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LONG-TERM CARE SERVICES OF DEPARTMENT OF SOCIAL WELFARE MALAYSIA: DEMAND PROJECTION

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ABSTRACT

The increasing number of older population might lead to an increase in the demand for the long-term care (LTC) services. Thus, the main objective of this study is to make projection of demand for the services required from the year 2015 to 2035 to reflect with the increase in the older population in Malaysia with focus on the services offered by the Department of Social Welfare (JKM) Malaysia. Ordinary least square technique is used to estimate the future number of the older people who might require the services. This study projected that the demand for each of the services provided by JKM will increase more than 100% from 2010 to 2035.

Keywords: ageing population, long-term care (LTC), ordinary least square (OLS) technique.

INTRODUCTION

The world is currently facing an ageing population due to the fact that people are becoming more health conscious, medical and medication have improved, and technology has advanced. This event might cause a problem to an individual and even a country since people who live longer will contribute to an ageing population and hence will need more care which is commonly known as long-term care (LTC). Long-term care (LTC) is a care provided to older people to help them perform their daily chores since they are unable to do it independently. Currently, demand for long-term care services from the elderly has arise due to various causes such as diseases, disabling chronic conditions, injury, developmental disabilities, and severe mental illness (Feder *et al*., 2007). The LTC services are provided by many institutional care and non-institutional care for example nursing homes, social welfare department, hospital, and day-care centres.

Malaysia as one of the developing nation is towards becoming an ageing population and expected to achieve the aged nation status by 2035 (Hamid and Masud, 2010). Thus, the needs of LTC services are essential in the years to come. The Department of Social Welfare Malaysia or Jabatan Kebajikan Masyarakat (JKM) is ranked as one of the Government's premier frontline agencies that concerns with the unfortunate people that live in the community including older people or senior citizens. JKM provides services for senior citizens which range from social allowances (*Bantuan Orang Tua* (BOT) and *Bantuan Am* (BA)) to shelter services (*Rumah Seri Kenangan* (RSK), *Rumah Ehsan* (RE), and *Pusat Jagaan Harian Warga Emas* (PJHWE). The increasing number of older population might lead to an increase in the demand for the long-term care (LTC) services. Thus, the objective of this study is to make projection of demand for the services required from the year 2015 to 2035 to reflect with the increase in the older population in Malaysia with focus on the services offered by the Department of Social Welfare (JKM) Malaysia.

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MODEL FOR PROJECTING THE DEMAND

Each of the LTC services provided by JKM is specified by separate regression equation by applying the ordinary least square (OLS) technique. Ordinary least square (OLS) technique has been used in projecting the demand in previous studies such as estimating the price elasticity and the private nursing home demand with regards to LTC (Scanlon, 1980) and estimating and predicting the number of adverse consequences and vacancy rates in hospital, home health, long-term care as well as public health (Wing *et al*., 2007).

The models are developed by using the EViews software. The general equation is as follows:

$$y_j = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \varepsilon_j \quad (1)$$

Where:

- y_j is the dependent variable which is the utilisation volume for LTC service, *j* (*j* refers to RSK, RE, PJHWE, BOT, and BA)
- β_0 is the intercept (to be estimated)
- β_c is the unknown parameter to be estimated (c = 1 to 2)
- x_1 is the independent variable which is the number of older people (male) in the population
- x_2 is the independent variable which is the number of older people (female) in the population
- ε_j is the error term which is assumed identically, independently, and normally distributed with mean, $E(\varepsilon_j) = 0$; variance, $E(\varepsilon_j^2) = \sigma_j^2$; and covariance $E(\varepsilon_j \varepsilon_{j-c}) = 0$ for $j \neq c$

Thus, the estimated model for equation for each of the services is as follows:

$$\hat{y}_j = \hat{\beta}_0 + \hat{\beta}_1 x_1 + \hat{\beta}_2 x_2 \quad (2)$$

RESULT AND ANALYSIS

The model to estimate the future numbers of older people requiring LTC services of JKM are obtained through the OLS analysis. In order to develop the model for each service, previous utilisation volume (the number of older people who are using the services) obtained from JKM are used. The analysis is done for each of the services available from JKM.

The estimated regression equation for each LTC service of JKM is:

Rumah Seri Kenangan (RSK)

$$\hat{y}_j = 136.5949 + 0.002199x_1 - 0.000689x_2 \quad (3)$$

Rumah Ehsan (RE)

$$\hat{y}_j = -2.239402 - 0.000834x_1 + 0.000984x_2 \quad (4)$$

Pusat Jagaan Harian Warga Emas (PJHWE)

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$$\hat{y}_j = -303.3109 - 0.001170x_1 + 0.003842x_2 \quad (5)$$

Bantuan Orang Tua (BOT)

$$\hat{y}_j = -25183.71 - 0.153489.x_1 + 0.294156x_2 \quad (6)$$

Bantuan Am (BA)

$$\hat{y}_j = -839.8064 + 0.005978x_1 + 0.020743x_2 \quad (7)$$

Where:

j is services which are Rumah Seri Kenangan (RSK), Rumah Ehsan (RE), Pusat Jagaan Harian Warga Emas (PJHWE), Bantuan Orang Tua (BOT), and Bantuan Am (BA).

x_1 is the number of male

x_2 is the number of female

The estimated regression equation for each service will then be used to project the future demand for each of the LTC services provided by JKM until the year 2035 by applying the World Bank data of Malaysian Population Projection of older people based on gender and age group in five years term of period as indicated in Table 1.

TABLE 1: MALAYSIAN OLDER PEOPLE POPULATION PROJECTION FROM 2010 TO 2035

Age Group	2010	2015	2020	2025	2030	2035
Male						
60-64	415,000	528,000	652,000	747,000	787,000	858,000
65-69	266,000	368,000	471,000	585,000	675,000	716,000
70-74	186,000	220,000	307,000	396,000	496,000	579,000
75+	181,000	228,000	280,000	374,000	497,000	648,000
Total	**1,048,000**	**1,344,000**	**1,710,000**	**2,102,000**	**2,455,000**	**2,801,000**
Female						
60-64	403,000	523,000	658,000	767,000	806,000	878,000
65-69	268,000	375,000	489,000	618,000	723,000	764,000
70-74	212,000	237,000	334,000	440,000	559,000	659,000
75+	241,000	305,000	368,000	490,000	657,000	866,000
Total	**1,124,000**	**1,440,000**	**1,849,000**	**2,315,000**	**2,745,000**	**3,167,000**

Table 2 summaries the total service utilisation volume for each service from 2005 to 2010 and the estimated total service utilisation volume for year 2015 until 2035. The service utilisation volume is estimated to increase more than 50% in 2015 compared to the previous 5 years period, year 2010. From year 2020 until 2025, it is estimated that the demand will increase about 30%, 21% increase in year 2030, and then about 17% increase in year 2035. It is quiet apprehensive to see the estimated volume will increase each year and reach more than half million older people that might need the access of the services for their lives. Hence, it is the responsibility for the Government to ensure that the services needed are available to fulfil this increasing pattern as the number of senior citizens as a population will increase significantly.

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TABLE 2: TOTAL SERVICE UTILISATION VOLUME FOR EACH SERVICE

YEAR	SERVICE					TOTAL
	RSK	RE	PJHWE	BOT	BA	
2005	1,827	134	790	23,256	18,288	**44,295**
2006	1,953	170	1,744	25,524	18,405	**47,796**
2007	2,040	193	811	27,636	23,123	**53,803**
2008	1,855	212	1,319	31,042	24,716	**59,144**
2009	1,947	212	1,738	99,399	25,814	**129,110**
2010	1,868	231	2,720	120,496	26,961	**152,276**
2015[e]	2,100	294	3,657	192,112	36,614	**234,776**
2020[e]	2,623	391	4,800	256,245	47,158	**311,216**
2025[e]	3,164	523	6,132	333,154	59,021	**401,993**
2030[e]	3,644	651	7,371	405,459	69,917	**487,041**
2035[e]	4,114	778	8,587	476,486	80,606	**570,571**
TOTAL	**27,134**	**3,789**	**39,668**	**1,990,807**	**430,623**	**2,492,021**

Figure 1 shows the total service utilisation volume of each service from 2005 to 2035. The clustered columns demonstrate an increase pattern of the total service utilisation volume of each service from 2005 until 2035. It can be clearly seen that the utilisation volume for BOT projected as the highest volume among the other services for each year followed by BA, PJHWE, RSK, and RE. While, there is a slight difference in the service utilisation volumes for RSK and RE for each year.

FIGURE 1: TOTAL SERVICE UTILISATION VOLUME OF EACH SERVICE FROM 2005 UNTIL 2035

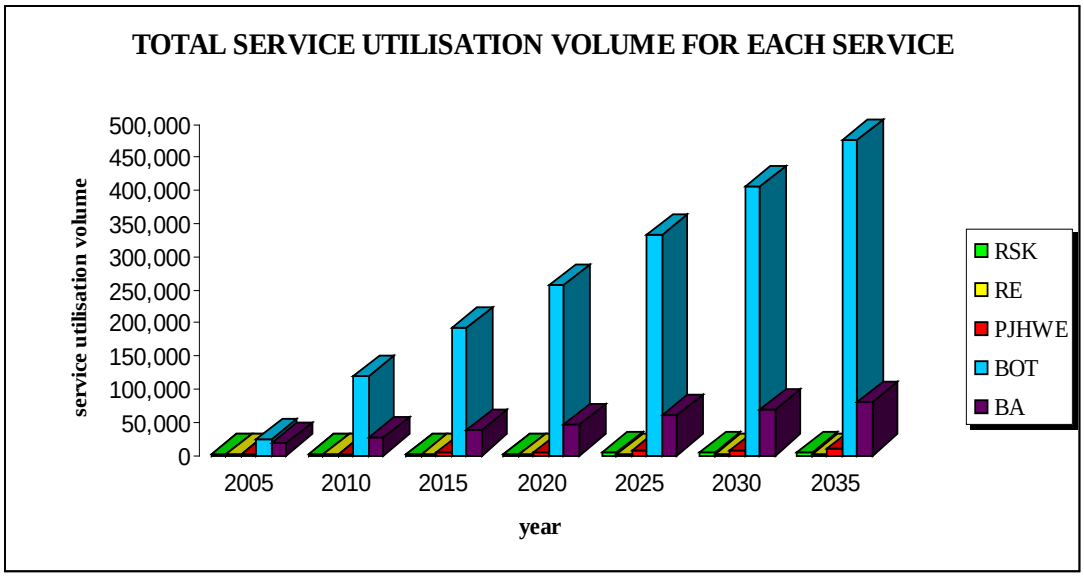

Figure 2 shows the overall total service utilisation volume for each year. It can be seen that the service utilisation volume for the LTC services offered by JKM are increasing each year. It is also projected that the total service utilisation will increase for all services available in each year until 2035 parallel with the increasing number of older people of the population projection.

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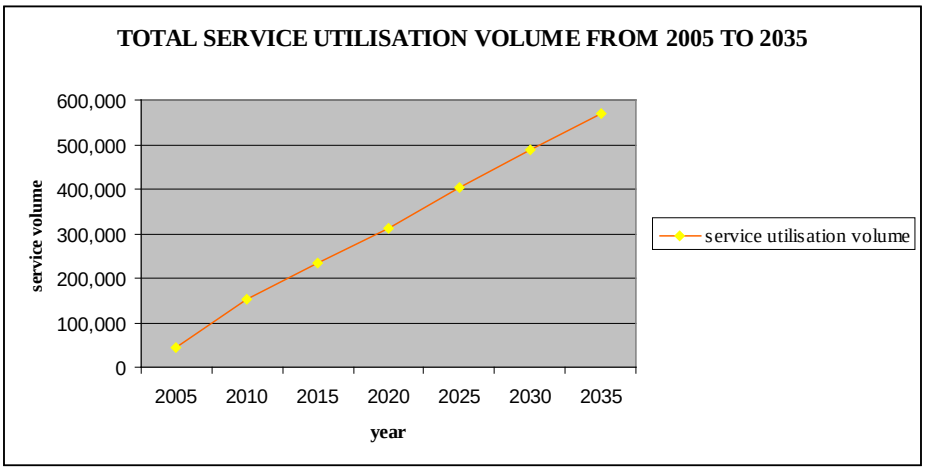
FIGURE 2: TOTAL SERVICE UTILISATION VOLUME FROM 2005 TO 2035



CONCLUSION

As the older population in Malaysia is increasing, the service utilisation volume for each service provided by JKM will also increase. The demand or the service utilisation volume is projected to increase more than 100% in 25 years period of time (from 2010 until 2035). Hence, JKM as one of the Government's premier frontline agencies should focus on this increasing pattern in order for them to deliver good services for the senior citizens and to ensure the needs of those people are met in the years to come. More welfare institutions for senior citizens should be built to facilitate the needs in the future.

REFERENCES

Feder, L., Komisar, H. L., & Friedland, R. B. (2007). Long-Term Care Financing: Policy Options for the Future. *Long-Term Care Financing Project*, Health Policy Institute, Georgetown University.

Hamid, T. A. & Masud, J. (2010). Financial Well Being of Older Malaysians. *Institute of Gerontology,* Universiti Putra Malaysia.

Official website of Jabatan Kebajikan Masyarakat, the Department of Social Welfare. Retrieved October 13, 2011 from http://www.jkm.gov.my/index.php?option=com content&view=article&id=65:wargatua&catid=38:warga-tua&Itemid=159&lang=ms

Scanlon, W. (1980). "A Theory of Nursing Home Market". *Inquiry*, 17, 25-41. Notes from *Caring for The Disabled Elderly: Who Will Pay*. Retrieved January 20, 2012 from http://books.google.com.my/books

Wing, P., McGinnis, S., & Moore, J., "Toward a Method for Identifying Facilities and Communities with Shortages of Nurses," Center for Health Workforce Studies, School of Public Health, University of Albany, State University of New York, Rep., 2007.