

Employment of Older Population in Malaysia: Where are we?

Riyanti Saari, Nur Layali Mohd Ali Khan, Abdul Rahman Hasan
Department of Statistics, Malaysia

November 15th , 2016

OUTLINE

BACKGROUND

LITERATURE REVIEW

METHODOLOGY

FINDING

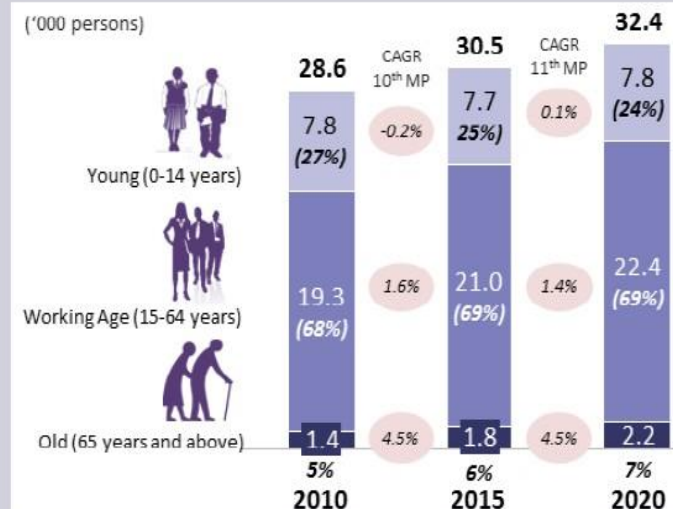
CONCLUSION

RECOMMENDATION

REFERENCES

Snapshot

The 11th Malaysia Plan



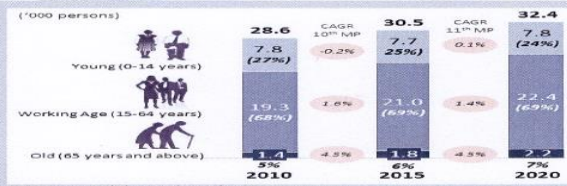
CAGR-Compounded annual growth rate

Age Structure

The **young** population (0-14 years) is expected to decrease from 7.8 million in 2010 to 7.7 million in 2015, as a result of the decline in fertility rate.

The **working age** population (15-64 years) is expected to increase from 19.3 million to 21 million during the same period, contributing to demographic dividend³. As a result, the dependency ratio⁴ is expected to reduce gradually from 47.8% in 2010 to 45.4% in 2015.

Life expectancy is expected to improve from 72 years in 2010 to 74 in 2020 for males and 77 to 79 for females. As a result, the **older** population (65 years and above) is expected to register highest growth of 4.5% per annum to reach 1.8 million (5% of total population) in 2015, heading towards an aged nation⁵. Malaysia is expected to become an aged nation by 2035, where the composition of population aged 60 and above reach 15% of the total population.



CAGR-Compounded annual growth rate

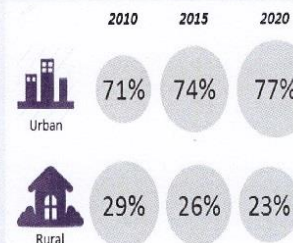
Young
Decrease in share

Working Age
Demographic dividend

Old
Growing at faster rate and towards an aged nation

Strata Distribution

The **urban** population is expected to increase from 20.3 million in 2010 to 22.7 million in 2015, with a growth of 2.2% per annum. The **rural** population however is expected to decline by 1.2% per annum from 8.3 million in 2010 to 7.8 million in 2015. In 2015, the composition of urban population is expected to reach 74.3% of total population, which will lead to an increase in demand for infrastructure, housing, education and health facilities in urban areas.

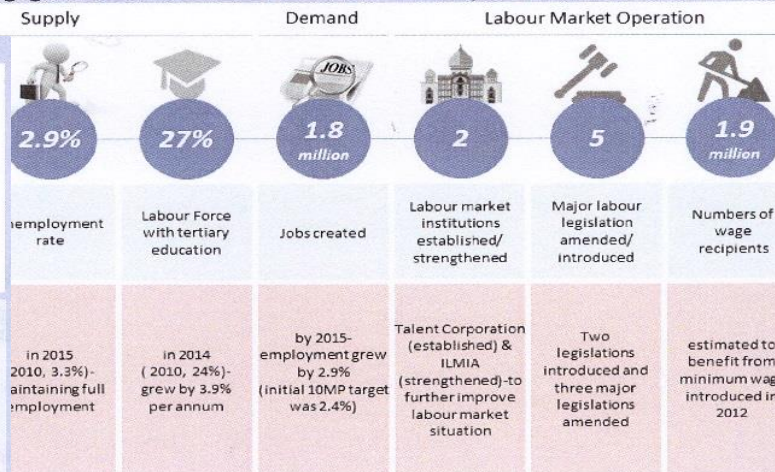


³ Demographic dividend is achieved as a result of a growing population in the age cohort of 15-64 years that is active in employment, and their employment income is able to cover the needs of their dependents who are outside the labour force.

⁴ Dependency ratio is a measure of the number of dependents (aged 0-14 and age over 64 years) over the total working age population (aged 15-64 years).

⁵ There is no standard definition for ageing population. Some organisations/countries define ageing nation when the population 65 years and above reaches 7% of the total population. By this definition, Malaysia will become an ageing nation in 2021. However, the Das

Highlights of Achievements in the Tenth Malaysia Plan, 2011-2015



Background....

What is ageing population....?

United Nation

Ageing Society:

when the population aged 65 and over reached 7% of the total population.

Aged Society:

when the population aged 65 and over reached 14% of the total population.

Super-aged Society:

when the population aged 65 and over reached 14% of the total population

World Health Organization

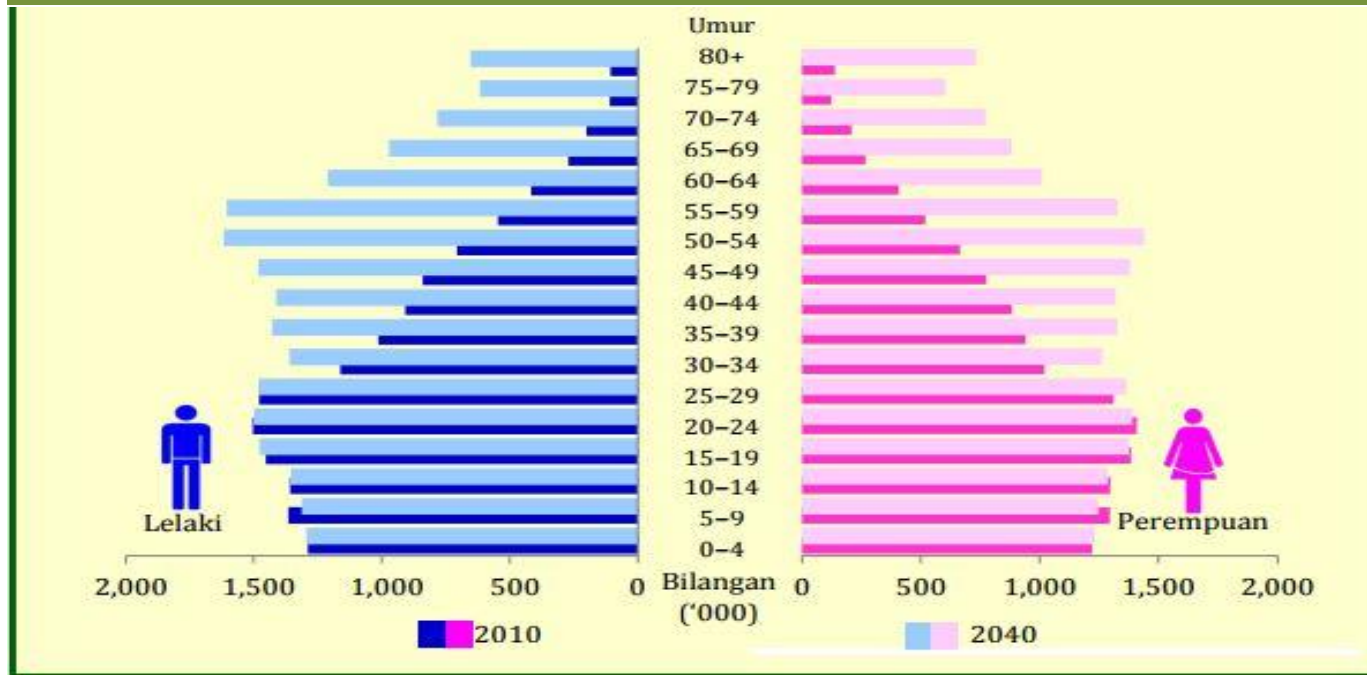
Any countries will be an Ageing Society when its people of 60 years old and above reached 10% of the total population.

Dasar Warga Emas Negara

Aged Society occurs when the percentage of 60 years and above reached 15% of the total population.

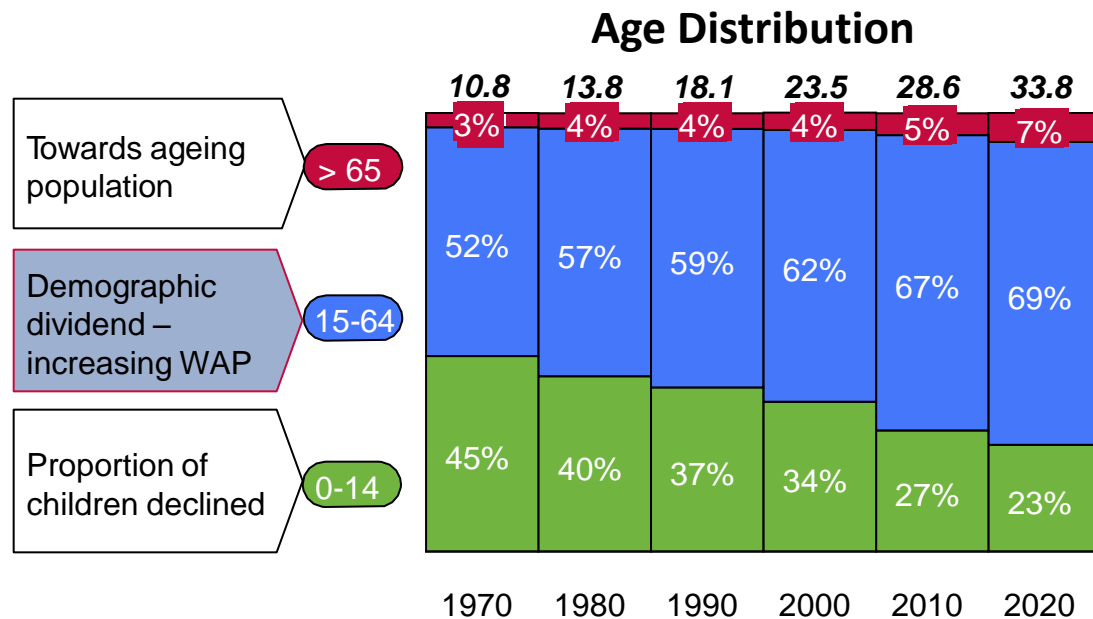
Background (cont.)

Malaysia Population Pyramid, 2010 and 2040




The shape of Malaysia population pyramid is regressive in 2010 and is expected to remain until 2040. Pyramid regressive has a smaller base which indicates a low birth rates and a convex slope reflect the adult population mortality rates are low. The apex is flat and wide shows that more elderly population.

Background (cont.)

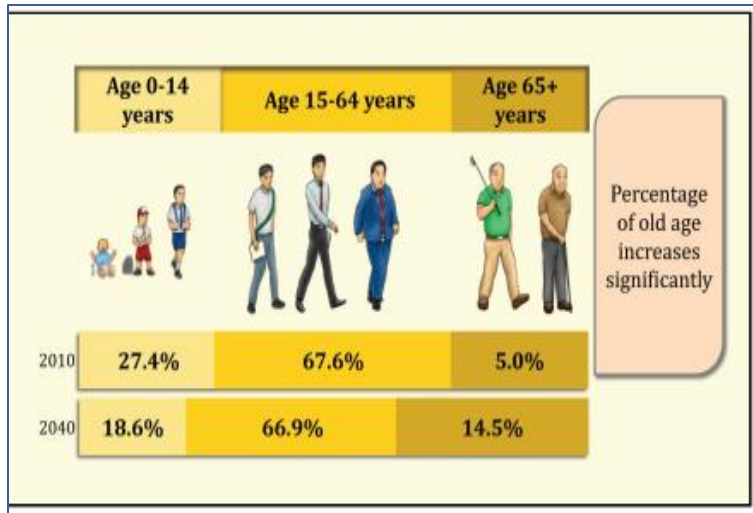


Dependency

 **Dependency ratio:** A measure showing the number of dependents (aged 0-14 and over the age of 65) to the total population (aged 15-64)

The increase in the working age population will increase the workers/potential workers who will be able to support the children and older persons

The gain in the working age population is often considered as a demographic dividend for the country



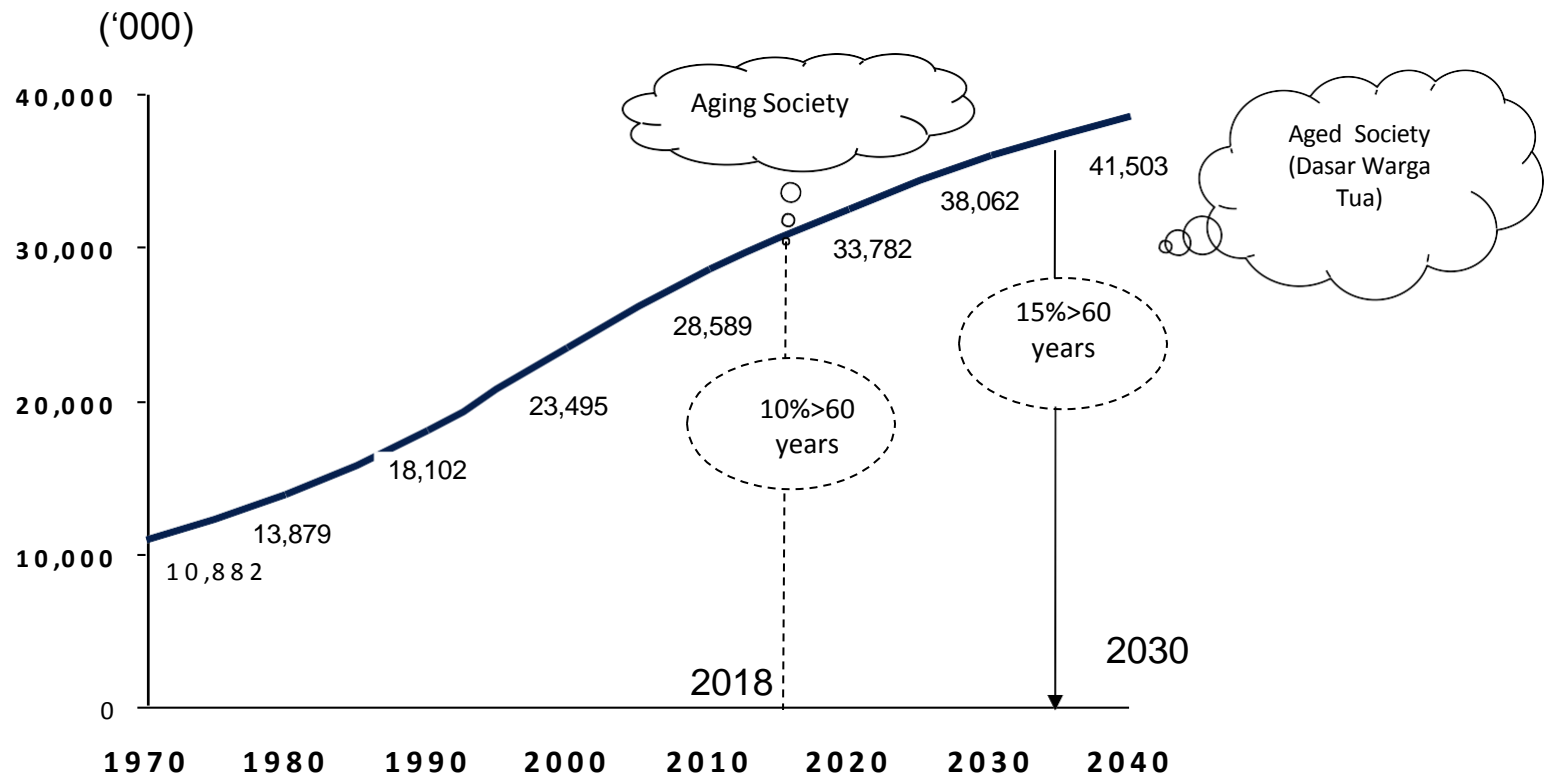
The young population (0-14 years) is expected to decrease from 27.4% in 2010 to 18.6% in 2040 as a result of the decline in fertility rate.

The working age population (15-64 years) is expected to increase from 19.3 million to 27.8 million during the same period, contributing to demographic dividend. As a result, the dependency ratio is expected to increase from 47.8% in 2010 to 49.5% in 2040.

Life expectancy is expected to improve from 71.9 years in 2010 to 78.0 in 2040 for males and 76.6 to 83.0 for females. As a result, the older population (65 years and above) in 2010 was 5.0% and expected to increase to 14.5% in 2040.

Background

Ageing in Malaysia



Background....

What is the age of older employment? Conceptualizing Age

- The term “older workers” depending on the purpose and field of study
(Bourne, 1982; Warr 2000)

01

02

-refers to workers aged 50 or 55 years and above, because in many countries this age range features a decline in the participation rate in the labour market
(OECD, 2005)

- Based on American Community Survey briefs, older workforce are among those aged 65 years and older
(Braedyn Kormer and David Howard, 2013)

003

Problem Statement

1

Malaysia is expected to experience ageing of the population by 2018 (based on World Health Organization definition) or by 2020 (based on United Nation definition) due to decreasing in fertility rate and increasing life expectancy.

Since 2005, the labour force participation rate of people 60 years and older in Malaysia has experienced a downward trend.

2

3

Therefore, it is vital to study the socio demographic characteristics of older employment and identify the factors that contribute significantly towards older employment.

RESEARCH QUESTION, RESEARCH OBJECTIVES

RESEARCH QUESTIONS

1. What is the demographic characteristics of employment in older population?

2. Is there any significant difference of working among older workforce?

3. Are there any one or more factors that contribute significantly towards the likelihood of employment in older population?

RESEARCH OBJECTIVES

To profile the demographic characteristics of older employment among aged 60 years and above population.

To identify factors that contribute significantly towards the likelihood of working among older workforce.

To model and identify the significant relationship between the factors which tends to influence the participation in workforce specifically among older employment.

Literature Review

01

Tomas Fiala (2014)

An analysis of the development of the sex-and-age structure of the Czech population of productive age based on the latest population projection.

02

Jesus Canduela (2012)

To assess whether age remained a predictor of inequalities in training; A multivariate approach was used in the form of ordered-probit modelling to explore the relative importance of the determinants.

Findings 01:

In all variants of development the labour force will be ageing, the proportion of younger workers will decline, whereas the proportion of employees over the age 50 years will increase relative strongly.

Finding 02:

It finds that men over 50 remained among those least likely to have been offered training by employers.

Literature Review (cont..)

03

Tan Sin Yin (2010)

To identify the associations among the factors (age, gender, marital status, educational level and stratum) and obtain models that describe the significant relationship between the factors which tends to influence the participation of labour force.

04

Dorien Kooij (2008)

To address age-related factors that influence the work motivation of older workers and examine how various conceptualization of the age factor affect the direction and termination of the motivation to continue to work of older workers.

05

Sewin Chan (2001)

To examine the employment patterns of workers aged 50 and above who have experienced an involuntary job loss.

Findings 03:

Found the models that describe the relationship between the factors which are found to be significantly associated when log linear modelling was used.

Finding 04:

Indicate that most age-related factors can have a negative impact on the motivation to continue to work of older people.

Finding 05:

Showed that a job loss results in large and lasting effects on future employment probabilities.

Methodology

SOURCE OF DATA

Labour force Survey (LFS)

- Conducted by DOSM every year since 1982
- Covered about 300,000 individuals for both citizen and non citizen

Sampling Design

- A two stage stratified sample design was used
- ☐ The Primary sampling unit (PSU)-Ebs
 - ☐ Secondary Sampling unit (SSU)
 - Living Quarters (LQ)
 - ☐ All households and persons within a selected LQ were included in the survey

Data Analysis

Descriptive

-Frequency and cross tabulation

- ❖ Profile of overall employment (15-64 years) and older employment
- ❖ Table and chart

Statistical Analysis

Multiple Logistic Regression

- ☐ Step 1: Data exploration and descriptive analysis.
- ☐ Step 2: Bivariable analyses (Simple Logistic Regression)
- ☐ Step 3 : Preliminary model (variable selection)
- ☐ Step 4 : Checking Interactions and multicollinearity
- ☐ Step 5 : Check Model Fitness & outliers
- ☐ Step 6 : Interpretation of the Final Model
- ☐ Step 7 : Presentation of the results

Data description for logistic regression

Variables	Variables Code
1. Age	Age
2. Sex	0 = Male, 1 = Female
3. Strata	0 = Urban, 1 = Rural
4. Marital Status	0 = Never married, 1 = Married, 2 = widowed, 3 = Divorced
5. Ethnic Group	0 = Bumiputera, 1 = Chinese, 3 = Indians, 4 = Others

Logit model

Logit $\left(\frac{\pi_1}{\pi_2}\right)$: π_1 : Employed, π_2 : Non – employed

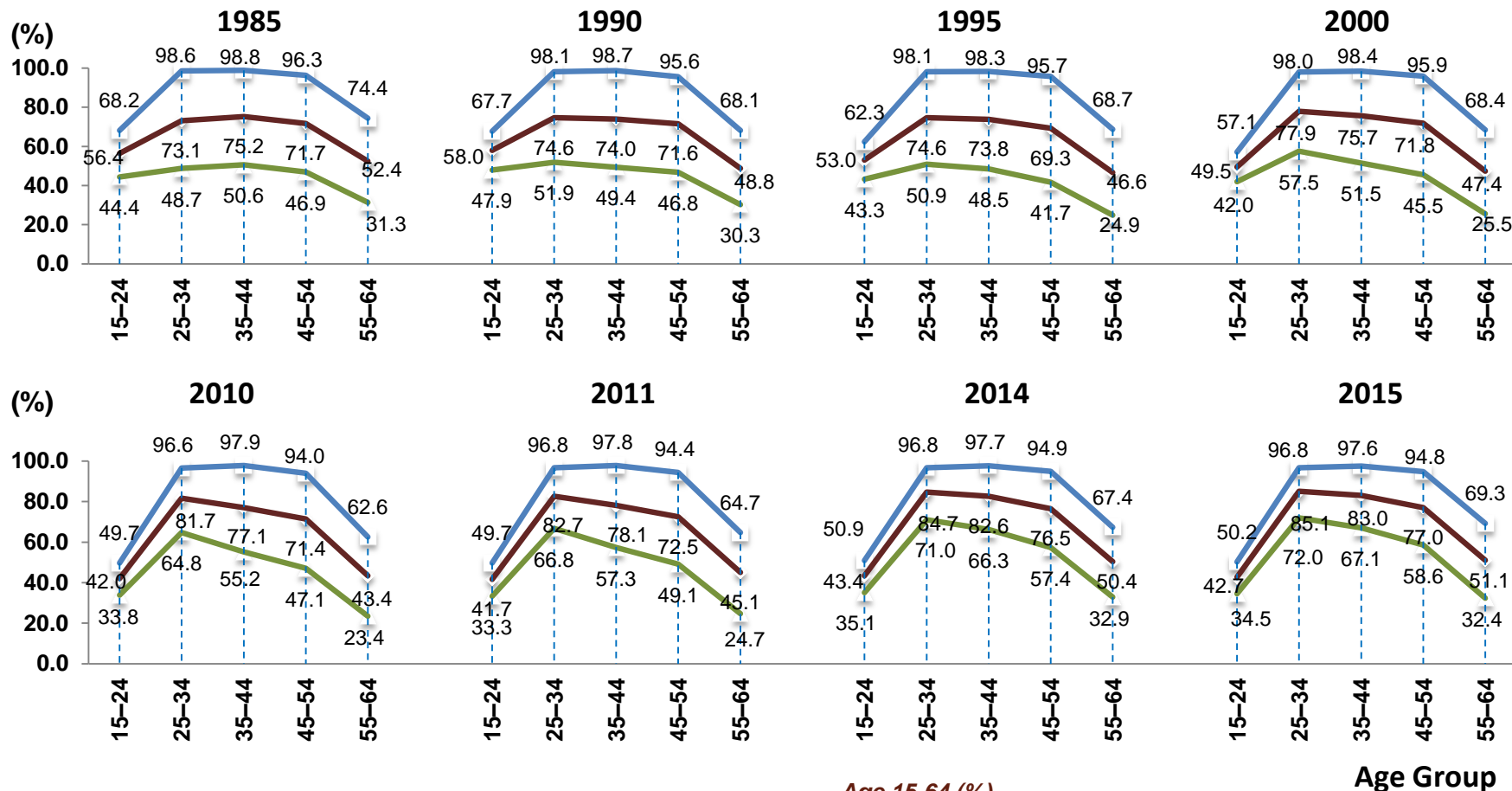
$$\frac{\pi_1}{\pi_2} = \text{Exp}\{\beta_0 + \beta_1 {}^x\text{age} + \beta_2 {}^x\text{Sex} + \beta_3 {}^x\text{strata} + \beta_4 {}^x\text{marital} + \beta_5 {}^x\text{ethnic}\}$$

The independent variables or predictors are donated as follows:

- ${}^x\text{age}$: *age of older employment*
- ${}^x\text{Sex}$: *sex of older employment*
- ${}^x\text{strata}$: *Strata of older employment*
- ${}^x\text{marital}$: *Marital status of older employment*
- ${}^x\text{ethnic}$: *Ethnic of older employment*

Overall Descriptive analysis

Labour force participation rate by sex and age group, Malaysia, selected years

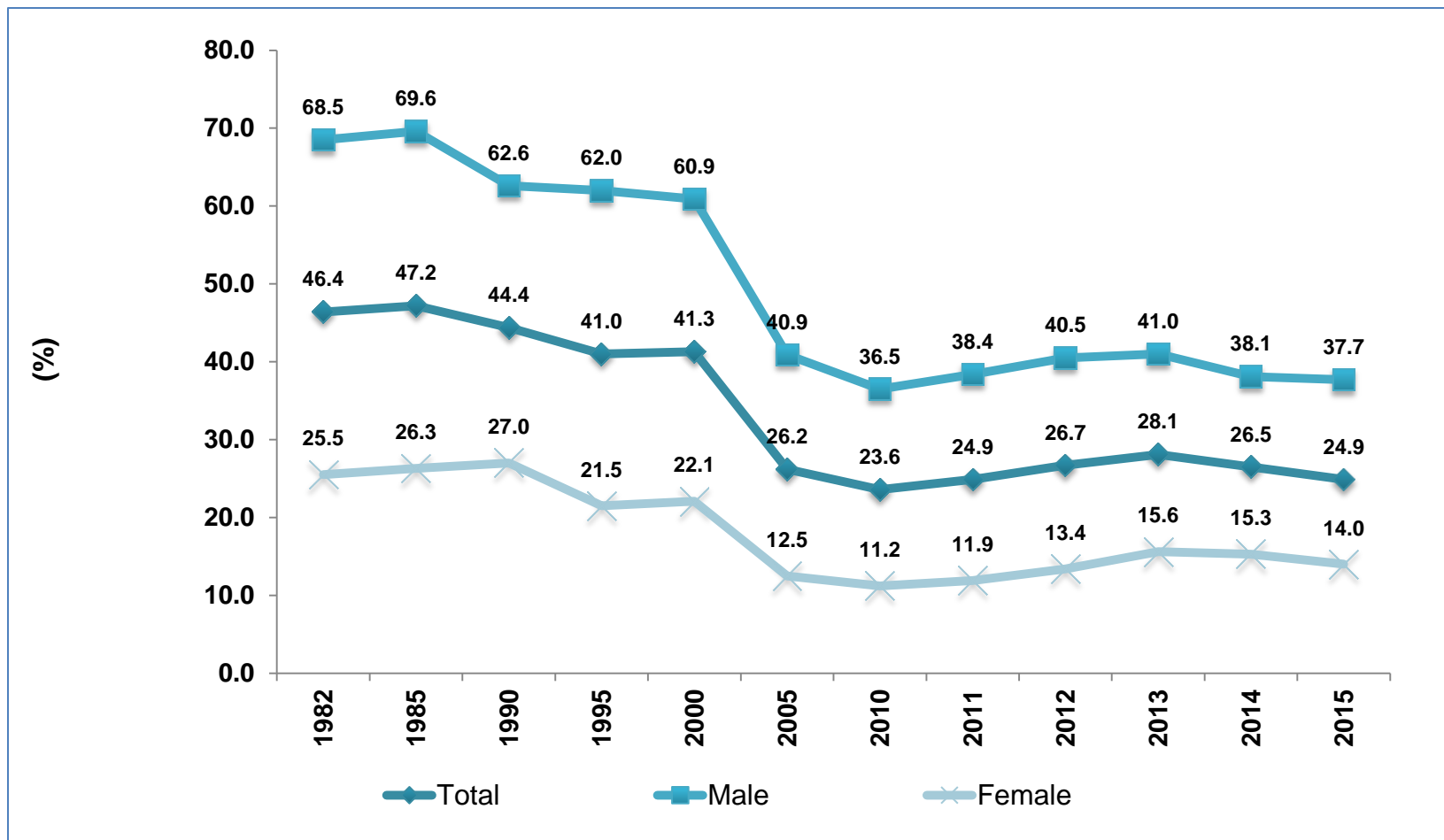


	Age 15-64 (%)							
Sex	1985	1990	1995	2000	2010	2011	2014	2015
Total	65.7	66.5	64.7	65.4	63.7	64.5	67.6	67.9
Male	85.6	85.3	84.3	83.0	79.3	79.7	80.6	80.6
Female	45.9	47.8	44.7	47.2	46.8	48.0	53.7	54.1

— Total
— Male
— Female

Overall Descriptive analysis (cont.)

Labour force participation rate by sex among 60 years and above, Malaysia, selected years.



Overall Descriptive analysis (cont.)

Employed persons by sector, Malaysia, 2010-2015, 15 – 64 years.

Sector (%)	2010	2011	2012	2013	2014	2015
Agriculture, forestry and fishing	13.6	11.5	12.7	13.0	12.2	12.5
Industry	28.4	29.1	28.6	28.3	28.0	27.4
Services	55.7	57.6	57.1	57.1	58.6	59.0
<i>Wholesale and retail trade; repair of motor vehicles and motorcycles</i>	15.9	16.2	16.6	16.7	16.8	16.8
Other activities	2.4	1.8	1.6	1.6	1.1	1.0

Employed persons by sector, Malaysia, 2010-2015, 60 years and above.

Sector (%)	2010	2011	2012	2013	2014	2015
Agriculture, forestry and fishing	44.3	41.1	41.4	42.9	38.9	36.5
Industry	13.6	14.6	14.8	14.2	15.1	15.4
Services	40.2	43.8	43.1	42.4	45.8	47.7
<i>Wholesale and retail trade; repair of motor vehicles and motorcycles</i>	14.8	14.6	14.3	14.0	13.8	15.1
Other activities	1.7	0.8	0.5	0.6	0.3	0.4

* Sectors are defined based on “Key Indicator of the Labour Market “ category

Overall Descriptive analysis (cont.)

Employed persons by occupation, Malaysia, 2011-2015, 15 – 64 years.

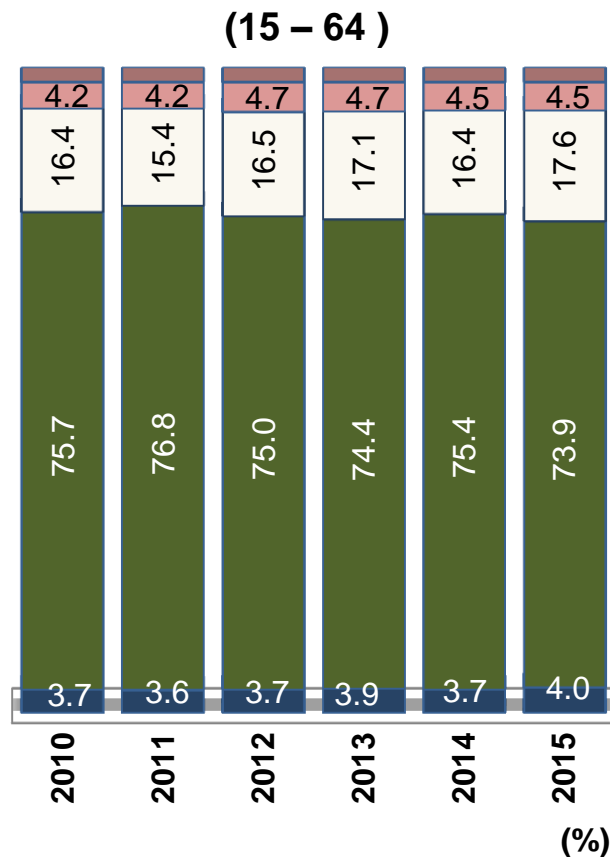
Occupation	2011	2012	2013	2014	2015 (%)
Managers	5.6	5.3	5.1	4.8	5.1
Professionals	9.9	9.7	9.5	9.9	10.4
Technicians and associate professionals	10.6	10	9.5	9.9	10.0
Clerical support workers	9.6	9.1	8.8	8.9	8.8
Service and sales workers	20.3	20.6	21.5	22.9	22.7
Skilled agricultural, forestry and fishery workers	8.2	9.2	8.7	7.2	6.7
Craft and related trades workers	10.9	11.1	11.0	11.2	11.2
Plant and machine-operators and assemblers	12.7	12.3	12.5	12.0	11.3
Elementary occupations	12.3	12.6	13.3	13.1	13.8

Employed persons by occupation, Malaysia, 2011-2015, 60 years and above. (%)

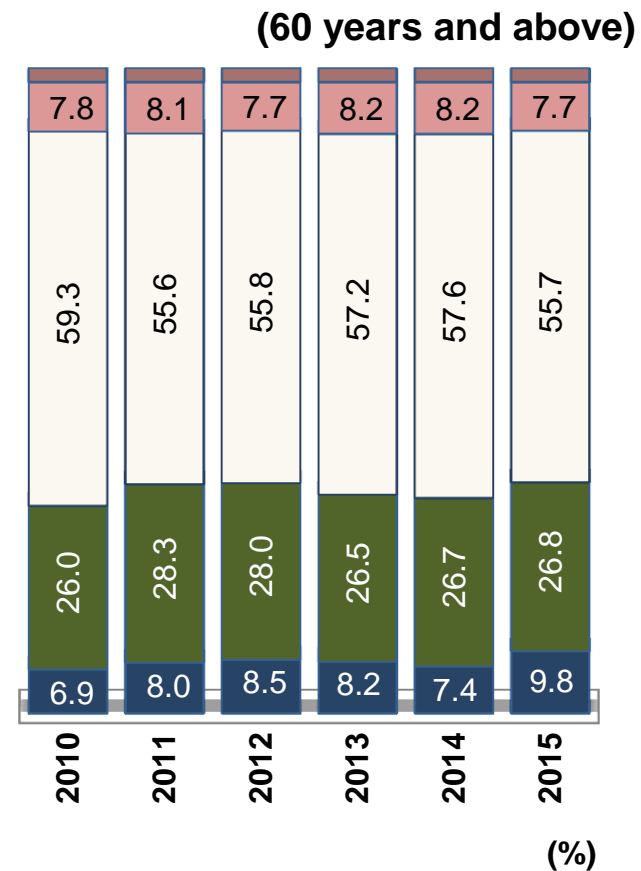
Occupation	2011	2012	2013	2014	2015
Managers	7.8	6.6	7.0	6.1	8.1
Professionals	3.6	3.3	3.1	3.0	3.7
Technicians and associate professionals	3.8	3.6	3.6	3.7	4.0
Clerical support workers	1.6	1.4	1.3	1.7	1.9
Service and sales workers	22.1	21.9	22.1	24.4	25.0
Skilled agricultural, forestry and fishery workers	38.5	39.1	39.6	36.2	33.0
Craft and related trades workers	7.9	8.8	7.4	8.8	9.0
Plant and machine-operators and assemblers	6.7	6.5	6.2	7.0	6.5
Elementary occupations	8.1	8.8	9.8	9.0	8.8

Overall Descriptive analysis (cont.)

Employment by status in employment, Malaysia, 15-64 years and 60 years and above 2010-2015



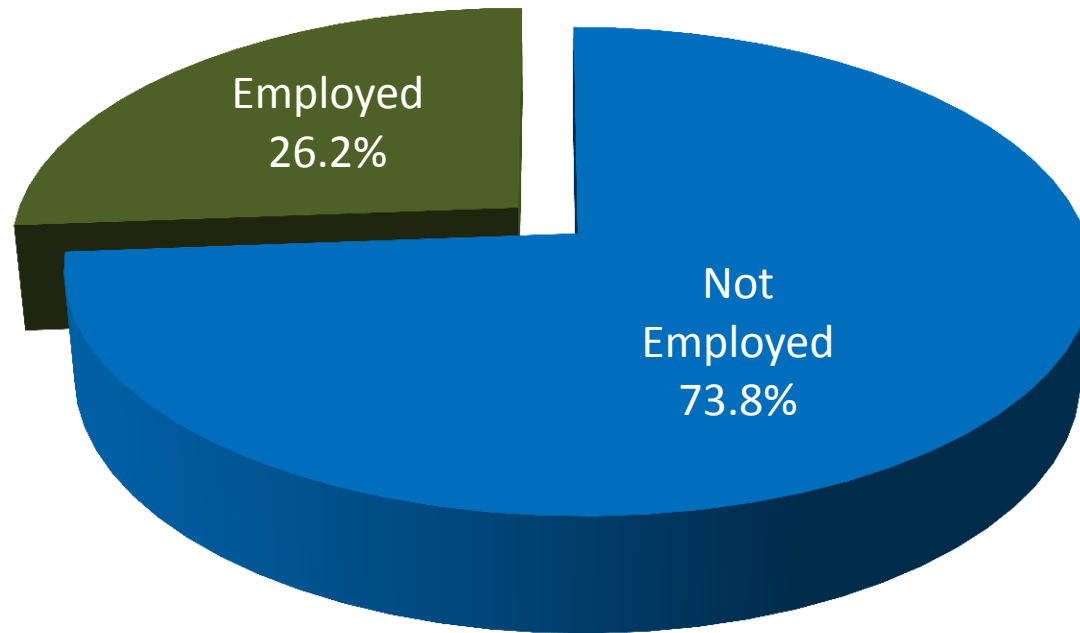
■ Employer ■ Employee
■ Own account worker ■ Unpaid family worker



■ Employer ■ Employee
■ Own account worker ■ Unpaid family worker

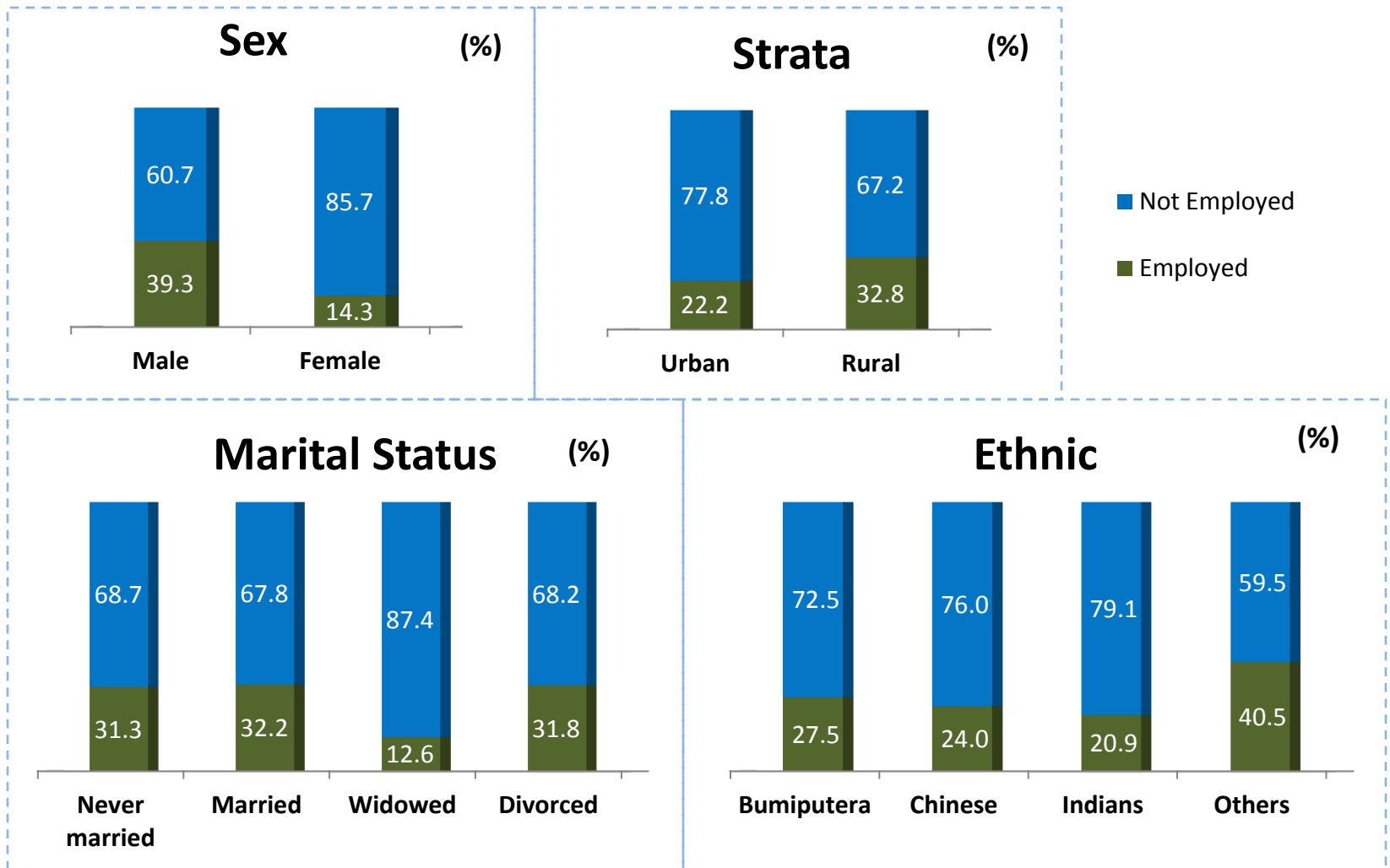
Findings

Distribution of employed and not employed among 60 years and above in Malaysia, 2015



Findings (cont.)

Demographic variables among 60 years and above in Malaysia, 2015



Findings (cont.)

Factor associated with employed using a univariate analysis (crude odd ratio) and multiple regressions (adjusted odd ratio)

Sosio – demographic characteristics	cOR	95% Confidence Interval	P-value	aOR	95% Confidence Interval	P-value
Age	0.889	0.885 - 0.893	<0.005	0.882	0.88 - 0.89	<0.005
Sex						
<i>Male</i>	3.891	3.71 - 4.09	<0.005	4.088	3.87 - 4.32	<0.005
<i>Female</i>	1.00	-	-	-	-	-
Strata						
<i>Urban</i>	1.00	-	-	-	-	-
<i>Rural</i>	1.711	1.64-1.79	<0.005	2.072	1.96-2.19	<0.005
Ethnic						
<i>Bumiputera</i>	1.00	-	-	-	-	-
<i>Chinese</i>	0.829	0.79-0.87	<0.005	1.090	1.03-1.16	0.004
<i>Indians</i>	0.695	0.63-0.77	<0.005	0.769	0.69-0.86	<0.005
<i>Others</i>	1.793	1.52-2.11	<0.005	1.846	1.54-2.22	<0.005
Marital Status						
<i>Never married</i>	1.00	-	-	-	-	-
<i>Married</i>	1.039	0.91 - 1.18	0.560	0.922	0.80 - 1.06	0.256
<i>widowed</i>	0.316	0.28 - 0.36	<0.005	0.706	0.61 - 0.82	<0.005
<i>divorced</i>	1.022	0.81 - 1.29	0.852	1.178	0.92 - 1.51	0.200

Findings (cont.)

01

More than one fourth (26.2%) of older aged among 60 years and above in Malaysia are employed.

02

Age, sex, strata, ethnicity and marital status are the factors that significantly associated with employment among population 60 years and above.

02

- ☐ Age – Older employment is less likely to be employed than younger employment
- ☐ Sex – Male is more likely to be employed compared to female
- ☐ Strata – Older population in rural area is more likely to be employed compared to older population in rural.
- ☐ Ethnicity – Chinese and other ethnic is more to be employed compared to Bumiputera while Indians is less likely to be employed compared to Bumiputera
- ☐ Marital status – Widowed older population is less likely to be employed compared to those never married

Selected International Experiences

- In 1950, the labour force participation rate (LFPR) among people 65 or older was about 40 percent in the less developed regions. Over the following 50 years, the participation rate decreased considerably faster in the more developed region (by about 64%) than in the less developed region (26%).

(Population Division, DESA, United Nations)

- The LFPR for those ages 55 and older declined from 34.7 percent in 1975 to 29.4 percent in 1993. However, since then the overall LFPR of this age group has steadily increased, reaching 40.5 percent in 2012 before decreasing to 40.3 percent in 2013.

(Craig Copeland, Employee Benefit Research Institute; source: CPS, US Bureau of Labour Statistics)

- The participation rates at older ages (65+) in Australia increased substantially during the decade 2000-2010. Overall, 88% of the increases in employment between 2000 and 2010 was due to increase in population through immigration and through the advance of the baby-boomer generation into the older ages of the labour force. Only 12% was due to increases in participation.

(Peter McDonald, Australian Demographic and Social Research Institute, Australian National University)

Selected International Experiences

- With increasing life expectancy and low fertility rates, our citizen population continues to age. There are more citizens in the older age groups today as the 'post-war baby boomers' enter their silver years. The proportion of citizens aged 65 years and above increased from 12.4% in 2014 to 13.1% in 2015.

(National Population and Talent Division(NSTD), Singapore)

Conclusion

In conclusion, the employment distribution among older population aged 60 years and above in Malaysia is low.

Younger age, being male, residing in rural area, and widowed are more likely to be employed among population aged 60 years and above.

These findings provide evidence-based information for policy makers in the planning and implementation of strategic programme among older population in Malaysia due to ageing population in the future.

- Require monitoring & policy evaluation (incorporate demographic changes in formulating policies);
- Labour force start to shrink;
- Spending on health and long term care expands



Recommendation

LFS data was mainly used in this study. However, for the next study, we should also use household income survey data and other administrative record.

01

Strengthening labour market policy to encourage employer to consider re-entry employment the labour market especially for female in order to increase LFPR among employment in older population.

02

Limitation

The sample was used from LFS, 2015 data only. Therefore, further details analysis & study should be done by include other variables which have not been considered and further extended by using other data sources to perform comparison for this study

01

REFERENCES

1. Population Projection (Revised), Malaysia, 2010-2040
2. Alexander Samarodov. Ageing and labour markets for older workers. Employment and Training Department, International Labour Office Geneva. 1999.
3. Tan Sin Yin, Loh Yue Fang, Aminah Bte Ahmad, Nithyarobini A/P Munian. Categorical data analysis on labor force data in Malaysia. Proceeding of the 6th IMT-GT Conference on Mathematics, Statistics and its Applications (ICMSA2010). 2010.
4. Tomas Fiala, Jitka Langhamrova. Increase of Labor Force of Older Age – Challenge for the Czech Republic in Next Decades. *Procedia Economics and Finance* 12 (2014) 144-153. 2014.
5. Jesus Canduela, Matthew Dutton, Steve Johnson, Colin Lindsay, Ronald W McQuaid, Robert Raeside. Ageing, skills and participation in work-related training in Britain: assessing the position of older workers. *Workforce ageing: article*. 2012.
6. Sewin Chan; Ann Huff Stevens. Job Loss and Employment Patterns of Older Workers. *Journal of Labor Economics*, Vol. 19, No. 2. (Apr., 2001), pp. 484-521. 2008.
7. Kene Henkens. Stereotyping Older Workers and Retirement: The Managers' Point of View. *Canadian Journal on Aging* 24(4). 11/07.2005.
8. Dorein Kooij, Annet de Lange, Paul Jansen and Josje Dijkers. Older workers' motivation to continue to work: five meanings of age. *Journal of Managerial Psychology* Vol. 23 No. 4, 2008.
9. Jean-Olivier Hairault, Francois Langot, Thepthida Sopraseuth. Distance to Retirement and The Job Search of Older Workers: The Case For Delaying Retirement Age. *Journal of the European Economic Association*, Wiley, 2010, 8 (5), pp.1034-1076. <10.1162/jeea_a_00014>.<hal-00517107>. 2010.
10. Abraham Mosisa and Steven Hipple. Trends in labor force participation in the United States. Division of Labor Force Statistics, Bureau of Labor Statistics. 2006.

