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Research paper



Viability of Annuity-based Option as Retirement form of Benefit among EPF Retirees

Nik Hazimi Mohammed Foziah[1], Puspa Liza Ghazali[1]*, Mustafa Mamat[2], Fauzilah Salleh[1], Dede Ansyari Guci[3], Sharifah Arni Syed Jaaffar[1], Mohd Sadad Mahmud[1], Ahmad Shukri Yazid[1]

[1]Faculty of Economic and Management Sciences, Universiti Sultan Zainal Abidin, 21300 Kuala Nerus, Terengganu, Malaysia
[2]Faculty of Informatics and Computing, Universiti Sultan Zainal Abidin, 22200 Besut, Terengganu, Malaysia
[3]Faculty of Economic, Al-Azhar University, Medan, Indonesia
**Corresponding author E-mail: puspaliza@unisza.edu.my*

Abstract

Most of the countries nowadays has experiencing an ageing population. This could be a serious threaten for those who lack of financial preparation towards retirement. In Malaysia, majority of the private sector workforce's retirees had depleted their retirement savings just within 3 to 5 years. Lack of financial management can be a great problem that leads to the poor elderly population, as life expectancy of Malaysian people in the age of 65 for male and female can live for 15 and 17 years old respectively. Therefore, the substitute of annuity-based scheme from a popular lump-sum retirement benefit among EPF retirees would be an ideal to overcome the issues. Therefore, the study examined whether the annuity-based option retirement benefit could sustain their financial position for at least 20 years' period. Through mathematical simulation and analysis, the study found that by choosing annuity based as retirement form of benefit by EPF members, they can receive a monthly annuity payment for 15 years' period. Therefore, this will be a good indicator for the authority to revise the retirement system and implement the annuity-based option as a mandatory in order to keep elderly out of poverty line.

Keywords: *Annuity; Longevity Risk; Employees Provident Fund (EPF); Retirement Savings; Retirement Wealth Adequacy.*

1. Introduction

As a developing country, Malaysia has no exception in becoming an ageing population which in turn contributes to the longevity risk. Statistically has shown that for the age of 65 years, the life expectancy for males and females in Malaysia are expected to live for another 15 years and 17 years in Malaysia [1]. Furthermore, the total of the population at age 65 and above has increased from 5.6% to 5.8% just within one year in 2014 to 2015. This figure is estimated to be 6% in 2016 out of the total population, which is nearly reached 7% of the ageing country [2].

Accordingly, in [3] have revealed the lack of awareness and preparation among Malaysian people towards retirement savings. Neither people in public sector nor private sector workforces have taken a serious preparation for their retirement planning, unless a few of them have taken an alternative preparation by having an additional retirement savings like Private Retirement Scheme (PRS). The public sector would have less worry as they have a defined benefit pension plan by the government which guaranteed monthly income stream.

However, the great concerned here is the private sector in which constitutes of 52% from the total labor force in Malaysia that only covered by EPF schemes for their retirement savings [4]. Unfortunately, most of them would only rely on their EPF savings as their financial support during retirement age. Furthermore, it is reported that 65% of the 54-year-old EPF members who about to retire next year have less than RM50,000 in their EPF account as at 2015, and most of them who opt to get a lump-sum benefit payment would spend all their retirement savings just within 3 to 5 years [5].

2. Literature Review

In [6] had pointed out that EPF was failing to place with an adequate income for their members. As a mainstream retirement scheme in Malaysia, there is time for EPF to reform the country's central pension pillar from merely retirement savings investment fund to a fully-fledged pension fund in which at least offers some minimum annuities [7]. In order to survive, the employee in Malaysia should participate in alternative retirement product likes PRS or retirement annuity plans which can provide the retirees with sufficient cash flows [8].

Annuities have perceived can sustain individual financial position during retirement age and able to reduce longevity risk when an individual outlives from their expected life of 75 years old [9]. Nevertheless, the annuity plan proposed here is defined contribution not likes defined benefit of government pension plan, it at least can provide the retirees with a monthly stream of income for certain time of period and not to depletes the funds in just within three to five years.

In light of these issues, the study aims to examine as to whether the annuity plan could solve the problem of retirement income inadequacy among the EPF members. Although there are many challenges to have a viable annuity plan, the study has intensively focused on the impact of inflation in estimating the accumulated retirement wealth and projecting the length of period of annuity plan can afford. It is important to ensure that retirement savings wealth has sufficient enough to subscribe an annuity plan following the Malaysian life expectancy.

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3. Methodology

The study will use a general EPF member profile to simulate the accumulated retirement wealth during working period. Since the annuity schemes basically cover for those in high-income and upper-middle income earners, it is somehow not appropriate to offer for those in low-income group due to the total maturity of accumulated retirement value is insufficient to participate in annuity plan [10-13]. Thus, the minimum income profile member will be used in this study as it is more relevant to relate with the issues of retirement income inadequacy among the EPF members.

Table 1: EPF Client Proposal

No.	Item	Value
1	Monthly salary	RM 1000
2	Working period	25 year – 55 year (30 years)
3	Contribution rate	11% by employee 13% by employer 24% of total contribution rate per month
4	Monthly contribution amount	Contribution rate x monthly salary
5	Expected EPF dividend rate	5.91%, based on minimum dividend rates of previous 10 years [16].

It is important to have an accurate estimation of total accumulated retirement funds in order to project the annuity payment distribution during de-accumulation of retirement phase. The factor of inflation will be considered in the simulation table to give a better insight in the estimation of accumulation and de-accumulation phases in the retirement wealth.
In this case, the study will apply the core inflation as it is representing the long run trend of the price level. The current core inflation input will be taken from the Department of Statistics Malaysia's database. Accordingly, the Malaysian core inflation is recorded at 2.6% in May 2017 in which influenced by Food and Non-Alcoholic Beverages, Transport, Recreation Services and Culture, Health and Housing, Water, Electricity, Gas and Other Fuels [14]. Thus, the expected investment return would be:

Expected investment return = EPF dividend rate – core inflation rate

= 5.91% - 2.60%
= 3.31%

The EPF client proposal in the Table 1 will be used to get the detailed results of accumulated retirement savings in the EPF account in the simulation Table 2.

Table 2: General Simulation of Accumulated Retirement Savings

A1	A2	A3	A4	A5	A6	A7

where

A1= Period term
A2= Age of EPF member
A3= Monthly salary x 12 months
A4= Annual contribution, 24% x A3
A5= Accumulated fund at the beginning of period, A4 + $A6_{n-1}$
A6= Annual profit, 3.31% x $A7_{n-1}$
A7= Accumulated fund at the end of period, A4 + A5 + A6

Then, the feasibility of such annuity plan can be tested by using another simulation process in the deccumulation phase.

Table 3: General Simulation of Deccumulation of Retirement Savings

D1	D2	D3	D4	D5	D6

where

D1 = Period term
D2 = Age of EPF member
D3 = Annuity payment, same amount of annual income to maintain the member's lifestyle
D4 = Retirement fund balance at the beginning of the period, $D6_{n-1}$
D5 = Annual profit amount, 3.31 x $D6_{n-1}$
D6 = Retirement fund balance at the end of period, D3 + D4 + D5

As such, the coverage period of monthly income annuity should cover the retirees for at least 20 years' period from the aged of 55 to 75 years old since the Malaysian life expectancy is around 75 years old [15].

4. Results and Discussion

The simulation result for accumulation retirement wealth can be obtained as Table 4.

Table 4: Simulation Result for Accumulation Retirement Wealth

A1	A2	A3	A4	A5	A6	A7
1	25	12,000.00	2,880.00	0.00	0.00	2,880.00
2	26	12,000.00	2,880.00	2,880.00	95.33	5,855.33
3	27	12,000.00	2,880.00	5,855.33	193.81	8,929.14
4	28	12,000.00	2,880.00	8,929.14	295.55	12,104.69
5	29	12,000.00	2,880.00	12,104.69	400.67	15,385.36
6	30	12,000.00	2,880.00	15,385.36	509.26	18,774.61
7	31	12,000.00	2,880.00	18,774.61	621.44	22,276.05
8	32	12,000.00	2,880.00	22,276.05	737.34	25,893.39
9	33	12,000.00	2,880.00	25,893.39	857.07	29,630.46
10	34	12,000.00	2,880.00	29,630.46	980.77	33,491.23
11	35	12,000.00	2,880.00	33,491.23	1,108.56	37,479.79
12	36	12,000.00	2,880.00	37,479.79	1,240.58	41,600.37
13	37	12,000.00	2,880.00	41,600.37	1,376.97	45,857.34
14	38	12,000.00	2,880.00	45,857.34	1,517.88	50,255.22
15	39	12,000.00	2,880.00	50,255.22	1,663.45	54,798.67
16	40	12,000.00	2,880.00	54,798.67	1,813.84	59,492.51
17	41	12,000.00	2,880.00	59,492.51	1,969.20	64,341.71
18	42	12,000.00	2,880.00	64,341.71	2,129.71	69,351.42
19	43	12,000.00	2,880.00	69,351.42	2,295.53	74,526.95
20	44	12,000.00	2,880.00	74,526.95	2,466.84	79,873.79
21	45	12,000.00	2,880.00	79,873.79	2,643.82	85,397.62
22	46	12,000.00	2,880.00	85,397.62	2,826.66	91,104.28
23	47	12,000.00	2,880.00	91,104.28	3,015.55	96,999.83
24	48	12,000.00	2,880.00	96,999.83	3,210.69	103,090.52
25	49	12,000.00	2,880.00	103,090.52	3,412.30	109,382.82
26	50	12,000.00	2,880.00	109,382.82	3,620.57	115,883.39
27	51	12,000.00	2,880.00	115,883.39	3,835.74	122,599.13

28	52	12,000.00	2,880.00	122,599.13	4,058.03	129,537.16
29	53	12,000.00	2,880.00	129,537.16	4,287.68	136,704.84
30	54	12,000.00	2,880.00	136,704.84	4,524.93	144,109.77

It is clearly depicting that the EPF member with minimum income of RM 1,000 can manage to save around RM141,110 in their EPF account. The accumulated amount is only possible if they do not make any pre-withdrawal before reaching retirement age. However, this figure is not yet achieving the EPF basic savings in which requires their members to have a minimum savings of RM228,000 in their account when the reach aged of 55 [16].

In order to see as to whether this figure can generate a sufficient monthly income stream based on annuity plan for 20 years' period, the simulation table of deccumulation phase of retirement wealth can be referred as Table 5.

Table 5: Simulation Result for Deccumulation Retirement Wealth

D1	D2	D3	D4	D5	D6
1	55	12,000.00	144,109.77	4,770.03	136,879.81
2	56	12,000.00	136,879.81	4,530.72	129,410.53
3	57	12,000.00	129,410.53	4,283.49	121,694.02
4	58	12,000.00	121,694.02	4,028.07	113,722.09
5	59	12,000.00	113,722.09	3,764.20	105,486.29
6	60	12,000.00	105,486.29	3,491.60	96,977.88
7	61	12,000.00	96,977.88	3,209.97	88,187.85
8	62	12,000.00	88,187.85	2,919.02	79,106.87
9	63	12,000.00	79,106.87	2,618.44	69,725.31
10	64	12,000.00	69,725.31	2,307.91	60,033.22
11	65	12,000.00	60,033.22	1,987.10	50,020.31
12	66	12,000.00	50,020.31	1,655.67	39,675.99
13	67	12,000.00	39,675.99	1,313.28	28,989.26
14	68	12,000.00	28,989.26	959.54	17,948.81
15	69	12,000.00	17,948.81	594.11	6,542.91
16	70	12,000.00	6,542.91	216.57	(5,240.52)

The simulation results indicate that by fully subscribed an annuity plan with all retirement funds, the maximum period of monthly income stream can be provided only for 15 years. The prospect retirees can enjoy the monthly benefit of annuity payment until they are getting 69 years old. Apparently, they need to find a financial backup for another 6 years if they live longer as per expected to 75 years old. Even though, the subscribed annuity plan cannot sustain the retirees with monthly income in line with life expectancy, it at least can extend the period of financial position for another ten years after retirement, rather than 3 to 5 years when choosing a lump-sum benefit payment.

Therefore, the authorities' likes government and EPF should revise the existing retirement system in optimizing the existing schemes. It can be possible to hybrid the formal system with social pensions to help those in low-income earners to survive in retirement ages [17].

Besides that, the prospect retirees especially people working in the young ages should take a serious action towards retirement planning and not rely only to the EPF. There are many alternatives retirement scheme available in Malaysia, likes Private Retirement Scheme which get supported by government by subsidize to those eligible applicants with RM1000 in their PRS account. People should not only think basic needs likes home, foods or other basic expenses should they bear after retirement, but there are many retirement hazards that experiencing by many retirees likes the costs of healthcare, presuming a longer life, misjudging how long one spouse will live, and so on [18].

5. Conclusion

In conclusion, the options of annuity-based as a retirement form of benefit would be a better choice for a prospect retiree as it can extend the financial period for 15 years after reaching retirement age of 55, instead of lump-sum payment which majority of the retirees depleted their retirement funds just within 3 to 5 years. As authorities, government and EPF institutions should take a drastic action in cater the problem of retirement income inadequacy among retirees in Malaysia. They should make a campaign to promote awareness among the public regarding the importance of retirement planning and the risk of income inadequacy in which happen to the recently. It is important to make a transparent plan by highlighting the benefits and costs to the prospect in order to attract them to participate into the plan [19-20]. In addition, as a mainstream retirement institution in Malaysia, EPF should make a research in enhancing their existing scheme which then can offer a better scheme to their members.

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