Active Life Expectancy of Filipino Older People[1]

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Abstract

Using data from the 1996 Philippine Elderly Study, the study presents results which provide a baseline estimate of the Active Life Expectancy (ALE) among Filipino older people 60 years and over. The study employs a functional health approach which measures health in terms of the respondent's ability to perform normal everyday activities of daily living. Findings demonstrate a significant gender pattern in ALE with the females more likely to outlive their male counterparts although they can expect to live a greater part of that life in a state of physical disability.

Background

Population aging refers to the increasing number and proportion of people in the older age groups. By United Nations (U.N.) definition, a population is considered aging when the proportion of older people is seven percent or over. U.N. tabulations normally define older people to include those at least 60 or 65 years old. In the Philippines older persons refer to those aged 60 years and over.

The aging of the world's population has assumed significance in recent years particularly in countries that have gone farthest in the demographic transition. The unprecedented high level and tempo of aging observed in many countries have spelled tremendous implications on the bigger socio-cultural and economic milieu, particularly in the area of health care and

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health financing, which explain the amount of research attention that this demographic phenomenon is receiving today.

The contours of population aging have been defined by demographic and epidemiologic transitions. Sustained declines in fertility and mortality levels experienced by many economically developed societies have resulted in the maturation in age structure that resulted in a dramatic rise in the number and proportion of the older sector of the population. Such population dynamic is intimately linked with the shifts in disease patterns. In particular, the mortality transition has been characterized mainly by a long-term shift in disease patterns whereby pandemics of infections as the leading causes of death and diseases have been gradually replaced by degenerative diseases (Omran, 1971[2]).

The 20th century saw a continuing shift in morbidity patterns that brought about further declines in mortality than earlier anticipated by Omran (1971). This mortality decline, which was mostly concentrated in the older age groups, made significant impact on the size of the population at the advanced ages. Using data from the United States, Olshansky and Ault (1986) noticed a rapid mortality decline in advanced ages that was caused by the postponement of ages at which degenerative diseases tended to lead to death. This development extended life expectancy at birth beyond seven decades which, in the 1970s, was believed to be close to the biological limit of human life. To emphasize this remarkable achievement in epidemiologic history, Olshansky and Ault (1986) proposed a fourth stage to the transition, the 'Age of Delayed Degenerative Diseases.' The new stage signals the period of a redistribution in degenerative diseases accompanying the shift in the age of death with the causes (degenerative) remaining essentially the same.

In many countries where population aging has reached significant levels, a central policy concern is the potential conflict between achieving longer life and improving the quality of life (van de Water, 1933 in Crimmins, 2003). A controversial issue in this regard is the question of whether declining mortality at advanced ages will result in additional years of health or additional years of disability at the oldest ages. Indeed, developments in the demographic and epidemiologic transitions that have added more years to life have now resulted in uncertainties about the level of health of the population. Some have argued tha increasing life expectancy may ironically be producing 'longer life and worsening health' (Verbruggge, 1984) which means having more people with ill health who are likely to be consumers of health care services and products (Gruenberg, 1977). This pessimistic view is the so-called 'expansion of morbidity hypothesis' (Gruenberg, 1977; Kramer, 1980; Olshansky et al., 1991). The latter runs counter to a more optimistic view, the 'compression of morbidity hypothesis' (Fries, 1980, 1989) which anticipates an improving state of health. This theory suggests that future increases in life expectancy will not necessarily mean increased prevalence of illness and disability but will in fact, eventually lead to improvement in the quality of life of older people. With the task of eliminating premature causes of death already largely

accomplished, chronic illnesses are expected to occur only during the last few years of life. Healthy life will be prolonged at a rate greater than that of total years of life and consequently, the fraction of total life that is healthy will increase (Rogers et al, 1990).

The uncertainty of the aging-health nexus has elevated health as a central issue in the aging discourse and has accordingly given rise to new methodological approaches which include among others, health expectancy (H.E.). H.E. typically refers to the average number of years an individual can expect to live in a given health state (Mathers, Robine and Wikins, 1994). The concept of H.E. resulted from a broadening in the conceptualization of health from a metric of length of life as a measure of health status to a quality of life perspective. The measure seeks to assess the quality of remaining life by determining number of years lived in health states such as a state without disability, with disability, handicap or any other form of impairment. An attractive feature of H.E. is that it combines the fundamental dimensions of health (mortality, morbidity and disability) into a summary indicator to provide information on the length of life (adding years to life) and the healthfulness of life (adding life to years). It involves the development of indicators that provide important tools for understanding how health states and length of life change in actual population and whether there has been an expansion or contraction of healthy life (Crimmins, 2003) as life expectancy rises. They also provide the means to assess which individual-level factors are likely to be associated with better health at older ages (Manton et al., 1997; Manton and Gu, 2001).

H.E. is a generic term used for healthy life expectancy and is alternately called 'Active Life Expectancy' (ALE). ALE is a type of H.E. which measures active or independent life and makes use of Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL) as measures of health status (Katz et al., 1963, Lawton and Brody, 1969, Verbrugge and Jette, 1994). Conceptually, ADL and IADL are indicators of disability since they measure ability to provide personal hygiene and self care such as bathing and toileting (ADL) and basic activities necessary to reside independently in the community such as marketing, housekeeping and meal preparation (IADL). Ability to perform ADL and IADL activities have been widely used as indicators of health in many research on older population (Crimmins, 1996).

This paper seeks to estimate the ALE among Filipino older people 60 years and over and to assess gender differences, if any. This will establish the benchmark estimates of ALE of older people in the country

Data and Methodology

The study was based on data from the 1996 Philippine Elderly Survey (PES), the first nationally representative sample of older people aged 50 years and over in the country. PES was conducted using a multi-stage stratified cluster sampling design which resulted in a total of 2285 interviews with respondents, aged 50 years and over living in households. The

response rate was 95 percent (Hermalin, et al., 1998). The 1996 PES was part of a bigger project, 'Comparative Study of Elderly in Four Asian countries' which included the Philippines, Singapore, Taiwan and Thailand and was designed to investigate how rapid demographic change in these societies has affected the elderly. It collected a whole range of characteristics of older people including ther health which is the main focus of this study.

The paper defines health in terms of its social dimension which considers a person's ability to perform certain social functions and proficiency in social existence. In particular, the study adopted a functional health definition, measuring health in terms of two conceptual domains: personal care (ADL) and independent living (IADL). ADL and IADL measures have become standard variables in elderly research just like age, sex, marital status and income and have been increasingly used in measuring the quality of life and functional states (Spitzer, 1987). The advantage of using ADLs over other health indicators is that these are more specific and concrete, thus avoiding situational or contextual difference among survey respondents. ADLs were also found to be good predictors of a wide range of health-related behaviors (Weiner et al, 1990). However, they do not measure the full range of activities necessary for independent living. Thus, IADL measures were developed to fill in the gap (Lawton and Brody, 1969).

In the 1996 PES, elderly respondents were asked if they had any difficulty doing any of the four ADL or five IADL activities because of health reasons. ADL activities include self-care tasks such walking around the house, eating, putting on clothes/dressing, and taking a bath/going to bathroom. IADL indicators which measure the ability to assume independent living include preparing one's own meal, shopping for groceries or personal items, managing own money, doing light housework like doing dishes, straightening up or light cleaning, using transportation to get to places beyond walking distance. These indicators were used to define the functional health status of the older person. A person was considered inactive if he or she could not perform at least one of the ADL or IADL activities by himself or herself because of health reason. Thus, a healthy state means no functioning ability problem, i.e., without any ADL or IADL difficulty.

ALE was derived using the prevalence-based Life Table or the Sullivan Method. Calculation of the Sullivan Health Expectancy required data on the age and sex-specific disability rate of the older population (obtained from the1996 PES) and the age-specific mortality data by sex derived from the1995 computed life table of the country. The 1995 life table is utilized because life table for 1996 (i.e., the year the survey was conducted) is not available.

The following life table functions were used in the computation of ALE:

l_x the number of survivors at age x

L_x the number of person years lived in the age interval x, x+5

e_x the total life expectancy at age x

Although the proportion of older people living in institutions in the country is negligible, the computation of ALE took this factor into account so as not to bias the estimates. A consideration of the institutional population was also meant to reconcile the disability prevalence which was taken from a community-based survey (i.e, excluding those living in institutions) and the life-table estimates which covered the entire population (i.e, including those in institutions). Estimates of the institutionalized elderly were calculated from the one percent sample of the 1995 census.

One limitation of the Sullivan method is that the method requires life tables by the specific subgroups of the population. The Sullivan method is often used to compute health expectancy by sex, partly because life tables by sex are available in most of the countries in the world. In some countries, life tables are also available by ethnicity or by region. However, it is very rare to find life tables by level of education or by urban/rural. A more detailed discussion of the Sullivan method can be found in Jagger (1999) and Saito et al (1999). Sample spreadsheets for computing health expectancy is also available from the REVES website (ftp:// euroreves.ined.fr/euroreves/methods/ sulliv2.xls).

Results

Aging in the Philippines

Prior to the discussion of the results, a brief overview of the aging situation in the country is provided to contextualize the study findings.

The level and rate of aging in the Philippines is low and slow in comparison with that of other countries which have experienced more dramatic demographic transitions like Germany and Japan where almost a fourth of their population belong to the older age groups. The 2000 census counted a total of 4.6 million older Filipino, comprising six percent of the country's population as shown in Figure1. While aging prevalence in the Philippines may be relatively low, this is expected to assume prominence in the future with the numbers reaching a double-digit mark in 2020 under the assumption of a moderate fertility and mortality decline (Cruz, 2005). This future scenario is likewise suggested by the fast rate of growth of the older population sector, which already exceeds that of the general population, making it the fastest growing sector in the country's population today.

The aging of the Philippine population can be traced to the declines in fertility, infant and child mortality and the general improvement in the overall level of health, which have led to further extensions in life. While increase in life expectancy has been a norm in almost all countries of the world, this varies across age, sex, education and racial groups of the population. In the Philippines, large strides have been achieved in extending life expectancy. At present, a female can expect to live 72.2 years at birth and 66.9 years for the males

representing about 10 years gain from their counterparts in the 70s (Table 1). Both the probability of reaching old age and the chance of survival among those who reached old age have increased in recent years. Gender differentials also show that older females have a greater chance of gaining years of life compared to the males. Between 1970 and 1995 older females gained 2.2 years as compared to 0.5 years among the males so that in 1995 a woman who survived to age 60 can expect to live 19.3 more years on the average, as compared to 16.8 years for the average male. The very slight change in remaining life among those who survived to their 60s compared to the overall life expectancy at birth implies that these life gains benefited mostly the younger segment of the population. This also explains the relatively slow pace of aging in the country. This is opposed to the pattern in low mortality countries where improvements in life expectancy, mainly caused by increased longevity experienced by the older sector of the population, are accounted for by the overall mortality reductions from chronic diseases at older ages.

FIGURE 1: Trends in Size and Growth of Older Population, Philippines, 1948-2020

Percent and Number of older people 60 years and over:
Philippines, 1948-20202
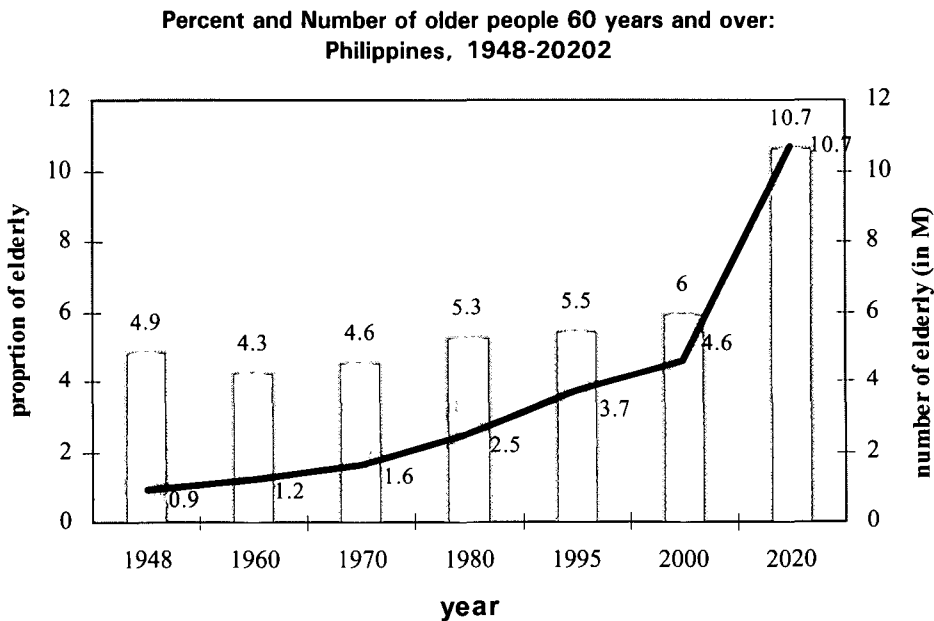
Source: Census data for censuses 1948-2000. NSO population projections for 2020.

TABLE   1:   Life Expectancy at Birth and at Age 60 by Sex: Philippines, 1970-2002

Year/period	Life expectancy at birth			Life expectancy at age 60		
	Male	Female	Gender Difference	Male	Female	Gender Difference
1970	57.3	61.5	4.2	16.3	17.1	0.8
1980	59.7	65.1	5.4	16.5	18.2	1.7
1990	62.2	67.4	5.2	17.0	19.0	2.0
1995	64.4	67.8	5.2	16.8	19.3	2.5
2002	66.9	72.2	5.3			

Source: Flieger, Wilhelm, SVD, J. V. Cabigon "Life Table Estimates" HFDP Monograph 5, MY, 1994 (1970 ns 1990)
NSO, 2002 (from NSCB website: http://www.nscb.gov.ph/stats/wmfact.htm)

ADL and IADL Difficulties

Table 2 shows the level of disability using a measure which combines all four ADL and five IADL activities.   A respondent is considered as having a disability if there is difficulty performing any one of these nine activities. Results show a high level of disability, with 28.2 percent admitting to have experienced some difficulty in doing any of the nine activities.

Findings also underscore the well-known age and sex grading of disability with females and those in the advanced ages generally showing elevated levels of functional deficits (Figure 2). By the time they reach 70 years, the prevalence level is a high 42 percent or more than twice that reported by those in their 60s. The increasing level of disability with advancing age means that under current conditions, the disability burden of the population will continue to increase as population ages.

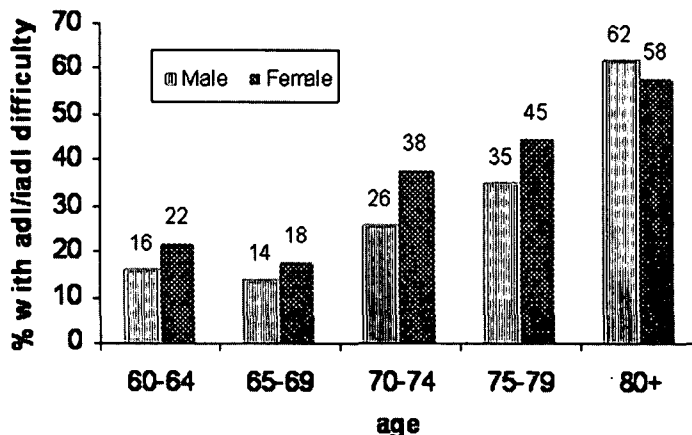FIGURE 2: Percent with at least One ADL or IADL Difficulty, by Age and Sex: 1996 PES

TABLE 2: Disability Prevalence Rates Among Filipino Older People 60 Years
and Over by Selected Background Characteristics: 1996 PES

Background Characteristics	Male	Female	Both Sexes
% with at least one ADL or IADL difficulty	23.8	31.5	28.2 (357)
Age			
60-69	14.8**	19.7**	17.6** (126)
70+	36.9	45.5	42.0 (231)
Education			
No Schooling	34.3**	37.3**	35.8** (87)
Elementary	22.8	32.6	28.6 (215)
High School or higher	17.5	22.4	20.2 (54)
Literacy			
Can not read	28.2	38.7**	34.4** (114)
Can read	22.5	28.7	26.1 (243)
Marital Status			
Currently married	19.0**	30.3	23.8** (163)
Never married/separated/divorced	15.4	32.0	28.6 (18)
Widowed	39.5	32.0	33.8 (173)
Work Status			
Working	11.5**	16.7**	13.8** (67)
Not working	37.9	37.0	37.2 (290)
Living Arrangement			
Living alone	17.4*	31.9	26.1 (18)
Living with spouse only	6.4	39.6	24.0 (24)
Living with children	26.7	31.2	29.3 (253)
Other types of living arrangement	24.2	28.6	26.7 (62)

*Significant at p = 0.05 ** Significant at p = 0.01

(note: the significance level provided in the last column refers to the sex differences across the various background variables while the significance levels provided in columns 2 and 3 refer to the significance across background variable categories for males and females, respectively. The chi-square test for independence was the basis for the statistical test of significance.)

ADL/IADL Disability Across Subgroups

Bivariate results of disability by various background variables suggest the prominence of educational variation in health status. Using the chi-square test for independence, results show a significant negative relationship between education and disability with about a fifth of those in the highest educational attainment reporting some functional disability as compared to 30.5 percent among those with educational attainment lower than high school. Using an alternative measure of education, literacy or the ability to read a simple message, being literate is also associated with lower reported levels of disability compared with their illiterate counterparts. The better health status of those with higher educational preparation may be an effect of generally better economic opportunities among the better educated as well as better access to information and services that result in better health practices and outcomes.

In terms of work status, results show that those currently working are less likely to report experiencing functional difficulty than those not currently working. This finding must be interpreted with caution however since it is also possible that some elderly may be working because they are healthy and in the same manner, being unhealthy could hinder one's chances for work. Males show wider health discrepancy in disability by work status compared with the females. Males who are not working are three times more likely to have a disability compared to the currently working. The corresponding ratio is 2.2 for the females. This gender differential may be explained by cultural expectations where males are considered the breadwinners of the family and so are expected to continue working until they retire or are overtaken by disability. In addition, the low level of social security coverage in the country (which is tied up with employment in the formal sector at least during the dates of the survey) can be considered a factor why men continue to work even at old ages. The high proportion of males who work beyond 65 also indicates the high proportion working in the informal sector where there is no formal retirement age and thus exit from the labor force is likely due to health-related reasons. Females on the other hand are less likely to work regardless of their health status.

Differentials in health state by marital status and living arrangement manifest distinct gender differentials. No perceptible difference in functional health is apparent among the females regardless of their marital status whereas for the males, marital disruption due to the death of spouse is associated with significant levels of disability. About four out of 10 widowers reported functional health problems, which are twice the level observed among the currently married. This implies that marital status is more likely to be a discriminating variable for males but not for females. Generally however, it is the widowed who displayed the highest level of functional disability.

Contrasting picture between the genders is also noted in terms of living arrangement with those living with their children likely to experience the highest levels of disability. It is

not clear however whether those who are unhealthy chose to live with their children or in an extended household because they need care. The finding is more pronounced among females than males. The most unhealthy females are more likely to be living with their spouse only while the most unhealthy males are living with their children.

Active Life Expectancy (ALE)

What do the foregoing levels of functional disability mean in terms of the quality of the remaining years of older Filipinos? The answer is demonstrated by Active Life Expectancy (ALE), which examines the proportion of remaining life lived without disability. Unlike the traditional life table method which only indicates the duration of remaining years of life, ALE decomposes the remaining life into years spent in inactive and active states, an indicator of quality of life.

Table 3 shows the number and proportion of remaining life in an inactive state by age and sex using the Sullivan Method. Results indicate that a considerable proportion of the older people's remaining life is lived in inactive state with significant gender disparity. Females have an advantage in terms of the number remaining years lived but they experience greater disability compared to the males. This is indicated in the greater number and proportion of remaining years lived in disability, a finding consistent with what has long been established by gerontologists in advanced aging societies. Figure 3 clearly shows this gender disparity. Sixty-year-old males for example can expect to live for 17 more years on the average compared to 19 years for females. However, the latter can anticipate to live a third of their remaining years in disability compared to about a fourth for the former. Seventy-five years of age appears to be a threshold point beyond which surviving women can expect significantly higher level of health burden with a greater part of their remaining years (52%) expected to be lived in an unhealthy state. The males are a bit better off as they are likely to postpone this experience at a later age.

Interestingly, the gender disparity in the proportion of remaining life in inactive state does not endure, with a crossover towards the end of the life cycle. Results show that at age 80, a reversal in pattern occurs with the relative proportion of the remaining life lived in an inactive state among males exceeding that of the females. This is consistent with the age pattern of mortality in the country, which also shows a sex reversal in mortality pattern with the males generally surpassing the females' death rate in all ages except in the in the 80+ age bracket (Cruz, 2005). This is likewise evident in the mortality sex ratio of 76 for the 80+ age group compared to 112 in the previous age bracket. All these factors tend to suggest the possibility of a real health crossover in extreme old age. This finding also suggests the possible changing gender differential in mortality, morbidity and ALE patterns across the different stages of the life cycle. Data show that males have an advantage in ALE (i.e.,

proportion of life lived without disability) during the onset of aging but shift to a disadvantageous position in the advanced stages of the aging process. This is the effect of the apparent twist in mortality and morbidity patterns marked by a decline in mortality and a surge in disability at the extreme age group.

TABLE 3: Active Life Expectancy (ALE) by Age and Sex, 1996 PES

Age and Sex	Status/Life Expectancy (in years)			% of remaining life lived in an inactive state
	Total	Active	Inactive	
Male				
60	16.8	12.3	4.3	26.7
65	13.7	9.4	4.2	31.0
70	10.9	6.6	4.3	39.5
75	8.4	4.3	4.1	48.6
80	3.5	1.3	2.2	62.1
Female				
60	19.0	12.6	6.4	33.7
65	15.4	9.6	5.8	37.8
70	12.0	6.4	5.6	46.8
75	9.0	4.4	4.7	52.0
80	3.6	1.5	2.1	57.7

FIGURE 3: Proportion and of remaining life in inactive state by age and sex: Sullivan method, 1996 PES
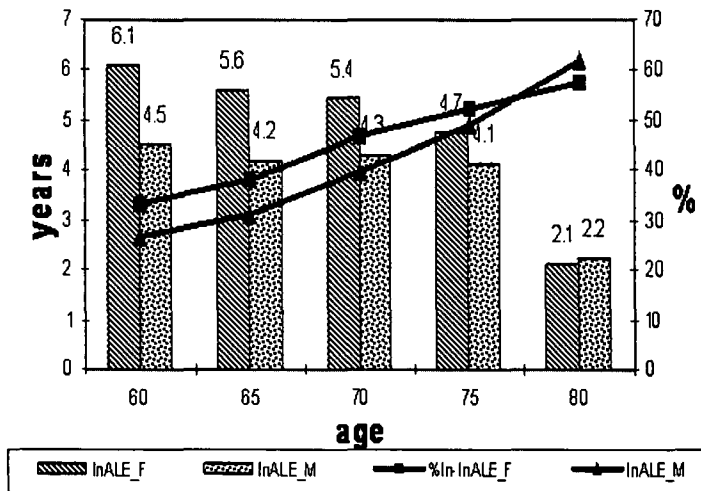
* InALE_F : inactive life expectancy for females
InALE_M : inactive life expectancy for males

Discussion and Conclusion

The study has established the baseline information on the active life expectancy (ALE) among Filipino older people 60 years and over using the first nationally representative sample data on older people in the county. The study employed a functional health approach which measured health in terms of the ability to perform normal everyday activities of daily living (i.e. ADL and IADL indicators). Being a novel approach in assessing elderly health and given the early stage of elderly research in the country, it is not surprising that only two previous explorations in ALE have been done in the country prior to the study. These include an inter-country comparison in health expectancy using ADL indicators provided in the 1984 WHO data (Lamb, 1999) and the self-assessed health measure using the 1996 PES (Ofstedal, Zimmer, Cruz, Chan and Lin, 2004). Both studies made use of the Sullivan method to measure ALE. However the former study (i.e., WHO study) does not provide a nationally representative estimate.

Findings demonstrate that while female older people live longer lives, they are more likely to spend longer years and a higher proportion of their remaining life in an inactive state. Results also indicate the increasing level of disability with advancing age, again with the females generally at the disadvantage. This implies that as we anticipate future expansions in the size of the older population and as older people continue to experience increasing longevity, we can expect a corresponding rise in the projected number with disability, more for females than males.

An expected rise in the number of older people who are unable to perform everyday activities has significant implications at various levels. At the macro level, it translates to an expected increase in the demand for health services which at present the government is ill equipped to handle given not only the budgetary constraints but also the competing demands from the younger sector of the population who constitute the major bulk of the country's population. Results of the 1996 PES reveal that only 9.4 per cent have access to some social security benefit which is significantly lopsided in favor of those with high educational attainment (i.e., at least high school).

With the low government priority given to the older sector of the population, the burden of care for the elderly including financial as well and non-material types of support will have to be managed by the family. However, changing family structure brought about by migration, including rural-urban and overseas labor migration have somehow threatened the ability of the family to care for its older members. This is in the light of the increasing international migration pressure on women (i.e., high demand for female labor migrants) who are the traditional care givers of the older people. The situation is likewise exacerbated by the massive outflow of trained and experienced health workers which has led to marked distortions in health care delivery (Asis, 2007).

Poverty is another factor that may get in the way of the family's ability to care for its elderly members. This is particularly salient in the context of recent estimates confirming the country's poor economic condition with about 34 per cent of the population currently estimated to be living below poverty line in 2000 (Orbeta, 2002). While Filipinos are generally known for their strong filial obligation, poverty can erode the middle generation's capacity to provide economic and health assistance for the older generation. Studies confirm the significance of resource availability as a determinant of intergenerational support with families having fewer socio-economic resources less likely to be involved in kin support (Hogan et al., 1993). Furthermore, this economic situation and the need to provide for the basic needs of the family may force older members to continue working despite their age and ill health.

On the other hand, investments in human capital as indicated in the improving education profile of the country presents a window of opportunity that may help avoid the possible negative scenarios associated with the aging of the population. Recent studies show that better educated elderly will be in a better health status and will be better able to provide for their support at old age (Lutz, 2007). Improvements in the education composition of the future elderly population will lead to much lower increases in disability than one could expect without improvement in education.

Results of the 1996 PES underscore the promising impact of this so called 'education bonus' on the well-being of the future generation of older Filipinos. Improving education profile of the incoming generation of older Filipinos has been shown to be associated with a more active involvement in the labor force and entry in new occupation domains (Cruz, forthcoming). Already, data show traces of increased level of older women's participation in the professional and administrative posts which traditionally, are associated with the males. Concomitant with their improving economic condition is a gain in their health condition marked by their increasing longevity. This suggests that educating our current generation of young people is a long-term investment to ensure a future generation of active and economically better-off older people. Clearly education is key in maintaining a 'virtuous cycle' (Lutz, 2007) that promises a greater healthy life expectancy among the future generations of older Filipino people.

At the same time, one should not ignore the role of healthy lifestyle such as exercise in any future intervention program designed to increase active life expectancy among older people in the Philippines. Moreover, the cumulative negative effects that health risk behaviors such as smoking and drinking at early ages pose on the later health and mortality patterns make it imperative to treat aging health from a life course perspective rather than the usual age-specific approach. This also recognizes the need to incorporate elderly health policies to those benefiting the younger sectors of the population and recognizing the primacy of preventive rather than a curative approach to aging health. The passage of the Tobacco Regulation Act in the country which seeks to absolutely ban smoking in public places and penalizes tobacco sale to minors (Ubac, 2003) is an important step towards this direction.

Notes

1   Paper presented at the 10th National Convention on Statistics held at EDSA Shangri-La Hotel, Mandaluyong City, Philippines, October 1-2, 2007.

2   Omran defined three major successive stages of epidemiologic transition namely: 1) the age of pestilence and famine where the major cause of death is attributed to infectious diseases, malnutrition and maternity complications; 2) the age of receding pandemics; and 3) the age of degenerative and man-made diseases.

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