5-29-2020

The Impact of Basic Education Reform on the Educational Participation of 16 to 17-year-old Youth in the Philippines

Geoffrey Ducanes
Ateneo de Manila University

Dina Joan S. Ocampo

Recommended Citation

G. Ducanes and D.J. Ocampo (University of the Philippines), (2020), The Impact of Basic Education Reform on the Educational Participation of 16 to 17-year-old Youth in the Philippines. The Philippine Statistician, 68, 111-130.

The Impact of Basic Education Reform on the Educational Participation of 16 to 17-year-old Youth in the Philippines

Geoffrey M. Ducanes
Department of Economics
Ateneo de Manila University

Dina Joan S. Ocampo
College of Education, University of the Philippines Diliman
UP Center for Integrative and Development Studies

The study measures the impact on the school participation of 16 to 17-year-old learners in the Philippines of the implementation of the Senior High School program (SHS), which came into full effect in school year 2017–2018. The SHS program, which extended secondary education in the country from four to six years, was the most ambitious education reform action in the country in recent memory. The study found that the SHS program resulted in an increase in overall school participation rate of at least 13 percentage points among 16 to 17-year-olds. Perhaps more importantly, the increase in school participation rate was found to be highly progressive with those 16 to 17-year-olds in the two bottom income quintiles experiencing the highest increase in school participation rates by a wide margin. The study also found that both male and female students benefited from the program, although the gains appear to be higher for female students. Most of the gains in school participation were also found to occur outside Metro Manila.

Keywords: impact evaluation, logit regression, education reform, senior high school, gender in education

1. Introduction

Kilpartrick et al. (2002) have argued that sustained and long-term educational participation of the youth boosts the collection of competencies and talents present in an economy. Additionally, it has been found to be a stable predictor of well-being among individuals and of states or countries. Education participation among the

youth is, therefore, key to improving the futures of young people. Helping them to recognize that their futures are contingent on their completion of education and training is an objective that most governments have set as a goal in support of youth development and support (United Nations Department of Economic and Social Affairs, 2005). In fact, some countries have programs to encourage school participation among 16 and 17-year-olds, which offer allowances for those who attend education and training (McClelland, MacDonald, and Macdonald, 1998).

Increasing youth attendance in school has been a priority area in all global efforts such as the United Nations Millennium Development Goals (MDGs) and the succeeding Sustainable Development Goals (SDGs). In fact, two of the goals articulated in the SDGs directly impact youth education (United Nations, n.d). SDG Goal 4.4 states countries should "substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs, and entrepreneurship." This directly relates to SDG Goal 8.6, which states that by 2020, countries should "substantially reduce the proportion of youth not in employment, education, or training."

Education participation is the key indicator, which can provide insight on how the youth respond to education reforms. Jha and Pouezevara (2016) use this term to mean the enrollment of learners and their completion of key milestones. More specifically, the Philippine Department of Education (DepEd) (2018) defines four education participation indicators, namely, (a) Gross Enrollment Rate (GER), which is total enrollment in a given level of education, regardless of age; (b) Net Enrollment Rate (NER), which is the enrollment in the school-age range in relation to the total population of the same age; (c) Cohort Survival Rate (CSR), which is the percentage of enrollees at the beginning grade in a given school year who reach the final grade of the elementary or secondary level; and (d) Completion Rate (CR), which is the percentage of first year entrants in a level of education who complete the level in accordance with the required number of years of study.

Educational participation and retention of youth in school has always been a challenge for the Philippines. Historical data on enrolment show that cohorts of learners decrease in number as they move to higher grade levels. In fact, for many years, it was observed that at least 15% of Grade 1 enrollees no longer proceed to Grade 2 (Bautista et al, 2009). This pattern is also illustrated by Table 1, which shows the share of the population from 18 to 20 years old in 1999 who completed at least each indicated grade level. They would have been in Grade 1 around 1986 to 1988. The table shows that, of the total cohort, 83% went on to high school and 63% completed high school, but that the pattern differed widely by household income group, with only 60% of those from the poorest income quintile going on to high school and less than one-third completed high school, as opposed to 97% and 89%, respectively, for those from the richest income quintile.[1] Computations

are based on source data from the Annual Poverty Indicators Survey (APIS) of the Philippine Statistics Authority (PSA).

Table 1. Grade Level Completed by 18 to 20-Year-old Youth in 1999 (Grade 1 =100%)

At least	Household per capita income quintile*					All quintiles
	1	2	3	4	5	
Grade 1	100%	100%	100%	100%	100%	100%
Grade 2	98%	99%	100%	100%	100%	99%
Grade 3	95%	98%	99%	100%	100%	98%
Grade 4	90%	95%	98%	99%	99%	97%
Grade 5	84%	92%	97%	99%	99%	95%
Grade 6	77%	88%	95%	98%	99%	92%
1st Year HS	60%	76%	86%	92%	97%	83%
2nd Year HS	53%	71%	82%	89%	96%	79%
3rd Year HS	43%	62%	74%	84%	94%	73%
4th Year HS	32%	51%	64%	77%	89%	64%

Source: Computations based on PSA APIS 1999

The above data show that the ratio of students who are enrolled in high school to the total population of high school age youth ranges from 55 to 70% (DepEd Office of Planning Service–Education Management Information System Division, n.d.). This indicates that as much as 36% of Filipino youth do not attend secondary schools despite basic education being free and compulsory (ADB, 2011).

According to the Philippine Statistics Authority (2014), the reasons for nonparticipation in schools are employment, high cost of education, lack of personal interest, family matters, and early marriage. Based on PSA APIS 2014, approximately 533,000 high school-age youth, comprised of 68% males and 32% females, were not enrolled in 2014. Among regions, Central Luzon had the highest number of non-enrollees, followed by CALABARZON, National Capital Region (NCR), and Bicol. In all regions, there is a marked disparity in the number of non-enrollees by sex (more males than females), although it is notably lowest in NCR. By per capita income quintile, as expected, the bulk of non-enrollees come from the lowest income quintiles, with more than half coming from the bottom quintile. Also worth noting is that the disparity in gender narrows with higher income, indicating that nonparticipation is very strongly determined by economic reasons for both males and females. This is consistent with the assertion of Fontanos and Ocampo (2019) that disparities in basic education indicators need to be understood using an equity lens rather than a gender lens.

Table 2. Non-enrollees among High School Students Ages 12 to 15 by Region, Income Quintile, and Sex in 2014 (in thousands)

By region and sex	Male	Female	Total
National Capital Region	25.44	23.75	49.18
Cordillera Autonomous Region	8.98	3.20	12.18
I - Ilocos	18.02	6.29	24.30
II - Cagayan Valley	12.75	1.51	14.26
III - Central Luzon	46.57	21.04	67.60
IVA - CALABARZON	37.46	24.02	61.48
IVB - MIMAROPA	12.42	6.49	18.91
V - Bicol	30.33	16.85	47.18
VI - Western Visayas	22.27	12.60	34.87
VII - Central Visayas	24.14	15.65	39.78
VIII - Eastern Visayas	21.68	2.18	23.87
IX - Zamboanga Peninsula	17.40	4.65	22.05
X - Northern Mindanao	12.86	7.26	20.12
XI - Davao	10.10	3.28	13.38
XII - SOCCSKSARGEN	23.95	8.39	32.34
XIII - Caraga	12.00	4.05	16.05
Autonomous Region in Muslim Mindanao	24.99	10.74	35.73
By per capita income quintile and sex	**Male**	**Female**	**Total**
1st	195.18	83.58	278.77
2nd	90.75	31.68	122.43
3rd	48.70	32.51	81.20
4th	13.28	8.73	22.01
5th	13.44	15.44	28.88
Philippines	361.3	171.9	533.3

Source: Computations based on PSA APIS 2014

Nonparticipation in secondary education has an impact on the preparation of young people to imagine and plan for their future. In fact, the Organisation for Economic Cooperation and Development [(OECD), 1998] encourages governments to create policies that can potentially have a strong impact on the preparation of the youth for employment and meaningful participation in the economy. By developing their abilities to participate in social and economic life, the youth are more likely to become independent citizens who contribute meaningfully to society (UNESCO and the Focal Point on Youth UNDESA, 2013).

Various sectors in the Philippines also raised the pressing need for more relevant preparation of the youth for work, further education, and entrepreneurship (Department of Labor and Employment, 2013). In response, one of the strategies employed by the Philippines to amend the dismal educational participation rate in secondary school was to revisit the curricular offerings to make the programs offered more respondent to the needs of young people. This meant developing national curriculum policy that would adequately support youth futures, which at the same time would address the pressing need of youth experiencing poverty for economically viable skills and competencies. The system-wide reforms in basic education are now institutionalized in Republic Act 10533 known as the Enhanced Basic Education Act of 2013. In 2010, the Philippines embarked on a massive reform effort aimed to improve the curriculum and delivery of basic education to provide more relevant educational opportunities for Filipino youth that were responsive to their needs as well as consistent with national development goals (DepEd, 2019).

1.1. Overview of the K to 12 curriculum

The K to 12 Basic Education Program reformed the educational system of the Philippines from a 10-year program to a 13-year program with the addition of Kindergarten and Senior High School. The K to 12 curriculum ensures that "every graduate of basic education shall be an empowered individual who has learned, through a program that is rooted in sound educational principles and geared towards excellence, the foundations of learning throughout life; the competence to engage in work and be productive; the ability to coexist in fruitful harmony with local and global communities; the capability to engage in autonomous, creative, and critical thinking; and the capacity and willingness to transform others and one's self" (Enhanced Basic Education Act 2013).

Perhaps the most ambitious reform action was the institution of Senior High School. This necessitated the development of a new curriculum, which would extend secondary education from four to six years. The nature and aspirations of learners, preferences of parents and family members, and youth development programs that are relevant to their immediate socio-economic communities influenced the content of SHS programs. As a result, four main tracks were developed, namely the Academic Track, Technical Vocational Track, Sports Track, and Arts and Design Track (DepEd, 2014). Each of these tracks have specializations, which learners could consider and choose based on their aptitudes, interests, and personal goals.

To prepare students to choose from among these Tracks and Strands for Senior High School, junior high school programs were scaled up. More schools instituted and offered special programs in Science, Sports, Arts, Foreign Languages, Journalism, and Technical -Vocational Livelihood Education. These

provided learners opportunities explore their aptitudes, interests, and abilities as well as gain more insight about potential career choices.

A key feature of the SHS program is work immersion. This was integrated into the curriculum as one of the subjects. All SHS students have the opportunity to experience a work place where they can apply and improve the skills learned in class (DepEd, 2019).

1.2. Advocating for senior high School

Recognizing that adding two years to secondary education is a major change in the educational system that could burden families with additional expenses, it was incumbent upon the Department of Education to explain the value of the K to 12 program for the future of children and the country as a whole. The DepEd invested heavily in involving as many stakeholders as possible. Speakers' Bureaus were organized all over the country by training regional information officers on the educational reform, expected outcomes for the learners, and financial subsidies, which would be available to SHS students. Communications programs intended for various audiences were developed to respond to questions, critiques, and accompanying anxieties resulting from such a massive reform in the educational system. This was an especially important investment because the objective of getting more learners to attend and stay in school would be a formidable challenge when two years of secondary education are added to basic education (Mateo, 2016). Deep engagement with learners, families, industries, and post-secondary and higher education resulted in significant feedback, which informed program offerings and learning delivery systems for Grades 11 and 12. Through the concerted efforts of teachers, staff, and education officers of the Department of Education, public information campaigns were launched to increase awareness and understanding of the coming reforms in basic education and their impacts on children's prospects for the future. Typical strategies of mass information, such as information and education caravans, were conducted nationwide. In some school divisions in Mindanao, where roads are narrow and hard to reach by motorcades, motorcycles or pedicabs were used instead of large vehicles so parents and families in the interiors of dense urban poor communities could be reached and engaged. In other places, where rivers or mountains separated learners from the locations of senior high schools, student dormitories or homestay arrangements were made to enable learners to stay in closer proximity to schools during weekdays (Ocampo, D., Uy, E., et al., Unpublished report, 2016).

The K to 12 secondary curriculum was implemented in 2012 starting at Grade 7. The first cohort of Grade 11 students under the K-12 program came aboard in school year 2016-2017, whereas the first Grade 12 students came aboard in school year 2017-2018. The advocacy programs and activites were intended to generate higher enrollement in SHS in comparison to the higher education enrollment

prior to the K to 12 Basic Education reforms. The following section describes education participation of the youth before 2016, the year when the first SHS cohort completed Grade 12.

1.3. Enrollment in higher education prior to SHS implementation

In 2014, prior to the SHS implementation, only 36% of 16 to 17-year-olds in the country were enrolled in higher education, and this varied widely across regions from as high as 47% in NCR and Cagayan Valley, to only 14% in Bicol. Regarding share of total enrollees in college, NCR had the highest at 16%, followed by CALABARZON at 15%, and Central Luzon at 13%.

Table 3. Education status of 16 to 17-years-old in 2014 by region

Region	Enrolled in college	Enrolled in vocational	Enrolled in HS	Not enrolled, did not finish HS	Not enrolled, finished HS	Total	% enrolled in college in region	% share in total enrolled in college in country
NCR	222.18	2.19	135.85	56.07	53.07	469.36	47%	16%
CAR	25.53	1.94	31.51	8.98	5.43	73.38	35%	2%
I - Ilocos	71.83	5.26	44.81	38.74	53.63	214.28	34%	5%
II - Cagayan Valley	62.78	0.00	29.49	24.54	16.47	133.28	47%	5%
III - Central Luzon	185.66	29.72	91.20	90.95	60.98	458.50	40%	13%
IVA - CALABARZON	208.46	16.18	142.07	97.52	83.65	547.88	38%	15%
IVB - MIMAROPA	34.60	5.02	51.42	26.38	11.63	129.05	27%	2%
V - Bicol	38.81	6.15	125.37	75.32	27.51	273.16	14%	3%
VI - Western Visayas	101.81	8.26	146.03	41.90	27.86	325.84	31%	7%
VII - Central Visayas	81.05	2.31	94.28	44.16	40.27	262.06	31%	6%
VIII - Eastern Visayas	44.73	2.63	68.23	55.06	18.90	189.54	24%	3%
IX - Zamboanga Peninsula	57.89	0.00	70.22	35.46	8.57	172.13	34%	4%
X - Northern Mindanao	64.47	0.00	59.25	47.68	21.27	192.67	33%	5%
XI - Davao	58.30	1.32	67.77	49.15	34.72	211.26	28%	4%
XII - SOCCSKSARGEN	57.56	6.86	74.26	36.26	35.00	209.93	27%	4%
XIII - Caraga	24.84	0.00	40.10	20.92	15.70	101.56	24%	2%
ARMM	43.58	0.00	81.89	41.95	7.53	174.94	25%	3%
Philippines	1,384.06	87.83	1,353.73	791.03	522.19	4,138.84	33%	100%

Source: Computations based on PSA APIS 2014

Enrollment in higher education is much less than the number of secondary school graduates.

Additionally, the table above shows that as far back as 2005, the greatest number of enrollees for higher education can be found in Metro Manila (Commission on Higher Education, n.d.). This is because majority of degree-granting institutions are located in the National Capital Region (Metro Manila).

2. Research Aims

Given the context of education reform and the pressing problem of low educational participation in secondary education, this paper examines the impact of the new Senior High School program on 16 to 17-year-old learners' educational participation. Specifically, this paper answers the following questions:

1. Did the SHS program offerings impact the school participation of 16 to 17-year-old learners?
2. Who benefited most from the education reforms?
3. How has the SHS program offering changed school participation rate, controlling for individual and household factors?

3. Methods

The data set used in this study is the Philippine Statistics Authority Annual Poverty Indicators Survey for the years 2013, 2014, 2016, and 2017. The APIS is a nationally- and regionally-representative survey that collects data on the socioeconomic profile and other information relating to the living conditions of Filipino families (PSA, 2018b). The APIS is conducted twice every three years – or in the years in between the conduct of the PSA's Family Income and Expenditure Surveys (FIES) – and is intended to provide estimates of income and non-income poverty.[2]

The APIS years were chosen to correspond to the period before and after there was Senior High School (Grades 11 and 12) Enrollment. In the four APIS years used in this study, the survey was conducted in July and thus captures enrollment in the school year typically starting June of the APIS year up to March of the following year. The APIS had the following sample sizes: in 2013, 10,684 households with 48,917 individuals or household members; in 2014, 10,469 households with 46,988 members; in 2016, 10,332 households with 44,472 members; and in 2017, 10,159 households with 43,784 members.

For this study, the analyses focused on the subset of the population who were in the 16 to 17-year-age group, and in some instances, for comparison, also those in the nearby age groups, in particular those 12 to 13, and 14 to 15 years old. Prior to 2016, those in this age group would have been in the first and second years of post-secondary education. They could have been enrolled either in college or

university or in technical-vocational training. Commencing in 2016, learners in this age group were most likely to be in SHS.

Table 4 shows the number of sample observations for each of the age groups in the various APIS used in this study. The number of 16 to 17-year-olds in the sample was around 2,000 in all the years, with roughly equal representation from males and females. The sample size in the other age groups was also around 2,000 for most years.

Table 4. Number of Observations in the APIS Sample by Age Group

Age group	2013	2014	2016	2017
16-17 yrs old				
Total	2,139	2,114	1,876	1,910
Male	1,121	1,117	943	995
Female	1,018	997	933	915
12-13 yrs old				
Total	2,586	2,349	2,096	2,074
Male	1,308	1,178	1,070	1,062
Female	1,278	1,171	1,026	1,012
14-15 yrs old				
Total	2,345	2,272	1,912	1,897
Male	1,197	1,143	1,002	953
Female	1,148	1,129	910	944

Source of basic data: PSA APIS 2013, 2014, 2016, and 2017

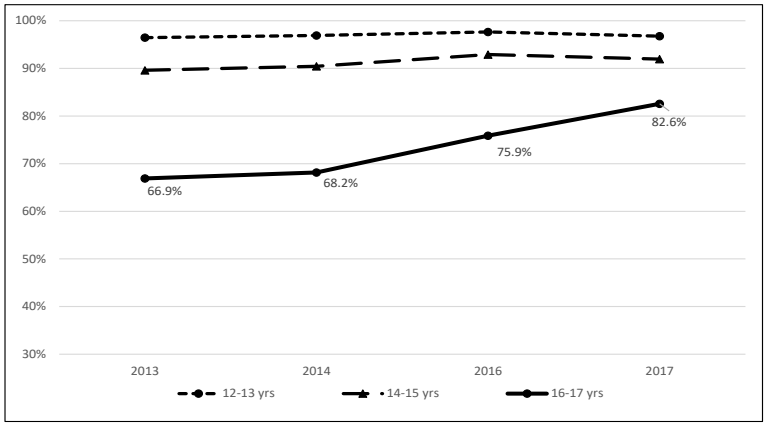
From the school-age population, defined as those 3 to 24 years of age, the APIS obtains information on those attending formal school, grade or year level, and choice of public or private school. If respondents are not attending school, the APIS asks for the reasons behind this decision. The APIS also obtains information on the highest grade completed by the population 5 years old and over.

The approach taken is mainly quantitative. A difference-in-differences analysis was done by cross-tabulating enrollment rate by age-group over time (pre- and post-SHS implementation), and comparing the change in enrollment rate of those 16 to 17 years old with the change in the enrollment rate of those in the other age groups. Cross-tabulations were used to identify any patterns in the changes, especially whether they have favored any sub-groups (by region, sex, and income class). Finally, logit regression was used to estimate the impact of the SHS program on the probability of enrollment of a 16 to 17-year -old.

4. Findings

4.1. Overall impact of education reform on educational participation

From being virtually unchanged from 2013 to 2014 at about 68%, the enrollment rate of 16 to 17- year-olds shot up to 76% in 2016, when the first batch of Grade 11 students came in, and rose further to 83% in 2017 (Figure 1). There was thus close to a 15 percentage point (ppt) increase in the enrollment rate of 16 to 17-year-olds from the pre-SHS period to just its second year of implementation, and in fact its first year of full implementation when there were both Grade 11 and Grade 12 students.



Source of basic data: PSA APIS 2013, 2014, 2016, and 2017

Figure 1. Enrollment rate of 16-17 year olds

It is important to note that pre-SHS, or from 2013 to 2014, though there was a slight increase in enrollment rate for the 16 to 17-year-olds, the rate was relatively stable and not markedly different from the pattern of change for students from 12 to 13 and 14 to 15 years old. There was, however, a big change in the enrollment rate for learners from 16 to 17 years old from 2014 to 2016, and then again from 2016 to 2017, which was not present for the other age groups. Table 5 shows that the increase in enrollment rate for the 16 to 17-year-olds was higher by 13 ppts compared to those from 14 to 15 years old.[3]

Table 5. Change in enrollment rate from pre-SHS to full SHS

Age Group	Pre-SHS (2014)	Full SHS (2017)	Change	Change in 16-17 age group minus change in other age group (ppts)
	(A)	(B)	(B)-(A)	
16-17 yrs old	68.2%	82.6%	14.4%	
14-15 yrs old	90.4%	91.9%	1.5%	12.9
12-13 yrs old	96.9%	96.8%	-0.1%	14.6

Source of basic data: PSA APIS 2014 and 2017

Further evidence is in Table 6, which shows the breakdown of 16 to 17-year-olds from 2013 to 2017 by their enrollment status and level enrolled in. Note the share of those still in Junior High School (or High School in the pre-SHS period) was more or less the same pre-SHS and post-SHS. There was a reduction in the share of those in technical-vocational schools but that share was small to begin with. The increase in enrollment rate can almost entirely be explained by 16 to 17-year-olds staying in Senior High School who before would have dropped out after finishing the four-year high school. In 2017, 16 to 17-year-old students in either SHS, technical-vocational, or college was 51% of the total; in 2014, those in technical-vocational or college (no SHS yet) was only 35% of the total.

Table 6. Education Status of 16 to 17-year-old Learners

Enrolled in	2013	2014	2016	2017
HS(pre-2016)/JHS	31%	33%	32%	31%
SHS	0%	0%	29%	49%
Technical-vocational	1%	2%	0%	0%
College	35%	33%	14%	2%
Not-enrolled	33%	32%	24%	17%
Total enrolled	67%	68%	76%	83%
Total	100%	100%	100%	100%

Source of basic data: PSA APIS 2013, 2014, 2016, and 2017

These findings indicate that students all over the country are participating in education at this age range implying that the reform in education policy, which increased the number of years of basic education, has effectively lengthened the time for Filipino youth to develop their competencies and talents through the various Senior High School programs.

4.2. Impact of the reform by island group, gender, and income class

This section investigates whether the impact of the K to 12 education reform varies according to specific groups aggregated by region, gender, and income class.

4.2.1. By region

Aggregating the data by region, results showed that the highest rise in enrollment rate was experienced by those in Other Luzon, although substantial increases in enrollment rate were also experienced by those in Visayas and Mindanao (Table 7). Those in NCR experienced a much smaller gain, so while pre-SHS enrollment rate of 16 to 17-year-olds was highest in NCR, after the full SHS, the enrollment rates of 16 to 17-year-olds in Other Luzon and Visayas already exceeded those in NCR, with Mindanao not so far behind.

Table 7. Enrollment Rate of 16 and 17 Year-olds by Island Group

Island group	2013	2014	2016	2017	ppt change 2014 to 2016
Metro Manila	82.3	76.7	77.8	82.2	5.5
Other Luzon	65.2	65.8	76.7	83.9	18.1
Visayas	66.3	70.7	79.0	83.6	12.9
Mindanao	62.8	66.7	71.2	79.8	13.1
All island groups	66.9	68.2	75.9	82.6	14.4

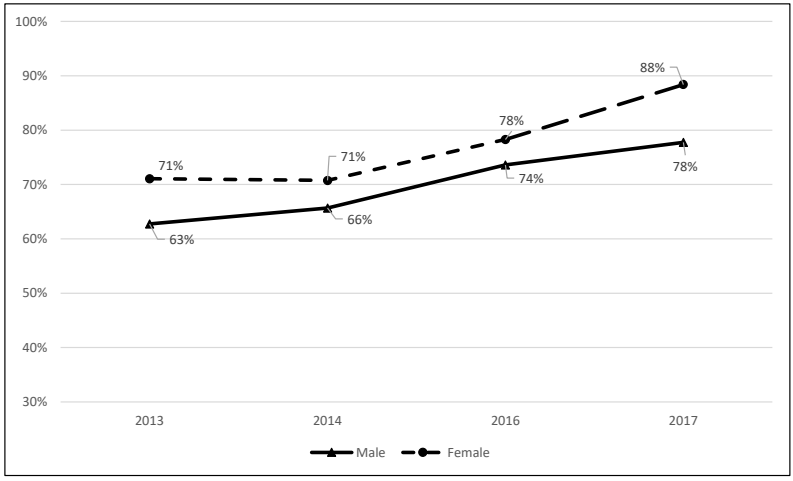
Source of basic data: PSA APIS 2013, 2014, 2016, and 2017

These findings indicate that most students are engaged in senior high school in areas where they also spent their junior high school years. This means that there is access to Senior High School all over the Philippines showing that the government intervention to provide additional years of basic education is available all over the country.

4.2.2. By gender

There was in increase in the enrollment rates of both male and female 16 to 17-year-olds from the pre-SHS period to the full-SHS period. The increase in enrollment rate was slightly higher for male 16 to 17-year-olds from 2014 to 2016, but the increase from 2016 to 2017 was much higher for female 16 to 17-year-olds. Overall from 2014 to 2017, the enrollment rate of male 16 to 17-year-olds increased by 12 ppts and the enrollment rate of female 16 to 17-year-olds increased by 17 ppts.

Annex Tables 1 and 2 additionally show the breakdown of male and female 16 to 17-year-olds, respectively, by enrollment status and level enrolled in. It can be seen from the tables that the share of female 16 to 17-year-olds enrolled in Senior High School was higher than males in 2017 (58% for females against 42% for males), in part because they are less likely to be delayed (lower share of females still in Junior High School) and also less likely to drop out of school. The share of 16 to 17-year-old males who have dropped out of school declined from 34% in 2014 to 22% in 2017, and the decline for females was even steeper – from 29% in 2014 to only 12% in 2017.



Source of basic data: PSA APIS 2013, 2014, 2016, and 2017

Figure 2. Enrollment rate of 16-17 year olds by sex

4.2.3. By income class

The increase in enrollment rates due to SHS has been highly progressive. Table 8 shows the enrollment rate of 16 to 17-year-olds by household per capita income quintile. The largest gains are by those in the lowest income groups – an increase of 20 ppts for the lowest quintile and 21 ppts for the second lowest quintile, and progressively lower though still positive gains by those in the higher income quintiles. One notable effect is that by 2017, the enrollment gap across income groups of the 16 to 17-year-old learners has substantially narrowed.

Table 8. Enrollment Rate of 16 and 17 Year-olds by per Capita Income Quintile of Household (in percent)

Household per capita income quintile	2013	2014	2016	2017	percentage-point change 2014 to 2017
1st (poorest)	49.4	54.9	65.1	75.0	20.0
2nd	58.1	57.3	75.9	78.6	21.3
3rd	71.1	71.3	73.9	83.5	12.2
4th	80.8	83.2	84.3	89.5	6.3
5th (richest)	93.2	90.8	94.4	95.7	4.8
All quintiles	66.9	68.2	75.9	82.6	14.4

Source of basic data: PSA APIS 2013, 2014, 2016, and 2017

These findings show that learners from the lowest income brackets have availed of SHS, indicating that learners in poverty contexts have access to Senior High School programs.

4.2.4. Logit model pre-SHS and post-SHS

Finally, the authors estimated logit models of the enrollment of 16 to 17-year-old pre-SHS and post full-SHS students as a function of individual characteristics (age and sex), household characteristics (income quintile, household demographics, and education of household head), and location characteristics (region of residence, and whether in urban or rural area). The objective of the modeling exercise is to examine whether the predictors of enrollment of 16 to 17-year-olds have changed as a result of the SHS program, or, if not, whether the impact of the same predictors have changed. Appendix C shows the logit regression results, where the coefficients are presented in terms of odds ratios.

One key takeaway is that income has become a much less important predictor of enrollment. In 2014, those in the highest income quintile had 5.5 times the odds of enrolling relative to those in the poorest quintile, controlling for the other variables in the regression. In 2017, the same odds have dropped to 3.6. The odds of enrolling of those in the fourth and third quintiles relative to the first quintile have similarly dropped. In 2017 as well, residence in rural area has ceased to pose a disadvantage in terms of enrollment relative to residing in an urban area. The urban variable has become insignificant in the 2017 regressions. On the other hand, the odds of a female being enrolled relative to a male has increased, as well as the odds of those with household heads who are college graduates or college undergraduates, relative to those with household heads who are below high school graduates, again controlling for the other variables in the regression.

The models used in Appendix C illustrate how the SHS program has impacted the probability of enrollment by income quintile and by sex in particular in Table 9. The table shows an increased predicted probability of enrollment across income quintiles from 2014 to 2017, but a much higher probability of enrollment for those coming from the lowest income quintile for both males and females – with the predicted increase slightly higher for females.

5. Discussion and Conclusions

This study used the Annual Poverty Indicators Survey data to evaluate the impact of the Senior High School Program on the enrollment of those 16 to 17 years old, who are the correct age to be in Senior High School. The 2016 APIS captures the first batch of students to enroll in Grade 11 under the SHS program and the 2017 APIS captures the first full implementation of the SHS program when there are both Grade 11 and Grade 12 students.

Table 9. Chance of Enrollment for Learners from 16 to 17 Years-old

Characteristics	2014	2017
From poorest 20% of HHs, 17-year-old female, 5-member HH, one young sibling (15 yrs. old or younger), one sibling 16 to 24 yrs old, HH head is college undergrad, from urban area in Region 1	69.4%	89.1%
From poorest 20% of HHs, 17-year-old MALE, 5-member HH, one young sibling (15 yrs. old or younger), one sibling 16 to 24 yrs old, HH head is college undergrad, from urban area in Region 1	61.6%	79.3%
From third income quintile of HHs, 17-year-old female, 5-member HH, one young sibling (15 yrs. old or younger), one sibling 16 to 24 yrs old, HH head is college undergrad, from urban area in Region 1	83.9%	92.2%
From income quintile of HHs, 17-year-old MALE, 5-member HH, one young sibling (15 yrs. old or younger), one sibling 16 to 24 yrs old, HH head is college undergrad, from urban area in Region 1	78.6%	84.7%
From RICHEST 20% of HHs, 17-year-old female, 5-member HH, one young sibling (15 yrs. old or younger), one sibling 16 to 24 yrs old, HH head is college undergrad, from urban area in Region 1	92.6%	96.7%
From RICHEST 20% of HHs, 17-year-old MALE, 5-member HH, one young sibling (15 yrs. old or younger), one sibling 16 to 24 yrs old, HH head is college undergrad, from urban area in Region 1	89.9%	93.2%

This paper establishes that overall, there is increased educational participation among 16 to 17-year-old youth after the implementation of the SHS program. Furthermore, both male and female students are found to benefit from the program, although the gains appear to be higher for female students. It appears that the pressure on males to contribute to the economic needs of their families continues to be greater than it is for females. This trend is consistent with data for Junior High School students where more males leave school. Unfortunately, such findings have not led to clear solutions that will incentivize staying in school, which is important for both males and females.

The addition of two years in secondary education has clearly increased the participation of youth who are located or residing outside Metro Manila. This data shows that students who could not go to Metro Manila to enroll in higher education were able to avail of SHS without having to leave their hometowns. This explains why there is no significant change in the educational participation rate in the Metro Manila area.

Finally, the most significant finding of this study is the increase in educational participation among the lowest quintiles or income bracket demonstrating that indeed, the educational reform has addressed one of the most severe criticisms on the Philippine educational system, which is the lack of educational opportunities for the poor. With the education reform brought about by the SHS program, more Filipino youth are availing of the various tracks and strands in Senior High School. Compared to data of youth participation in post-secondary education before 2016, it can be concluded that SHS has afforded more young people to stay in school for more skill and talent development. Less students have dropped out of school at ages 16 and 17 years old starting 2016 than in previous years.

6. Recommendations

In terms of future research, a new and vibrant program such as SHS can provide much insight on providing relevant educational opportunities for the youth. Therefore, subsequent research should include longitudinal inquiries that investigate school participation among 16 to 17-year-old learners. It would also be interesting to find out if the offering of SHS has an impact on enrollment in junior high school.

In terms of quality of education, the impact of SHS on the quality of graduates who enter college, the world of work, or entrepreneurship would be of particular interest because such research will inform the reviews or revision of curriculum and learning delivery systems. Finally, studies that measure the responsiveness of SHS programs to the needs of particular labor markets in various Philippine communities would be of great importance because this will help ensure that graduates of SHS can immediately become productive citizens.

Endnotes

1 Note that students may drop out from school and then come back later on, which may explain why grade level completion is not as severe as the cited observed enrollment attrition.

2 The FIES contains more detailed measures of income and expenditures compared to the APIS and is the source of official income poverty estimates.

3 There was also not much of an increase for the 12 to 13-year-olds but in their case the enrollment rate was already near universal level.

Acknowledgments

The authors acknowledge the support of the University of the Philippines Center for Integrative and Development Studies in the development of this paper.

Data Availability Statement

The raw data used for this study are sourced from the Philippine Statistics Authority's (PSA) various Annual Poverty Indicators Surveys. The raw data may be requested from the PSA. The authors will provide the codes used to process the data upon request.

References

ASIAN DEVELOPMENT BANK, 2011, *Philippines: Secondary Education Development and Improvement Project.* ADB.

BAUTISTA, C., BERNARDO, A., and OCAMPO, D., 2009, *When Reforms Don't Transform: Reflections on Transitional Reform of the Department of Education*. Human Development Network.

COMMISSION ON HIGHER EDUCATION, n.d., Higher Education Statistical Bulletin 2004-2005. *Higher Education Statistical Bulletin AY 2003-2004 and AY 2004-2005*. Commission on Higher Education.

DEPARTMENT OF EDUCATION, 2018, *Key Education Statistics*. Department of Education.

DEPARTMENT OF EDUCATION, 2019, DepEd Order No. 21, s. 2019. Policy Guidelines on the K to 12 Basic Education Program. Department of Education.

DEPARTMENT OF EDUCATION OFFICE OF PLANNING SERVICE–EDUCATION MANAGEMENT INFORMATION SYSTEM DIVISION, n.d., *Participation Indicators for Secondary Level*. Department of Education.

DEPARTMENT OF LABOR AND EMPLOYMENT, 2013, *Job Fit Labor Market Information Report 2013-2020*. Department of Labor and Employment.

FONTANOS, N. and OCAMPO, D., 2019, *Reframing Gender Disparities in Basic Education in the Philippines*. University of the Philippines Center for Integrative and Development Studies.

JHA, J. and POUEZEVARA, S., 2016, *Measurement and Research Support to Education Strategy Goal I – Boys' Underachievement: A Review of the Literature with a Focus on Reading in the Early Years*. Bureau for Economic Growth, Education, and Environment, United States Agency for International Development.

KILPATRICK, S., ABBOTT-CHAPMAN, J. and BAYNES, H., 2002, *Youth Participation in Education: A Review of Trends, Targets and Influencing Factors*. Tasmanian Office of Post Compulsory Education and Training, Australia.

MATEO, J., 2016, Grade 11 students told to enroll early, *Philstar Global*. https://www.philstar.com/headlines/2016/05/11/1582424/grade-11-students-told-enroll-early#hPqAkq3AvxTMEyQk.99.

MCCLELLAND, A.; MACDONALD, H. and MACDONALD, F., 1998, Young people and labour market disadvantage: the situation of young people not in education or full time work. In *Australia's Youth: Reality and Risk,* Dusseldorp Skills Forum.

MORATILLA, N.C., 2017, Revisiting Paulo: Critical pedagogy and testimonial narratives as liberative spaces in the Philippines' K-12 Curriculum, *Journal for Critical Education Policy Studies, 7*(2). pp. 246–278. http://www.jceps.com/archives/6451

OCAMPO, D., UY, E., ILAGAN, M., CRUZ, Z., ESPINOSA, L., MARTIN, A., LODRONIO, R., ONGTENGCO, J., LIBATIQUE, N., GALANIDA, K., LIBRE, M., and PINZON, E., 2016, *Senior High School Planning and Implementation Processes and Activities.* [unpublished report].

ORGANISATION FOR ECONOMIC COOPERATION AND DEVELOPMENT, 1998, *Education Policy Analysis 1998*. OECD Publishing. https://doi.org/10.1787/epa-1998-en.

PHILIPPINE STATISTICS AUTHORITY, 2014, *Annual Poverty Indicators Survey 2013*. Philippine Statistics Authority.

_____, 2015, *Annual Poverty Indicators Survey 2014*. Philippine Statistics Authority.

_____, 2017, *Annual Poverty Indicators Survey 2016*. Philippine Statistics Authority.

_____, 2018, *Annual Poverty Indicators Survey 2017*. Philippine Statistics Authority.

UNITED NATIONS, n.d., Sustainable Development Goals. https://sustainabledevelopment.un.org/?menu=1300

UNITED NATIONS DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS (UNDESA)., 2005, The world programme of action for youth to the year 2000 and beyond. United Nations.

UNITED NATIONS EDUCATION, SCIENTIFIC AND CULTURAL ORGANIZATIONS AND THE FOCAL POINT ON YOUTH, UN Department Of Economic And Social Affairs, 2013, *Youth and Education*. UNESCO and UNDESA.

Appendix A. Education Status of 16 to 17 Year-olds, Male

Enrollment in	2013	2014	2016	2017
HS(pre-2016)/JHS	33%	36%	34%	34%
SHS	0%	0%	26%	42%
Tech-voc	1%	2%	0%	0%
College	28%	27%	14%	2%
Not-enrolled	37%	34%	26%	22%
Total enrolled	63%	66%	74%	78%
Total	100%	100%	100%	100%

Source of basic data: PSA APIS 2013, 2014, 2016, and 2017

Appendix B. Education Status of 16 to 17-year-olds, Female

Enrollment in	2013	2014	2016	2016
HS/JHS(2016)	29%	29%	30%	28%
SHS	0%	0%	33%	58%
Technical-vocational	1%	2%	0%	0%
College	41%	40%	15%	3%
Not-enrolled	29%	29%	22%	12%
Total enrolled	71%	71%	78%	88%
Total	100%	100%	100%	100%

Source of basic data: PSA APIS 2013, 2014, 2016, and 2017

Appendix C. Logit Model: Enrollment of 16 to 17 Year-olds

Explanatory variable	2014 (pre-SHS program)		2017 (with full SHS program)	
	Odds Ratio	sig.	Odds Ratio	sig.
Individual characteristics				
Female (base=male)	1.41	***	2.15	***
Age	0.53	***	0.54	***
HH characteristics HH per capita income quintile (base=1st quintile)				
2nd	1.17		1.28	
3rd	2.30	***	1.44	*
4th	4.11	***	1.85	**
5th (Richest)	5.55	***	3.61	***
# of HH members 0 to 15	1.00		0.87	***
# of HH members 16 to 24	0.86	***	0.99	
# of HH members 25 and up	1.02		1.33	***

Explanatory variable	2014 (pre-SHS program)		2017 (with full SHS program)	
	Odds Ratio	sig.	Odds Ratio	sig.
HH head characteristics Education of household head (base=HS undergrad or lower)				
HS grad	1.53	***	2.47	***
Post secondary undergrad	2.69			
Post secondary grad	3.34	***	3.45	**
College undergrad	1.93	***	2.81	***
College grad	3.75	***	5.35	***
Location characteristics				
Urban (base=Rural)	1.38	**	0.76	
Region (base=Region 1)				
2	1.73	*	1.08	
3	1.07		1.49	
4				
5	2.19	*	1.49	
6	3.74	*	2.81	**
7	1.87	**	2.11	
8	1.76	*	4.14	***
9	3.05		2.05	
10	1.46		2.74	**
11	0.98		1.43	
12	1.92	**	2.25	*
NCR	1.10		1.56	
CAR	2.75	***	2.00	
ARMM	3.32	***	1.44	
CARAGA	1.79		2.16	*
CALABARZON	1.27		2.80	**
MIMAROPA	2.64	***	1.65	
Constant	0.65		1.14	
# of obs	2,114		1,903	
LR chi2	342.65		206.70	
p-value	0.00		0.00	
Pseudo R2	0.13		0.12	

Source of basic data: PSA APIS 2013, 2014, 2016, and 2017