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Trends in Out-of-School Children and Other Basic Education Statistics

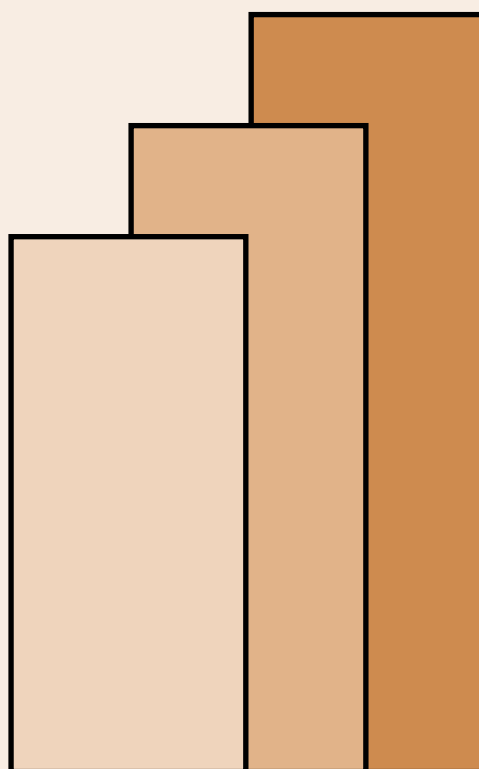
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Trends in Out of School Children and other Basic Education Statistics

by

Jose Ramon G. Albert and Martin Joseph Raymundo¹

Abstract

The Philippines has put a lot of importance to the basic education sector. The immediate past government provided more resources to the sector, in support of the Philippine Development Plan as well as to attain commitments to global goals, including the Millennium Development Goals and its successor, the Sustainable Development Goals (which include SDG4 to achieve quality education for all). In this paper, various education indicators sourced from administrative reporting systems of the Department of Education, as well as sample surveys conducted by the Philippine Statistics Authority are examined for monitoring and evaluation of the basic education sector. Further, these data sources on education statistics are scrutinized for describing persisting disparities among various groups (e.g., boys versus girls, poor and non-poor, urban and rural population), and for probing into why some children continue to be out of school. Measurement issues and policy implications are also discussed.

Keywords: education indicators, out-of-school children (OOSC), monitoring and evaluation

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1. Introduction

The 2011-2016 Philippine Development Plan (PDP), particularly Chapter 8 on social development, discusses the importance of investing in the education sector, especially basic education. Several indicators in the 2011-2016 PDP results framework have even been identified and monitored to consider progress in the basic education sector (NEDA, 2011). With a new government in place since middle of 2016, a new PDP has started to get crafted that will likely also focus on the importance of basic education. The priority for basic education investments can be justified based on rates of return to education, the need for efficient allocation of resources, as well as the benefits to society accruing from a more educated populace. The new PDP is expected to put in sync with the country's long term vision for 2040 (*Ambisyon Natin*), as well as international commitments to global aspirations, such as the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs). The SDGs constitute a set of 17 goals, such as SDG4 on Quality Education ("Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all"), that the Philippines, together with 192 other member states of the United Nations, has signed up to work for by 2030.

In recent years, the country has achieved robust and rather broad-based economic growth, but economic growth has not translated into substantially higher household consumptions and incomes. Consequently, income poverty reduction has been rather negligible in the period 2003 to 2012. The Philippine Statistics Authority though recently reported that income poverty was reduced by 3.6 percentage points from 25.2 percent in 2012 (to 21.2 percent), but this likely could have fallen further were it not for the effects of several natural disasters, including super typhoon Yolanda (called Haiyan in the international community). Attaining full potentials for inclusive growth in the country have also been challenging owing to inequalities in income and opportunities.

Education is recognized as an imperative for attaining inclusive growth and development, including acceleration of poverty reduction. Reducing inequalities in school participation and completion, in particular, help attain equality of opportunity thereby improving chances for everyone to fully participate in the processes for socio-economic growth and progress. Inequities in opportunity, particularly in basic education, are not deemed acceptable as these imbalances exclude some people from pursuing productive, creative, and decent work, and, in general, from achieving full empowerment and participation in society. Underlying development goals in education, both national and global, is a fundamental recognition of the right, particularly, of children to primary education.

Education also harnesses opportunities for developing social skills as it exposes learners to experience diversity in a knowledge setting, thus enhancing their social inclusion. The skills and competencies gained by learners from increased attainment of schooling also offer better income prospects for those coming from low income families. More years schooling is well known to yield additional returns in wages and thus increased educational attainment enhances chances of poor households to escape from the clutches of poverty. Higher incomes of peoples are also expected to boost creativity, innovation and higher productivity, which, in turn, accelerate growth in an economy.

The immediate past government has opted to make substantial investments in the basic education sector, not only in addressing input deficits of the past, but also by increasing household demand for education by way of the conditional cash transfer (CCT), called the

Pantawid Pamilyang Pilipino Program or 4Ps. The 4Ps have been designed to incentivize poor households into investing in their human capital, which would improve their future prospects of better incomes and living conditions. In this Discussion Paper, we broadly describe trends in basic education statistics sourced from administrative reporting systems and from sample surveys. We particularly consider generating a profile of out of school children (OOSC), and discuss specifically why are children out of school. We also explain some measurement issues and discuss policy implications regarding trends in these basic education statistics.

2. Administrative-Based Statistics on Basic Education

The Department of Education (DepED) produces key education statistics on the performance and internal efficiency of the basic education sector from its various administrative reporting systems. A principal data source is the DepED's Basic Education Information System (BEIS), which was established in school year 2002/03 as a key instrument for monitoring and evaluation of the basic education sector. The BEIS involves the annual collection of data from school heads a few months after the start of the school year, which are then aggregated to provide a portrait of the basic education sector at the division, regional, and national levels. BEIS data include information on education inputs, including the number of students, teachers, schools, classrooms and other school facilities as well as education performance indicators for assessing access, internal efficiency, and quality. Foremost among these indicators are the gross enrolment rate², net enrolment rate³, dropout rate⁴, and cohort survival rate⁵.

Prior to 2002, the processing of producing statistics from the BEIS yielding a reporting gap of two years, owing to the manual data collection process the results of which were encoded into Lotus 1-2-3. From 2002 to 2010, reporting gap was about 9 months, with schools providing data to the DepED central office through email and/or through their division/regional offices, which was then processed through a stand-alone software encoded with Visual Basic for Applications (VBA) in Excel. In 2011, with the assistance of the Australian Aid, the DepED transformed the BEIS to the Enhanced Basic Education Information System (EBEIS), an online database of basic education information. The EBEIS involves online submission by school heads of data, which, when completed, in turn yields school-level performance indicators, and a School Report Card for all schools. Further, EBEIS also provides schools an online access to current and historical achievement test results, to the Electronic School Based Management (SBM) Assessment Tool and to school's current and historical record of SBM practice. Reporting gap for education statistics from the EBEIS is currently at 3-4 months. A unit in the Education Management Information System division of DepED's Office of Planning Services is responsible for EBEIS and maintains information on public schools and, to a limited extent,

² Gross enrolment rate is the ratio of the total enrolment in a given education level as a percentage of the population, which according to national regulations should be enrolled at this level.

³ Net enrolment rate is the ratio of the enrolment in the school age range in a given education level to the total population of that age range, with school-age population for the primary and secondary levels being 6 to 11 years old, and 12 to 15 years old, respectively.

⁴ The dropout rate is the proportion of students who leave school during the year as well as those who complete the grade/year level but fail to enroll in the next grade/year level the following school year to the total number of students enrolled during the previous school year.

⁵ The cohort survival rate is the proportion of enrollees at the beginning grade or year who reach the final grade or year at the end of the required number of years of study.

on private schools. The EBEIS, together with a Learner Information System (LIS), that involves assigning a unique learner reference number (LRN) to all public-school students, was developed to streamline the data management process for delivering accurate statistics required for planning, budgeting, policy formulation, and other decision making activities at the national, regional, division and school levels. Starting 2012, when the LIS and LRNs were adopted, the LRNs were also used by DepED central office to countercheck enrolment figures reported by school heads for the EBEIS.

The basic-education sector is rather enormous. In schoolyear 2015-2016, nearly 16.5 million kindergarten and primary pupils were enrolled in about 49,600 elementary schools while 7.35 million students were enrolled in about 13,500 secondary schools. Four out of five (77.9 %) elementary schools are public while two fifths (40.5 %) of secondary schools are private (but private schools only account for 18.2 per cent of secondary-school enrollment).

Table 1 lists the total annual school enrolment for schoolyears 2006-2007 up to 2015-2016⁶. For this period, the number of students has generally been rising, with enrolment growth in basic education averaging at around 1 to 2 percent per year.

Table 1. Total Enrolment in Kindergarten, Primary and Secondary Levels, Across Public and Private Schools. Schoolyears 2006-2007 to 2015-2016.

School Year	Total Enrolment					
	Kindergarten		Primary Level		Secondary Level	
	Public	Private	Public	Private	Public	Private
2006-2007	561,207	400,190	12,096,656	1,048,554	5,072,210	1,290,792
2007-2008	591,445	410,778	12,318,505	1,092,781	5,173,330	1,332,846
2008-2009	746,448	428,653	12,574,506	1,112,137	5,421,562	1,342,296
2009-2010	1,054,200	420,444	12,799,950	1,134,222	5,465,623	1,340,456
2010-2011	1,224,173	426,059	13,019,145	1,146,921	5,580,236	1,374,710
2011-2012	1,675,048	431,897	13,241,213	1,195,132	5,635,664	1,414,213
2012-2013	1,776,590	437,473	13,273,325	1,236,365	5,702,597	1,421,081
2013-2014	1,867,941	419,647	13,257,456	1,202,921	5,818,649	1,397,941
2014-2015	1,814,235	397,611	13,312,124	1,180,378	5,963,431	1,353,320
2015-2016	1,737,313	382,012	13,157,333	1,189,743	6,012,761	1,337,386

Source: BEIS and EBEIS, DepED

At the primary level, enrolment has generally followed the same direction of change in both the private and public sectors, except for the past two schoolyears. At the secondary level, the public sector has had continuing growth in enrolment, while the private sector has had positive growth up to schoolyear 2012-2013 but total enrolment has dwindled in the past three schoolyears. With the passage and implementation of the Kindergarten Education Act, enrolment in kindergarten, especially in public schools, has phenomenally risen across the past decade. Total kindergarten enrolment levels in schoolyear 2015-2015 for both the public and private sector has grown to 120 percent of their levels in schoolyear 2006-2007.

Figure 1 illustrates that in the past decade, the number of schools in the country have generally kept increasing. At the primary level, the total number of schools (49,593) in schoolyear 2015-2016 was about 14 percent larger than the corresponding levels in schoolyear 2006-2007. The biggest growth in the number of primary schools occurred in schoolyear 2012 within the private

⁶ Enrolment figures are technically incomparable starting 2012-2013, with LRNs being then and subsequently used as an extra layer of verification for school enrolment data.

sector, which has increased its share of the total number of primary schools from 14.3% in 2006-2007 to 22.1% in 2015-2016. At the secondary level, as of 2015-2016, there have been 13574 schools throughout the country. More public secondary schools have been available in the country. The largest growth in the number of public secondary schools occurred in schoolyear 2010-2011 with a growth rate 28 percent (from the preceding schoolyear), while private schools increased by about 21 percent from the previous schoolyear. The share though of the private sector in the total number of secondary schools has dropped from 45.1% in 2006-2007 to 40.5% in 2015-2016. Clearly, these statistics alone show an effort by the immediate past government especially to catch up on addressing past input deficits.

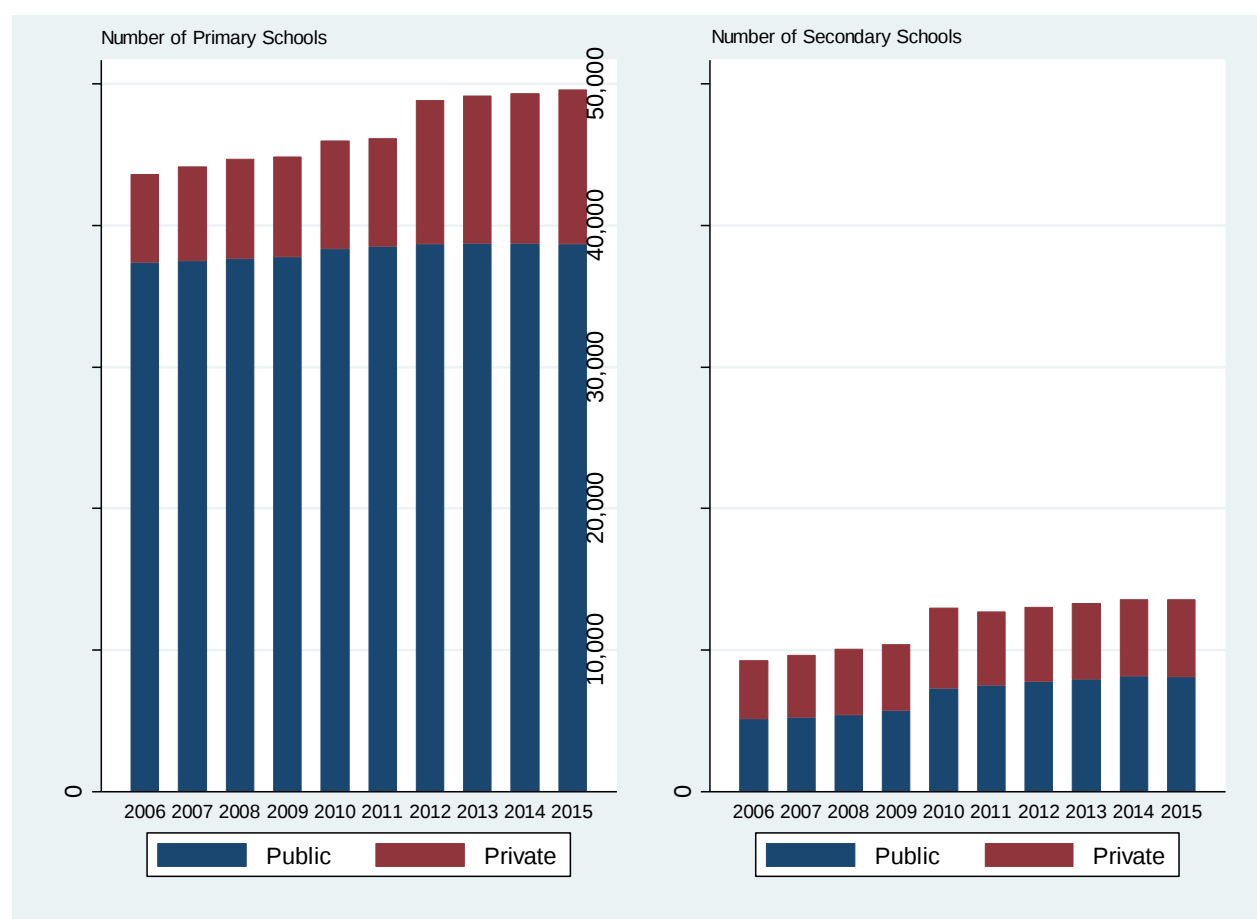


Figure 1. Number of Primary Schools and Number of Secondary Schools across Public and Private Sector, Schoolyears 2006-2007 to 2015-2016.

Source: BEIS and EBEIS, DepED

Figure 2, generated from a DepED mapping exercise of elementary and high schools⁷ throughout the country, shows that while there are many primary schools across the country, with practically one in every barangay, this is not the case for secondary schools. The immediate past government has initiated extending support for children from 4Ps beneficiary families to finish their schooling. However, there are a lot of supply side issues in secondary

⁷ As of June 13, 2014, the DepED has managed to provide the geo-locations of 6856 public high schools out of the total 7913 high schools in the country (86.6%). These however only had geo-codes without the Philippine Standard Geographic Codes (PSGC) that are necessary enable merging of such information with microdata of surveys and other databases generated by the PSA.

schools. Combining information on the availability (or lack thereof) of high schools in each barangay sourced from data gathered by the PSA for Form 5 of the 2010 Census of Population and Housing (CPH) on barangay facilities, as well as the DepED mapping exercise, which was further completed with the addition of Philippine Standard Geographic Codes (PSGC) of the barangays, as well as results of the APIS 2011, we can estimate that about 816 thousand children aged 12-18 years old belong to the bottom 40 percent of income distribution who were not in school in 2011, and who have finished grade school but not high school. As of 2011, about 63% of these children are residing in barangays without high schools.

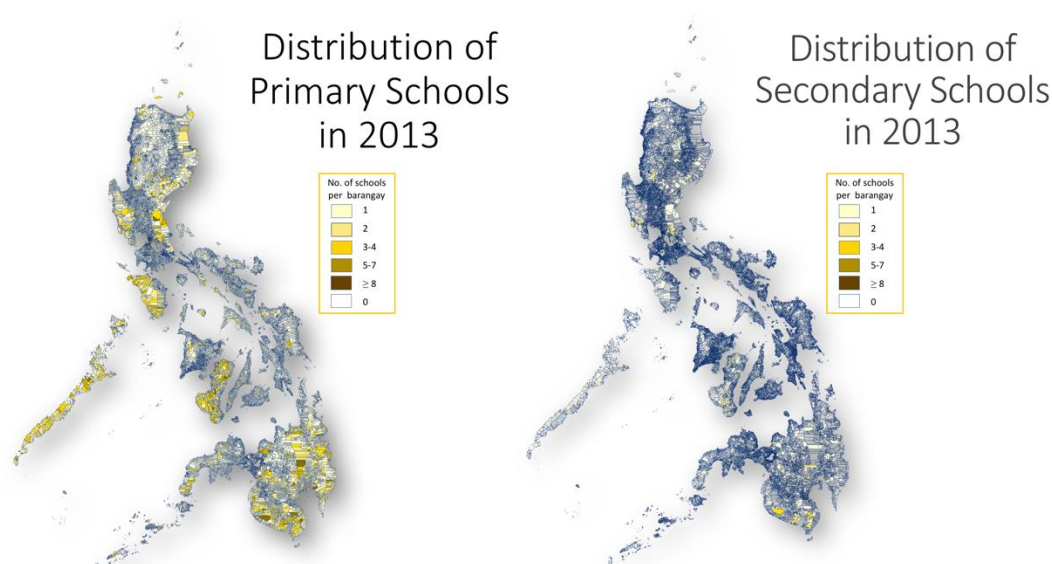


Figure 2. Geo-Location of Primary and Secondary Schools throughout the Country.
Source: DepED

The pupil-to-teacher ratio, which for the primary school level, is the ratio of the total number of students enrolled in primary school to the total number of primary school teachers, is a proxy measure of primary school quality. A similar ratio is defined for the secondary school level. The higher the pupil-to-teacher ratio, the lower the relative access of pupils to teachers and the less attention teachers can provide per student, especially for those children who need it more than others and are therefore more likely to drop out due to losing interest. While pupil-to-teacher ratios are based on school inputs and should thus not be sufficient to assess learning outcomes, various studies, however, suggest that other things being equal, education quality is strongly influenced by school resources, such as material resources, human resources (teachers and principals), as well as household characteristics (Lee and Barro, 1997; OECD, 2009). Among the indicators widely used to measure school inputs are pupil-to-teacher ratios, textbooks, teacher salaries, and public expenditure in education. In Table 2, we list pupil-to-teacher ratios as well as pupil-to-school ratios across regions in the country.

Table 2. Pupil-to-School and Pupil-to-Teacher Ratios Across Regions, Primary and Secondary Levels. Schoolyear 2015-2016.

Region	Primary level		Secondary level	
	Pupil-to-School Ratio	Pupil-to-Teacher Ratio	Pupil-to-School Ratio	Pupil-to-Teacher Ratio
Region I - Ilocos Region	296	29.4	575	23.8
Region II - Cagayan Valley	231	28.4	503	22.8

Region III - Central Luzon	509	35.1	960	25.2
Region IV-A – CALABARZON	682	37.8	1,181	26.0
Region IV-B – MIMAROPA	287	30.8	535	25.1
Region V - Bicol Region	203	30.8	342	23.3
Region VI - Western Visayas	316	31.7	667	24.7
Region VII - Central Visayas	400	31.0	599	24.8
Region VIII - Eastern Visayas	320	34.2	905	24.3
Region IX - Zamboanga Peninsula	365	27.4	816	24.1
Region X - Northern Mindanao	363	33.3	694	24.8
Region XI - Davao Region	487	36.5	937	26.4
Region XII – Soccsksargen	433	34.6	567	24.4
CARAGA – CARAGA	284	30.4	438	23.3
ARMM - Autonomous Region in Muslim Mindanao	276	41.9	452	32.5
CAR - Cordillera Administrative Region	157	24.3	320	20.7
NCR - National Capital Region	2,592	36.3	2,604	24.1

Source: DepED

At primary level, Metro Manila has the highest number of Pupil-to-School Ratio and fourth highest Pupil-to-Teacher Ratio (which is led by ARMM, CALABARZON and Davao Region). At secondary level, Metro Manila, CALABARZON, Central Luzon, Davao, Eastern Visayas have high Pupil-to-School Ratios, with ARMM, Davao and CALABARZON having highest Pupil-to-Teacher Ratio.

The immediate past government appears to have made huge investments in the education sector not only by increasing the number of schools, but also in hiring more teachers. Figure 3 shows that the number of public school teachers has also been growing especially since schoolyear 2011-2012 with average annual growth rates from 2011 to 2015 at 4.5% and 10.8%, respectively for primary school and secondary school (as compared with respective annual growth rates of 1.3% and 3.4% prior to 2011). In the past decade, the growth in the number of private school teachers (8.5%) outpaced that of the public sector (3.0%) for the primary level. The reverse resulted at the secondary level, where annual growth of number of teachers was lower for the private sector (2.6%) than for the public sector (7.5%).

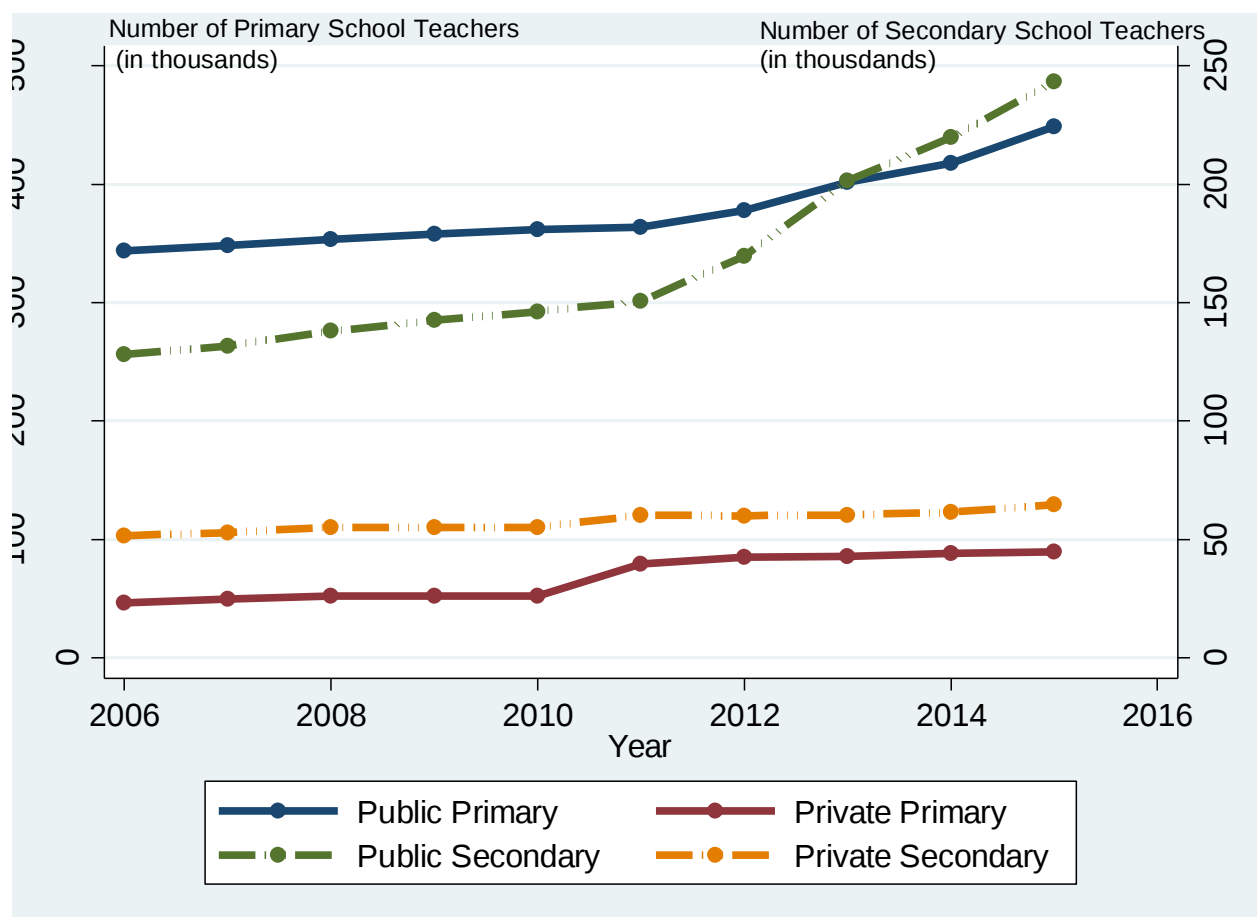


Figure 3. Number of Primary School Teachers and Number of Secondary School Teachers (in thousands) across Public and Private Sector, Schoolyears 2006-2007 to 2015-2016.

Source: BEIS and EBEIS, DepED

When trends in performance indicators such as the gross enrolment ratio, net enrolment rate, dropout rate, and cohort survival rate are examined, we see a slight improvement between 2009 and 2014 in school participation from the net enrolment rate (Figure 4). Cohort survival rate also has improved while the dropout rate also has declined, but these changes have been much more pronounced at the primary level. One should recognize that whatever changes resulting in the education sector cannot be attributed to education inputs alone, as schooling is affected by both supply side and demand side issues. The government's 4Ps was meant to incentivize poor families to send their children to school. It appears that the combined efforts to address supply and demand side issues by the immediate past government have paid off in improving school participation, particularly in the primary school level.

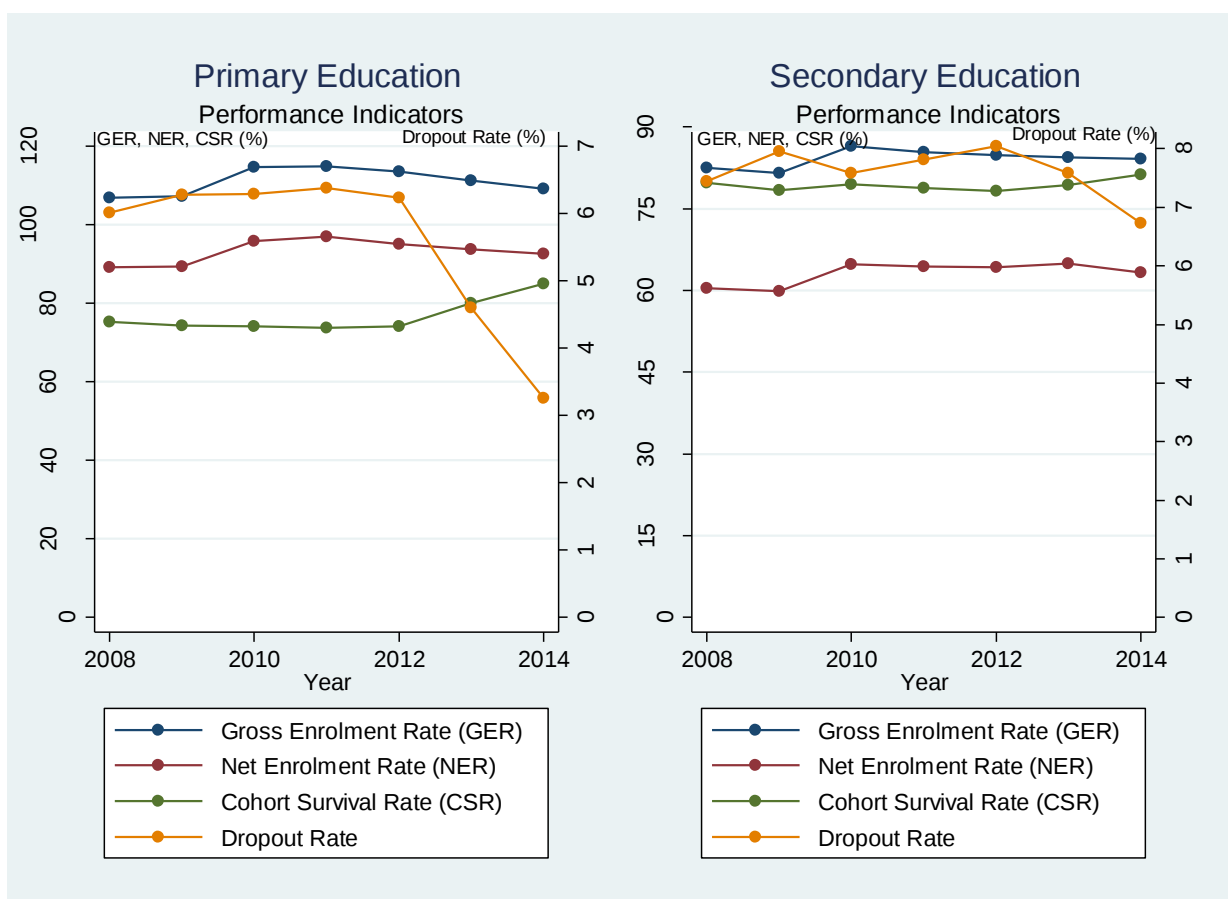


Figure 4. Selected performance indicators on primary education and secondary education: 2008-2014

Source: BEIS and EBEIS, DepED

When performance indicators of basic education are disaggregated for boys and for girls and gender parity ratios (which represent the statistics for girls in relation to that for boys) are computed, the corresponding gender parity indices (see Table 3) suggest that there are disparities in basic education in the country, and that the disparities are in favor of girls. School participation rates are generally at parity levels at the primary level (although there is a slight advantage for girls in the net enrolment rate). At the secondary level, school participation rates, whether gross or net enrolment ratios, have been consistently in favor of girls. Cohort survival rates are also higher for girls than for boys, both at the primary and secondary level. Further, a bigger proportion of boys drop out than girls, and the disparities in dropouts are larger at the secondary level. Gender disparities in basic education (in favor of girls) have been observed even prior to 2009, not only in school participation and completion, but also in learning achievement (see David *et al.*, 2009). In other developing countries within Asia and the Pacific (see e.g., Asian Development Bank, 2015), gender disparities in basic education are noticeably in favor of boys, although in a few countries, such as Bangladesh, the traditional gaps in favor of boys have been reversed to the advantage of girls.

Table 3. Gender Parity Indices for Gross Enrolment Rate, Net Enrolment Rate, Cohort Survival Rate and Dropout Rate at the Primary and Secondary Levels. Schoolyears 2009-2010 to 2014-2015.

Gender Parity Indices for	Schoolyear					
	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015

1. Gross Enrollment Rate						
Primary	0.99	1.00	0.99	0.98	0.98	0.98
Secondary	1.07	1.07	1.07	1.07	1.08	1.07
2. Net Enrollment Ratio						
Primary	1.03	1.03	1.03	1.02	1.02	1.02
Secondary	1.18	1.18	1.18	1.18	1.17	1.17
3. Cohort Survival Rate						
Primary	1.14	1.13	1.12	1.11	1.08	1.05
Secondary	1.12	1.13	1.15	1.13	1.12	1.08
4. Dropout Rate						
Primary	0.65	0.67	0.70	0.71	0.71	0.75
Secondary	0.64	0.60	0.56	0.61	0.62	0.68

Notes: DepED statistics shown here make use of 2008 and 2009 population projections from interim estimates based on 2007 Census of Population & Housing, while those for 2010 to 2014 are based on interim population projections (as of December 15, 2014) from the 2010 Census of Population & Housing.

Source: BEIS and EBEIS, DepED

David and Albert (2012) have pointed to several barriers and bottlenecks to schooling and completion based on both demand side and supply side issues. A few years later, David and Albert (2015) noted significant improvements in the basic education sector during the period of the Aquino administration from an examination of survey-based estimates of school participation. They attributed such improvements essentially to three reasons: (a) improved resources made available to DepED, (b) implementation of the K-12 Law, including the Kindergarten Law, (c) government investments on the 4Ps. Further, they also pointed to disparities in school participation and dropout rates across regions. They took notice of higher than average dropout rates in ARMM and Central Visayas among boys at the primary level and worsening gender disparities in dropout rates as children get older. Further, they pointed out that there was a higher male disadvantage in dropouts at the secondary level in the Ilocos region, Bicol region, Western Visayas, and the Cordillera Administrative Region compared to other regions.

Performance of the basic education sector is partly an issue of resources. Figure 5 illustrates that trends in the net enrolment rate at the primary level has historically been following trends in the share of public expenditures in the education sector (as a proportion of the Gross Domestic Product). Note, however, that the expenditure figures shown for the education sector contain also expenditures for higher education, aside from those in basic education.

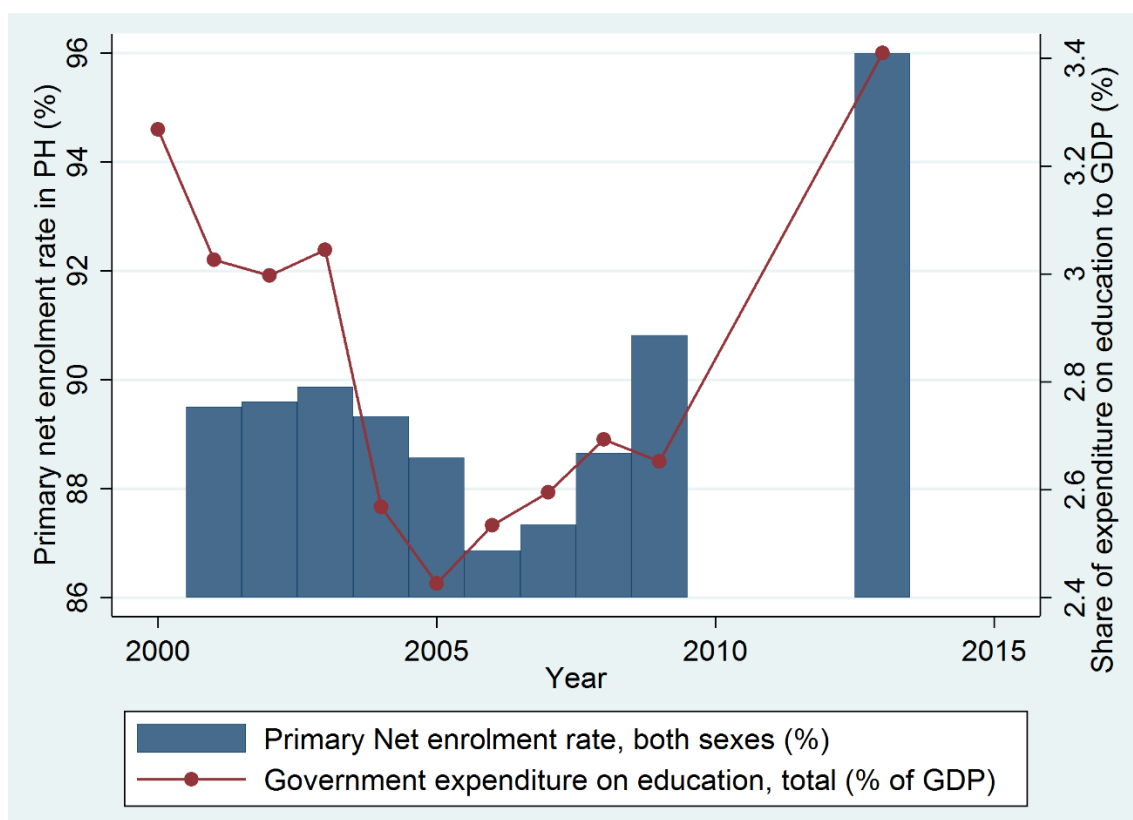


Figure 5. Net Primary Enrolment Ratio and Public Expenditure in Basic Education (as a ratio of Gross Domestic Product), Schoolyears 2000-2001 to 2014-2015.

Source: World Bank

Table 4 provides data on education expenditures of member states of the Association of South East Asian Nations (ASEAN). We readily observe that while Malaysia, Singapore, Thailand and Indonesia have been spending at between 3 to 8 percent of GDP on education, the Philippines has largely spent less than 3 percent of GDP on education.

Table 4. Share of Public expenditures in proportion to the Gross Domestic Product (%) in ASEAN member states. Schoolyears 2000-2001 to 2014-2015.

ASEAN member state	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Brunei Darussalam	3.7										2.0	3.7	3.2		3.8
Cambodia	1.7	1.7	1.7		1.7			1.6			2.6		1.6	2.0	
Indonesia		2.5	2.6	3.2	2.7	2.9		3.0	2.9	3.5	2.8	3.2	3.4	3.4	3.3
Lao PDR	1.5	2.0	2.8		2.4	2.4	3.0	3.1	2.3		2.8				4.2
Malaysia	6.0	7.5	7.7	7.5	5.9		4.5	4.4	4.0	6.0	5.0	5.8		6.1	
Myanmar															
Philippines	3.3	3.0	3.0	3.0	2.6	2.4	2.5	2.6	2.7	2.7				3.4	
Singapore	3.3	3.6	3.9	4.0	3.7	3.2	2.9	3.0	2.8	3.0	3.1	3.1	3.1	2.9	
Thailand	5.3	4.8	3.9	3.7	4.0	3.9	4.1	3.6	3.5	3.9	3.5	4.8	4.5	4.1	
Vietnam									4.9		6.3		6.3		

Source: World Bank

It may be worth pointing out that DepED did not report to international sources (such as World Bank and UNESCO) data on the net enrolment rate in 2010 to 2012, as there was a structural break in the estimated number of school-age children required for computing the net enrolment

rate. The number of school-age children is sourced from projections based on the population census. Data prior to 2010 on this statistic came from projections from the 2000 census, while data after 2010 had to await projections from the 2010 census. See DepED-PIDS-UNICEF (2012) for more details about technical issues on the estimation of the net enrolment rate.

3. Sample-Survey-Based Statistics on Basic Education

While the statistics sourced from BEIS and EBEIS describe overall conditions in the basic education sector, they need to be validated and further, they do not provide the reasons why these conditions have occurred. The data collected from school heads in the BEIS and EBEIS pertain to the schools and to the children who at one time or another entered the formal educational system. There is no information on children who never went to school, nor on the reasons why children drop out of school. To delve into reasons why children are not in school, it will be important to examine data from household surveys conducted by the Philippine Statistics Authority. One useful data source is the Annual Poverty Indicator Survey (APIS) which the PSA conducts in years when the triennial Family Income and Expenditure Survey (FIES) is not conducted. In the APIS, all members of sampled households aged three to twenty-four years old are asked whether he/she is attending school and if not, the reason for non-attendance. In addition, APIS asks various questions on demographics and living conditions, so socio-economic issues can be related to non-attendance.

While attendance rates in the APIS is not conceptually equivalent to enrolment rates, they may help provide validation of the net enrolment. In particular, it can be observed that there are discrepancies in net enrolment rates in schoolyear 2014-2015 (sourced from EBEIS and population projections from the school age population), and net attendance rates in the 2014 APIS. As was pointed out in the Philippine Out of School Children Report (DepED-PIDS-UNICEF, 2012), the discrepancies between net enrolment rates and the net attendance rates is also due to a number of measurement issues. Firstly, for both APIS and EBEIS, there are issues on the accuracy of age data reported. Household surveys such as APIS may have response biases since only one respondent provides information about the ages of all household members (and these are not validated with birth records to assist the respondent in correctly reporting these ages). For EBEIS, ages reported by school heads may not necessarily correspond to the legal age but may be based on nearest birthday of a student on a particular reference day. Secondly, APIS and the EBEIS have different reference periods for their respective data collection (viz., the time of the survey period for the APIS and cut-off dates of August 31 of the fiscal year, respectively). Thirdly, administrative reporting systems for EBEIS may suffer from nonsystematic reporting, lack of coverage and other data issues, including underreporting from private schools. Information from private schools is subject to imputations when these schools do not provide DepED (within required cut-off dates) with requisite information for generating performance indicators for the basic education sector. Also, the accuracy of the net enrolment rates crucially depends on data from EBEIS on the number of children enrolled or registered in school as of June, the start of the school year, as well as population age-group projections.

Table 5. Net Attendance Rate and Net Enrolment Rate in 2014

Region/Area	Net Attendance Rate (from APIS)		Net Enrolment Rate (from DepED)	
	Primary	Secondary	Primary	Secondary
National	95.59	72.63	92.57	63.23

I – Ilocos	97.64	81.96	96.84	75.85
II - Cagayan Valley	93.59	80.31	96.32	66.90
III - Central Luzon	95.29	76.66	95.64	72.83
IVA - CALABARZON	95.74	79.47	92.03	68.60
IVB – MIMAROPA	94.96	64.4	92.33	62.55
V – Bicol	96.02	66.19	94.02	63.14
VI - Western Visayas	97.05	66.64	95.79	60.94
VII - Central Visayas	96.63	68.55	96.75	64.55
VIII - Eastern Visaya	96.03	76.28	91.68	59.22
IX - Zamboanga Penins	94.76	61.38	92.15	49.62
X - Northern Mindanao	96.35	66.43	90.25	54.46
XI – Davao	96.81	71.17	96.09	56.97
XII - SOCCSKSARGEN	94.65	66.8	88.22	53.72
National Capital Region	93.73	80.58	89.67	72.39
Cordillera Administrative Region	94.48	73.85	94.53	68.15
Autonomous Region in Muslim Mindanao (ARMM)	92.97	59.43	75.64	29.62
XIII – Caraga	97.48	74.1	94.54	59.88

Sources: APIS 2014, PSA and EBEIS, DepED

Despite the measurement differences in the official net enrolment rate and the survey-based net attendance rate, it may be worth looking into why there are extremely huge discrepancies in data from ARMM for both the primary and secondary participation rates (of 17.3 and 29.8 percentage points, respectively). Further, more than 10 percentage point differences are observed in the two measures of secondary school participation in Eastern Visayas, Caraga, Davao, Cagayan Valley, SOCCSKSARGEN, Northern Mindanao, Zamboanga Peninsula, Calabarzon, aside from ARMM.

Further, based on the 2008 and 2014 APIS and consistent with the definition of out-of-school children (OOSC)⁸ in the Philippine Out of School Children Report (DepED-PIDS-UNICEF, 2012), we can note that:

- Among 5-year-old children (who should be in kindergarten), an estimated 776 thousand and 177 thousand were not attending school in 2008 and 2014; these statistics on five- year-old OOSC respectively represented about a third and a tenth of the total 5-year-old children in 2008 and 2014.
- About 1.27 million and 420 thousand children between the ages of 6 and 11 years old (the primary age group) did not attending (at least primary) school in 2008 and 2014, respectively. These figures represent 9.2% and 3.1% of children in the primary age group who were not in school in 2008 and 2014, respectively.
- For the secondary age group (12 to 15 years old), about 980 thousand and 606 thousand were not attending (primary or) secondary school, representing 10.5% and 6.2% of the total in 2008 and 2014, respectively.

⁸ This follows the convention of UNICEF's Global Study on Out of School Children to consider children as being in school if (1) they are of preprimary-school age and are currently attending preprimary education or higher levels of education; (2) they are of primary- or secondary-school age and they currently participate in primary or secondary education. Thus, children of primary- or secondary-school age who are in preprimary and non-formal education are viewed as being out of school, although their participation in the educational system should not be discounted.

Further, about half of the 1.1 million OOSC in 2014 belong to families in the bottom 25 percent of the per capita income distribution, which shows that economic conditions continue to be the main issue why children are not in school. We also find gender inequalities in opportunities for schooling with three-fifths of OOSC being boys. As indicated in Figure 6, the profile of OOSC is practically the same profile of OOSC in 2008, although the magnitude of OOSC aged 5 to 15 years old has dropped considerably from 2.9 million in 2008 to 1.1 million in 2014. See also, Albert *et al.* (2012); DepED-PIDS-UNICEF (2012) and David and Albert (2015) for profiles of the poor since the inception of the immediate past government, as well as the reductions in OOSC.

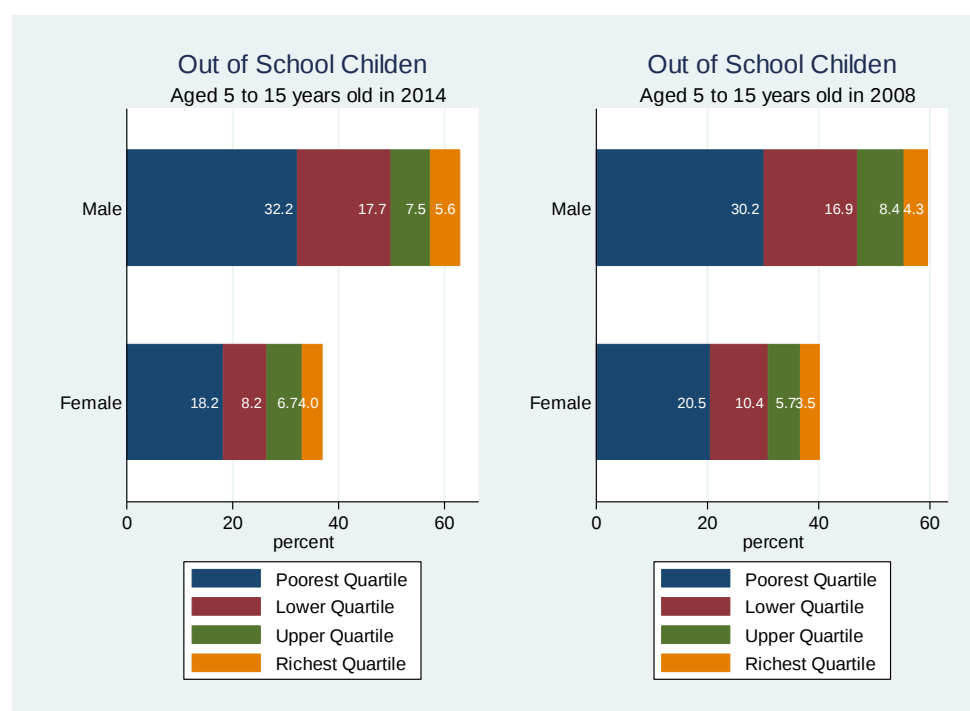


Figure 6. Out of School Children Profile in 2008 and in 2014, by Sex and by Per Capita Income Quartile.

Note: Authors' calculations on APIS 2008 and APIS 2014 conducted by PSA

Regardless of whether we consider school participation statistics from DepED or from the APIS, we would still find improvements in school participation. Despite these improvements, there still are children who are not in school, especially among secondary-age children, and as reported in David and Albert (2015), there are disparities in school participation across the regions, between urban and rural areas (in favor of urban area), between younger and older children (in favor of younger children), and between boys and girls (in favor of girls).

Table 6 summarizes the reasons why primary-aged and secondary-aged children are not in school. For the primary age group, about a third in both 2008 and 2014 cited lack of personal interest. What changed from 2008 to 2014 is that illness is now a major reason for non-attendance whereas previously, the children were perceived to be too young for schooling. Among the secondary age group, lack of personal interest is the most cited reason in both 2008 and 2014, with more than half of the boys being reported to lack interest, compared to a third of girls. Another third of secondary aged girls and a quarter of the secondary aged boys cite economic reasons.

Table 6. Reasons for not attending school by primary-aged and secondary-aged children, national level: 2008 and 2014.

Reasons for Not Attending School	Primary Aged Children						Secondary Aged Children					
	2008			2014			2008			2014		
	Boys	Girls	Both Sexes	Boys	Girls	Both Sexes	Boys	Girls	Both Sexes	Boys	Girls	Both Sexes
Lack of personal interest	35.2	27.0	31.7	38.2	30.5	36.0	54.7	33.9	47.2	51.2	29.0	44.1
High cost of education												
	11.0	12.2	11.5	15.3	11.2	14.1	21.9	30.3	24.9	25.2	38.3	29.4
Too young to go to school	24.6	35.3	29.2	9.5	14.6	11.0						
Illness/Disability	10.1	8.7	9.5	33.7	37.1	34.7	5.0	8.2	6.1	10.4	16.7	12.4
Lack of nearby schools	7.4	7.5	7.5	2.1	2.1	2.1	3.3	5.6	4.1	0.6	2.7	1.3
Employment	0.1	0.2	0.1				9.2	7.8	8.7	6.0	1.9	4.7
Other reasons (incl. school records, marriage, housekeeping)												
	11.6	9.2	10.5	1.2	4.5	2.1	5.9	14.2	8.9	6.6	11.3	8.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Note:												
Estimated Number of Out of School Children (in thousands)	720	545	1,265	251	159	411	624	356	980	361	172	533

Note: Authors' calculations on APIS 2008 and APIS 2014 conducted by PSA

In table 6, it can be observed that many APIS respondents suggest that OOSC are not in school because of “lack of personal interest.” It is worth unpacking what the lack of interest in schooling means for OOSC, both among primary-school-age (see Table 7a) and secondary-school-age children (see Table 7b). The logistic regression results explaining lack of interest in school suggest that for the primary age group, advancing age explains some of this “lack of interest” in both 2008 and 2014. Also for both 2008 and 2014, males are also more likely to lack interest, though in 2014, there is much less evidence). In 2008, mother’s educational attainment among primary-school-age OOSC also explains this lack of interest, but not in 2014. Parents’ educational attainment positively affects education outcomes, including school attendance (Maligalig *et al.* 2010), as well as math and science test scores (Quimbo 2003). While parental educational attainment may affect children’s interest in schooling, there is little done by way of intervention to help parents who have limited or no formal education. In the 4Ps, parents are made to attend family development sessions, but these sessions do not always address the lack of educational attainment of parents.

Table 7a. Log Odds of Logistic Regression Model Explaining Lack of Interest in schooling among primary-age OOSC: 2008 and 2014.

Explanatory Variables Lack of interest	2008	2014
Log per capita expenditure of household	-0.02	-0.64
Indicator for Age = 7 (base Age = 6)	1.45***	0.64
Indicator for Age = 8	1.59***	1.91*
Indicator for Age = 9	1.56***	0.99
Indicator for Age = 10	1.69***	1.99*
Indicator for Age = 11	1.60***	3.23***
Mean pupil-teacher ratio in region	0.00	0.03
Urban indicator (rural base)	-0.26	
Female child Indicator (male base)	-0.37**	-0.22
Number of children in household	0.01	0.34
Number of adults in household	0.09	0.26
Number of retired persons in household	0.00	0.00

Mother has some secondary education (base mother at most primary)	-0.57**	-0.04
Mother has beyond secondary education (base mother at most primary)	-0.91**	0.71
Indicator for male household head	-0.29	-0.26
Age of household head	0.00	0.00
Constant	-1.16	0.16

Note: Authors' calculations on APIS 2008 and APIS 2014 conducted by PSA

In 2014, for the secondary age group of OOSC, males are more likely to lack interest than females (Table 7b). Further, as expected, children residing in regions where the pupil-to-teacher ratio is high (i.e., congested, poor quality schools) are likely to lack interest. Surprisingly, children belonging to households with male household heads are also more likely to lack interest. This may be worth further re-examining.

Table 7b. Log Odds of Logistic Regression Model Explaining Lack of Interest in schooling among secondary-age OOSC: 2014.

Explanatory Variables Lack of interest	Log Odds
Log per capita expenditure of household	-0.43
Indicator for Age = 13 (base Age = 12)	-0.83
Indicator for Age = 14 (base Age = 12)	-0.83
Indicator for Age = 15 (base Age = 12)	-0.08
Female child Indicator (male base)	-0.93***
Mean pupil-to-teacher ratio in region	-0.09*
Number of children in household	-0.07
Number of adults in household	-0.04
Number of retired persons in household	-0.46
Mother has some secondary education (base mother at most primary)	0.11
Mother has beyond secondary education (base mother at most primary)	-0.61
Indicator for male household head	1.36***
Age of household head	0.00
Constant	6.30

Note: Authors' calculations on APIS 2008 and APIS 2014 conducted by PSA

Education attainment may be viewed as a welfare indicator. Consequently, we can also generate a poverty measure from data on years of schooling, as is done for monetary welfare indicators based on income and consumption/expenditure. Although there are no international benchmarks regarding a minimum level of years of schooling required for everyone, those in the labor force with less than four years of schooling are not likely to have basic literacy and numerical skills required for stable occupations. In addition, if they have less than two years of education, then they are at an even worse disadvantage in having opportunities for advancement in careers. Thus, UNESCO (2010) proposed measuring education poverty and extreme education poverty on data pertaining to years of schooling, using thresholds of four years of schooling, and two years of schooling, respectively. This was implemented also in a case study among 11 selected Asian economies (ADB, 2014) for the youth (aged 15 to 24) population using data from Demographic and Health Surveys. The estimates in Table 8 disaggregated by sex, rural-urban and wealth quintiles are updates of the work by ADB (2014) based on the 2013 National Demographic and Health Survey (NDHS). These disaggregations provide insights into the distribution of education poverty and education extreme poverty within different groups of populations. Education poverty and education extreme clearly depends on wealth and residence. Being born in a poor family or in a rural setting can provide

constraints on one's access to educational opportunities. Data in the Philippines show that rich-poor, female-male and rural-urban divides are bottlenecks to achieving equity in years of schooling of the youth. Both education poverty rates and extreme education poverty rates among the poor between three to four times the national average in the period from 1998 to 2013.

Table 8. Education Poverty Rate and Education Extreme Poverty Rate among the Youth (aged 15-24) Population

	Education Poverty Rate			Education Extreme Poverty Rate		
	1993	2008	2013	1993	2008	2013
Total	5.3	4.9	4.4	1.9	1.9	1.6
Female	3.9	3.3	2.7	1.7	1.6	1.2
Male	6.7	6.5	6.1	2.1	2.2	2
Rural	8.5	7.9	6.2	3	3.2	2.2
Urban	2.7	2.3	2.7	1	0.7	1.1
Lowest	19	18.8	14.1	7.2	7.2	4.9
Second	6	4.9	5.1	1.7	1.8	1.6
Middle	2.9	2.2	2.3	1	0.9	1
Fourth	1.4	1.3	1.4	0.4	0.6	0.7
Highest	1.2	0.7	0.6	0.6	0.3	0.4

Note: Authors' calculations on DHS 1993, 2008 and 2013 conducted by PSA

It is worth noting that consistent with school participation indicators, the trends in education poverty rates and education extreme poverty rates among the youth (aged 15-24) are decreasing, and once again illustrate that investments made by the previous government in the social sector, particularly in basic education (and the 4Ps) have started to pay off.

4. Policy Issues

Investments by the immediate past government to provide more resources to DepED to address input gaps (teachers, classrooms, textbooks, schools, etc.), coupled with the investments in the 4Ps (implemented by the Department of Social Welfare and Development with DepED and the Department of Health) and the implementation of universal kindergarten have clearly paid off in increasing school participation. These improvements in school participation can be observed whether we consider statistics from DepED's BEIS and EBEIS, or from household surveys conducted by the PSA such as the APIS. Further, there is evidence that not only more children are going to school, but more children are staying in school (as dropout rates have declined).

Despite the gains in output measures of the basic education system, there is clearly still more to be done. The education statistics presented here both from DepED's administrative reporting system and household surveys of the PSA show that some children are still being left behind. That half of OOSC aged 5 to 15 are from poor families suggest that the problem is still largely economic, and will require support to the 4Ps, but in a way that improves also disparities in education opportunity between boys and girls, and between children from urban and rural areas. While government has in the past three years extended support to 4Ps beneficiary children of secondary school age to complete their schooling, providing a uniform cash grant of 500 per high school child will need reexamination as the opportunity costs for schooling are apparently

different for boys and girls, and between rural and urban folk. The DepED will need to advocate with DSWD and the Department of Budget and Management to recognize that the cash support of 300 pesos for pre-primary and primary-age beneficiaries in the 4Ps has remain unchanged since its inception in 2008. Inflation has not been considered here. The cash support of 500 pesos for high school beneficiaries, while higher than what is given for pre-primary and primary age beneficiaries, appears not be enough to compensate for opportunity costs in schooling among secondary age children, especially among secondary-aged boys. Current management at DSWD and DepED will need to recognize that the CCT was never meant as a poverty reduction scheme, but as a social protection scheme to improve resilience of poor families and incentivize them to send their children to school. This was never meant to instill a culture of dependence on the cash support, and even the current cash support is hardly going to make them dependent given that it is so meager, and getting less impactful for the welfare of beneficiary families.

That a third of primary school age OOSC are not in school due to illness in 2014 is a cause for concern, as there may be need for more aggressive interventions to improve the health and nutrition of children even before they go to school. Government has traditionally used school feeding programs (Albert, *et al* 2016) to improve nutritional status of children, but these do not reach the children who are not in school. Much of the literature has suggested the importance of the first 100 days of children.

That half of secondary aged male OOSC lack interest in schooling compared to a third among female counterparts suggest gender issues in basic education. While there has been suspicion that this lack of interest is lack of parental interest to send their children to school, evidence actually suggests otherwise (DepED-UNICEF-PIDS, 2012). Parents undervaluing education is more of an exception as parents appear to prefer having their children finish at least second year high school when they expect returns on investments to the schooling of their children. That half of boys find a lack of interest in schooling is worth probing, and that more boys than girls among OOSC have lack of interest points to a deep problem not only about the learning process, but also divides among boys and girls. As was pointed out in previous studies, outcome measures, even in learning achievement, suggest not only a male disadvantage, but also that increasing gender disparities as students grow older. Although the DepED has developed gender exemplars, the extent of their use needs to be examined. Further, it will also be important to consider having some affirmative action in hiring males into the teaching bureaucracy given the large share (about 90 percent) of females among public school teachers. While there are existing scholarship programs for high school students interested in entering the teaching profession provided by the Commission on Higher Education, these programs have not been used to try to bring in more male teachers into public schools, as in the case of Australia. This intervention on affirmative action can be done, say for three to five years, subject to re-examination after the end of the intervention.

One powerful tool to arouse and sustain interest in schooling is information and communications technology (ICT). The extent of making use of ICT inside the classroom and outside will need review and beefing up. That a 12-year-old Isabel Sieh learned HTML and JavaScript when she was 10, and even founded a community of learners who code (called GIRLS WILL CODE) is an illustration of the power of ICT (see Rey, 2016). Teachers in basic education will however require ICT skills and competencies to help students discover the fun in learning with ICT. Undoubtedly, the basic education sector has benefited from better resources in the immediate past, and the K-12 curriculum is being used as a vehicle for making

requisite changes in schools. However, the efforts to improve curriculum should be systematic and recognize the needs to capacitate teachers to teach well.

The current leadership at DepED has recognize the importance of strengthening the alternative learning system (ALS), which is certainly a mechanism of providing help to our youth who will find it challenging to either go or return to formal schooling. It will be also important for DepED to address gender disparities in school participation, dropping out and in learning achievement. Curriculum enhancement is critical but whether flexible, learner-centered approaches take root depend crucially on how well teachers are trained. Teachers will need not only initial training on the new K-12 curriculum, but continuous training to ensure that there would be no gap between what should be taught and what is actually taught in the classroom, particularly engaging boys who seem to be left behind. By design, the curriculum should recognize individual differences and interests, especially between boys and girls. Currently, there may be no specific instructional assistance developed or promoted to try to improve boys' achievements. The current DepED leadership will need to recognize gender inequalities in basis education, and to design interventions specifically for addressing the problem, otherwise, the gender gap will remain.

Finally, the DepED has been in the process of developing their various data systems (e.g. EBEIS, Learners Information System). It will be important that DepED improves its capacity to make use of all the wealth of data not only from its administrative reporting systems, but also from surveys of the PSA. DepED will need to boost its in-house research capability, partly by partnering strategically with academic and research institutions to examine the rich data it collects (and triangulate these with data from surveys of the PSA) to prevent the DepED from becoming data rich but information poor.

References

- ADB (Asian Development Bank). 2014. Key indicators for Asia and the Pacific 2014: Framework of inclusive growth indicators, special supplement. [online]
<https://www.adb.org/sites/default/files/publication/42813/ki2014-special-supplement.pdf>
[Accessed August 2016].
- Albert, J. R. G., Quimba, F. M. A., Ramos, A. P. E., and Almeda, J. P. 2012. Profile of Out-of-School Children in the Philippines. PIDS Discussion Paper Series No. 2012-01. Makati City, Philippines: Philippine Institute for Development Studies. [online]
<http://dirp3.pids.gov.ph/ris/dps/pidsdps1201.pdf> [Accessed June 2016].
- Albert, J.R., A.M. Tabunda, and I. AngelesAgdeppa. 2016. What is the impact of DepED's School-Based Feeding Program? PIDS Policy Notes No. 2016-10. Makati City, Philippines: Philippine Institute for Development Studies. [online]
<http://dirp4.pids.gov.ph/websitcms/CDN/PUBLICATIONS/pidspn1610.pdf> [Accessed June 2016].
- David, C. and J.R. Albert. 2015. Recent trends in out-of-school children in the Philippines. PIDS Discussion Paper No. 2012-51. Makati City, Philippines: Philippine Institute for Development Studies. [online]
http://dirp3.pids.gov.ph/websitcms/CDN/PUBLICATIONS/pidsdps1551_rev2.pdf
[Accessed June 2016].

David, C. and Albert, J. R. G. (2012). Primary Education: Barriers to Entry and Bottlenecks to Completion. PIDS Discussion Paper Series No. 2012-07. Makati City, Philippines: Philippine Institute for Development Studies. [online] <http://dirp3.pids.gov.ph/ris/dps/pidsdps1207.pdf> [Accessed June 2016].

David, C., J.R. Albert, and S. Carreon-Monterola. 2009. In pursuit of sex parity: Are girls becoming more educated than boys? PIDS Policy Notes No. 2009-05. Makati City, Philippines: Philippine Institute for Development Studies. [online] <http://dirp3.pids.gov.ph/ris/pn/pidspn0905.pdf> [Accessed July 2016].

DepED (Department of Education). n.d. Basic Education Information System and Enhanced Basic Education Information System. Pasig City, Philippines: DepED.

DepED (Department of Education), PIDS (Philippine Institute for Development Studies), and UNICEF (United Nations Children's Fund). 2012. Philippine country study on out-of-school children. Pasig City, Philippines: DepED *et al.* [online] http://dirp4.pids.gov.ph/webportal/CDN/EVENTS/OOSC/Country_Report.pdf [Accessed June 2016].

Lee, J.-W. and R. J. Barro, 1997. "Schooling Quality in a Cross-Section of Countries," NBER Working Paper No.w6198, September 1997. [online] <http://www.nber.org/papers/w6198.pdf> [Accessed August 2016].

Maligalig, D. & Cuevas, S. (2010). Is the Net Enrollment Rate Estimate of the Philippines Accurate? ADB Briefs July 2010-02. Asian Development Bank. [online] <https://www.adb.org/sites/default/files/publication/28491/adb-briefs-2010-2-net-enrolment-rate-phi.pdf> [Accessed July 2016].

NEDA (National Economic and Development Authority). 2011. Philippine Development Plan 2011-2016 Results Matrices [online] www.neda.gov.ph/wp-content/uploads/2013/10/pdprm2011-2016.pdf [Accessed June 2016].

OECD (Organization for Economic Cooperation and Development). 2009. Creating Effective Teaching and Learning Environments: First Results from TALIS, Paris, France. [online] <https://www.oecd.org/edu/school/43023606.pdf> [Accessed August 2016].

Philippine Statistics Authority (PSA). Various years. Annual Poverty Indicators Survey. Quezon City, Philippines: PSA.

———. Various years. Family Income and Expenditure Survey. Quezon City, Philippines: PSA.

Quimbo, S. L. A. (2003). Explaining Math and Science Achievement of Public School Children in the Philippines. *The Philippine Review of Economics*, 40(2), 59-72). [online] <http://pre.econ.upd.edu.ph/index.php/pre/article/view/21/566> [Accessed July 2016]

Rey, A. 2016. Twelve-year-old girl teaches kids how to code. *Rappler*. June 22. [online] <http://www.rappler.com/move-ph/122461-girl-teach-code> [Accessed September 2016].