection for their lives in the future. The development of insurance companies abroad can be said to have been very good because insurance has been considered as an effort to the lifestyle of the people ranging from the lower classes to the upper classes. Over time, the self-awareness of the Indonesian people resulted in the development of insurance companies in Indonesia, both those under the auspices of the government and the private sector [12]. One life insurance that has a social insurance type is PT. X (Persero). This was stated in the Law of the Republic of Indonesia Number 2 Year 1992 [13]. Therefore, it can be said that PT. X (Persero) is a life insurance company that is socially obligatory organized under the laws and provide financial protection to the participants of insurance with an emphasis on the basic principle of social insurance is cooperation, with "the young help the old, the high-income help the low income, and the low risk help the high risk".

Based on Government Regulation of the Republic of Indonesia Number 102 Year 2015 [14], there were four (4) insurance programs managed by PT. X (Persero), the Old Age Saving (JHT), Work Accident Insurance (JKK), Death Benefit (JKM), and Retirement. Work Accident Insurance (JKK) is a protection program against the risk of accidents or diseases caused by working during office time. JKK divided into two benefits, which are treatment and compensation. Compensation benefits consist of a special official disability compensation, disability compensation regular service, a special death benefit-risk for fall, special death benefit-risk for death, the cost of transporting participants work accidents, and scholarships.

Government Regulation of the Republic of Indonesia Number 102 Year 2015 [14] regulates that the scholarships are given lump sum (at once). The provision of scholarships as a lump sum is less well-targeted. Some cases have occurred, the recipient (heir) has not been in school when they receive the scholarship and because of that, it has a big possibility that the scholarships are not used appropriately. Some of the beneficiaries use the scholarship money for other needs that are not intended for their children's school fees. This is the background of the researcher to build new models that are not much different from the benefits of Government Regulation of the Republic of Indonesia Number 102 Year 2015.

Scholarship benefits obtained based on Government Regulation of the Republic of Indonesia Number 102 Year 2015 in the amount of IDR 30,000,000.00 in a lump sum. Alternative model 1 selected was Rp. 30,000,000.00 was not provided in a lump sum, but in stages according to the age of the beneficiaries (children of the insured) who were the age when entering elementary school, junior high school, high school, and university level. Alternative model 2 offers a total benefit of IDR 40,000,000.00 which is also given in following the level of the school being pursued. The choice of the number of scholarship benefits considers the Present Value (PV) of the benefits that will be received later. In selecting the number of the benefits, a simulation calculation is performed on the age of the beneficiary (child of the insured) so that the PV of alternative models 1 or 2 does not exceed the PV of the scholarship benefit based on Government Regulation of the Republic of Indonesia Number 102 Year 2015. The two alternative models that are not a lump sum, besides being possible to be more targeted, the insured will also get the same or more total benefits from the scholarship benefits based on Government Regulation of the Republic of Indonesia Number 102 Year 2015. PT. X (Persero) also has nothing to lose because the alternative PV models 1 and 2 are smaller than the benefits of scholarships based on Government Regulation of the Republic of Indonesia Number 102 Year 2015.

Based on the explanation above, this research compares the advantages and disadvantages of the payment model from Government Regulation of the Republic of Indonesia Number 102 Year 2015 with 2 alternative models, namely alternative model 1 and alternative model 2. After comparing, it is expected to get the best payment model for PT. X (Persero) and for customers so that it can be used as a consideration to determine the scholarship payment model for JKK programs in Indonesia.

Research Methods

The research was conducted in mid-2019 until October 2019 at an insurance company, namely PT. X (Persero), Actuarial, and Marketing section. The data used is secondary data, Government Regulation of the Republic of Indonesia Number 102 Year 2015. This study uses the comparison method, which compares the payment model established by the regulation and two alternative models provided by the researcher

based on simulation. The first step is to define the scholarship payment model, based on PP and 2 alternative models given in this research. Next, calculate the benefit PV from all possible ages of the heirs towards the three scholarship payment models. This study also analyzes the advantages and disadvantages of each payment model. This study looked at 3 criteria, namely the biggest benefit, benefit PV (the burden borne by the company), and a more targeted payment method, to serve as a guide in determining the best scholarship payment model.

Result and Discussion
Scholarship Assistance Payment Model

This study discusses three models of scholarship assistance payments in the JKK program, which is based on the Government Regulation of the Republic of Indonesia Number 102 Year 2015 and two alternative models given in this study. The benefits of each model of scholarship assistance payments JKK program can be seen in Table 1. In Table 1, the model is based on Government Regulation of the Republic of Indonesia Number 102 Year 2015, the amount of scholarship given in the JKK program is IDR 30,000,000.00 which will be given to the children of participants who died, were killed, or disabled level III. The assistance is given a lump sum (at once) to the beneficiary (heir). In the alternative scholarship assistance payment model 1, beneficiaries (heir) given scholarship with the amount of IDR 30,000,000.00 according to Government Regulation of the Republic of Indonesia Number 102 Year 2015 and given when entering into a new education level. In the second alternative scholarship assistance payments, beneficiaries (heir) given scholarship with the amount of IDR 40,000,000.00 and given when entering into new education level. The amount of scholarship given is 10 million higher compared with the help of scholarship regulation according to Government Regulation of the Republic of Indonesia Number 102 Year 2015. This is because the value of money declines with over time.

Table 1. Benefits of Each Model

Model	Benefits
Government Regulation of the Republic of Indonesia Number 102 Year 2015	Elementary School - University (7 - 25 years old): IDR 30,000,000.00
Alternative Model 1	Elementary School (7- less than 12 years old): IDR 5,000,000.00 Junior High School (12 - less than 15 years old): IDR 7,000,000.00 Senior High School (15 – less than 18 years old): IDR 8,000,000.00 University (18 - 25 years old): IDR 10,000,000.00
Alternative Model 2	Elementary School (7- less than 12 years old): IDR 5,000,000.00 Junior High School (12 - less than 15 years old): IDR 8,000,000.00 Senior High School (15 – less than 18 years old): IDR 12,000,000.00 University (18 - 25 years old): IDR 15,000,000.00

Comparative Analysis of Each Research Model

Comparative analysis of each model is done by calculating the benefits and the present value (PV) of the benefits [15] which will affect the burden of the insurance company to pay the scholarships. Tables 2, 3, and 4 show the formula of each model to obtain PV benefits based on the age of beneficiaries with $v = \frac{1}{1+i}$, i is an interest rate.

Table 2. PV of benefit based on Government Regulation of the Republic of Indonesia Number 102 Year 2015

x (age of beneficiaries)	Scholarship Benefit (million rupiah)	t (time/periode)	Present Value (million rupiah)
0	30	7	$30\,v^7$
1	30	6	$30\,v^6$
2	30	5	$30\,v^5$
3	30	4	$30\,v^4$
4	30	3	$30\,v^3$
5	30	2	$30\,v^2$
6	30	1	$30\,v$
7	30	0	30
8	30	0	30
9	30	0	30
10	30	0	30
11	30	0	30
12	30	0	30
13	30	0	30
14	30	0	30
15	30	0	30
16	30	0	30
17	30	0	30
18	30	0	30
19	30	0	30
20	30	0	30
21	30	0	30
22	30	0	30
23	30	0	30
24	30	0	30
25	30	0	30

Table 3. PV of benefit based on alternatef model 1

	Scholarship Benefits (million rupiah)								Present Value (million rupiah)
x	Elementary School	t1	Junior High School	t2	Senior High School	t3	University	t4	
0	5	7	7	13	8	16	10	19	$5v^7 + 7v^{13} + 8v^{16} + 10v^{19}$
1	5	6	7	12	8	15	10	18	$5v^6 + 7v^{12} + 8v^{15} + 10v^{18}$
2	5	5	7	11	8	14	10	17	$5v^5 + 7v^{11} + 8v^{14} + 10v^{17}$
3	5	4	7	10	8	13	10	16	$5v^4 + 7v^{10}+ 8v^{13} + 10v^{16}$
4	5	3	7	9	8	12	10	15	$5v^3 + 7v^9 + 8v^{12} + 10v^{15}$
5	5	2	7	8	8	11	10	14	$5v^2 + 7v^8 + 8v^{11} + 10v^{14}$
6	5	1	7	7	8	10	10	13	$5v + 7v^7 + 8v^{10} + 10v^{13}$
7	5	0	7	6	8	9	10	12	$5 + 7v^6 + 8v^9 + 10v^{12}$
8	5	0	7	5	8	8	10	11	$5 + 7v^5 + 8v^8 + 10v^{11}$
9	5	0	7	4	8	7	10	10	$5 + 7v^4 + 8v^7 + 10v^{10}$
10	5	0	7	3	8	6	10	9	$5 + 7v^3 + 8v^6 + 10v^9$
11	5	0	7	2	8	5	10	8	$5 + 7v^2 + 8v^5 + 10v^8$
12	5	0	7	1	8	4	10	7	$5 + 7v + 8v^4 + 10v^7$
13	0	0	7	0	8	3	10	6	$7 + 8v^3 + 10v^6$
14	0	0	7	0	8	2	10	5	$7 + 8v^2 + 10v^5$
15	0	0	7	0	8	1	10	4	$7 + 8v + 10v^4$
16	0	0	0	0	8	0	10	3	$8 + 10v^3$
17	0	0	0	0	8	0	10	2	$8 + 10v^2$
18	0	0	0	0	8	0	10	1	$8 + 10v$
19	0	0	0	0	0	0	10	0	10
20	0	0	0	0	0	0	10	0	10
21	0	0	0	0	0	0	10	0	10
22	0	0	0	0	0	0	10	0	10
23	0	0	0	0	0	0	10	0	10
24	0	0	0	0	0	0	10	0	10
25	0	0	0	0	0	0	10	0	10

Table 4. PV of benefit based on alternative model 2

	Scholarship Benefits (million rupiah)								Present Value (million rupiah)
x	Elementary School	t1	Junior High School	t2	Senior High School	t3	University	t4	
0	5	7	8	13	12	16	15	19	$5v^7 + 8v^{13} + 12v^{16} + 15v^{19}$
1	5	6	8	12	12	15	15	18	$5v^6 + 8v^{12} + 12v^{15} + 15v^{18}$
2	5	5	8	11	12	14	15	17	$5v^5 + 8v^{11} + 12v^{14} + 15.v^{17}$
3	5	4	8	10	12	13	15	16	$5v^4 + 8v^{10}+ 12v^{13} + 15v^{16}$
4	5	3	8	9	12	12	15	15	$5v^3 + 8v^9 + 12v^{12} + 15v^{15}$
5	5	2	8	8	12	11	15	14	$5v^2 + 8v^8 + 12v^{11} + 15v^{14}$
6	5	1	8	7	12	10	15	13	$5v + 8v^7 + 12v^{10} + 15v^{13}$
7	5	0	8	6	12	9	15	12	$5 + 8v^6 + 12v^9 + 15v^{12}$

8	5	0	8	5	12	8	15	11	$5 + 8 v^5 + 12 v^8 + 15 v^{11}$
9	5	0	8	4	12	7	15	10	$5 + 8 v^4 + 12 v^7 + 15 v^{10}$
10	5	0	8	3	12	6	15	9	$5 + 8 v^3 + 12 v^6 + 15 v^9$
11	5	0	8	2	12	5	15	8	$5 + 8 v^2 + 12 v^5 + 15 v^8$
12	5	0	8	1	12	4	15	7	$5 + 8 v + 12 v^4 + 15 v^7$
13	0	0	8	0	12	3	15	6	$8 + 12 v^3 + 15 v^6$
14	0	0	8	0	12	2	15	5	$8 + 12 v^2 + 15 v^5$
15	0	0	8	0	12	1	15	4	$8 + 12 v + 15 v^4$
16	0	0	0	0	12	0	15	3	$12 + 15 v^3$
17	0	0	0	0	12	0	15	2	$12 + 15 v^2$
18	0	0	0	0	12	0	15	1	$12 + 15 v$
19	0	0	0	0	0	0	15	0	15
20	0	0	0	0	0	0	15	0	15
21	0	0	0	0	0	0	15	0	15
22	0	0	0	0	0	0	15	0	15
23	0	0	0	0	0	0	15	0	15
24	0	0	0	0	0	0	15	0	15
25	0	0	0	0	0	0	15	0	15

Based on Tabel 2, 3, and 4, if the heirs is 0 years old then the benefit based on Government Regulation of the Republic of Indonesia Number 102 Year 2015, namely IDR 30,000,000.00 results in PV of IDR 16,705,111.00, whereas the first alternative model results PV IDR 30,000,000.00 = IDR 9,359,066.00, and the second alternative model to the benefits derived PV IDR 40,000,000.00 = IDR 11,797,061.00.

It shows that the PV of the alternative model 1 or 2 smaller than the model of a lump sum according to Government Regulation of the Republic of Indonesia Number 102 Year 2015. That is if PT. X (Persero) using an alternative model 1 or alternative 2 would not increase the burden of the company to pay the scholarship, even the burden of the company becomes smaller than the lump sum method.

Advantages and Disadvantages of Each Model

The advantages and disadvantages of each model can be seen in Table 5.

Table 5. Advantages and Disadvantages of Each Model

Model	Advantages and Disadvantages
Government Regulation of the Republic of Indonesia Number 102 Year 2015	Advantages: All heir (grantee) to get the same great scholarship. Disadvantages: Provision of scholarships non-targeted; Less fair among recipients whose parents died at an early age to the left when fully grown yet <= 25 years.
Alternative Model 1	Advantages: Scholarship programs better targeted; Helping heir scholarship fund management. Disadvantages: If the age of the heir (grantee) 13-25 years of age or junior high school level up to college scholarships earned less than the models currently used.
Alternative Model 2	Advantages: A big help in getting by some heir or recipients more of the models currently used and alternative 1 without having to increase the burden on companies; Scholarship programs better targeted;

Helping heir scholarship fund management.

Disadvantages:
If the age of the heir (grantee) 16-25 years of age or level of high school up to college scholarships earned less than models that are currently used.

Determining the Best Model

Determining the best model using three criteria:
1. Has a value greater benefits;
2. A burden to be borne by the company less than or equal to the lump-sum method (benefit PV);
3. Payment better targeted.

Based on the criteria above, it was found that the payment model scholarships in Alternative 2 are the best model for its benefits the most from other models, the burden to be borne by the company is smaller than the method of per diems, and payment is on target by the company's mission to improve the welfare insurance participants through the development of services and value system of social insurance benefits on an ongoing basis.

Conclusion and Suggestion

Based on these results, we can conclude that there are three models of payment of scholarships that are discussed in this study is a model based on Government Regulation of the Republic of Indonesia Number 102 Year 2015, the alternative model 1 (IDR 30,000,000.00 and is given when entering a new education level up), and the alternative model 2 (IDR 40,000,000.00 and is given when entering a new education level). There are three criteria in determining the best model, which has a value of the greater benefit, the burden to be borne by the company less than or equal to the lump-sum method, and payments better targeted. Although each model has its advantages and disadvantages, using three criteria, based on the study above, found that alternative model 2 is the best because it fits with the mission of PT.X (Persero), namely to improve the welfare insurance participants through the development of services and value system of social insurance benefits on an ongoing basis. The future research not only consider the age of heirs, but also involve the death probability (mortality) from the insured.

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