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Implications of Philippine Trends in Education Financing and Projected Change in School-age Population on Education Expenditures by Income Group: Using National Transfer Accounts Results

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

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Financing and Projected Change in School-
age Population on Education Expenditures
by Income Group: Using NTA Results

Rachel H. Racelis et al.

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Implications of Philippine Trends in Education Financing and Projected Change in School-age Population on Education Expenditures by Income Group: Using National Transfer Accounts (NTA) Results¹

Rachel H. Racelis, Michael Ralph M. Abrigo, and J.M. Ian S. Salas²

August 2012

Abstract

Financing of education in the Philippines is mainly by the government (public) and by households (private), and since the 1990's there has been a shift in the public/private mix in education financing towards higher private share. Between 2007 and 2040 the schooling age population of the Philippines is projected to continue to increase in size and the age structure to shift towards higher proportion in the age group that attend the tertiary school level. This paper presents results of simulations of aggregate education consumption or expenditures by age and by income group for two hypothetical scenarios: simulations using an alternative education financing mix (alternative to the 2007 financing mix); and simulations using the 2040 school-age population (in place of the 2007 population). The aggregate age profile simulations for the two scenarios are then compared with the 2007 actual aggregate age profiles to derive implications of the two sets of change on the education expenditures of the different income groups. The comparisons showed that the two changes, shift in education financing mix towards higher private share and change in school-age population age structure from 2007 to 2040, would among others result to reduced share of education resources and higher per capita private education cost for the bottom income tercile group.

Keywords: National Transfer Accounts, education expenditures by age, education financing, education expenditures by income group

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.)

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1. Introduction

The 2007 NTA for the Philippines provides estimates of age profiles of public and private per capita consumption or expenditures for education not only at the national level but also by income tercile group.³ When compared in terms of patterns of allocation and scale of spending by age, the income groups show similar per capita age profiles for public education consumption but very different age profiles for private education consumption. These education consumption age profiles by income group from the Philippines 2007 NTA are used in this paper to examine the implications of (1) trends in education financing and (2) projected age structure change in the school-age population on the education expenditures of the different income groups.

Financing of education in the Philippines is mainly by the government (public) and by households (private). Since the 1990's there has been a shift in the public/private mix in education financing towards higher private share. The education consumption age profiles by income group are used to study how change in the public/private financing mix for education could possibly affect the distribution of total education expenditures and per capita private education costs by income group.

Between 2007 and 2040 the schooling age population of the Philippines is projected to continue to increase in size and the age structure to shift towards significantly higher proportion in the age group that attend the tertiary school level. The education consumption age profiles by income group are used to estimate the education resource requirements (by age group and by income group) of the projected schooling age population for 2040 and these are examined to determine effects that change in the age structure may have on education expenditures by income group.

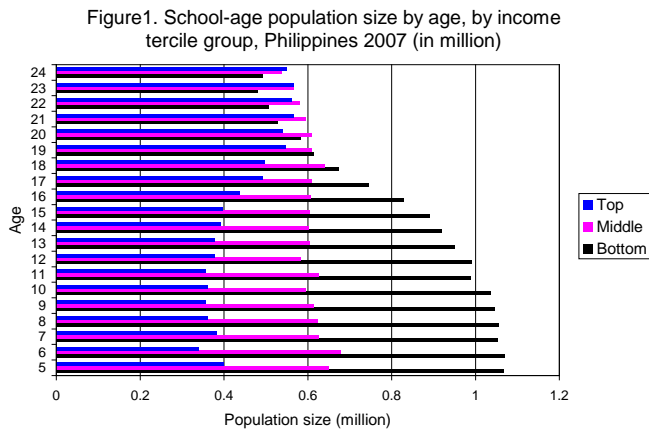
Hypothetical or simulated aggregate education consumption age profiles for an alternative education financing mix and for a future year (2040) are generated, and these are compared with the reference or actual aggregate age profiles for 2007. The implications of change in education financing mix and projected change in school-age population on education expenditures of the different income groups are inferred from the comparisons. Aggregate age profiles, or estimates of aggregate education consumption by age, are derived by multiplying the population size at each age with the mean per capita education consumption for that specific age. The computations for aggregate age profiles are done by income tercile group, and for public and private education consumption.

³ The terms education "consumption", education "expenditures" and education "spending" are used in the paper to refer to the same NTA component.

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 (i.e., the per capita age profiles of public and private education consumption by income tercile group) as input to the simulation of aggregate education consumption age profiles by income group.

The two sets of input data used in this paper are described in Sections 2 and 3. The distribution of the 2007 Philippine school-age population by income group and by age is presented in Section 2, along with a description of the UN projections for the school-age population for 2040. The education consumption per capita age profiles by income group from the 2007 Philippine NTA are described in Section 3. The actual 2007 aggregate age profiles by income group which are used as the reference for the comparisons in Sections 4 and 5, are also presented in Section 3. Section 4 discusses the implications of change in the public/private mix of education financing on education expenditures of income groups. Section 5 discusses the education resource requirements by income group implied by the projected 2040 school-age population. Sections 4 and 5 suggest policy directions or actions to address specifically possible undesirable effects of change in the education financing mix and age distribution of the school-age population. Section 6 concludes the paper.

2. School-age population by income group in 2007 and the 2040 projections



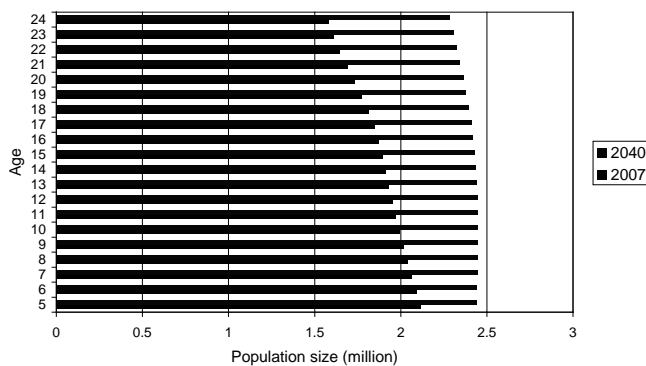
Up until the first half of 2012 the education system in the Philippines consisted of 7 years of elementary (including 1 year of pre-school), 4 years of secondary and 4 or more years of tertiary level school, depending on the degree program.⁴ In general the ages attending the three levels are 5-12 years, 13-16 years and 17-24 years, respectively.

⁴ A new system for basic education was implemented starting June 2012 on an experimental basis. The new system consists of 7 years of grade school (including 1 year of pre-school), 2 years of middle school and 3 years of high school.

The 2007 school-age population size by age for each income group is shown in Figure 1. Of the school-age population in the bottom income tercile group, the most numerous are in the basic education level ages, 5-16 years old, at 800 thousand or more at each age (black bars). In contrast, for the top income tercile group the most numerous are in the tertiary school level ages, 17-24 years old, at around 500 thousand or more at each age (blue bars). For the middle income tercile group there are near equal numbers at each age, ranging from 550 to 650 thousand at each age.

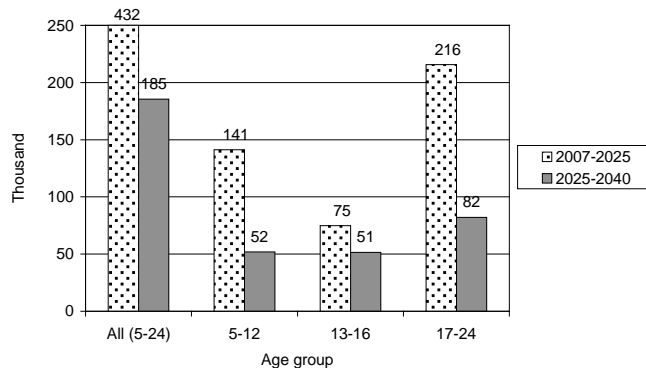
The 2007 and the projected 2040 school-age population size by age are represented in Figure 2. Total school-age population is projected to increase from about 38 million in 2007 to 48 million in 2040, or about 28.1 percent over the 33-year period. For both years the population size is smaller for older ages, ranging from about 2.1 million at age 5 to 1.6 million at age 24 for 2007 and from about 2.4 million at age 5 to 2.3 million at age 24 for 2040. But as may be noted the range in population size at each age decreased significantly in 2040. There are near equal numbers at each age in 2040.

Figure 2. School-age population size by age, Philippines, 2007 and projected 2040 (in million)



In terms of proportions, those in the tertiary level school ages is projected to increase from 36.4 percent in 2007 to 39.1 percent in 2040; while the proportion in the elementary school ages is projected to decline from 43.2 in 2007 to 40.6 in 2040. The proportion in the secondary school ages remains about the same at about 20 percent.

Figure 3. Projected average annual population increase by age group, Philippines 2007-2040 (in thousand)



The average annual increases in the population size by age group across two periods are shown in Figure 3. The average annual increases are projected to slow down for all age groups as follows: (1) for the age group 5-12 from 141 thousand per year in 2007-2025 to 53 thousand per year in 2025-2040; (2) for the age group 13-16 from 75 thousand per year in 2007-2025 to 51 thousand per year in 2025-2040; and (3) for the age group 17-24 from 216 thousand per year in 2007-2025 to 82 thousand per year in 2025-2040. But the age group 17-24 or the ages that can potentially be attending tertiary schooling will continue to be growing the fastest even during the period 2025-2040.

3. Education expenditures age profiles by income group from the 2007 Philippines NTA

The per capita and aggregate education consumption age profiles presented in this section are taken from the 2007 Philippines National Transfer Accounts. (Refer to Racelis, Abrigo and Salas 2012 for more detail.)

Per capita age profiles

Figure 4. Age profile of per capita public education consumption by income tercile group, Philippines 2007, current prices (in PhP)

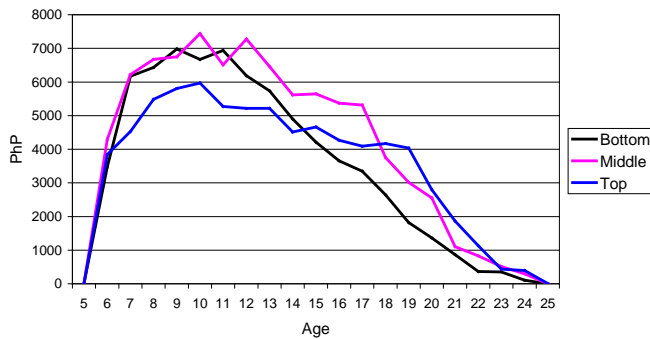
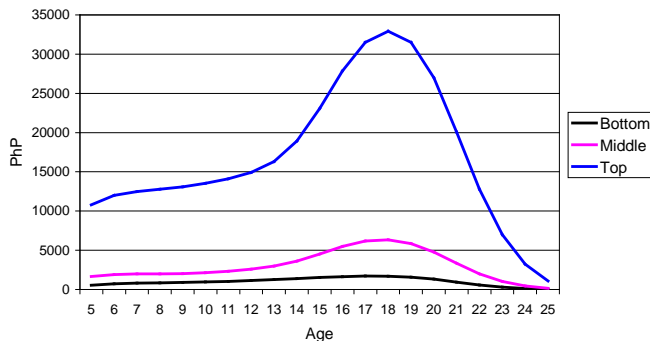


Figure 5. Age profile of per capita private education consumption by income tercile group, Philippines 2007, current prices (in PhP)

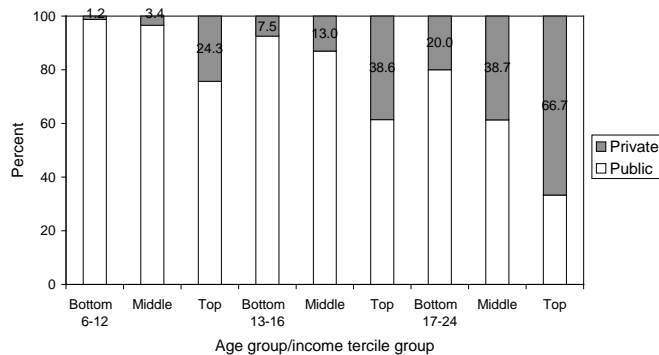


Per capita means by age for public education consumption have the same overall pattern by age for the different income groups, with per capita values relatively higher in

the ages 5-16 years (Figure 4). The per capita means by age plotted in Figure 5 show distinct difference in level or scale of private education consumption at each age across income groups. But the overall pattern by age is very similar for the three groups with per capita values relatively higher for the ages 13-21 years.

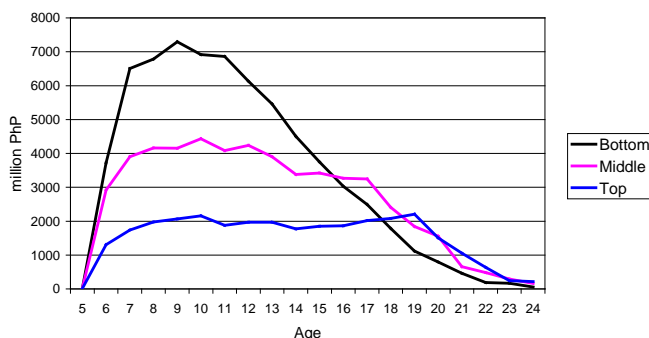
The levels and patterns by age of the per capita means shown in Figures 4 and 5 partly reflect the type of school attended by children from the different income groups shown in Figure 6.⁵ In the Philippines public school education costs the households less per student compared to education in private schools. Most students in the elementary and secondary school levels, or ages 5-16 years, for all income groups are attending public schools; hence, the similar per capita age profiles for public education consumption. But for the ages 17-24 years significantly higher proportions of the middle and top income tercile students are enrolled in private schools and this is reflected in their increasingly higher scale of private spending for education at these ages.

Figure 6. Distribution of students by type of school attended, by age group/income tercile group, Philippines 1999 (in percent)



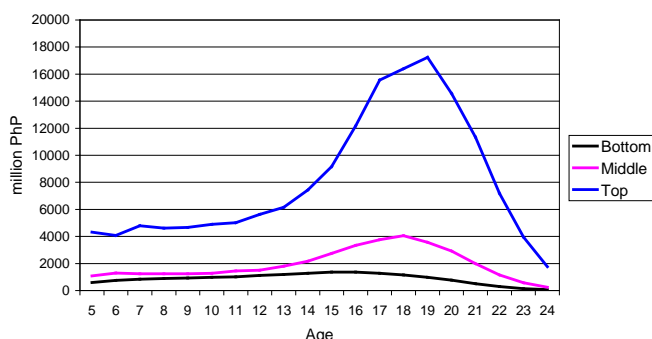
Aggregate age profiles: the reference (actual 2007)

Figure 7. Age profile of aggregate public education consumption by income tercile group, Philippines, 2007, current prices (in million PhP)



⁵ Tabulation on type of school attended was from the 1999 Annual Poverty Indicator Survey which was the most recent household survey that reported school enrollment by type of school.

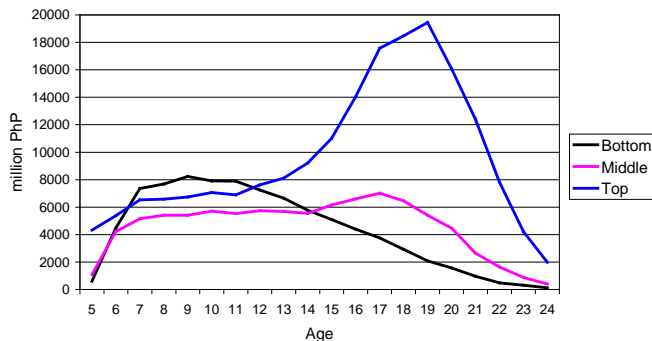
Figure 8. Age profile of aggregate private education consumption by income tercile group, Philippines, 2007, current prices (in million PhP)



The 2007 actual aggregate public and private education consumption by age and by income group are shown in Figures 7 and 8 and these constitute the reference or the baseline against which the aggregate age profiles simulations presented in Sections 4 and 5 are compared. These 2007 actual aggregate age profiles were estimated using (1) the 2007 per capita age profiles shown in Figures 4 and 5 and (2) the 2007 population size by income group and by age shown in Figure 1.

The bottom and middle income tercile aggregate public education consumption exceeds that for the top income tercile at the elementary and secondary school ages, 5-16 years, while the middle and top income tercile groups' aggregate consumption begins to exceed at the tertiary school level ages, 17-24 years. These patterns observed from the aggregate age profiles in Figure 7 are consistent with findings by Manasan, Cuenca and Ruiz (2008) that basic public education expenditures (elementary and secondary) is regressive (the lower income group account for the larger share) and that public higher education expenditures is progressive (the higher income group account for the larger share).

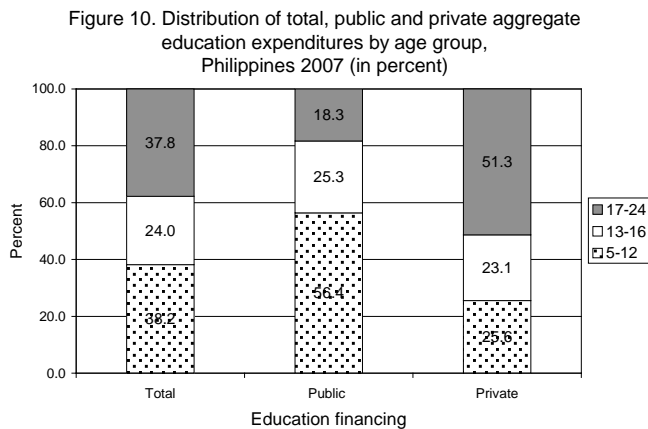
Figure 9. Age profile of aggregate education consumption (public and private) by income tercile group, Philippines, 2007, current prices (in million PhP)



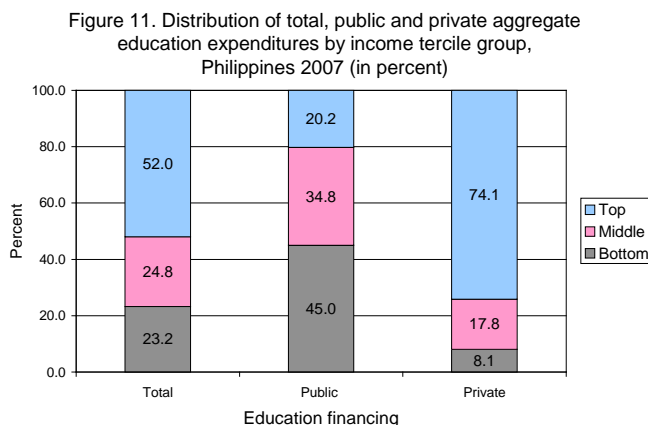
The difference in scale and pattern in the per capita means presented in Figure 5 is replicated in the aggregate age profiles for private education consumption by income group in Figure 8. The top tercile accounts for most of private consumption at all ages.

The age profiles of combined aggregate public and private education consumption in Figure 9 show the bottom income tercile exceeding the aggregate consumption of the other income groups at the ages for elementary school level. The top income tercile accounts for more than the combine aggregate consumption of the bottom and middle income terciles at the tertiary level ages.

Taking the sum of aggregate education consumption across all ages and all income groups, the totals in 2007 were PhP167 billion pesos for public and PhP226 billion pesos for private, or a total of PhP393 billion. Thus, the public/private financing mix for education was 42/58 in 2007. The distributions of these expenditures by age grouping/schooling level and by income group are summarized in Figures 10 and 11. Public education expenditures cover mostly elementary education, or schooling of ages 5-12 years, while private education expenditures cover mostly tertiary level education, or schooling of ages 17-24 years (Figure 10).



About 45 percent of public education expenditures benefit the bottom income tercile group while about 74 percent of private education expenditures are incurred by the top income tercile group (Figure 11). Overall, the bottom and middle income terciles account for about half of education expenditures while the top income tercile accounts for the other half.



4. Education financing and low-income households

The trend in the financing of education from 1991 to 2010 is first described. And then the effects of change in the public/private education financing mix from 50/50 (the mix observed in the 1990's) to 42/58 in 2007 on the education expenditures of the different income groups are examined. Results from the simulations of the aggregate education consumption age profiles by income group for the alternative 50/50 public/private education financing mix are compared to the corresponding actual (reference) 2007 age profiles presented in Section 3.

Education financing, private education expenditures and low-income households

Education expenditures estimates for the national government and households for selected years are shown in Table 1. For purposes of this paper, public expenditures refers to national government expenditures only and private expenditures refers to household expenditures only.⁶

Table 1. Education expenditures by financing source: Philippines, selected years

| Item description | 1991 | 1994 | 1998 | 2002 | 2007 | 2010 |
|--|------|-------|-------|-------|-------|-------|
| By financing source (in billion PhP, at current prices) | | | | | | |
| Public | 39.5 | 47.5 | 108.8 | 129.7 | 167.0 | 225.0 |
| Private | 35.5 | 58.8 | 111.4 | 157.7 | 226.0 | 320.4 |
| Total | 75.1 | 106.3 | 220.2 | 287.4 | 393.0 | 545.4 |
| Public as percent of Government Consumption Expenditures (GCE) | | | | | | |
| | 29.0 | 23.9 | 27.8 | 29.2 | 26.1 | 25.7 |
| Private as percent of Personal Consumption Expenditures (PCE) | | | | | | |
| | 3.6 | 4.4 | 4.7 | 5.1 | 4.5 | 5.0 |
| Distribution by financing source (in percent) | | | | | | |
| Public | 53 | 45 | 49 | 45 | 42 | 41 |
| Private | 47 | 55 | 51 | 55 | 58 | 59 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 |

Notes:

1. Public covers national government only and private covers households only.
2. 1991, 1994 and 1998 public and private expenditures - taken from the '2007 Philippine Statistical Yearbook
3. 2002 public expenditures - taken from the 2003 Philippine Statistical Yearbook
4. 2002 private expenditures - estimated using 2002 Annual Poverty Indicator Survey (for education budget share) and personal consumption expenditures (PCE) from NSCB (2012)
5. 2007 public expenditures - taken from 2009 Budget of Expenditures and Sources of Financing
6. 2007 private expenditures - estimated using 2007 Annual Poverty Indicator Survey (for education budget share) and personal consumption expenditures (PCE) from NSCB (2012)
7. 2010 public expenditures - taken from 2012 Budget of Expenditures and Sources of Financing
8. 2010 private expenditures - estimated using 2010 Annual Poverty Indicator Survey (for education budget share) and personal consumption expenditures (PCE) from NSCB (2012)

⁶ For a more comprehensive accounting of sources of education expenditures refer to Maglen and Manasan (1999), National Statistical Coordination Board (2007) and Manasan, Cuenca and Villanueva (2008). In general, national government and households together account for over 90 percent of national education expenditures.

In 2010 public education expenditures was PhP225 billion, about 25.7 percent of Government Consumption Expenditures (GCE) and private education expenditures was PhP320 billion, about 5 percent of Personal Consumption Expenditures (PCE). The ratios of private education expenditures to PCE steadily rose from 3.6 percent in 1991, to 5.1 percent in 2002 and staying at around the same level from 2002 to 2010. The ratio of public education expenditures to GCE, on the other hand, fluctuated during the 19-year period from a low of 23.9 percent (1994) to a high of 29.2 percent (2002).

The distribution of education expenditures by financing source shows the public share to have generally been declining during the period from 53 percent in 1991 to 41 percent in 2010. Or the public/private education financing mix changed from 53/47 in 1991, to 49/51 in 1998 and to 41/59 in 2010. The financing mix was 42/58 in 2007, the year for which actual aggregate education expenditures age profiles were estimated.

Table 2. Education expenditures by financing source at constant prices and per capita for schooling age population: Philippines, selected years

| Item description | 1991 | 1994 | 1998 | 2002 | 2007 | 2010 |
|---|-------|-----------|-----------|-----------|-----------|-----------|
| By financing source (in billion PhP, at 2000 prices) | | | | | | |
| Public | 73.9 | 69.2 | 119.8 | 117.9 | 117.8 | 135.5 |
| Private | 66.5 | 85.8 | 122.7 | 143.4 | 159.4 | 192.9 |
| Total | 140.3 | 155.0 | 242.5 | 261.3 | 277.2 | 328.4 |
| School-age population (ages 6-24 years, in million) | | | | | | |
| | 27.2 | 29.0 | 31.5 | 33.7 | 35.9 | 38.1 |
| Per capita expenditures for 6-24 age group (in PhP, at 2000 prices) | | | | | | |
| Public | 2717 | 2387 | 3807 | 3495 | 3285 | 3559 |
| Private | 2444 | 2957 | 3897 | 4251 | 4445 | 5067 |
| Average annual growth rate: real per capita expenditures (percent) | | | | | | |
| | | 1991-1994 | 1994-1998 | 1998-2002 | 2002-2007 | 2007-2010 |
| Public | | -4.0 | 14.9 | -2.0 | -1.2 | 2.8 |
| Private | | 7.0 | 7.9 | 2.3 | 0.9 | 4.7 |

Notes:

1. Consumer price index data for the years 1991-2006 are from the 2003 and 2007 Philippine Statistical Yearbooks and data for the years 2007-2010 are from the NSCB website.

2. Population size for the age group 6-24 years are computed using data from the United Nations (2011).

The education expenditures data in Table 1 are presented in Table 2 at constant prices. Together with estimates of school-age population (United Nations 2011) for the selected years, per capita public and private education expenditures at constant prices were computed. Reflecting the fluctuating share of public education expenditures to GCE observed in Table 1, average annual growth rates of per capita public education expenditures also fluctuated from a low of -4.0 percent (1991-1994) to a high of 14.9 percent (1994-1998). Per capita private education expenditures, on the other hand, showed steady positive growth or steady increases over the entire period. That is, the cost of education being borne by households per child has been increasing in the last two decades.

What are households paying for? Private household education expenditures cover not only costs of students attending private schools (where all costs are paid for by households) but also costs of students attending public schools. In public elementary and secondary schools tuition is free but there are other school fees and voluntary contributions collected from households such as for the Parents-Teachers Association or PTA (UNESCO 2009). But for tertiary level public education both tuition and other fees are paid for by households. The costs of education paid for by households however are not limited to tuition and other school fees. These other costs include books, school supplies, uniforms, transportation to/from school and costs of school-related activities and projects. According to Maglen and Manasan (1999), cited in Orbeta (2002), in 1997 these other costs accounted for about 81 percent of household spending for children attending public schools and about 48 percent for children attending private schools.

The increase in private spending over the years may partly be explained as due to the expanded role of the private sector as a co-financier of the public education system (World Bank 1996). It was cited in the report that at the public elementary level households shouldered about 30 percent of total cost in the 1990's compared to 10 percent in the mid-1980's. The report further stated that continued reliance on private sources to meet shortfall in government financing for education increasingly requires compensatory measures to protect the poor.

For an indication of what rising private costs of education means to households, particularly to low income households, the reasons given for children not attending school are examined for selected years: 1992 (bottom tercile only), 1999, 2007 and 2010.⁷ Among the top three reasons given over the years is "high cost" of education, referring to the education costs paid for by households. The ranking of "high cost" among all other reasons (excluding "Other") is examined for three age groups corresponding to the school levels and by income group.

The ranking of this reason hardly changed from 1999 to 2010 for the middle and top income tercile groups. For the age groups 6-12 and 13-16 years the ranking stayed at 2 for almost all the years. For the age group 17-24 years the ranking had in fact changed from 2 in 1999 to 3 in 2007 and 2010.

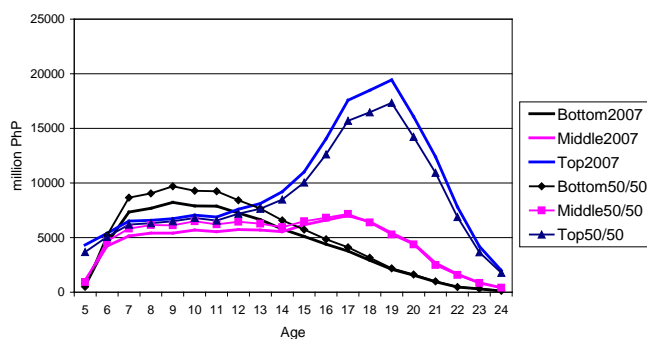
For the bottom income tercile group "high cost" as a reason had ranked 3, 2 and 3 in 1992 for the age groups 6-12, 13-16 and 17-24 years. For the age group 6-12 years the ranking moved up from 3 in 1992 to 2 in 1999 to 2010. For the age group 13-16 years the ranking moved up from 2 in 1992 to 1 in 2010. For the age group 17-24 years the ranking had moved up from 3 in 1992 to 1999 to 1 in 2007 to 2010. These results indicate that increasing private costs of education matter the most to low-income households.

Change in public-private financing mix for education and low-income households

⁷ The tabulations came from the 1992 Socio-Economic Survey of Special Groups of Families (SESSGF), and the 1999, 2007 and 2010 Annual Poverty Indicator Surveys. Results from the 1992 SESSGF are taken from Herrin and Racelis (1994) and covers only the bottom income tercile group. Tabulations for 1999, 2007 and 2010 covers all income income groups.

As shown in Table 1 the public/private education financing mix was 42/58 in 2007 and was roughly 50/50 in the 1990's. The implication of this financing trend on the education expenditures of the different income groups is examined – more specifically, the implications on the distribution of education expenditures and on per capita private education expenditures by income group. The 2007 per capita age profiles for public and private education consumption were adjusted to be consistent with an overall 50/50 public/private financing mix, and, together with the 2007 population data by age, were used to simulate aggregate age profiles for the alternative financing mix scenario. The resulting simulated aggregate age profiles are compared to the corresponding reference or actual 2007 aggregate age profiles.

Figure 12. Age profile of aggregate education consumption by income tercile group, Philippines, 2007 (reference) and 50/50 financing mix scenario, current prices (in million PhP)



The aggregate age profiles for combined public and private education consumption simulated for the alternative 50/50 financing mix scenario and actual 2007 aggregate age profiles (representing the 42/58 financing mix) are shown by income group in Figure 12. Comparing the simulated to the actual 2007 age profiles, the changes for the top income tercile are distinctly different to those of the middle and bottom income terciles. The bottom and middle income terciles age profiles clearly show higher aggregate education expenditures in the ages 5-16 years when public/private financing mix is 50/50 compared to 42/58 (actual 2007). The top tercile age profiles, on the other hand, show significantly lower aggregate education expenditures in the ages 16-21 years when financing mix is 50/50 compared to when financing mix 42/58.

Figure 13. Distribution of education expenditures by income tercile group, 2007 (reference) and 50/50 financing mix scenario, Philippines (percent)

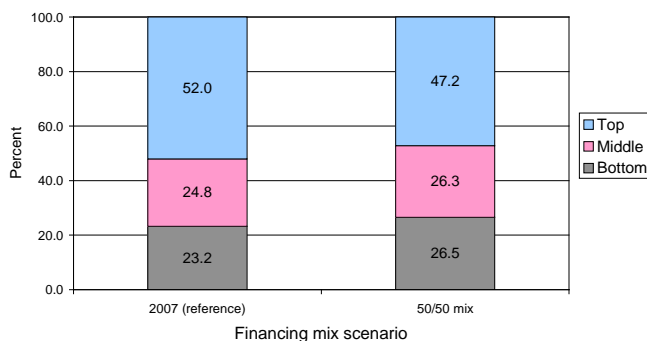
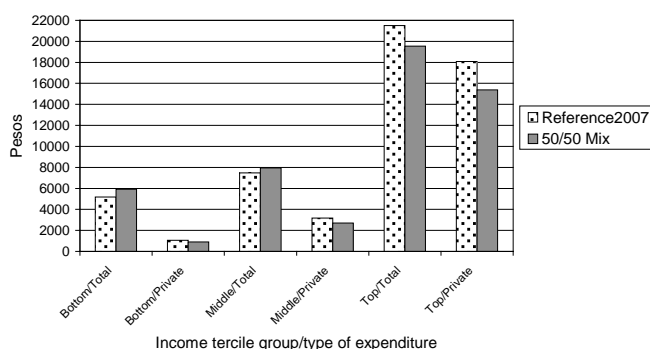


Figure 14. Per capita total and private education expenditures by income tercile group, 2007 (reference) and 50/50 financing mix scenario, Philippines



The aggregate expenditures by age shown in Figure 12 are summarized by income group for the two financing mix scenarios and the results shown in Figures 13 and 14. The results in Figure 13 and 14 may be interpreted according to the direction indicated by the actual trend in public/private education financing mix; that is, the financing mix moved from around 50/50 in the 1990's to 42/58 in 2007.

The simulation results show that when the public/private financing mix changed from that in the 1990s (50/50) to that in 2007 (42/58), this may have brought about a shift in the distribution of education resources among the income groups; more specifically, the shares of the bottom and middle income terciles are reduced and the share of the top income tercile is increased. In per capita terms (Figure 14), per capita total education expenditures for the bottom and middle income terciles would go down while that for the top income tercile would increase when the financing mix changes from 50/50 to 42/58. Per capita private education expenditures would increase for all income groups, including the bottom income tercile.

Implications and actions

The implications of the change in education financing mix towards higher share of private financing which are of policy concern are those pertaining specifically to low-income households: (1) lower share (also lower per capita) total education expenditures; and (2) higher per capita private costs of education to be shouldered by households. What can government do to protect low-income households?

One obvious action is for government to influence the public/private education financing mix. A measure that would directly shape the financing mix favorably for the low-income households is to increase the size of the government budget for education such that the increase or growth at least keeps pace with the growth in household education spending. This would ensure that the financing mix would at least stay the same.

Other measures government can take are those that would help reduce private education costs of households, particularly for low-income households. One set of private

costs consist of tuition and other school fees. Students from the bottom income tercile households mostly attend public schools and, thus, regulation of tuition and other fees in public schools should be strictly implemented. It would also help if other education-related costs (such as books and uniforms) borne privately by households are contained.

The implementation of the suggested measures should be accompanied by regular tracking by the government of the financial aspect of education. While data on school enrollment, inputs and outputs are regularly updated, estimates of education expenditures by sources (including private) and by uses are available only for the years 1991 to 1998, and has not been produced for later years. There is a need to update education expenditures data periodically (if not annually) and be made part of the basic data compiled routinely on education. The data will be useful not only for monitoring purposes but will also inform any financing-related policy-making in the future.

5. School-age population size and age structure change from 2007 to 2040 and education expenditures by income group

As described in Section 2, from 2007 to 2040 the school-age population size is projected to increase by 28.1 percent and the age composition to also change. The proportion of the school-age population in the tertiary school ages, 17-24 years, is projected to increase from 36.4 percent in 2007 to 39.1 percent in 2040, while the proportion of those in the elementary school ages, 5-12 years, is projected to decline from 43.2 percent in 2007 to 40.6 percent in 2040.

The implications of these population-related changes on the education consumption requirement of the different income groups in 2040 is examined – more specifically, the implications on the distribution of public and private education expenditures by income group and by age group, the education financing mix and the per capita total and private education expenditures by income group. The actual 2007 per capita age profiles and the 2040 school-age population projections by age were used to simulate the aggregate age profiles for public and private education consumption requirements for 2040. The 2040 school-age population by age and by income group was generated by assuming that the 2007 population distribution by income group at each age would remain the same.

The aggregate age profiles by income group for public, private and total education consumption requirement for 2040 and actual age profiles for 2007 are shown in Figure 15, 16 and 17. The population changes between 2007 and 2040 will bring the largest increase in aggregate public education consumption requirement in 2040 for the bottom income tercile, being the biggest consumer of public education services (Figure 15), and the largest increase in aggregate private education consumption requirement for the top income tercile, being the biggest source of private spending for education (Figure 16). When public and private education expenditures are combined, the largest increase in aggregate education consumption requirement is observed for the top income tercile.

Figure 15. Age profile of aggregate public education consumption by income tercile group, 2007 (reference) and 2040 population scenario, Philippines, current prices (in million PhP)

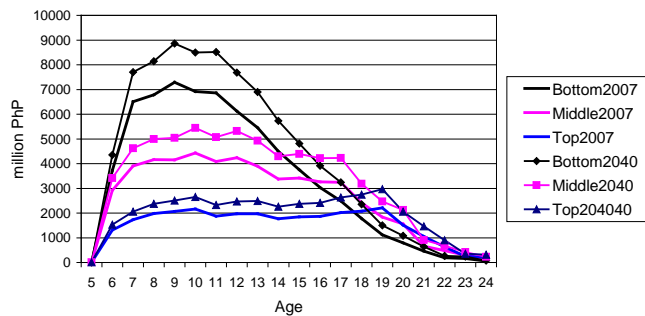


Figure 16. Age profile of aggregate private education consumption by income tercile group, 2007 (reference) and 2040 population scenario, Philippines, current prices (in million PhP)

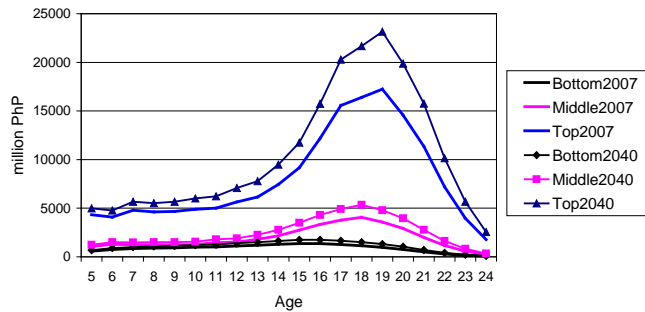
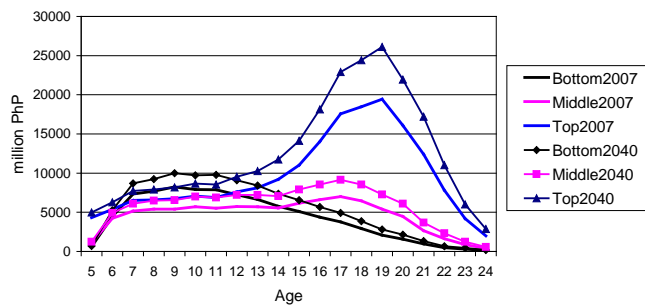
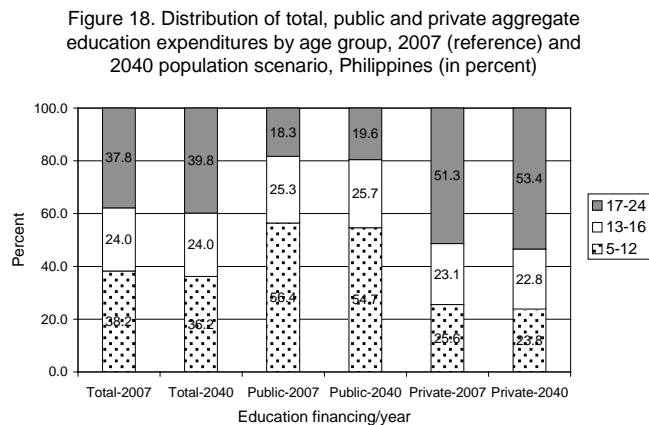


Figure 17. Age profile of aggregate public and private education consumption by income tercile group, 2007 (reference) and 2040 population scenario, Philippines, current prices (in million PhP)



Taking the sum of public and private aggregate education consumption at each age and for all income groups, the total education consumption requirement in 2040 will be about PhP481.3 billion or about 28.0 percent more than the total actual education consumption in 2007. This is the total requirement estimated for 2040 when both the population size and age distribution changes from 2007 to 2040 are taken into account. The total consumption requirement estimate, assuming only population size change from

2007 to 2040 (the age structure in 2040 is the same as that in 2007), is PhP471.6 billion pesos or about 28.1 percent more than the total actual education consumption in 2007. Thus, the effect of the change in the age structure from 2007 to 2040 on the total requirement in 2040 is very small. The age distribution effect is however more evident when total requirement is examined by age group. The percent increases or growth rates in total requirement by age group vary as follows: 21.3 percent for the 5-12 year olds; 27.9 percent for the 13-16 year olds; and 34.9 percent for the 17-24 year olds. The variation in the growth rates by age group clearly reflect the shifts in school-age population age distribution described earlier.



The age distribution effect may also be observed from the changes in the distribution of education consumption by age group from 2007 to 2040 (Figure 18). Public education consumption requirement of the age group 17-24 years will be a higher share at 19.6 percent in 2040 from 18.3 percent in 2007, while the share of the age group 5-12 years will be lower at 54.7 percent in 2040 from 56.4 in 2007. The same pattern is observed for private education consumption requirement where the age group 17-24 years will take a higher share and the age group 5-12 years a lower share in 2040 compared to the shares in 2007.

The age structure change in the school-age population from 2007 to 2040 also has some effect on the 2040 total requirement by income group. As with the growth rates by age group, the growth rates of total requirement from 2007 to 2040 by income group also vary at 24.8, 27.2 and 29.8 percent for the bottom, middle and top income tercile group, respectively. The growth rates for the bottom and middle income terciles are below while that for the top tercile is above the overall growth rate of 28.0 percent in total education consumption requirement.

The distribution of aggregate education consumption requirement and the public/private education financing mix by income group will also change compared to the actual in 2007. The shares of the top income tercile in public and private education consumption will increase while the corresponding shares of the bottom and middle income terciles will decrease (Figure 19). The financing mix will shift towards higher private share for all income groups (Figure 20). The overall public/private financing mix will change from 42/58 in 2007 to 34/66 in 2040.

Figure 19. Distribution of total, public and private aggregate education expenditures by income tercile group, 2007 (reference) and 2040 population scenario, Philippines (in percent)

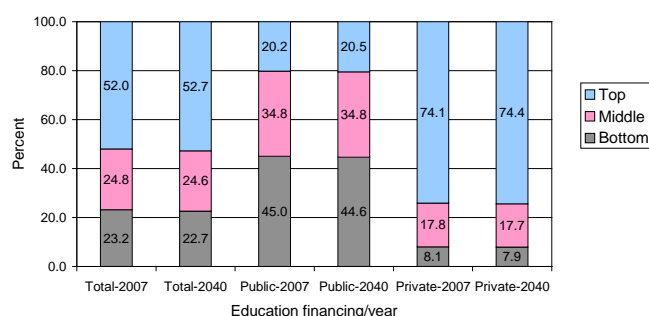
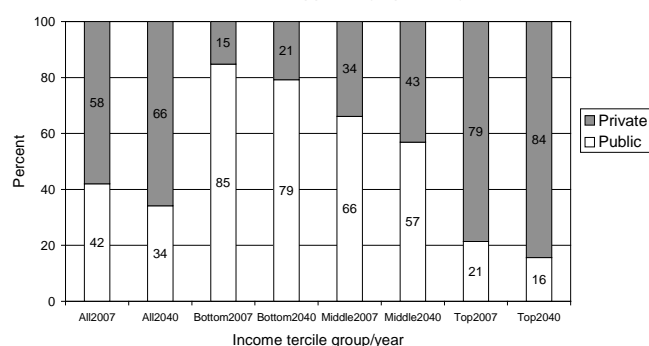


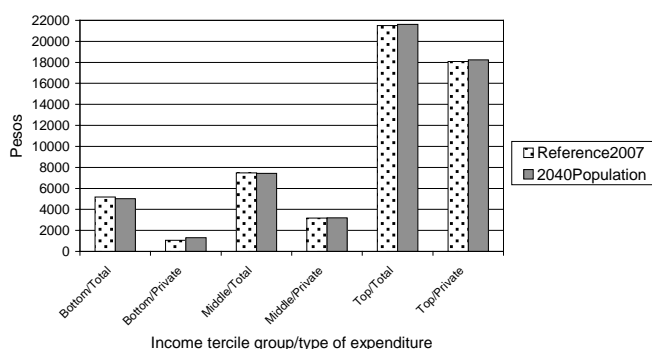
Figure 20. Public/private financing mix for education by income tercile group, 2007 (reference) and 2040 population scenario, Philippines (in percent)



The shift in the overall financing mix is basically a result of the school-age population age structure change away from the age group for which the financing mix is dominated by public financing (age group 5-12 years) and towards the age group for which the financing mix is dominated by private financing (age group 17-24 years). In 2007 the education public/private financing mix are 62/38, 45/55 and 21/79 for the age groups 5-12, 13-16 and 17-24 years, respectively. The effect of the school-age population age structure change on the overall financing mix could be counteracted if the population change is accompanied by change in the per capita age profiles of public and private education expenditures (which were assumed to remain the same in the projection) – specifically increases in per capita public expenditures for ages 17-24 years, or the tertiary school level ages, which would shift the financing mix for this fast growing age group towards higher public share. Operationally, the change in per capita public expenditures age profile can be achieved if the government education budget is reallocated by schooling level.

Consistent with the findings in Section 4, a shift in the public/private education financing mix towards higher private share will mean lower per capita total education expenditures and higher per capita private education expenditures for the bottom and middle income terciles (Figure 21). The same change in financing mix will mean higher per capita total and private education expenditures for the top income tercile.

Figure 21. Per capita total and private education expenditures by income tercile group, 2007 (reference) and 2040 population scenario, Philippines (in pesos)



Implications and actions

The changes in the size and age structure of the school-age population from 2007 to 2040 will result to education consumption requirements in 2040 (relative to the 2007 actual education consumption): (1) that will grow fastest, exceeding overall aggregate education consumption growth, for the age group 17-24 years or the ages that potentially attend tertiary level school, and grow slower for the age group 5-16 years or the elementary and secondary school ages; (2) in which the share of the bottom income tercile will be lower (and per capita total education consumption lower) and the group's per capita private education consumption will be higher.

The first set of findings underscore the need pay close attention to the allocation of education resources particularly government resources among the age groups or schooling levels. The future allocation should carefully be marched to the projected change in the age structure of the school-age population. Since the projected change in age structure will be gradual and take place over a period of three decades, the adjustment in the allocation of public resources in particular can be done gradually.

The second set of findings reinforces the need for actions that will shape the public/private financing mix in the future. The education consumption requirement of the projected school-age population in 2040, assuming that the 2007 per capita education consumption age profiles remain the same, will consist of higher private education consumption share compared to the actual private share in 2007 – or there will be a shift in the public/private financing mix towards more private financing from 42/58 in 2007 to 36/44 in 2040. In view of the undesirable effects of such a change on low-income households, the need for actions as described in Section 4 is further emphasized.

6. Concluding remarks

The increase in school-age population size alone from about 38 million in 2007 to 48 million in 2040 or about 28.1 percent, assuming that the age distribution remains the

same in 2040 as that in 2007, would have brought about a corresponding (proportionate) increase in total education consumption requirement of 28.1 percent from 2007 to 2040. However, a change in the age distribution of the school-age population by 2040, a lower proportion in the elementary school ages and a higher proportion in the tertiary school level ages, slightly modifies the overall increase in total education consumption requirement from 2007 to 2040 to 28.0 percent.

The effect of the change in school-age population age distribution from 2007 to 2040 is more evident when education consumption requirements are examined by age group. The findings indicate the need to reallocate education resources among schooling levels in the future: reduce elementary school share and increase tertiary school level share. The share of the secondary school level remains nearly unchanged. The reallocation indicated by the simulations is similar for both public and private education expenditures.

The change in the school-age population distribution by age from 2007 to 2040 has other additional implications: (1) the public/private education financing mix will shift from 42/58 in 2007 to 34/66 in 2040; (2) the share of total education consumption of the bottom income tercile will be reduced; and (3) the per capita private education will increase for all income groups.

Results of the comparison in Section 4 showed that in fact, given no change in school-age population age structure, a change in the public/private education financing mix in itself towards higher share of private financing would bring about (1) reduced education consumption share for the bottom income tercile, and (2) increased per capita private expenditures for all income groups.

The purpose of government education expenditures should therefore be viewed not only as service provision but also as a handle that can be used to influence the public/private education financing mix. Additionally, government has other handles it can use to influence the financing mix on the private education expenditures side including policies related to the setting of tuition and other fees in public schools, regulation of tuition and other fees in private schools and policies to contain other education-related costs (e.g., books, uniforms) paid for by households.

7. References

Department of Budget and Management (2009). 2009 Budget of Expenditures and Sources of Financing. Manila: Department of Budget and Management.

Department of Budget and Management (2012). 2012 Budget of Expenditures and Sources of Financing. Manila: Department of Budget and Management.

- Herrin, A. N. and R. H. Racelis, 1993. *Monitoring the Coverage of Public Programs on Low-Income Families: Philippines, 1992*. Metro-Manila: NEDA, Integrated Population and Development Project.
- Maglen, I. and R. Manasan (1999). “Education Costs and Financing in the Philippines.” Technical Background Paper No. 2, Asian Development Bank-World Bank Philippine Education for the 21st Century, The 1998 Philippine Education Sector Study, Manila.
- Manasan, R., J. Cuenca and E. Villanueva-Ruiz (2008). “Benefit Incidence of Public Spending in Education in the Philippines.” Makati: Philippine Institute for Development Studies, Discussion Paper Series No. 2008-08. February 2008.
- National Statistical Coordination Board (2003). 2003 Philippine Statistical Yearbook. Makati: National Statistical Coordination Board.
- National Statistical Coordination Board (2007). 2007 Philippine Statistical Yearbook. Makati: National Statistical Coordination Board.
- National Statistical Coordination Board (2012). National Accounts of the Philippines: Gross National Income and Gross Domestic Product by Expenditure Shares 1946 to 2010. (nscb1946_2010_NAP_LinkedSeries_NSIC.xls downloaded on July 2012 from www.nscb.gov.ph)
- Orbeta, A. C. (2002). “Education, Labor Market and Development: A Review of Trends and Issues in the Philippines in the Past 25 Years.” Makati: Philippine Institute for Development Studies, Discussion Paper Series No. 2002-19. December 2002.
- Racelis, R. H., M.R.M. Abrigo, and J.M.I. Salas (2012). Philippines 2007 National Transfer Accounts (NTA): Consumption, Labor Income and Lifecycle Deficit by Income Group. Makati City: Philippine Institute for Development Studies, Discussion Paper Series No. 2012-32, June 2012.
- United Nations Educational, Scientific and Cultural Organization (2009). “Secondary Education Regional Information Base:Country Profile – Philippines.” Bangkok: UNESCO.
- World Bank (1996). Education Financing and Social Equity: A Reform Agenda. Report No. 15898_PH, Human Resource Operations Division, Country Department I, East Asia and Pacific Region, World Bank, Washington DC.