POLICY BRIEF

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Program on Higher Education Research and Policy Reform

NURSE EDUCATION PROGRAM PERFORMANCE: EVIDENCE FROM LICENSURE EXAMS[1]

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Abstract

This brief provides an overview of the performance of nursing schools across the country. Using licensure exam passing rates as the main indicator of program quality, we examine features of higher education institutions (HEIs) that are correlated with program performance. Data on passing rates between the years 2010 and 2016 are sourced from the Philippine Regulatory Commission (PRC) and data on features of schools come from the Commission on Higher Education (CHED). Overall, evidence shows a wide disparity in passing rates across schools, ranging from 3% to 100% in 2016 for schools with at least 10 exam takers, with a large number of underperforming nursing programs operating around the country. The passing rates in nursing board exams are consistently lower in small private HEIs that are newer schools and located in Mindanao and NCR. State Universities and Colleges (SUCs) on average have higher passing rates than other types of HEIs. Policy recommendations and directions for further research to improve outputs of nursing education in the Philippines are discussed.

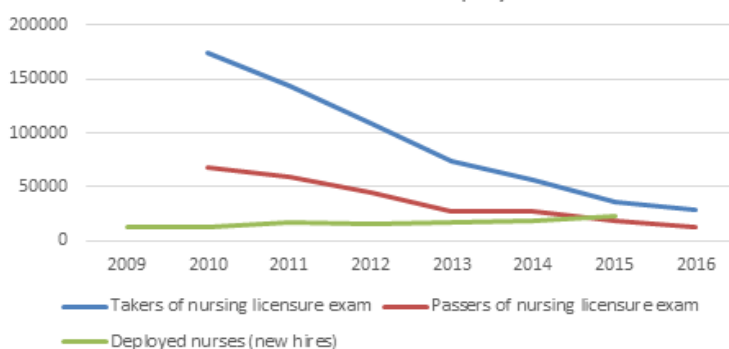## Nursing graduates: From shortage to surplus

Nursing has been one of the most popular courses among tertiary students in the Philippines. At its peak in 2010, almost 175,000 nursing graduates took the licensure exam, a huge jump from an annual average of less than 10,000 from the 1990s to the mid-2000s. The number of nursing licensure examinees, though still high, has been declining since then (Figure 1).

The demand for nursing as a course derives mainly from the possibility of overseas rather than local employment. From 2005 to 2010, about 10,000 nurses and from 2011 to 2016, about 18,000 nurses were deployed overseas yearly, earning multiple times what they would have earned from local employment.

Until 2005 the yearly nurse deployment typically exceeded the number who passed the licensure exam.[2] That changed drastically as nurse enrollment surged and, by 2010, the number who passed the licensure exam was almost six times the number deployed overseas for the year. A perverse consequence of this is the large pool of unemployed or underemployed licensed nurses (hoping to find jobs abroad) despite having a shortage of health workers in the country.

According to the Department of Health (DOH), there was a shortage of around 270,000 nurses in 2017, based on a standard of 34.3 nurses per 10,000 population.[3] This shortage was more severe than the shortage in doctors and midwives. The surge in nursing enrollment leading up to 2010 was made possible by the proliferation of new schools offering nursing programs. However, in 2010, noting the poor licensure exam results, the Commission on Higher Education (CHED) imposed a moratorium[4] on the opening of programs in nursing among higher education institutions (HEIs) effective school year 2011-2012.[5]

Figure 1. Number of takers and passers of nursing licensure exam and number deployed overseas

Availability of nursing programs

According to CHED data, there were 492 schools offering nursing degrees in the country in 2016, of which 84% were private schools, 13% were state universities or colleges (SUCs), and only 2% were local universities or colleges (LUCs).   The schools are spread out across the country although bulk are in Metro Manila.   Majority of the schools (55%) were what CHED classifies as small schools (total enrollment in all programs less than 2,000), 34% were medium-sized schools (2,000 but less than 10,000), and 11% were large schools (10,000 or more).   Majority of the schools (57%) represented in the nursing licensure exam in 2016 were established before 1980. Around 10% were established in the 1980s, 15% in the 1990s and 13% in the 2000s. Of the 187 schools established from the 1980s onwards, 173 or 93% were private schools, of which 141 were small private schools.

HEI performance in Nursing Licensure Exams

Schools in Visayas have the highest passing rates. There is a noticeable spatial dimension to the performance in the nursing licensure exam. Looking at the results by island grouping (Figure 2), for example, the passing rate for schools located in Visayas has consistently been the highest, while that for Mindanao (except for 2010) has been the lowest, with the gap appearing to be increasing. In 2016, the Autonomous Region of Muslim Mindanao (ARMM) had the lowest passing rate at just 28%.[6]

Public tertiary education institutions consistently outperform private ones. SUCs consistently performed significantly better, on average, than LUCs and private schools, and LUC performed better, on average, than private schools[7]. The passing rate of SUCs has consistently been above 50% since 2010, in contrast to private schools which was not able to exceed 50% in any of the 7 years. In 2016, more than 20 percentage points separated the passing rates of SUCs and private schools.

Figure 2. Passing rates in nursing licensure exams by features of HEI

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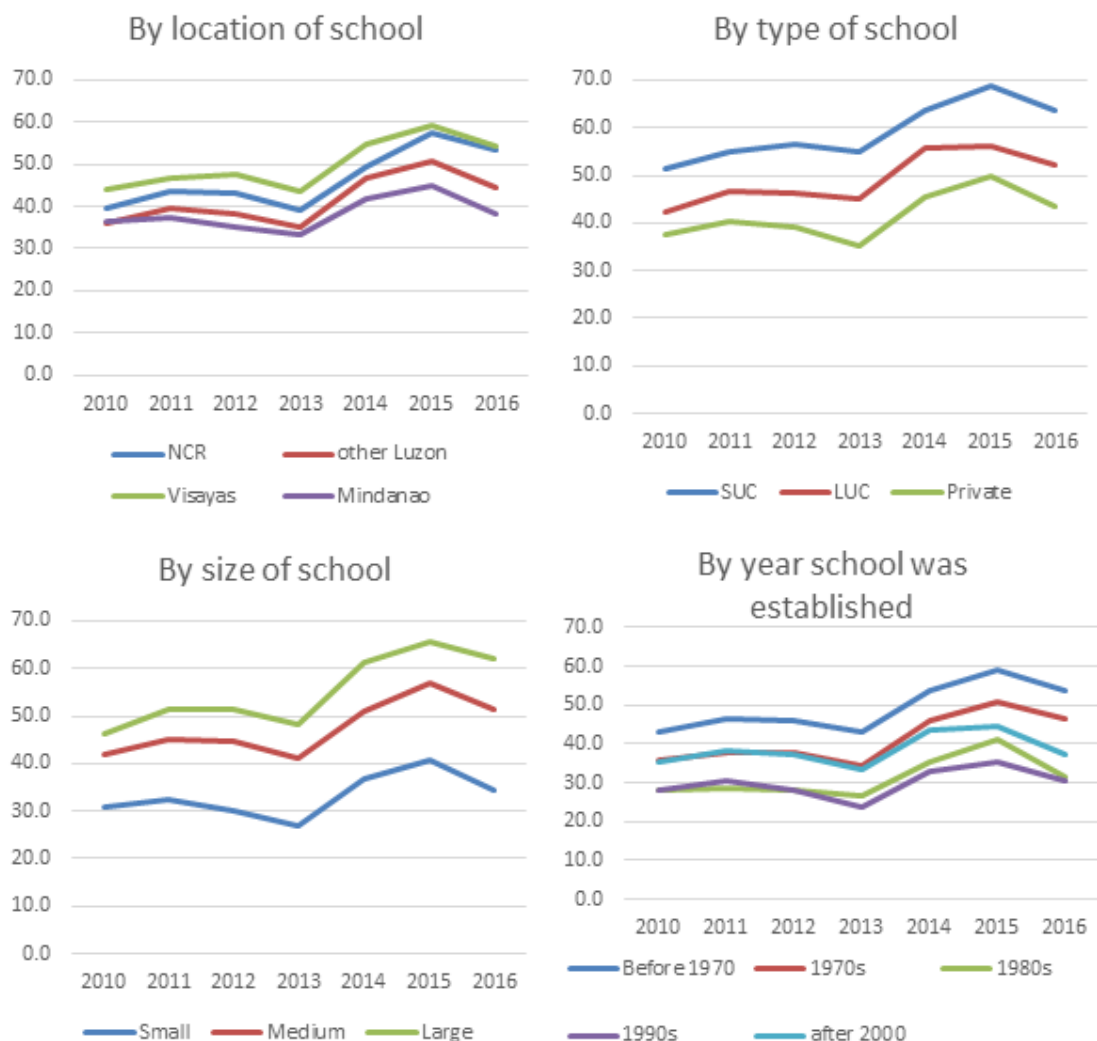
[6] Some of the high-performing schools in Mindanao include St. Paul University of Iloilo, a small private school, West Visayas State University and Cebu Normal University, both medium-sized SUCs.

[7] There are however, strong LUCs in nursing, such as Pamantasan ng Lungsod ng Pasig and Pamantasan ng Lungsod ng Maynila, both medium-sized LUCs.

Table 1. Passing rate by program fee level in 2016, private schools only

Island Group	Program Fee				
	20k to 199k	200k to 299k	300k to 399k	>=400k	Total
NCR	40	41	44	62	43
No. of schools	50	28	13	10	101
Other Luzon	44	66	52	60	54
No. of schools	18	18	9	1	46
Visayas	51	48	47	86	56
No. of schools	21	12	11	8	52
Mindanao	30	31	50	63	36
No. of schools	32	19	9	2	62
Total	40	42	49	71	45
No. of schools	121	77	42	21	261

Source of basic data: PRC and CHED

Programs in small schools have lower passing rates. Performance appears to be directly related to size.[8] Large schools performed better than medium and small schools, and medium schools performed better than small. In 2016, 28 percentage-points separated the passing rate of large schools and small schools and 17 percentage-points separated the passing rate of medium and small schools.

Older programs perform better. Consistently throughout the 7 years, the passing rate in schools established before 1970 was higher than in schools established in more recent decades[9]. On average, the poorest performers throughout the period were schools established in the 1990s and the 1980s, who were outperformed by schools established after 2000. In 2001, CHED imposed stricter requirements on opening a nursing school[10], including minimum requirements for the dean and faculty, which might explain why, schools established after 2000 typically performed better than those established in the 1980s and 1990s.

In private schools, more expensive programs have higher passing rates. Program fee information was available for most of the private schools for the school year 2016/17. The higher the program fee the higher, on average, the passing rate. Program fee is likely correlated with quality of infrastructure and equipment. The passing rate for the private schools where the program fee level was Php 400 thousand or more was 71% compared to only 40% for the private schools were the program fee was less than Php 200 thousand. But there are noteworthy exceptions: in Visayas the schools with program fee less than Php200k did even better, on average, than the schools with program fee level Php 200k to Php 399k.

Predictors of nursing program performance

We used multiple regression analysis to estimate the independent relationship of each of the same variables with passing rate, that is, assess the influence of each factor while controlling for the other variables (Table 2).

Table 2. Multiple regression analysis of nursing licensure exam passing rates in 2016: All school types

Dependent variable: HEI passing rate	Coef.	Std. Err.	t-stat	p-value
Student to faculty ratio	-0.2	0.1	-3.9	0.00
Island group (Dummy: Base=Visayas)				
NCR	-1.2	3.6	-0.3	0.74
Oth. Luzon	-12.6	3.0	-4.3	0.00
Mindanao	-15.3	3.2	-4.8	0.00
Type of school (Dummy: Base =SUC)				
LUC	-2.9	8.6	-0.3	0.73
Private	-11.6	3.3	-3.5	0.00
Size of school (Dummy: Base =large)				
Medium	-6.5	3.6	-1.8	0.07
Small	-19.9	4.1	-4.9	0.00
Year school was established (Dummy: Base =before 1970)				
1970s	-3.6	3.1	-1.2	0.25
1980s	-18.8	3.7	-5.1	0.00
1990s	-14.2	3.2	-4.5	0.00
2000s	-9.3	3.4	-2.8	0.01
Constant	91.8	4.6	20.2	0.00
No. of obs.	378	R^2	0.371	
F (12,365)	17.9	P-value	0.000	

Note: Only schools with at least 10 takers were included

A one-unit increase in the student-to-faculty ratio is associated with a 0.2 percentage point decline in passing rate, after controlling for the other variables. Schools in Luzon, on average, have a passing rate lower by 13 percentage points, and those in Mindanao, have a passing rate lower by 15 percentage points compared to schools in the Visayas.

Private schools, on average, have a lower passing rate by 12 percentage-points compared to SUCs, controlling for the other variables. Small schools are lower by 20 percentage-points, and medium-sized schools, have passing rates lower by 7 percentage-points compared to large schools. Schools established in the 1970s, on average, have passing rate lower by 4 percentage-points; those from the 1980s have passing rate lower by 19 percentage-points; schools from the 1990s have passing rate lower by 14 percentage-points; schools established in the 2000s have passing rate lower by 9 percentage-points compared to schools established before 1970.

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[8] As per CHED, a higher educational institutions are grouped by size depending on the size of enrollment as follows: Small: 1-1,999 students, Medium: 2,000-9,999 students, Large: 10,000 and above.
[9] The private schools with consistently strong performance in the nursing licensure exams include University of Santo Tomas, Adamson University, and New Era University, all large private schools established before 1970 or in the 70s.
[10] Memorandum Order No. 30 on the Updated Policies and Standard for Nursing Education

To summarize, the schools that tended to perform most poorly, on average, in the nursing licensure exam were those with high student-to-faculty ratio, are located in Mindanao, are private, small, and were established in the 1980s.

High and low performing programs

We also attempted to identify and count schools that consistently do poorly and those that do well in the licensure exams. We define a low-performing school as one where in at least 4 of the 5 years from 2012 to 2016, its passing rate was at most 25%. Using this definition, 64 of 461 schools that had exam results in the past 5 years were identified as low-performing (Table 3).[11]

Mindanao had a disproportionately large share of the low-performing schools with 28 (44% of total low-performing schools while accounting for only 22% of total schools). The low-performing schools were almost entirely private schools (63 of 64), the only exception was one LUC (Table 4). They were also mainly small schools (58 of 64), except for one large and 5 medium-sized schools (Table 5).

Table 3. Number of low-performing and high-performing schools by location of school

Island group	No. of Low-performing schools	%	No. of High-performing schools	%	No. of schools in category*	%
NCR	9	14	12	29	88	19
Other Luzon	22	34	12	29	198	43
Visayas	5	8	12	29	73	16
Mindanao	28	44	5	12	102	22
Total	64	100	41	100	461	100

*Includes only schools with examinees in at least 4 of the 5 years from 2012 to 2016

Classification: low-performing schools are those with at most 25% passing rate in at least 4 of the 5 years from 2012 to 2016; high-performing schools are those with at least 75% passing rate in at least 4 of the 5 years from 2012 to 2016

We define a high-performing school as one where in at least 4 of the 5 years from 2012 to 2016, its passing rate was at least 75%. Under this definition, there were 41 high-performing schools. Visayas had a disproportionately large share of high-performing schools, with 12 (29% of high-performing schools while accounting for only 16% of total schools). high-performing schools, 13 were SUCs (32% of total while accounting for only 12% of schools), 2 were LUCs, and 26 were private (Table 4). The high-performing schools were also disproportionately large and medium-sized (Table 5).

Recommendations

There are close to 500 nursing programs around the country with widely varying quality. Families will continue to invest a significant amount of money to put a child through nursing school, as demand for nurses grows. The task for nursing programs is to continue to produce competent and qualified nursing graduates. There are policy implications for regulatory agencies both on the supply side, mainly CHED given its mandate to regulate quality, and on the demand side, through employers (e.g. DOH) and agencies tasked with overseeing labor (e.g. Department of Labor and Employment).

Table 4. Number of low-performing and high-performing schools by type of school

Type	No. of Low-performing schools	%	No. of High-performing schools	%	No. of schools in category*	%
SUC	0	0	13	32	55	12
LUC	1	2	2	5	11	2
Private	63	98	26	63	395	86
Total	64	100	41	100	461	100

Table 5. Number of low-performing and high-performing schools by size of school

Size	No. of Low-performing schools	%	No. of High-performing schools	%	No. of schools in category*	%
Large	1	12	10	24	49	11
Medium	5	8	22	54	159	35
Small	58	91	9	22	252	57
Total	64	100	41	100	460	100

The best ways to encourage programs to raise quality and send market signals (to parents and students) on historical program performance is an open question. It will motivate HEIs to improve performance if their passing rates for licensure exams are easily accessible and public. To this end, it is CHED's role to provide the mechanisms for potential students to check program quality to enable more informed decisions. Student enrollment in programs that offer them a very low chance of passing the exam is an inefficient use of their families' scarce resources. Wide public dissemination of HEI performance can be done both at the institution-level and the program-level. There are commendable non-government efforts to do this[12], CHED can provide either explicit endorsement or attempt to build its own version that would both provide market signals and serve its own purposes for program quality monitoring.

At the level of program design, CHED could be to provide guidance on specific ways to improve program quality, and some incentive system at the level of HEIs to encourage program improvement[13]. In service of the former, systematic evidence gathering and

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[11] Note that in CHED Memorandum Order 15, Series of 2017, nursing programs with a cumulative weighted average passing rate (CWAPR) of 46% to 55% in the past 3 years get a warning from CHED and a visit in 2 years, those with CWAPR of 31% to 45% get probation for phase out and a CHED visit in one year, and those with a CWAPR 30% and below will be asked to stop admission and gradually phase out.

[12] e.g. http://www.finduniversity.ph/philippine-universities-ranking/

[13] As a general metric, "most improved" types of awards may be worth pursuing. This is different from CoE which is given every 3 years and then is maintained. Chronic low-performers may not feel that CoD/CoE systems are achievable for them.

analysis should be conducted at the program level to determine predictors of quality. These include a thorough accounting and understanding of the faculty corps, administrative systems, the student admissions procedures, costs, graduation rates, and curriculum design.

Although CHED has technical committees to guide the body in curriculum design, these results suggest much more can be done in terms of monitoring the execution and quality of instruction. A well-designed curriculum translates to program quality only if teachers are qualified. In private institutions this level of monitoring is done through accreditation programs, which while imperfect, is more detailed in its level of scrutiny.

The regulatory agency needs to review all mechanisms available to it to steer the availability of good-quality private school nursing programs. Since vast majorities of nursing graduates come from private schools and public schools are mostly fully subscribed in nursing programs, improving the quality of nursing graduates nationally will require improvement of private institutions' courses. As the oversight body, CHED is uniquely positioned to facilitate learnings about program design and administration from high-performing institutions to low-performing ones.

Any interventions to shore up performance of nurse education programs should prioritize areas where the low performing schools are concentrated. For instance, private school passing rates are lowest in Regions ARMM, IX, and XII. These are mostly poor and rural areas where

there is likely difficulty in hiring nurses even for local needs. Increasing the pool of qualified nurses in those localities can benefit not only the employment outlook for students but also local health service provision.

Inter-agency cooperation is critical to systems reform. CHED only provides oversight on the education side; it needs to effectively coordinate with the agencies that are on the side of employment. These include the DOH as a major employer of nurses, private sector, and the DOLE for information on projections for international and local demand. Working coordination may not be necessary if there are effective knowledge management systems across the sector where reports and summary data are made available to other agencies and to all HEIs.

This study is reliant on a single metric of program performance, the PRC exam. Multiple metrics are necessary to give a full assessment, including: total program cost in relation to passing rates, graduation rates, admissions policies, and over a longer view, the salaries of nurses that graduate from different programs.

Raising the overall performance of the whole nursing education system in the Philippines needs support, especially given its importance for local health service provision and its role in opening up opportunities for international employment. The accessibility of good quality nursing programs would reap benefits in the favorable reputation of Filipino nurses for employment abroad and the overall improvement of the Philippine healthcare system.

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