Impact of Migration and Development on Population Aging in Malaysia: Evidence from South-East Asian Community Observatory (SEACO)

Introduction: Population aging is an important public health issue related to urbanization, industrialization and migration. It has been projected that 22% of the global population will be aged over 60 years by 2050 (United Nations, 2010). This is because population aging is expected to occur faster in developing countries. Population aging and the inter-related phenomena of migration and urbanization are imposing profound challenges on governments' social and public policies. However, for government institutions in developing countries to effectively handle these challenges, there is an important need for evidence from district or provincial data to guide policy decisions.

Among non-city states in South-East Asian region, Malaysia is the most urbanized. The urban population has grown from 11% to 71% within a century (Masron et al., 2012; Department of Statistics Malaysia, 2012a). As a result of demographic age transition, the Malaysian young-age population under the age 15 has been projected to decrease from 27.4% in 2010 to 19.6% in 2040; whereas that of elderly (aged 65 years and above) will be more than double within next 30 years (increase from 5% in 2010 to 11.4% in 2040) (Department of Statistics Malaysia (2012b).

Rapid urbanization and industrialization have generated large scale internal migration and international in-migration in Malaysia. The recent national migration survey found that about 90% of the total migrants were internal and the rest immigration into Malaysia. And the predominant internal migration was within the state (61.3%) followed by inter-state (28.5%). The intra-state migration rate (i.e. rural to urban) increased by 2.3%, whereas inter-state (from less developed states to more developed states) migration rate increased by only 0.5% in last three years. The national migration

survey also found that the majority of the migrants were aged 15-34 years and they moved either for higher education or for work (Department of Statistics Malaysia, 2013).

In general, government utilizes national level evidence to develop strategies and policies. Given the geographic, demographic, and socio-economic differences in Malaysia, it is also important to examine the district level variations, which impact population aging. There have been no published studies that investigated regional variation in population aging in Malaysia; particularly comparing the district level population age structure to that of the national level. This study therefore investigates the impact of migration on aging in a rural Asian context. The study findings will help the Malaysian government along with the government of neighboring countries to develop effective strategies to meet the challenges associated with population aging and migration.

Methodology: The paper used the national and district levels census data on population classified by age and sex. In this paper, population pyramid was used as one of the tools to show the distribution of various age groups in the population, and to estimate the dependency ratio in the population. The national census data was collected in 2010 by the Department of Statistics, Malaysia and the district level census data was collected in 2012 by the South East Asian Community Observatory (SEACO) research team of the Monash University, Malaysia. Data obtained from the World Bank indicates that there is negligible variation in total population, proportion of population aged 0-14, 15-64 and 65+ between 2010 and 2012 at the national level; hence these data are comparable (www.worldbank.org/indicator/SP.POP.65UP.TO.ZS/countries).

The district census data was collected from five sub-districts (Sungai Segamat, Jabi, Gemereh, Bekok and Chaah) of Segamat district of Johor state, which is located at the southern part of Peninsular Malaysia and is the second highest sending state with negative net migration rate (-3.8 per 1000 population) due to high out-migration rate. Segamat district has a typical population mix and representation of Peninsular Malaysia. The basic demographic information was collected from 37,977 people (19,132 male and 18,845 female). To examine the impact of outmigration on people left-behind in the selected sub-districts of Segamat, three types of age-dependency ratio (total, young-age and old-age) were calculated and compared with the corresponding records at the national level. The total dependency, young age dependency, and old age dependency ratios were estimated as follows:

$$\text{Total dependency ratio} = \{(a+b)/c \times 100\} \quad (1)$$

$$\text{Young age dependency ratio} = \{(a/c) \times 100\} \quad (2)$$

$$\text{Old age dependency ratio} = \{(b/c) \times 100\} \quad (3)$$

Where, “a” represents the total number of people aged 0-14 i.e. it represents young dependent population and “b” is the total number of people aged 65 and over, representing the aged dependent population and “c” stands for the total number of people aged 15-64, i.e. the active working population.

Results: The study found that compared to the national level, the proportion of males in the working ages is lower at the district level. This gap is then filled in by international migrant workers, who were mostly males. The proportion of young age population (0-14 years) is slightly higher at the national level compared to that of the study district. On the other hand, the proportion of elderly aged 65 years and above is almost double at the district level, resulting in high old-age dependency ratio. The total dependency ratio for male population is higher at the district level when international migrant

workers were not considered. It indicates the shrinkage of Malaysian male working population at the district level which is covered up to some extent by immigrants. While the national level population age structure resembles the pyramid shape, the district level population pyramids – with or without international migrant workers – looks like a distorted hour-glass. The shape of the district population structure arises mainly due to shrinkage of working group resulting from out-migration. The result is a "bite" out of the population distribution in the age group of 20-44. The proportion of 20-44 years old male population at the district level was around 12% less than that of the national level. This was primarily due to the out-migration of economically active young adults from the rural and less developed urban areas of Segamat. The proportion of the same age group is slightly higher among male population when economically active international migrant workers (mainly Indonesian plantation workers) were accounted for. The "bite" however remains for females. The gender unbalanced nature of the structure also raises interesting policy implication, particularly in sexually active age groups.

Discussion:

This study found that internal migration, which is an inevitable consequence of urbanization, has a strong impact on population aging and this increases the social and economic burden of those left behind. The "bite" which was created by the out-migration of economically active group in males to some extent is diminished by international migrant workers. The hour-glass shaped population structure is also found in developed countries like England, Canada and Ireland when the population age-sex structure was examined separately either for urban and rural population or between different counties or provinces (Pateman, 2011; Milan, 2011; Ireland. Central Statistics Office, 2012; Waldorf and McKendree, 2013). It is the impact of urbanization which encourages young working population to

migrate to cities for either economic or education purposes. If the mortality rate at the old age in developing countries continues to decline, they will experience the highest aging population and will have different population structure in the next century. The governments of developing countries such as Malaysia, where the government bears the major share of health care and social security have to be prepared and well-informed to face these emerging challenges. The study found that this scenario may vary by region. So instead of developing a universal strategy, government should consider the regional variation while developing policies and programs on population aging that are sensitive to regional and social group variation. It is anticipated that the findings of this study will help the Malaysian government and the governments of neighboring countries of South East Asian region to face the challenges effectively.

References:

- Department of Statistics Malaysia (2012a) Population Distribution and Basic Demographic Characteristics Report 2010. Putrajaya: Department of Statistics. Available at: www.statistics.gov.my (Accessed on 10 September, 2013).
- Department of Statistics Malaysia (2012b) Population Projections: 2010 to 2040. Putrajaya: Department of Statistics. Available at: www.statistics.gov.my (Accessed on 10 September, 2013).
- Department of Statistics Malaysia (2013) Migration Survey Report 2012. Putrajaya: Department of Statistics. Available at: www.statistics.gov.my (Accessed on 10 September, 2013).
- Ireland. Central Statistics Office (2012) Profile 2: Older and Younger. Central Statistics Office, Dublin, Ireland.
- Masron, T. Yaakob, U. Ayob, NM. And Mokhtar, AS. (2012) 'Population and spatial distribution of urbanization in Peninsular Malaysia 1957-2000'. Malaysia Journal of Society and Space, 8(2): 20-29.
- Milan, A. (2011). Age and sex structure: Canada, provinces and territories, 2010 Canada. Statistics Canada's National Contact Centre.

- Pateman, T. (2011). Rural and Urban Areas: Comparing lives using rural/urban classifications; Regional Trends; 43, 11-86. doi: 10.1057/rt.2011.2.
- United Nations (2010) World Population Ageing 2009. New York: United Nations Department of Economic and Social Affairs (UNDESA), Population Division, United Nations.
- Waldorf, B and McKendree, M (2013), The aging of rural Indiana's population. Department of Agricultural Economics, Purdue University, Center for Rural Development, EC-769-W, www.extension.purdue.edu.
- www.worldbank.org/indicator/SP.POP.65UP.TO.ZS/countries

Table 1: Different proportion of population at the national and district levels

Population Pyramid	Sex	Proportion of population		
		0 – 14 years	15 – 64 years	65 years and above
Malaysian National population pyramid	Male	27.5	67.7	4.8
	Female	27.7	66.9	5.4
Segamat district population pyramid-including foreign workers	Male	21.9	68	10.1
	Female	21.5	67	11.5
Segamat district population pyramid-excluding foreign workers	Male	23.4	65.6	11
	Female	21.6	66.7	11.7

Table 2: Different types of age-dependency ratio at the national and district levels

Population Pyramid	Sex	Total age dependency ratio	Young age dependency ratio	Old age dependency ratio
Malaysian National population pyramid	Male	47.71	40.62	07.09
	Female	49.48	41.41	08.07
Segamat district population pyramid-including foreign workers	Male	47.06	32.21	14.85
	Female	49.25	32.09	17.16
Segamat district population pyramid-excluding foreign workers	Male	52.44	35.67	16.77
	Female	49.93	32.38	17.54

Figure 1: Malaysian National Population Pyramid

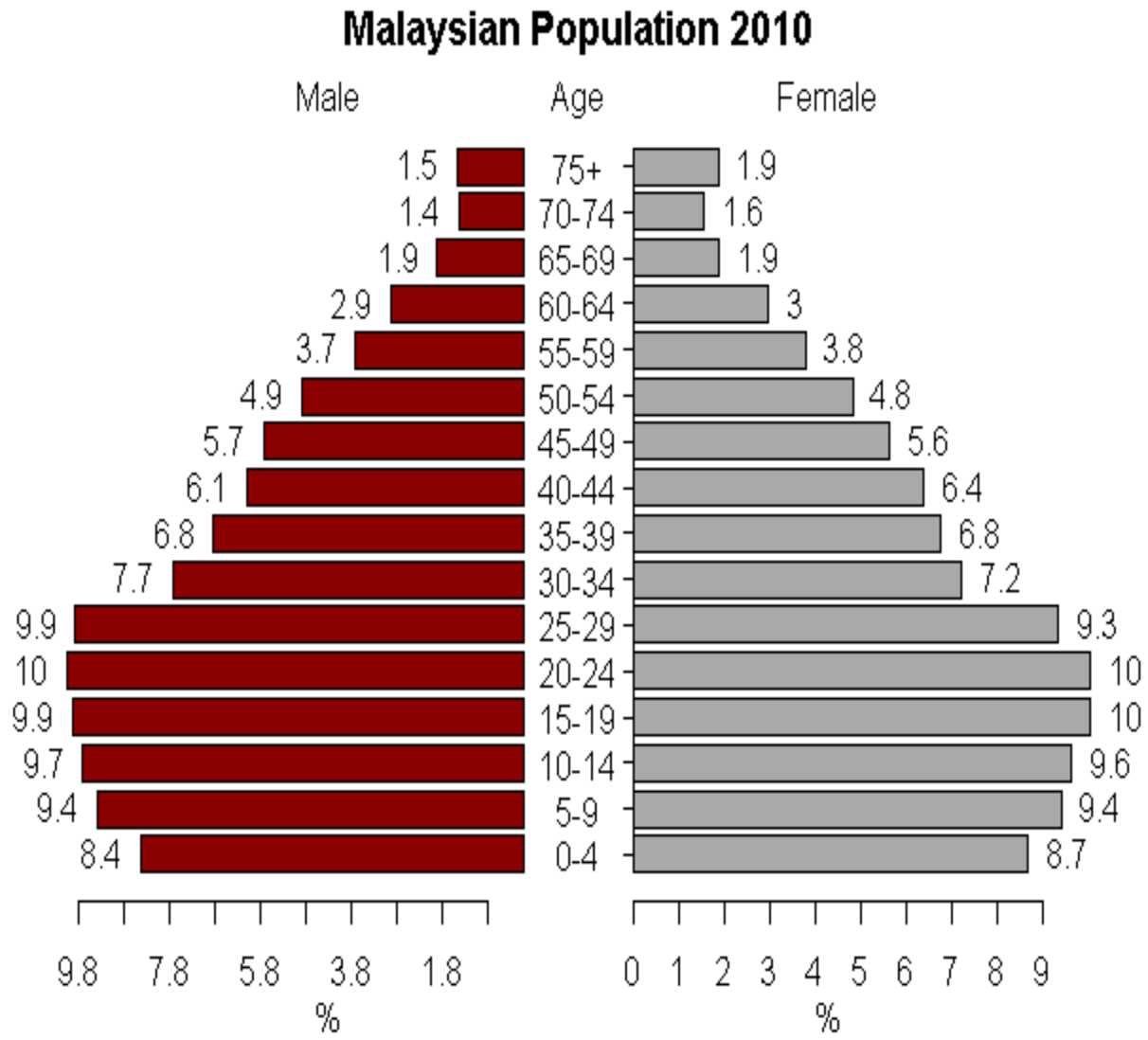

Figure 2: Segamat district Population Pyramid: Total population means including foreign workers

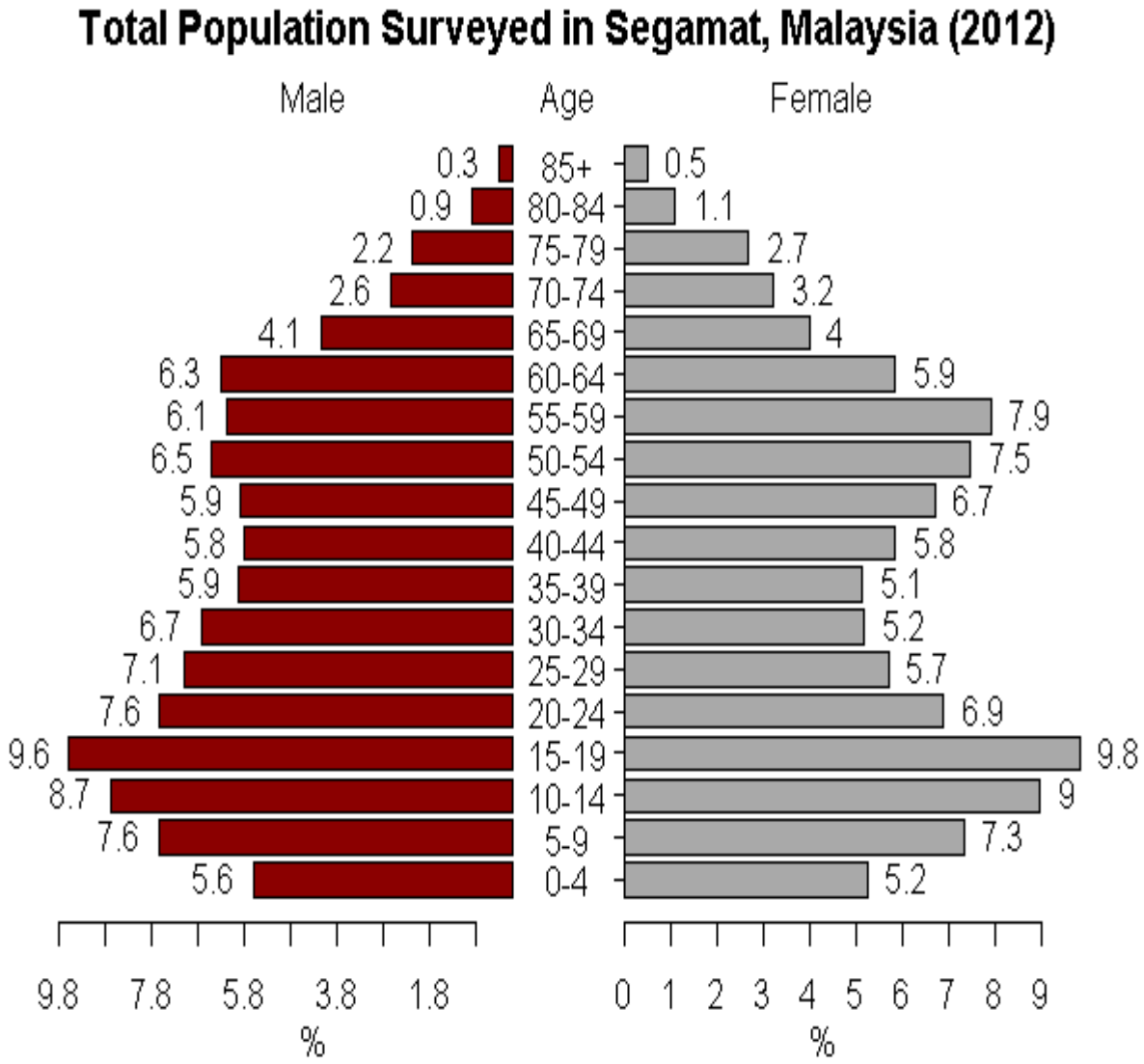

Figure 3: Segamat district Population Pyramid: Citizen only means excluding foreign workers