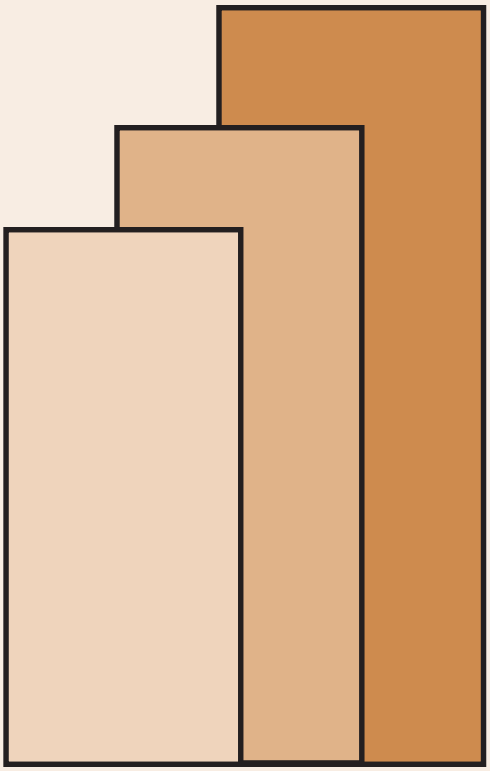
Philippine Institute for Development Studies
*Surian sa mga Pag-aaral Pangkaunlaran ng Pilipinas*

# Implications of Projected Philippine Population Growth, Age Structure Change and Aging: Using NTA Results

*Rachel H. Racelis, Michael Ralph M. Abrigo, and J.M. Ian S. Salas*

**DISCUSSION PAPER SERIES NO. 2012-30**





October 2012

For comments, suggestions or further inquiries please contact:
**The Research Information Staff,** Philippine Institute for Development Studies
5th Floor, NEDA sa Makati Building, 106 Amorsolo Street, Legaspi Village, Makati City, Philippines
Tel Nos: (63-2) 8942584 and 8935705; Fax No: (63-2) 8939589; E-mail: publications@pids.gov.ph
Or visit our website at http://www.pids.gov.ph

# Implications of Projected Philippine Population Growth, Age Structure Change and Aging: Using National Transfer Accounts (NTA) Results[1]

Rachel H. Racelis, Michael Ralph M. Abrigo, and J.M. Ian S. Salas[2]

May 2012

Abstract

Philippine population is projected to grow from about 88 million in 2007 to 142 million in 2040. The projected increase in population size will be accompanied by change in the age structure: increase in the percentages of elderly and working-age populations and decrease in the percentage of young population. Increase in population size by itself will drive aggregate consumption and labor income to increase. But this paper also shows that the projected change in the population age distribution will contribute additional increase in both aggregate consumption and labor income. The age structure change can potentially lead to some favorable outcomes: slower increase in aggregate consumption of the young deficit age groups; higher increase in aggregate labor income compared to aggregate consumption overall; and higher proportion of the lifecycle "deficits" that can be covered by "surplus". Still, the projected change in population age structure also presents challenges. One major challenge comes from the projected significant increase in the number of elderly and the fast increase in their aggregate consumption that will consequently follow. The practical challenge would be finding the means to finance this group's growing consumption in the future.

Keywords: National Transfer Accounts, lifecycle deficit, financing consumption, population aging

---

[1]. This paper is an output of the "Intergenerational Transfers, Population Aging and Social Protection in Asia" Project. The Philippine Institute for Development Studies (PIDS) and Nihon University Population Research Institute (NUPRI) are implementing the Philippines component of said Project with support from the Thailand Development Research Institute (TDRI) and the International Development Research Center (IDRC). The Project is part of an international collaboration to develop and apply the National Transfer Accounts (see www.ntaccounts.org.)

[2] University of the Philippines, Philippine Institute for Development Studies and University of California at Irvine, respectively.

**Implications of Projected Philippine Population Growth, Age Structure Change and Aging: Using National Transfer Accounts (NTA) Results**

Rachel H. Racelis, Michael Ralph M. Abrigo, and J.M. Ian S. Salas

## 1. Introduction

This paper examines the implications of Philippine population projections from 2020 to 2040 from an economic lifecycle perspective: more specifically, in terms of consumption, labor income and lifecycle deficit. But more attention is given to the implications of population aging and some possible measures that can be taken to prepare for this future situation. The National Transfer Accounts offers both a framework for examining the link between population and the economy as well as methodologies for estimating consumption and labor income over the lifecycle, and the transfer of resources across age groups. More broadly, NTA can be used to examine the interactions among population age structure, economic life cycle behavior and systems for intergenerational support, and their potential implications to the economy. (Refer to Mason 2005, Racelis and Salas 2007 and Mason et. al. 2009 for a description of the NTA framework and methodologies.)

Results of simulations are presented to demonstrate the implications of projected change in Philippine population size and age structure on the future total consumption, labor income and lifecycle deficit. Per capita consumption and labor earnings vary at different ages or over the lifecycle of an individual. Specific components of consumption, particularly education and health consumption expenditures, have distinct mean per capita patterns by age. For the simulations of aggregate consumption and labor income at each age for a given year, referred to as aggregate age profiles, are derived by multiplying the population size at each age with the mean per capita consumption and labor income for the corresponding age. A fixed set of per capita age profiles for consumption and labor income for a base year is used together with population projections by age for selected future years. The simulated aggregate age profiles are also summarized for the overall totals and subtotals according to analytically meaningful age groups. The simulated age profiles and summary results for the different (future) years are then compared to determine the effects of the projected demographic change on total consumption, labor income and lifecycle deficit.

This paper uses the medium variant of the United Nations population projections for the Philippines (United Nations, 2011) and the Philippines NTA results for the year 2007 for per capita age profiles of consumption (total, education and health) and labor income as input to computing the simulated aggregate age profiles for selected future years.

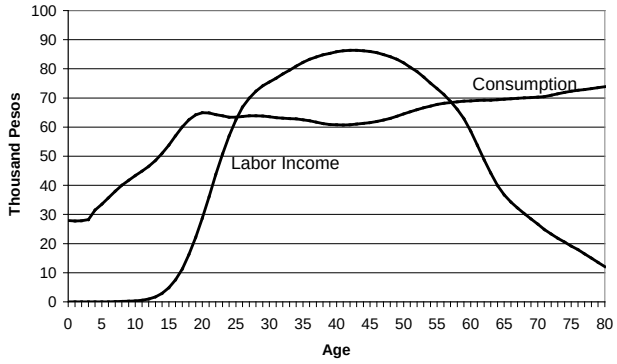
The two sets of input data used in this paper are described in the next two sections. The consumption and labor income per capita age profiles from the 2007 Philippine NTA are described in Section 2. Also presented in Section 2 are findings about how consumption of the different age groups is financed. Key features of the UN population projections for the Philippines are presented in Section 3. Section 4 presents a summary of results from the aggregate age profiles of 2007 and the simulations for future years, and discusses the implications of population growth and age structure change. The section highlights the challenge that population aging represents. Section 5 provides the conclusion.

## 2. Consumption, labor income, lifecycle deficit and financing of consumption: findings from the 2007 NTA

Two sets of findings from the 2007 Philippine NTA are presented: per capita age profiles and financing of consumption by age group. The per capita age profiles described are those used to derive the simulated future aggregate age profiles. Highlighted in the discussions are the variations observed across age. (See Abrigo, Racelis and Salas 2012 for more detail on the 2007 Philippines NTA.)

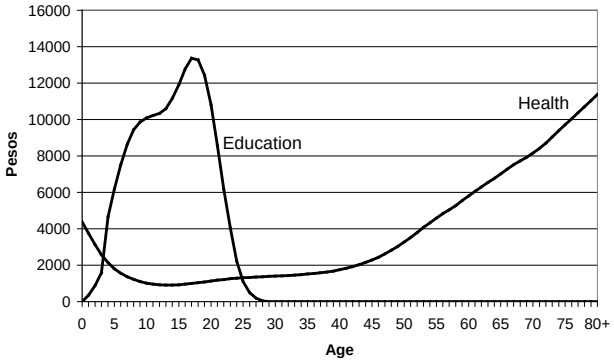
### *Per capita age profiles*

**Figure 1. Age profile of per capita consumption and labor income: Philippines, 2007, current prices (in PhP thousands)**



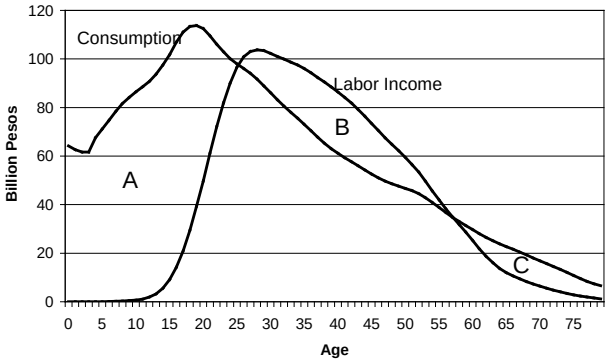

The mean per capita age profiles for labor earnings and current consumption of the average Filipino individual in 2007 are shown in Figure 1. The profile for labor income rises sharply between ages 15 to 25, peaks at age 42 and declines thereafter. Per capita current consumption show steep increase up to around age 19, staying relatively unchanged up to age 45 and gradually increasing again towards old age. The sharp increases in per capita consumption at younger ages are due to education expenditures while the gradual increase in the older ages is due to health care consumption that increases with age. The age profiles of per capita education and health expenditures are shown in Figure 2.

**Figure 2. Age profile of per capita education and health expenditures: Philippines, 2007, current prices (in PhP)**




Referring back to Figure 1, there is lifecycle deficit or consumption exceeds labor income for the young up to age 25 and for the elderly from age 58 onwards. The age groups 0-25 years and 58 years or older are referred to as the dependent age groups or the deficit age groups. There is lifecycle surplus or labor income exceeds consumption from ages 26 to 57 years, a span of 32 years.

**Figure 3. Age profile of aggregate consumption and labor income, Philippines, 2007, current prices (in PhP billions)**



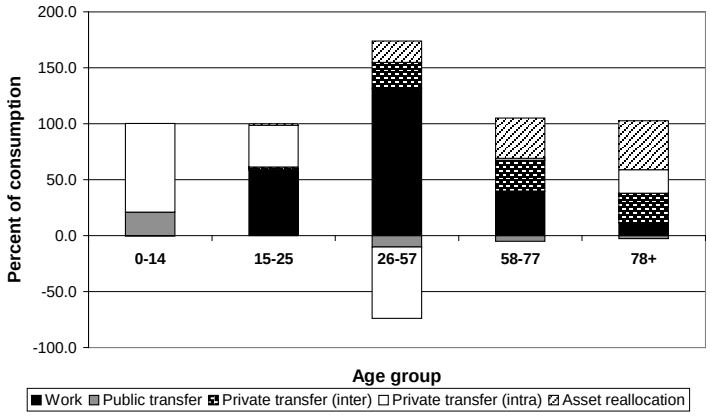

Multiplying the 2007 per capita age profiles for consumption and labor income in Figure 1 with the population size at each age for the same year produces the aggregate age profiles shown in Figure 3. For example, for the population aged 20 years the aggregate consumption and labor income are about PhP110 billion and PhP61 billion, respectively, and their aggregate lifecycle deficit is about PhP49 billion. The aggregate age profiles also indicate the magnitude of the lifecycle deficit of the young (A, about PhP1763 billion) and the elderly (C, about PhP204 billion), and the surplus generated by the working age group (B, about PhP515 billion) in 2007. A comparison of aggregate consumption and labor income totals by age grouping can similarly be done.

*Financing consumption*

In addition to own labor income which is insufficient, there are other means by which the consumption of the dependent populations is financed as shown in Figure 4.

These include public transfers (mediated through tax collections and provision of services by government), private intra-household transfers (transfers of resources from heads to dependent members within families and households), private inter-household transfers (transfers from household heads to other heads, the most important of which are OFW remittances to households) and asset reallocation (income from assets and dis-accumulation of assets). The deficit age groups have been split into smaller groups in Figure 4 to bring out variations in the pattern of financing consumption.

**Figure 4. Finance of consumption by age group: Philippines, 2007**




The financing of consumption of children up to age 14 is primarily by transfers, with private intra-household transfers at 79 percent, and public transfers at 21 percent. For the age group 15-25, private transfers (inter- and intra-household) still heavily support this group's consumption at 40 percent, but financing from own earnings is already large at 58 percent.

Labor income of the age group 26-57 years is more than enough to cover their consumption. The lifecycle surplus plus additional funds from other sources (inter-household transfers and asset reallocation) make it possible for the group to transfer resources to the dependent population through private and public mechanisms (shown in Figure 4 as negative percentages.)

Consumption of the elderly 58 years and older are financed from own earnings, private inter-household transfers, private intra-household transfers (more significantly after age 78 years) and asset reallocation. As expected, the shares of elderly consumption financed by own earnings decline while the shares of private transfers increase with age. Interestingly, the elderly continue to transfer funds by public means to other age groups.

3. Main features of population projections for the Philippines

*Period 2007-2040*

Population size and age structure are compared for the selected years covered in Section 4: 2007, and the future years 2020, 2030 and 2040. Population age distribution is discussed using as reference the young and elderly deficit age cut-offs, 25 years and 58 years respectively, identified in the 2007 NTA.

The population size of the Philippines was about 88 million in 2007 and is projected to increase to 110 million in 2020, 126 million in 2030 and 142 million in 2040 based on the medium scenario of the United Nations projections (United Nations, 2011). Among the young, the population age group 0-14 will increase from 31 million in 2007 to 37 million by 2040 while the 15-25 year-olds will increase from 19 million in 2007 to 26 million in 2040. For the other age groups, there will be near-doubling of the population aged 26-57 (from 31 million to 59 million) and more than tripling of the population aged 58 and older (from 6 to 20 million) between 2007 and 2040.

Thus, in terms of the distribution of the Philippine population by age, the general profile is projected to change significantly from 2007 to 2040 (Figure 5). Compared to the 2007 distribution by age, the percentage of the young age groups 25 and under will decrease by about one-sixth (from 53 percent to 44 percent in 2040) while the percentage of older age groups 58 years and over will double (from 7 percent to 14 percent in 2040). The ratios of young and elderly deficit age groups relative to the surplus age group, or the dependency ratios, are projected to decline between 2007 and 2040 from 1.63 to 1.06 for the young dependency and to increase from 0.18 to 0.34 for the elderly dependency.

**Figure 5. Population distribution by age: Philippines, 2007 and projected 2040 (percent)**

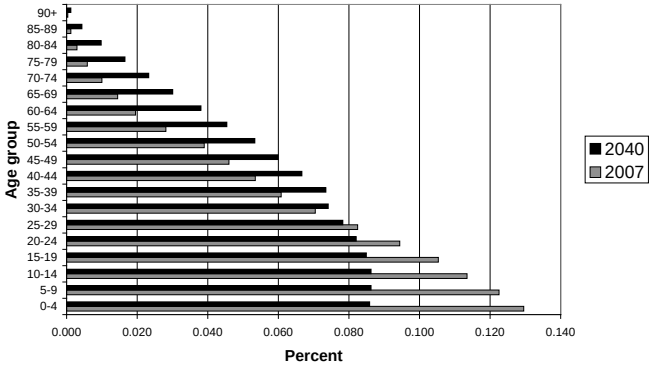
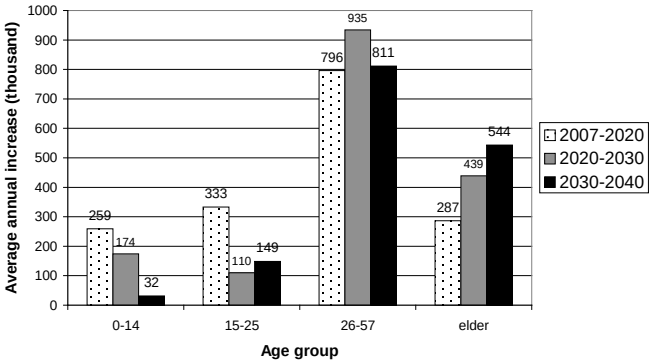


**Figure 6. Projected average annual population increase by age group: Philippines, 2007-2040 (in thousand)**



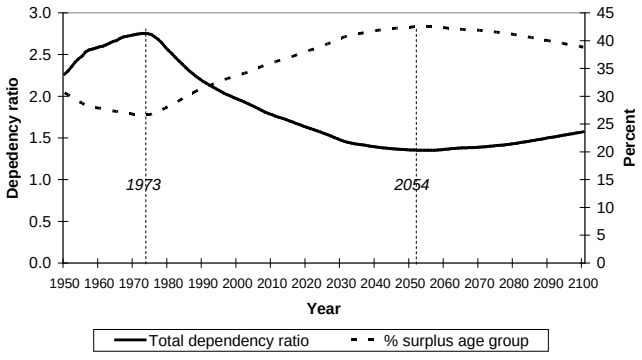

The average annual increase across three periods in the number of young and elderly deficit age groups, as well as the surplus age group, 26-57, are shown in Figure 6. The average annual increases are projected to: (1) slow down for the age group 0-14 from 259 thousand per year in 2007-2020 to 32 thousand per year in 2030-2040; (2) also slow down for the age group 15-25 from 333 thousand per year in 2007-2020 to 149 thousand per year in 2030-2040; and (3) significantly rise for the age group 58 and older from 287 thousand per year in 2007-2020 to 544 thousand per year in 2030-2040.

*The longer term view: a brief description*

The change in population age structure and growth over a longer period of time, from 1950 to the year 2100 as provided by the UN (UN 2011), are described to highlight changes that had already happened or are projected to happen which are outside of the period 2007-2040. The young and elderly deficit age cut-offs, 25 years and 58 years respectively, identified in the 2007 NTA are also used as reference in the examination.

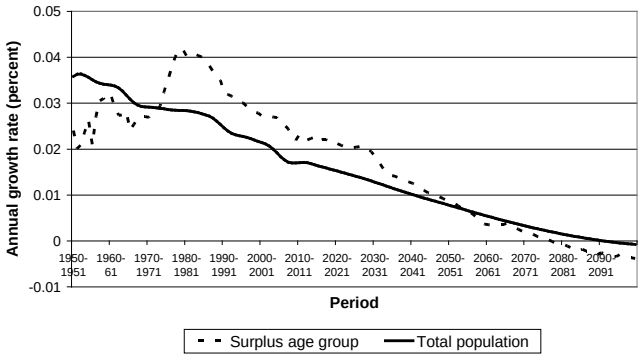
Plotted for the 150-year period are four summary indicators of age structure and growth: the total population dependency ratio, with the dependent populations defined as the young and elderly deficit age groups, and the proportion of the population in the working or surplus ages (in Figure 7); and the annual growth rates of the surplus age group and the total population (in Figure 8).

**Figure 7. Total dependency ratio and surplus age group as percent to total population, Philippines 1950-2100 (medium vatiant population projections, UN 2011)**



The total dependency ratio, or the ratio of the deficit age groups to the working or surplus age groups population, reached its highest in 1973 at 2.75 dependents per worker and projected to reach its lowest in 2054 (based on the UN medium variant projections) at about 1.35 dependents per worker. The share of total population in the working ages, the denominator of the dependency ratio, has the opposite pattern: reached its lowest in 1973 at 26.6 percent and its highest in 2054 at 42.5 percent.

**Figure 8. Annual growth rate of working age or surplus group and total population (in percent): Philippines, 1950-2100**




The annual growth rate of total population had steadily declined from 1950 to 2007, 3.6 percent in 1950-1951 to 1.8 percent in 2006-2007, and projected to continue declining from 2040 to 2100, 1.0 percent in 2040-2041 to 0.1 percent in 2099-2100. The annual growth rate of the surplus or working age population started to exceed total population growth rate in 1974 and this is projected to continue up to the year 2054. The working age population growth rate reached a peak in 1982 and, similar to the total population growth trend, starts to decline from that year onwards.

The significant rise in the relative size of the population in the working ages and decline in dependency as described above from the 1970's to the 2040's (projected) gives rise in turn to the opportunity of the first demographic divided, or the opportunity to achieve faster economic growth. But as Mason (2005a) reiterates, the economic outcome from demographic change is policy dependent. In the absence of complementary economic policy, the opportunity for economic gain from the first demographic dividend may not be realized. Studies have examined the link between demographic change and economic growth in the Philippines; see for example Mapa and Balisacan (2004), Edmonds and Fujimura (2005), and Mapa, Balisacan and Briones (2006). The common findings are that the Philippines has not been getting the most out of the increasing proportion of the population in the working ages and one factor identified is the slow decline in young dependency. But Edmonds and Fujinura (2005) also point out that the potential of the first dividend may yet be realized with recent economic reforms, use of modern family planning among Philippine households, and the favorable long-run outlook for Philippine overseas contract workers.

4. Implications of population projections: simulated aggregate consumption, labor income and lifecycle deficit for selected years

**Figure 9 Aggregate consumption age profiles, Philippines, actual 2007 and simulations for selected years (in PhP billion)**

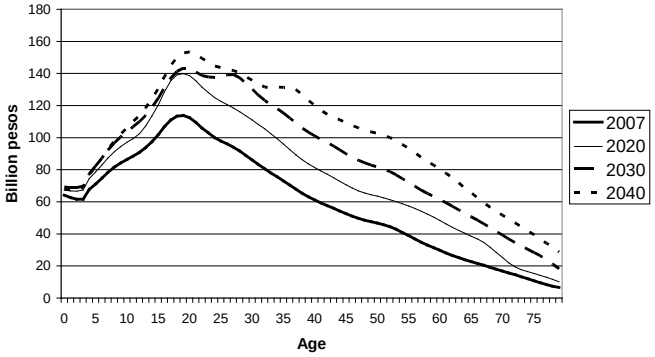



**Figure 10. Aggregate labor income age profiles, Philippines, actual 2007 and simulations for selected years (in PhP billion)**

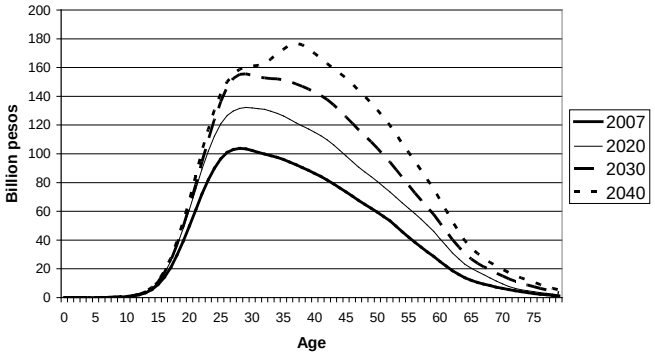
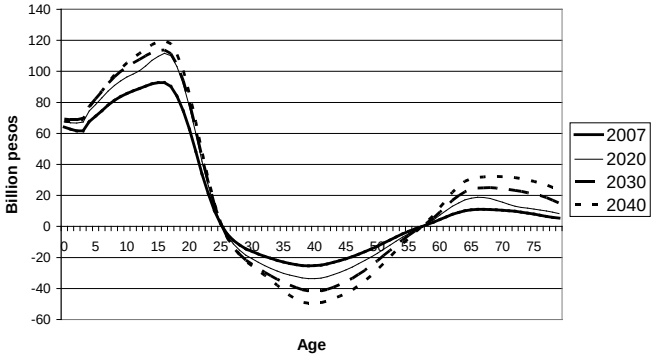



**Figure 11. Aggregate lifecycle deficit age profiles, Philippines, actual 2007 and simulations for selected years (in PhP billion)**




The simulated aggregate age profiles for the future years 2020, 2030 and 2040 are derived by multiplying the 2007 mean per capita consumption and labor income by age (described in Section 2) with the population projections by age for the specified years (described in Section 3). The actual 2007 and simulated aggregate age profiles are shown in Figure 9 for consumption and Figure 10 for labor income. The aggregate age profile for lifecycle deficit for a given year is derived by subtracting aggregate income from aggregate consumption at each age (Figure 11). For purposes of the analysis in this

section, the simulated aggregate age profiles for the different years could be interpreted as alternative aggregate profiles that would have been experienced had the projected population (size and age distribution) of the future years existed in 2007. The simulated aggregate age profiles for the different years are directly comparable because all are valued in 2007 prices since the per capita profiles were kept constant (at 2007 values) in the simulations.

Results from the aggregate age profiles are summarized in Tables 1 and 2 using the age cut-offs for the deficit ages as reference for the age grouping.

Table 1. Aggregate consumption and labor income by population age group: actual 2007 and simulated values for 2020, 2030 and 2040

| | Aggregate values (billion PhP) | | | | Percent distribution | | | |
|---|---|---|---|---|---|---|---|---|
| Year | Total | 0-25 | 26-57 | 58+ | Total | 0-25 | 26-57 | 58+ |
| | | | Consumption | | | | | |
| 2007 | 4,770 | 2,341 | 1,983 | 446 | 100 | 49 | 42 | 9 |
| 2020 | 6,088 | 2,742 | 2,639 | 708 | 100 | 45 | 43 | 12 |
| 2030 | 7,128 | 2,880 | 3,229 | 1,019 | 100 | 40 | 45 | 14 |
| 2040 | 8,139 | 2,990 | 3,744 | 1,405 | 100 | 37 | 46 | 17 |
| | | | Consumption - Health | | | | | |
| 2007 | 194 | 81 | 66 | 48 | 100 | 42 | 34 | 25 |
| 2020 | 255 | 91 | 89 | 75 | 100 | 36 | 35 | 29 |
| 2030 | 317 | 95 | 110 | 111 | 100 | 30 | 35 | 35 |
| 2040 | 385 | 97 | 132 | 157 | 100 | 25 | 34 | 41 |
| | | | Consumption - Education | | | | | |
| 2007 | 378 | 378 | 0 | 0 | 100 | 100 | 0 | 0 |
| 2020 | 442 | 442 | 0 | 0 | 100 | 100 | 0 | 0 |
| 2030 | 462 | 462 | 0 | 0 | 100 | 100 | 0 | 0 |
| 2040 | 480 | 480 | 0 | 0 | 100 | 100 | 0 | 0 |
| | | | Labor Income | | | | | |
| 2007 | 3,319 | 578 | 2,498 | 243 | 100 | 17 | 75 | 7 |
| 2020 | 4,428 | 714 | 3,323 | 391 | 100 | 16 | 75 | 9 |
| 2030 | 5,367 | 762 | 4,074 | 531 | 100 | 14 | 76 | 10 |
| 2040 | 6,248 | 809 | 4,733 | 706 | 100 | 13 | 76 | 11 |

Table 2. Aggregate lifecycle deficit by population age group: actual 2007 and simulated values for 2020, 2030 and 2040

| | Aggregate lifecycle deficit (billion PhP) | | | | Ratio of surplus to total deficit(1) | Proportion of elderly to total lifecycle deficit(2) |
|---|---|---|---|---|---|---|
| Year | Total | 0-25 | 26-57 | 58+ | | |
| 2007 | 1,451 | 1,763 | -515 | 204 | 0.26 | 0.10 |
| 2020 | 1,660 | 2,028 | -684 | 317 | 0.29 | 0.14 |
| 2030 | 1,761 | 2,117 | -844 | 488 | 0.32 | 0.19 |
| 2040 | 1,891 | 2,182 | -989 | 698 | 0.34 | 0.24 |

Notes:

(1) (-LCD26-57) / ((LCD0-25)+(LCD58+))

(2) (LCD58+) / ((LCD0-25)+(LCD58+))

*General observations*

Total aggregate consumption and labor income for the entire population is higher by about 71 percent and 88 percent, respectively, for 2040 compared to 2007 (Table 1), while projected population size in 2040 compared to actual 2007 population will be higher by about 61 percent.

The higher percentage increase in aggregate consumption compared to population size increase is a result of the shift in the population age distribution towards the ages that have higher per capita consumption, specifically towards the older ages, and away from the young ages that have lower per capita consumption. A comparison of the 2007 and 2040 consumption distribution by age shows decrease in the share of the young by about one-fourth and a near doubling of the share of the elderly.

The effect of the shift in population age structure is even more significant for health: 98 percent higher aggregate health expenditures for 2040 compared to 2007. As noted earlier in Section 2, the per capita age profile for health spending is J-shaped rising vary rapidly at older ages. An examination of the distribution of health expenditures by age shows that the share of older population increases from 25 percent in 2007 to 41 percent in by 2040. And yet the proportions of the older population out of the total in 2007 and 2040 are only 7 and 14 percent, respectively.

The difference in education expenditures between 2040 and 2007 of about 27 percent, on the other hand, is very close to the projected increase in the size of the schooling age population in the same period. This result is a reflection of the relatively small change in the distribution of schooling population by schooling level. The overall effect of the different rates of growth in aggregate health and aggregate education expenditures is that the shares out of aggregate consumption for health expenditures is higher (4.7 percent in 2040 versus 4.1 in 2007) and that for education expenditures lower (5.9 percent in 2040 versus 7.9 in 2007).

The higher increase in aggregate labor income compared to the increase in total population size between 2040 and 2007 is similarly explained by the shift in the distribution of the population towards the ages with higher per capita labor income, mainly the ages with lifecycle surplus or ages 26-57 years.

Looking at results of aggregate lifecycle deficits summarized in Table 2, the surplus generated by the age group 26-57 in 2040 is 92 percent higher while the combined aggregate deficits of the young and older dependent populations is 46 percent higher in 2040 than in 2007. Thus the proportion of aggregate deficit that can be covered by aggregate surplus is higher at 34 percent in 2040 compared to 26 percent in 2007.

*Older age group observations*

Examining further the effects of the increasing size of elderly population, aggregate consumption of this group in 2040 is more than three times that in 2007 (Table

1) – closely translating projected increase in this group's population size in the same period. The proportion of consumption accounted for by the older population is expectedly higher in 2040 at 17 percent compared to 9 percent in 2007. Similarly, the older age group's aggregate lifecycle deficit in 2040 is about 3.5 times that in 2007 (Table 2). And the share of aggregate "deficits" attributable to the older population is also higher in 2040 at 0.24 compared to 0.10 in 2007.

*Accounting for the effects of population age structure change*

The original set of aggregate consumption, labor income and lifecycle deficit simulations summarized in Tables 1 and 2 capture both the population size and age distribution effects. Another set of simulations for the year 2040 is produced using the assumption that the same population size increase as projected by the United Nations applies, but with the added assumption that the age distribution of the 2040 population remains the same as that in 2007. This alternative set of aggregate age profiles simulations would reflect purely the effect of population size increase, and results are summarized by age group in Table 3. (Note that the alternative simulations for 2040 show increases at each age and in the overall total, compared to those for 2007, which are exactly equal to the projected population size increase for the period.) The effect of change in the population age distribution alone is quantified by the difference between the original and the alternative aggregate age profiles.

Table 3. Aggregate consumption, labor income and lifecycle deficit simulations for the year 2040 by population age group: alternative simulations, original simulations and differences

| | Aggregate values (billion PhP) | | | | Difference between original and alternative simulations | | | |
|---|---|---|---|---|---|---|---|---|
| Component | Total | 0-25 | 26-57 | 58+ | Total | 0-25 | 26-57 | 58+ |
| | Alternative 2040 | | | | Difference (PhP billion) | | | |
| Consumption | 7,634 | 3,836 | 3,163 | 635 | 505 | -846 | 581 | 769 |
| Health | 306 | 133 | 106 | 68 | 79 | -36 | 26 | 89 |
| Education | 621 | 621 | 0 | 0 | -141 | -141 | 0 | 0 |
| Labor income | 5,264 | 933 | 3,984 | 347 | 985 | -124 | 749 | 360 |
| Lifecycle Deficit | 2,371 | 2,904 | -821 | 288 | -480 | -722 | -167 | 410 |
| | Original 2040 (Table 1 and 2) | | | | Difference (percent) | | | |
| Consumption | 8,139 | 2,990 | 3,744 | 1,405 | 7 | -22 | 18 | 121 |
| Health | 385 | 97 | 132 | 157 | 26 | -27 | 25 | 130 |
| Education | 480 | 480 | 0 | 0 | -23 | -23 | - | - |
| Labor income | 6,248 | 809 | 4,733 | 706 | 19 | -13 | 19 | 104 |
| Lifecycle Deficit | 1,891 | 2,182 | -989 | 698 | -20 | -25 | 20 | 142 |

A comparison of the original simulations (with size and age distribution effects) and the alternative simulations (with size effect only) in Table 3 reveal a number of differences – quantifying the age distribution effects. The original overall aggregate consumption is higher by about 7 percent or by PhP505 billion; and this difference representing the age distribution effect, is about 17 percent of the total change in aggregate consumption between 2007 and 2040 shown in Table 1. And while the aggregate consumption total of the young is lower by about 22 percent or by PhP848 billion in the original simulations, the total for the elderly is more than double or higher

by about 121 percent (higher by PhP769 billion). A similar pattern of difference in the total by age group is observed for health expenditures.

Total aggregate labor income is higher in the original simulation by about 19 percent or by PhP985 billion; and this difference or age distribution effect is about 34 percent of the total change in aggregate labor income between 2007 and 2040 shown in Table 1. Thus, the overall aggregate lifecycle deficit is lower in the original simulation by about 20 percent or by PhP480 billion. Aggregate lifecycle deficit of the young in the original simulation is lower by about 25 percent but the total deficit for the elderly is more than double or higher by about 142 percent.

## 5. Conclusion

Philippine population is projected to grow from about 88 million in 2007 to 143 million in 2040. The projected increase in population size will be accompanied by change in the age structure: increase in the percentage of elderly and decrease in the percentage of young population. The increase in population size by itself drives aggregate consumption and labor income to similarly increase. But the aggregate age profiles simulations also show that the projected change in the population age distribution will contribute additional increase in both aggregate consumption and labor income. The age structure change can potentially lead to some favorable outcomes: slower increase in aggregate consumption of the young deficit age groups; higher increase in aggregate labor income compared to aggregate consumption overall; and higher proportion of the lifecycle “deficits” that can be covered by “surplus”.

Still, the projected change in population age structure also presents challenges. One major challenge comes from the projected significant increase in the number of elderly and the fast increase in their aggregate consumption that will consequently follow. The Philippines should prepare early on for this future situation considering that the elderly belong to the (lifecycle) deficit population group. Policies in the Philippines regarding economic support for the elderly have generally focused on pension systems. There is a need to expand the perspective of policy-making and to put equal attention to strengthening the different sources identified for financing elderly consumption. Measures can be taken to improve their livelihood and possibly delay the age at which the elderly will go into deficit. Measures are also needed to strengthen the other means of support such as private transfers and asset accumulation.

7. References


Abrigo, M.R.M., R. H. Racelis and J.M.I. Salas (2012). Philippines 2007 National Transfer Accounts (NTA): Consumption, Income and Intergenerational Reallocation of Resources. Makati City: Philippine Institute for Development Studies, Discussion Paper Series No. 2012-29, March 2012.

Edmonds, C. and M . Fujimura (2005). "Relative Economic Decline and Unrealized Demographic Opportunity in the Philippines". East-West Center Working Papers, Economic Series No. 77, East-West Center, Honolulu, Hawaii, May 2005.

Mapa, D.S. and A.M. Balisacan (2004). "Quantifying the Impact of Population on Economic Growth and Poverty: the Philippines in an East Asian Context." A paper presented at the 9th Convention of the East Asian Economic Association, 13-14 November 2004, Hong Kong.

Mapa, D.S., A.M. Balisacan and K.J.S. Briones (2006). "Robust Determinants of Income Growth in the Philippines," Number 61 (First and Second Semester 2006), Vol. XXXIII, No. 1 and 2, pp. 45-76.

Mason, A. (2005). "An overview of National Transfer Accounts". Manuscript. in www.ntaccounts.org

Mason, A. (2005a). "Demographic transition and demographic dividends in developed and developing countries." Paper presented at the United Nations Expert Group Meeting on Social and Economic Implications of Changing Population Age Structure, Population Division, Department of Economic and Social Affairs, UN Secretariat, Mexico City, 31 August t- 3 September 2005.

Mason, A., R. Lee, G. Donehower, S. H. Lee, T. Miller, A. C. Tung and A. Chawla (2009). "National Transfer Accounts Manual: Draft Version 1.0". Manuscript in www.ntaccounts.org

Racelis, Rachel H. and J.M. Ian S. Salas (2007). "Measuring Economic Lifecycle and Flows Across Population Age Groups: Data and Methods in the Application of the National Transfer Accounts (NTA) in the Philippines." Makati City: Philippine Institute for Development Studies, Discussion Paper Series No. 2007-12, October 2007.

United Nations (2011). World Population Prospects: The 2010 Revision (Medium fertility variant, 2011-2100). Population Division, Department of Economics and Social Affairs, United Nations, June 2011.