ANALYSIS OF CHANGES IN TOTAL ACTUARIAL LIABILITIES
USING PROJECTED UNIT CREDIT METHOD
(Analisis Perubahan dalam Jumlah Liabiliti Aktuari Menggunakan Kaedah Unit Kredit Unjuran)

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ABSTRACT

Malaysia is projected to become an ageing country by the year 2030 with the increase in population of older people to be over 15.3%. It is affecting the government expenditure in the sustainably of providing retirement benefits to older people. This study will analyse the changes of actuarial assumptions in total actuarial liabilities of a specific group of government employees. A data set is collected from a group of government employees in a Malaysian public university under service grade of N (Administration & Support). The total actuarial liability will be calculated using the Projected Unit Credit method and actuarial assumptions such as the retirement age, mortality rate, interest rate and salary growth rate will be considered. The study found that when the retirement age is increased, the total actuarial liabilities would decrease which is the aim of a sustainable pension system. Meanwhile, the decreasing mortality rate due to population ageing will cause the total actuarial liabilities to increase. Lastly, when interest rate is high and salary growth rate is lowered, the pension system is getting better. In conclusion, it is necessary for Malaysian government to take early action to sustain the Malaysian pension system due to the occurring population ageing.

Keywords: actuarial liabilities; projected unit credit; pension; population ageing

ABSTRAK

Malaysia diunjurkan menjadi negara menua menjelang tahun 2030 dengan pertambahan populasi warga emas melebihi 15.3%. Ia menjejaskan perbelanjaan kerajaan dalam menyediakan faedah persaraan secara mampan kepada warga emas. Kajian ini menganalisis perubahan andaian aktuari dalam jumlah liabiliti aktuari bagi kumpulan kakitangan kerajaan tertentu. Satu set data dikumpul daripada sekumpulan kakitangan kerajaan di universiti awam Malaysia di bawah gred perkhidmatan N (Pentadbiran & Sokongan). Jumlah liabiliti aktuari dikira menggunakan kaedah Unit Kredit Unjuran dan andaian aktuari seperti umur persaraan, kadar kematian, kadar faedah dan kadar pertumbuhan gaji dipertimbangkan. Kajian mendapati apabila umur persaraan dinaikkan, jumlah liabiliti aktuari akan berkurangan di mana ia merupakan matlamat sistem pencen yang mampan. Sementara itu, penurunan kadar kematian akibat penuaan populasi akan menyebabkan jumlah liabiliti aktuari meningkat. Akhir sekali, apabila kadar faedah tinggi dan kadar pertumbuhan gaji diturunkan, sistem pencen semakin baik. Kesimpulannya, kerajaan Malaysia perlu mengambil tindakan awal untuk mengekalkan sistem pencen Malaysia berikutan penuaan populasi yang semakin meningkat.

Kata kunci: liabiliti aktuari; unit kredit unjuran; pencen; penuaan populasi

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