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The 4th Philippine Graduate Tracer Study: Examining Higher Education as a Pathway to Employment, Citizenship, and Life Satisfaction from the Learner's Perspective

Melba V. Tutor Aniceto C. Orbeta Jr. James M.B. Miraflor



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List of Acronyms

AY	-	academic year
BS	-	Bachelor of Science
CAR	-	Cordillera Administrative Region
CHED	-	Commission on Higher Education
CHEDROs	-	CHED regional offices
GTS	-	graduate tracer survey
HEI	-	higher education institution
ICT	-	information and communications technology
ILO	-	International Labour Organization
LFS	-	Labor Force Survey
MIMAROPA	-	Mindoro, Marinduque, Romblon, and Palawan
NAPOLCOM	-	National Police Commission
NCR	-	National Capital Region
NEC	-	not elsewhere classified
NGO	-	nongovernment organizations
PBE	-	professional board examinations
PCA	-	principal component analysis
PHP	-	Philippine peso
PIDS	-	Philippine Institute for Development Studies
PMAP	-	People Management Association of the Philippines
PRC	-	Professional Regulation Commission
RN	-	registered nurse
SUCs	-	state universities and colleges
TESDA	-	Technical Education and Skills
TUET		Development Authority
	-	technical-vocational education and training

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Abstract

A graduate tracer survey (GTS) collects data on the graduate's college experience—skills learned and quality of instruction—and how it relates to employability. A GTS can illuminate the relationship between college experience and labor market outcomes, which can aid in formulating actions for the higher education sector. It can also be used to investigate the influence of college experience on sociopolitical participation and life satisfaction.

This study reports on the 4th Philippine Graduate Tracer Survey results, covering graduates from academic years 2008–2009, 2009–2010, and 2010–2011. A total of 11,547 graduates were surveyed, representing 32.7 percent of the total sample. This GTS round piloted several study design improvements and administrative arrangements aimed at capacitating the Commission on Higher Education (CHED). Despite several challenges related to the response rate, it is a successful demonstration of the desired GTS implementation setup for the next GTS rounds.

The results show that graduates are motivated by earnings and career advancement in their choice of baccalaureate programs, and their choices are concentrated in a few courses. Except for nursing and information technology-related courses, their courses are not the high-paying ones. For graduates of courses without a professional license requirement, the median length of time it takes to get a job after graduation is five months, while it takes at least 11 months for those who took courses that require a license. At the time of the survey, only 86 in 100 graduates are in the labor force, of which 76 are employed.

There are several telltale signs of job-education mismatch: (a) graduates feel that they did not sufficiently develop communication, critical thinking, and problem-solving skills; (b) only 70 percent of graduates think that their college degree is relevant to their first job; (c) less than half of them consider occupational skills learned in college as the main reason for landing their first or current jobs; and (d) around a fourth think that outdated skills are keeping them from getting a good job. Overall, only 49 percent of graduates who took courses that require a professional license are employed in jobs that match their degree. The predominant "not matched" occupations are contact center representatives, various clerks in retail and sales, and other service workers and laborers. Only a third of graduates believe that social and political aspects of life are "very important". Their contribution to the public good is confined to voting, obeying laws, and paying taxes. They barely participate in political and social actions, and participation in associations is also low. Meanwhile, despite being concerned about their earnings and rating themselves low in financial condition, overall life satisfaction is high. In relating college experience to postcollege life, this study finds that positive college experience (in its multiple dimensions) is generally associated with better employability, a stronger sense of citizenship, less predisposition to political action, and better life satisfaction.

Introduction

Even with the steady rise of enrollment in higher education, global estimates of the average private rate of returns to schooling have not changed much since the 1960s (Psacharopoulos and Patrinos 2018). The primary reason is that technological progress favors educated and high-skilled labor, highlighting education's important role in sustaining economic growth.

In the Philippines, the gross enrollment rate at the tertiary level is 33 percent. Meanwhile, 23 percent of the population aged 15–30 years who are at least college graduates were unemployed in 2018. Hence, while the country is on par with middle-income countries in terms of college participation rates, it suffers from low employment among its educated youth. Even though unemployment correlates poorly with poverty (de Dios and Dinglasan 2014), this problem needs to be addressed because it indicates inefficiencies in education investments.

Despite the lack of consensus on the precise definition of job-skills mismatch, it has long been the catchphrase for the persistence of high unemployment and underemployment among the educated youth. The usual culprits for this incongruence between education provision and industry needs are the absence of relevant labor market information to guide manpower planning, course offering, and student choice, as well as the inadequate preparation of graduates due to insufficient participation of industry in faculty training and course and curriculum development (DOLE 2010). While addressing these issues is expected to alleviate the mismatch problem, the skills required to bridge the mismatch are also changing at a faster pace with the Fourth Industrial Revolution (Dadios et al. 2018).

Higher education has been substantially explored using the lens of employers, educational institutions, and the labor market.¹ However, there is insufficient literature on assessing higher education from *the learner's perspective*. It is the *student* who selects (1) schools based on the constraints imposed by his/her household conditions and location; (2) programs based on his/her interests, aptitude, and perceived future returns; and (3) occupations, depending on labor market opportunities

¹ Annex 1 provides a review of the relevant literature.

and school performance. It is also the learner and their household that experience the consequences of these decisions. Employees can judge their college training adequacy based on early employment experiences. At the same time, entry-level workers can determine if their job experiences align with their expectations, which can result in job satisfaction.

A graduate tracer survey (GTS) collects data on a graduate's college experience. A GTS can illuminate the relationship between college experience and labor market outcomes, which can aid in formulating actions for the higher education sector. This report presents the 4th Philippine Graduate Tracer Survey results, covering graduates from academic years (AY) 2008–2009, 2009–2010, and 2010–2011.

Research and Policy Objectives

Graduate tracer studies typically have similar objectives, i.e., to find out how higher education and training affect employment outcomes to improve higher education provision. This study expands the research and policy objectives by understanding the broader college experience and how it relates not only to employment outcomes but also to socio-civic participation and overall life satisfaction.

The following policy questions were tackled in this study:

- 1. What is the overall learning experience of higher education graduates? The study looked into learners' engagement, teaching quality, student support services, and overall college experience.
- 2. What are their overall and specific experiences after college graduation? The study assessed graduates' experiences in terms of (a) labor market and livelihood, (b) political and social participation, (c) contributions to the community and public good, and (d) life satisfaction.
- 3. Is there a mismatch between what students learned in college and their current work or their first job after college?
- 4. To what extent has better college experience influenced the overall and specific postcollege experiences of graduates? How can their college experiences be improved to raise the private and public benefits from higher education?

The evidence from this study can help the Commission on Higher Education (CHED) come up with a sound empirical basis for (a) setting higher education priorities and corresponding resource requirements, (b) steering higher education institutions (HEIs) to be more "strategic" in developing their curricula and upgrading education provision, and (c) helping students and families make better choices on study programs and HEIs.

Conceptual Framework

This study uses a broad framework to show what motivates higher education investments (Figure 1). It shows that the decision to undertake a college education is a household decision. Since sending children to college can delay their full participation in the labor force, households carry the bulk of actual and opportunity costs. Several factors influence this decision, foremost of which is parents' education, a good proxy for



Figure 1. Conceptual framework

Source: Adapted from Schomburg (2010)

the family's economic status. Educated parents are more likely to send their children to college, not only because they may have the means but also because they want their children to reap higher education returns as they do. This intergenerational effect also translates to a strong parental influence on a student's program and HEI choice.

Individual factors, which directly influence students' expected utility and college experience, also influence the decision to enter college. For instance, it is stereotypical for parents to prioritize educating their sons than their daughters because the males are expected to be the providers of their future families and of their parents when they age. Meanwhile, females are perceived to become part of their husbands' families once they marry. Disabilities may also preclude college education due to prohibitive costs or logistical challenges. In general, individual interests and intended learning outcomes, as well as the aptitude and discipline required to achieve them, are formed before a student enters college. Students are products first of their households, basic education, and other influences before they embark on their college journey.

Given these considerations, the student/household decides whether to pursue a college education. Those who choose to do so will have to decide on the following:

- 1. *Program*. The program should either be aligned with the student's interests and self-perceived aptitude, expected future returns, or both.
- 2. *School.* After a cost-benefit calculation—considering the location and perceived quality of the school, as well as parental, peer, and societal pressure, among others—the student or household selects a school. (Note that the school and programs are chosen together, not sequentially.)

Once these choices are made, a student's college journey will be determined by the learning environment: the quality of the curricula, faculty, school facilities, and support services. The HEI's conditions—whether it is private or public, geographical location, and the network of support from politicians or alumni—also have implications on the school's resource pool that can be utilized directly on students or in ensuring good opportunities for their graduates. The student's behavior and learning process are all affected by individual motivations, school standards, and faculty competence. Collectively, these factors determine the student's college experience.

Hence, a strategic HEI decides on program offerings, target population, budget, fees, and overall education quality. It considers students' precollege experience to maximize the quality of their experiences during and postcollege life.

A college education's direct output is the set of knowledge and skills that can be translated into competencies relevant to industry needs. These competencies determine the transition of the graduate from college life into a productive member of the labor force. This transition is also affected by the student's socioeconomic background in as much as the household provides access to job opportunities. The HEI can also influence the transition process through programs that help their graduates search for jobs or acquire additional short-term trainings.

Labor force participation outcomes are determined once the graduate transitions from student to work life. These outcomes can be affected by the graduate's family network or HEI, to the extent that they provide support in ensuring that the student lands the best possible job. From these conditions, the graduate will be able to gauge the relevance of the college education and training she or he received in "making it" in the world of gainful employment.

Another important outcome of higher education, which to some is superior to earnings, is citizenship formation. A college education is supposed to imbibe in the individual a deeper understanding of his/her relationship with the state. Thus, the graduate's perception of and engagement in various sociopolitical activities is formed through college education and family and peer influence.

Moreover, college education affects life satisfaction. Traditionally, the graduate's employment outcomes are considered the determining factor of overall life satisfaction as the job affords him/her the capacity to provide for themselves and their households' needs. However, a college education can directly affect life satisfaction to the extent that learning provides fulfillment and provides an avenue to explore productive activities outside of the labor force. The graduate's socioeconomic background also impacts life satisfaction since the household provides other fulfilling experiences. The quality of the education and training received from the HEI also directly contributes to the graduate's overall welfare. The graduate's experiences during and after college—labor force participation, citizenship formation, and life satisfaction—are interconnected. A graduate with a satisfying employment condition will have a good living standard and can pursue an engaged sociopolitical life. On the other hand, an unsatisfying work condition may push graduates to engage in sociopolitical action as an attempt to understand or change their situation. In turn, sociopolitical awareness may also influence graduates' outlook on their condition.

Finally, this journey from pre to postcollege life is affected by prevailing conditions—sociocultural, global, and local labor market. The HEI's decision set is shaped by the extent of its interaction with local and international employers and industry players. The variety and quality of job opportunities depend on prevailing labor market rules and overall economic growth. Participation and success in the labor market may differentially affect men and women due to sociocultural norms.

Methodology

This GTS round is a first of its kind in many respects. It is more comprehensive in intent and design and addresses key conceptual and methodological challenges of the previous graduate tracer studies.

The study design is based on the premise that CHED is the only organization with the appropriate motivation and incentive to conduct a policy-oriented graduate tracer study. With CHED, most of the conflict of interest and outreach issues associated with HEI- and third-party-led tracer studies are avoided. Thus, an extensive capacity-building component is incorporated in the implementation strategy.

CHED regional offices were trained to handle survey operations—from consolidating sampling frames to conducting interviews and questionnaire editing. The CHED regional directors provide overall supervision while project directors oversee day-to-day operations. The project directors also manage the team of field supervisors, enumerators, tracers, and editors hired for the study and oversee the administrative, financial, and other logistical requirements. This pilot setup is intended to be replicated in future GTS rounds. Another first in this study is the technical support provided by the Philippine Institute for Development Studies (PIDS), which covers questionnaire development, sampling, GTS field supervisors' training, data collection and processing, and analysis of survey results.

Sampling

This round's sampling design is envisioned to allow for analysis levels that are actionable for CHED's central and regional offices. To ensure the samples' representativeness at the regional level, proportional samples across 19 discipline groups and 4 HEI types, namely, state universities and colleges (SUCs), local universities and colleges, private sectarian, and private nonsectarian, were drawn within each region. In contrast, earlier GTS rounds had nationally representative samples only.

The population of this GTS round is composed of college graduates from AY 2008–2009, 2009–2010, and 2010–2011, which totals 1,119,784² graduates. Based on the sampling considerations, the total sample size is 35,297. The regional distribution is shown in Table 1. The column "Original Sample" represents the required sample size for each region, while the "Additional Sample" column refers to the replacement sample requested by some regions due to untraced graduates.³

Sampling weights

The conduct of the GTS survey across regions was uneven. To correct this uneven performance and retain representativeness at the national level, sampling weights were derived by incorporating key elements of the sampling stratification variables, such as discipline groups, type of HEI, and sex of graduates. Regional locations were merged into five megaregions to generate more evenly distributed samples across these areas. Thus, while the sampling design was initially aimed for a regional-level analysis, this is no longer warranted by

² The original target population included 1,197,460 graduates, which by design excluded those from the Autonomous Region in Muslim Mindanao and Region 8. However, due to nonparticipation, Region 4-B (Mindoro, Marinduque, Romblon, and Palawan) was also excluded from the analysis.

³ For a more detailed explanation of the sampling design, refer to the GTS Sampling Report prepared by Dr. Jeffry Tejada of the School of Statistics, University of the Philippines. This report is available upon request from PIDS.

the data collected. Similarly, disciplines had to be aggregated into seven groups due to the limited number of observations. Finally, the types of HEIs had to be aggregated from four into two groups—public and private.

The details of the computation of sampling weights are provided in Annex 2.

Data collection

Response rates of the three previous CHED GTS rounds had been perennially low at 40 percent, 88 percent, and 46 percent, respectively. The second round, which was HEI-led, had methodological concerns in the design.⁴ Meanwhile, the third GTS utilized a volitional response design that could potentially introduce bias on the study's results.

To address these issues, a tracing stage was incorporated in this GTS round. The list of sampled graduates included contact details (phone number, email, and home address) for tracking graduates from graduation to their status at the time of the data collection. Office-based tracing was conducted by dedicated tracers, with only those traced endorsed for enumeration. Table 1 shows the tracing results. Nationwide, only 43.3 percent of the sample graduates were traced. Performance of the regions was highly varied—from a high of 93 percent in the Cordillera Administrative Region (CAR) to a low of 7 percent in the National Capital Region (NCR). Regions with tracing rates of more than 70 percent were CAR and Regions 1, 2, 5, and 7.

Data collection ran from July 2014 to June 2015. A total of 11,547 face-to-face interviews were completed, representing only 32.7 percent of the target sample size (52% based on the number of traced graduates). Globally, graduate tracer survey response rates range between 30 and 60 percent (Schomburg 2003). Region 9 enumerated the most number of graduates at 1,222 or 59.6 percent of the sample, followed by Caraga

⁴ For instance, a total of 39 private HEIs and 111 SUCs were included in the study, and they were assigned a minimum sample size of 500 each. However, the 88-percent response rate mentioned in the report is based on the 36 private and 25 public HEIs that completed the survey and submitted "acceptable" datasets, i.e., those that follow the coding protocols in recording data that can be merged with other datasets. There may be substantial systematic differences between HEIs that were able to complete and HEIs that did not complete their graduate tracer survey. If all HEIs and SUCs included in the study are considered, the comparable response rate for this GTS round would be 36 percent.

Decion	Original	Additional		Tracing	Status		Enumer	ation
Negion	Sample	Sample	Traced	Untraced	Duplicate	No Report	z	%
H	35,297	16,362	22,381	8,443	395	20,440	11,547	32.7
CAR	2,819		2,609	156	54	0	355	12.6
1	2,637		2,179	172	Ø	278	1,145	43.4
2	2,126		1,557	543	26	0	536	25.2
m	2,059	2,348	888	10		3,509	429	20.8
4A	2,205		1,456		22	727	912	41.4
MIMAROPA	1,224		175	676	70	0	-	0.1
5	2,057		1,495	50	20	492	663	48.3
6	2,093		846	136		1,111	532	25.4
7	2,855		2,515	300	40	0	749	26.2
6	2,051	2,230	1,812	1,718	37	714	1,222	59.6
10	2,297	2,643	1,317	1,158	28	2,437	1,208	52.6
11	3,529	2,803	1,965	570	34	3,763	1,341	38.0
12	2,517	2,891	1,423	196	20	3,769	536	21.3
NCR	2,619	2,648	383	2,066	ſ	2,815	278	10.6
Caraga	2,209	799	1,761	389	33	825	1,310	59.3
CAR - Condillera A	Adminictrative Re	MIMAROPA	- Mindoro Marir	noldmon erining	Palawan, NCR - I	National Canital Re	noine	

Table 1. Summary of sample size, tracing, and enumeration status

CAR = Cordillera Administrative Region; MIMAROPA = Mindoro, Marinduque, Romblon, Palawan; NCR = National Capital Region Notes:

The Autonomous Region in Muslim Mindanao and Region 8 are not included in this round of GTS. Region MIMAROPA did not implement the survey.
The "Untraced" column includes those that did not have contact information
The "No Report" column is used to balance the discrepancies in the tracing monitoring data Source: Authors' compilation based on tracing and enumeration status reports of CHED regional offices

and Region 5 with 59.3 percent and 48.3 percent, respectively. Mindoro, Marinduque, Romblon, and Palawan (MIMAROPA) region did not implement the GTS, while CAR and NCR attained only 12.6 percent and 10.6 percent of their targets, respectively.⁵

Analysis

A combination of descriptive statistics and econometric techniques guided by the conceptual framework is employed to address the research objectives.

Descriptive statistics include frequency tables, cross-tabulations, and summary measures of the following: (1) graduates' characteristics, (2) family information, (3) education, (4) college experience, (5) employment, (6) sociopolitical participation, and (7) life satisfaction. The descriptive results on the type of HEI, discipline group, and sex of graduate disaggregation are likewise presented. Differences are tested for statistical significance using the chi-square test for categorical variables and the Wilcoxon-Mann-Whitney median test for continuous variables. The p-values of the relevant test statistics are shown in the tables.

Dimensionality reduction techniques were used to reduce selected survey questions into fewer variables of interest. Several indicators representing "college experience" were reduced to seven indices: learner engagement, intracurricular, teaching quality, support services, noncore support services, overall college experience, and college experience practicality. Postcollege outcomes were reduced to nine indices: citizenship, active participation preference, unethicality, political/social action, group participation, political/economic group participation, overall life satisfaction, nonimmediate needs life satisfaction, and external life satisfaction, which are then grouped into two subgroups: "citizenship, ethics, and participation" and "life satisfaction" indices.

Econometric techniques are employed to investigate the relationships between (1) college experience and probability of employment; (2) college experience and citizenship, ethics and participation; and (3) college experience and employment and life satisfaction.

⁵ For a detailed discussion of the challenges encountered in implementing this GTS, refer to the final report of the Technical Assistance on the Operational Aspects of the CHED-PIDS Graduate Tracer Study, available upon request from PIDS.

Limitations of the Study

A key limitation of the study is the low response rate. Even though the national response rate is within the global experience, 8 of the 15 regions had response rates of below 30 percent due mainly to the quality of the graduates' database provided by HEIs. Many HEIs refused to share their graduates' contact details, while others had outdated information (collected upon student's entry, not upon graduation⁶). In CAR and NCR, the regions with the highest number of graduates, enumeration rates are as low as 13 percent and 11 percent, respectively.

The low and variable response rates across regions have an implication on the representativeness of the results. To ensure representativeness at the national level, sampling weights were derived as described in the Methodology section and Annex 2.

Results

Demographic profile of graduates

Since the samples graduated between 2009 and 2011, most of them (74.8%) are 24–27 years old (Annex 4-Table 1). Almost 11 percent are 28–30 years old, while 9.3 percent are 21–23 years old. Around 5 percent are above 30 years old.

Almost 75 percent of graduates surveyed are unmarried (Annex 4-Table 2), with 95 percent of them planning to get married when they reach 31 years old, on average. Around a fifth of graduates are married, 83 percent of whom got married after graduation. The average time between graduation and marriage is 32 months.

Annex 4-Table 3 presents the highest educational attainment of the graduates' parents. It shows that 25 percent of respondents have parents who are both college graduates at the minimum. Almost 46 percent of respondents have at least one parent with some college education. As

⁶ This issue is not unique to this GTS round. For instance, in the first GTS, only 653 of 1,237 colleges and universities submitted their list of graduates for the GTS (Arcelo 2001). For a detailed discussion of the issues surrounding this GTS round's operational aspect, refer to the Final Report of the Technical Assistance to the Operational Aspects of the CHED-PIDS Graduate Tracer Study. This report is available upon request from PIDS. A summary of the findings is provided on page 42.

shown in the conceptual framework, parental education is an essential factor in a child's education.

Unless children of uneducated parents break the cycle, inequality in access to higher education will perpetuate. This is aggravated by the fact that educational attainment is also a good predictor of income. Households' asset ownership data were used to construct a wealth index⁷ and categorize households into poor and nonpoor using a cutoff of 26 percent, the first-half national poverty incidence in 2015. Annex 4-Table 4 tabulates the poverty status from this exercise, including the educational attainment of the graduates' parents. It shows that fathers and mothers from nonpoor households are better educated than their poor counterparts.

Meanwhile, a good indication of improving equity in access to higher education is the increasing share of graduates having less-educated parents. A comparison of the results of this GTS with the 3rd Philippine Graduate Tracer Survey indicates this trend. In the latest survey, 65.4 percent of mothers and 60.5 percent of fathers of the respondents are not college graduates. The corresponding shares in the previous survey were 30.9 percent and 33.2 percent, respectively. Thus, the share of college graduates with parents who are not college-educated has increased since then.

Educational profile

HEIs and programs

Sixty-six percent of graduates are from private HEIs. This is expected since more than 70 percent of HEIs are private institutions. Based on CHED's Higher Education Indicators, the share of private HEI graduates for AY 2008–2009, 2009–2010, and 2010–2011 is 60 percent on average.

Table 2 shows the graduates' discipline group by type of HEI. There are some stark differences in the program choices of students who studied in private versus public HEIs. For instance, 36.8 percent of graduates completed a program classified under the health and

⁷ To construct a summary measure of households' socioeconomic status, principal components analysis using data on asset ownership was implemented. The predicted values for the first principal component constitute the wealth index. Households with a wealth index value below the 26th percentile are considered poor.

	Total %	Public %	Private %	Male %	Female %
Social sciences, business and law	29.1	28.4	29.5	25.7	31.7
Health and welfare	27.3	8.8	36.8	20.2	32.7
Science, agriculture	11.5	17.3	8.6	13.4	10.2
Education	11.3	20.4	6.6	6.8	14.7
Engineering, manufacturing and construction	11.1	18.3	7.5	19.2	5.1
Services	7.5	4.5	9.1	12.4	3.8
General, humanities and arts	2.1	2.3	2.0	2.5	1.8
Pearson chi2 p-value		0.0	000	0.0	000

Table 2. Share of graduates by discipline group, HEI type, and sex

HEI = higher education institution

Source: Authors' computation

welfare discipline group (mostly Bachelor of Science [BS] in Nursing) in private HEIs, while only 8.8 percent of graduates did so in public HEIs. Meanwhile, more than a fifth of public HEI graduates finished a course under the education group compared to only 6.6 percent of private HEI graduates. Social sciences and business and law discipline courses (mostly BS Business Administration, BS Commerce, and BS Accountancy) are popular among all graduates, which were taken by 28.4 percent and 29.5 percent of public and private HEI graduates, respectively.

There are also marked differences in the choice of degrees by male and female graduates. Females dominate the social sciences, business and law, health and welfare, and education disciplines, while male graduates cluster in engineering, manufacturing and construction, and services courses.

The graduates' choice of degree is driven by immediate employment and career prospects (Annex 4-Table 5). However, some differences between public and private HEI graduates are also observed. Graduates of private HEIs cited the following as the main reasons for their choice of degree: immediate employment prospects, career advancement prospects, prestige of the profession, influence of parents and relatives, attractive compensation, and overseas employment prospects. Meanwhile, the most salient reasons for the choice of degree among public HEI graduates are the availability of their program in chosen HEI and whether their family can afford it. These differences indicate that public HEI graduates have a limited choice set, defined by their family's capacities and the availability of courses in the HEI closest to them, which could be the only public HEI in their area.

Finally, almost 20 percent of graduates claimed to have no preferred program when they decided to go to college. Results in Annex 4-Table 6 corroborate this apparent mismatch in preferences, wherein graduates were asked whether they had preferences on HEI and baccalaureate program when they entered college. Only 70 percent answered that they preferred their program and university at the time they entered college. Around 14 percent preferred only their university but not their program, while 8 percent preferred their program only. Meanwhile, another 8 percent of graduates would rather take another program in another university at that time.

This mismatch in preferences seems to linger beyond college. Around 7 percent of graduates who did not prefer their course or HEI upon entry said that they would have changed their course or university given what they know of them at present (Annex 4-Table 7, Annex 4-Table 8). These results show the need for more information about HEIs and programs. Therefore, CHED should find out why high school students are unable to develop their preferences well. It can promote collaborations between HEIs and secondary schools for information campaigns to give students and their families better ideas on the different programs and career prospects. This will enhance students' ability to match their preferences with the alternatives.

Cost of college education

On average, graduates from public HEIs paid PHP 7,101 per semester on tuition, while their private HEI counterparts paid PHP 21,403 per semester. Thus, private HEI school fees are thrice as much as public HEIs.

In addition to school fees, graduates also spent on allowances, rent, supplies, and academic and extracurricular activities (Annex 4-Table 9). On average, graduates spent PHP 3,247 and PHP 1,546 per month on allowance and rent, respectively. Meanwhile, they spent an average of PHP 3,833 on supplies, PHP 3,503 on academic activities, and PHP 1,631 on extracurricular activities per semester. As in school fees, higher spending for miscellaneous costs among graduates from private HEIs

(at least 50% higher on each of the cost items) is also observed. Given that most HEIs are private institutions and the primary source of college funds are parents (Annex 4-Table 10), sending a child through college is indeed a huge financial burden on families.

Professional and government exams

Half of the graduates took courses that require a professional license exam. Among them, 82 percent have already taken a professional or licensure exam at the time of the survey. Given the volume of graduates that took these courses, the top professional exams taken are those for nurses, teachers, criminologists, accountants, and civil engineers (Annex 4-Table 11).

Only 20 percent of graduates have taken any government examination, which is low given that the career service exam applies to all college graduates. This can indicate their perception of the returns to working in the government versus the private sector. The top government exam taken by graduates is the Civil Service Commission's Professional Career Service Examination at 71.7 percent (Annex 4-Table 12). A considerable proportion of graduates also took technical and vocational competency assessments.

Training and advanced studies

Around 27 percent of graduates had taken any training since their graduation (Annex 4-Table 13); the most common were trainings related to their profession (74.7%) (Annex 4-Table 14). Around 38 percent and 16 percent took training to learn other professional and general skills, respectively. Only 19 percent of graduates said they took the trainings to get a job promotion (Annex 4-Table 15).

Only around 30 percent of respondents had trainings paid by their employers (Annex 4-Table 16). More than 60 percent financed their training using their money or their family's money. A higher proportion of private HEI graduates paid for their training, while more graduates from public HEIs had training paid by their employers or by other public organizations.

Around 9 percent of graduates pursued graduate studies, only 3 to 5 years after college graduation (Annex 4-Table 17). They believe that

graduate studies are key to advancing their career (Annex 4-Table 18). Many are also driven by their passion for and the prestige of the profession. Around 24 percent of graduates took master's degrees that are CHED-priority courses.

Skills development

Graduates were also asked to assess the extent to which their program helped them develop a set of selected vital skills. Each skill was rated using a five-point scale ranging from "not at all" to "very much". The eight skills are (1) critical thinking, (2) solving complex problems, (3) working with others, (4) independent learning, (5) written communication, (6) spoken communication, (7) knowledge of the field, and (8) developing work-related knowledge.

Graduates rated their programs highest in developing their skills to work with others, learning independently, and obtaining work-related knowledge. Eighty-six percent rated their program as having helped develop these skills "a lot" and "very much" (Figure 2). On the other hand, graduates felt that their programs were not as helpful in honing their communication, problem-solving, and critical-thinking skills. Less than a third of graduates felt that their program helped them develop these skills "very much". This corroborates the observations of professional recruiters' associations, such as the People Management Association of the Philippines (PMAP), that fresh graduates are deficient in critical thinking, problem-solving, and communication–the top competencies employers look for among applicants (PMAP 2019).

Consistent with their assessment of the extent their school has helped them in skills development, less than 30 percent of graduates felt their program curriculum enabled them to compete in the labor market "very much" (Table 3). About 52 percent claimed their curriculum helped "a lot", while around 20 percent believed that their curriculum had only some or no impact at all.

Graduates who gave a rating of "some" to "not at all" were asked which courses or training programs should be added to their curriculum for them to be more competitive in the labor market (Table 4). Communication courses rank highest at 47 percent. Thus, graduates are aware that they were not trained in communicating well, a critical



Figure 2. To what extent has your program developed your ...?

Source: Authors' computation

Table 3.	Overall,	did the	curriculum	enable you	to compete	in the
	labor m	arket?		-	-	

	Total %	Public %	Private %
Not at all	1.3	1.3	1.2
Very little	2.2	2.3	2.1
Some	16.2	15.3	16.6
A lot	52.2	51.1	52.8
Very much	28.1	29.9	27.2
Pearson chi2 p-value		0.0	000

Source: Authors' computation

requirement to get hired. Graduates also felt that their curriculum failed to provide sufficient training on occupational skills (40%) and information technology (31%). Since occupational skills are directly related to their course, and information technology is indispensable in the Fourth Industrial Revolution, HEIs would do well to heed these curriculum gaps.

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	Total %	Public %	Private %	Pearson chi2 p-value
Communication courses	47.1	52.7	44.3	0.000
Occupational skills	39.9	42.6	38.6	0.000
IT courses	31.3	35.3	29.3	0.000
Human resource courses	21.5	22.2	21.1	0.000
Internship	20.6	24.4	18.7	0.000
Language courses	15	13.4	15.8	0.000
CV writing	8.4	8.6	8.3	0.020

Table 4. Courses/training programs that should be added to the curriculum

Source: Authors' computation

College experience

This section looks into the graduates' assessment of their college experience in totality. Graduates were first asked to rate their engagement with their school and program and the teaching quality and student support services. Finally, they were asked to rate their overall college experience.

Graduates do not appear to have a strong sense of belongingness to their university, nor do they feel prepared for their study when they were in college. Only 27 percent and 24 percent of graduates gave top ratings for the first and second indicators, respectively (Annex 5-Figure 1). About a fourth of graduates felt they were not prepared for college.

Regarding their interactions with other students, 26 percent of graduates claimed that they worked "very often" with other students to fulfill academic requirements (Annex 5-Figure 2). However, only 18 percent stated that their interaction with other students continued outside of study requirements. Graduates also did not spend much time participating in discussions nor interacting with students who are quite different from them. Arguably, these are the foundations of collaborative skills that are indispensable in the workplace.

Participation in extracurricular activities appears low overall (Annex 5-Figure 3). Sports and career-related activities are the most popular, with 15 percent and 17 percent of graduates saying they took part in these activities "very often". Membership in student organizations—academic, nonacademic, or religious—is also low. Student organizations, which usually involve working on group projects, are good avenues for developing problem-solving, communication, and collaborative skills. These projects often involve raising funds, dealing with school administrators, working

with students from different programs, and solving problems. Joining student organizations also helps students develop initiative, creativity, self-reliance, and resourcefulness. However, access and participation in these activities are influenced by students' circumstances as they require a considerable amount of time, effort, and financial resources.

Graduates are very satisfied with their faculty across the board (Annex 5-Figure 4). More than 80 percent of graduates gave "often" and "very often" ratings to their teachers in all the eight indicators assessed. The highest rating is for mastery of the subject (33%), followed by helpfulness and approachability (32%), and giving assignments that helped in the learning process (31%). Meanwhile, graduates would have preferred that their teachers provide clearer explanations and use examples and illustrations to explain complex topics.

Graduates were also asked to assess various university staff in terms of availability and helpfulness. Librarians and administrative staff are the most visible support service staff (Annex 5-Figure 5). Correspondingly, graduates find librarians and administrative staff most helpful (Annex 5-Figure 6). On the other hand, laboratory technicians and research personnel do not appear salient in their college experience.

Four aspects were considered to assess the graduates' overall college experience (Figure 3). Graduates felt that their college experience had the strongest effect on personal and intellectual growth. Around 44 percent of graduates "strongly" agreed that college positively influenced their personal growth, attitudes, and values. For intellectual growth, the corresponding top rating was 41 percent. However, college experience's impact on translating learning into action or real-life situations was not as compelling, with only around a third of graduates giving these aspects a high rating. About 17 percent of graduates felt "neutral" about their college education's influence on these aspects. Thus, graduates felt some disconnect between their experiences in college and postcollege.

Employment profile

Transition to employment

Fifty-nine percent of graduates started looking for work right after graduation (Annex 4-Table 19). More graduates from public HEIs (66%) started looking for work sooner. Graduates who said they did not look

Figure 3. Overall college experience



Source: Authors' computation

for work right away included those who started working before finishing their studies. But among those who were not working at the time of their graduation, the main reasons cited for not looking for work were to review for licensure exams (41%) and to rest (33%) (Annex 4-Table 20). Around 12 percent did not look for work because they either got married, got pregnant, or had to take care of their family.

Annex 4-Table 21 shows the average and median length for various job transition indicators, such as (1) the number of months it took graduates to start searching for a job after graduation, (2) the number of months they spent looking for work, and (3) the number of months it took them to start working after graduation (regardless of when they started looking for work). The last indicator can be viewed as a "dependency" period after graduation. The data were further disaggregated by HEI type and whether the program requires a Professional Regulation Commission (PRC) license.

On average, graduates started looking for work 4.6 months after graduation. Graduates from public HEIs started looking for work sooner, at 3.3 months. Meanwhile, the average time it took the graduates to land a job is 8.2 months, slightly shorter by 1.5 months among public HEI graduates. Finally, the graduates' dependency period after graduation is 12.8 months. For graduates of public HEIs, this period is shorter by 3.2 months.

These differences may have been brought by the differences in the share of public and private HEI graduates who took programs that require a PRC license. Among graduates of private HEIs, 57 percent took programs requiring a PRC license, compared to 40 percent among graduates of public HEIs. The bottom panel of Annex 4-Table 21 shows that, on average, graduates of programs requiring a PRC license started their job search 5.9 months after graduation. They also spent an average of 9 months to look for work and 15 months to start their first job after finishing college. The corresponding amounts of time for graduates of non-PRC programs are 3.2, 7.4, and 10.5 months, respectively.

The median of these three indicators shows that they are highly positively skewed (skewness>2). For job search initiation, all disaggregation shows that the median is 0 months or right after graduation. The median length of job search is just 3-4 months. Among all graduates, the median start of their first job is 9 months after graduation. For those who took PRC license-requiring programs, it is 11 months, while those with programs that do not require a PRC license have a median job start of 5 months after graduation.

In Annex 4-Table 22, the job transition indicators are broken down by discipline group. Graduates of education and social sciences and business and law appear to have the shortest transition to employment, with median job search length of 2 and 3 months and overall dependency period of 6 and 5 months, respectively. Meanwhile, graduates of health and welfare courses seem to pay a higher price for their perceived salary premium. The median time they spend looking for a job is 6 months, with an overall dependency period of 14 months.

First job after college graduation

At the time of the survey, 85 percent of the graduates have had their first job after graduation.⁸ Their methods of job search are shown in Annex 4-Table 23. Most of them applied to employers directly (38%),

⁸ Around 3 percent have had jobs before graduation but not after, and around 9 percent never had a job. The rest were missing data.

while more than a fifth (23%) found their first job through relatives and friends. HEIs play a minimal role in placing their graduates in their first jobs, with only 4 percent of them employing this search method. Graduates of public and private HEIs employed the same methods in looking for their first job.

Majority (75%) of the graduates' first jobs required a college degree at the minimum to be accepted (Annex 4-Table 24). Around 10 percent landed on jobs that only required some college-level education, while 6 percent took jobs that required only a high school diploma. Another 3 percent said their jobs do not have a minimum educational requirement.

For their first job, 54 percent of graduates had technical or managerial tasks, while 46 percent had manual or clerical tasks (Annex 4-Table 25). The classification of the first jobs by major occupation group confirms these results (Annex 4-Table 26). For instance, 53 percent of the graduates were professionals, technicians and associate professionals, and managers, while 42 percent were clerical support workers and service and sales workers. More private HEI graduates were professionals, and more female graduates were clerical support workers in their first job.

Meanwhile, almost 5 percent of graduates are in elementary occupations, crafts and related trades, and plant and machine operation/assembly. The most common are manufacturing laborers (11%), hand packers (6%), ships' deck crews (6%), office cleaners and helpers (6%), and motor vehicle mechanics and repairers (4%). The rest are also various kinds of clerks, service workers, and laborers. Projecting this result to the total population means that more than 45,000 graduates have worked in first jobs that are low-skilled and mainly require physical labor.

Only 70 percent of graduates think that their college degree is relevant to their first job (Annex 4-Table 27). In addition, only 44 percent believe that their college training (occupational skills) is the main reason for landing their first job (Annex 4-Table 28). These results are indications of a job-education mismatch from the perspective of the graduates.

Meanwhile, around 20 percent and 18 percent believe that work experience and personal connection are the main reasons for landing their first job, respectively. Those who claimed that work experience is the main reason for landing their first job were likely referring to their internship experience since only 16 percent of them had jobs before
graduation. On the other hand, 93 percent of graduates had an internship or on-the-job training program in college.

Current employment

The Labor Force Survey (LFS) of the Philippine Statistics Authority was used to assess the graduates' current employment status.⁹ The reference period for the employment indicators is the past week from the date of the survey. Table 5 shows that the graduates' national labor force participation rate is 86.6 percent, which means 86 in 100 graduates are either employed or unemployed. This rate is higher than the Fourth Quarter 2014 LFS, wherein 78.9 percent of college graduates were in the labor force.¹⁰ Female graduates have a significantly lower labor force participation rate.

	· J · J ·						
	Total %	Public %	Private %	Male %	Female %		
Labor force participation rate	86.6	88.7	85.6	90.1	84.0		
Employment rate	89.0	89.5	88.7	89.3	88.8		
Unemployment rate	11.0	10.5	11.3	10.7	11.2		
Pearson chi2 p-value		0.0	000	0.0	000		

Table 5. Employment status by HEI type

HEI = higher education institution; chi2 p-value = Pearson Chi-Square value Source: Authors' computation

⁹ The Philippine Statistics Authority's definitions were implemented in computing the labor force participation indicators: (a) Labor force refers to the population 15 years old and over who contribute to the production of goods and services in the country. It comprises the employed and unemployed (labor force participation rate = number of employed + unemployed/working-age population); (b) Employed refers to persons 15 years old and over, who, during the reference period, were reported at work even for an hour. Also included are persons with a job/business even though not at work because of temporary illness/injury, vacation or other leave of absence, bad weather or strike/labor dispute, or other reasons (employment rate = number of employed/labor force); (c) Unemployed refers to persons 15 years old and over who simultaneously satisfy the following three criteria: (i) without work or had no job/business; (ii) looking or seeking work; and (iii) currently available for work during the basic reference period or within two weeks after the interview date. Also included as part of the unemployed are those persons who were jobless and available for work but did not look for work due to the following reasons: (i) tired/believed no work available, i.e., the discouraged workers; (ii) awaiting results of previous job applications; (iii) temporary illness/disability; (iv) bad weather; and (v) waiting for rehire/job recall (unemployment rate = number of unemployed/labor force)

¹⁰ To provide a reference, the GTS results were compared with that of the Fourth Quarter 2014 LFS, whenever relevant. Majority of the interviews were conducted in the second half of 2014. The employment module of the questionnaire is also adapted from the LFS questionnaire.

Around 14 percent of graduates are not in the labor force. Following the LFS, graduates who were not available for work during the reference period or within two weeks after a job interview and those who did not look for work due to permanent disability, family duties, schooling, and other reasons are not considered part of the labor force. Annex 4-Table 29 shows that the primary reason for not looking for work or unavailability to work is family duties (60%), with more graduates from public HEIs excluded in the labor force for this reason. Only around 16 percent were studying, and 9 percent were waiting for the results of their job applications.

Among graduates in the labor force, 89 percent were employed during the reference period. The corresponding LFS results reflect a slight improvement in the employment rate at 92 percent. Employment rates are similar between public and private HEI graduates and between males and females.

Table 6 shows the breakdown of employment outcomes by discipline group. Graduates of education programs have the highest labor force and employment rate of 90 percent and 91 percent, respectively. Engineering, manufacturing, and construction graduates are also doing well, with a labor force participation rate of 89.3 percent and an employment rate of 88.4 percent, which is close to the national average.

	% of Graduates	Labor Force Participation (%)	Employment (%)	Unemployment (%)
Social sciences, business and law	29.1	87.2	91.6	8.4
Health and welfare	27.3	84.0	86.7	13.3
Science, agriculture	11.5	87.4	89.2	10.8
Education	11.3	90.4	91.1	8.9
Engineering, manufacturing and construction	11.1	89.3	88.4	11.6
Services	7.5	85.3	83.2	16.8
General, humanities and arts	2.1	78.5	91.3	8.7

Table 6. Employment status by discipline group

Source: Authors' computation

Between the top 2 discipline groups, graduates from the health and welfare discipline seem to have worse employment outcomes. Only 84 in 100 are in the labor force, and 72 are employed. Meanwhile, graduates of social sciences, business, and law have a labor force participation rate of 87.2 percent and an employment rate of 91.6 percent. The worse employment outcomes for graduates of health and welfare programs can be related to their more prolonged job transition phase discussed earlier.

Graduates of science and agriculture programs are faring quite well, with 87 percent of them in the labor force and 77 percent have work. This situation contrasts with those who took services programs, where only 85 percent are in the labor force, and only 70 percent are employed. Graduates of general, humanities, and arts programs have the lowest labor force participation rate at 78.5 percent, although 91 percent are employed.

An employed person is considered underemployed if he or she wanted additional work (wanted additional hours of work in the present job or wanted to have an additional job or a new job with longer working hours) during the reference period. Underemployment primarily indicates insufficient income from a person's current job; thus, it is an important welfare indicator.

Annex 4-Table 30 shows the underemployment rates among graduates by type of HEI and by sex. More than a fourth of graduates are underemployed regardless of the type of HEI or sex. Annex 4-Table 31 shows that underemployment rates across discipline groups are around 25–28 percent, except for graduates of general, humanities, and arts, wherein a third of those employed wanted additional work.

On occupation groups, Annex 4-Table 32 shows that 38 percent and 14 percent of the graduates are employed as professionals and associate professionals, respectively. Around 10 percent are working as managers, most of them were private HEI graduates, while a third are doing clerical support, service, and sales work. Four percent are in low-skilled occupations. Significantly more females are professionals and clerical support workers, while more males are technicians, associate professionals, and service and sales workers.

Annex 4-Table 33 shows the major industries of graduates' employers. Sixteen percent of the graduates are employed in the education, wholesale and retail trade, and repair of motor vehicle industries. The next top employers are human health and social

work and public administration and defense industries. Public HEI graduates dominate the education industry, while private HEI graduates constitute most workers in the human health and social work industry. Workers in the education and human health and social work industries are predominantly females, while more male graduates are in the public administration and defense, compulsory social security, and manufacturing industries. These results are consistent with the distribution of graduates presented earlier.

More than 60 percent of graduates work in private establishments (Annex 4-Table 34). Around 6 percent are self-employed or employers, and 2 percent work with or without pay in their family-operated farm or business. Majority of the graduates have permanent jobs, but a third of them are still on short-term or casual work (Annex 4-Table 35).

The median basic pay is PHP 500 per day (Annex 4-Table 36). Those working for the Armed Forces receive the highest pay at PHP 800 per day. For occupation groups constituting 75 percent of the graduates (professionals, clerical support workers, and technicians and associate professionals), the median basic pay is lower than the LFS estimates by around 8–24 percent. For managers and service and sales workers, which account for 10 percent of graduates, the median basic pay is lower than LFS estimates by 22 percent and 11 percent, respectively. Being relatively new entrants to the labor market, most graduates are in lower-paying jobs within these occupation groups.

Graduates of private HEIs working as managers earn substantially more than their counterparts from public HEIs (Annex 4-Table 37). Considering the salaries of the top 3 managerial jobs (retail and wholesale trade managers, sales and marketing managers, and other services managers), private HEI graduates' basic pay per day is around 40–65 percent higher than those of public HEI graduates. Although a cursory comparison of the median basic pay for professionals shows that public HEI graduates earn more, looking at the specific jobs within this occupation group shows this is not the case. The lower median basic pay of private HEI graduates is due to the large number of nursing professionals in this group (taking up almost 50% of the distribution) who earn a median basic pay of PHP 454 per day.

Male and female graduates receive equal pay among occupation groups that constitute most graduates (Annex 4-Table 38). However,

there is a substantial difference between service and sales workers, which account for 10 percent of the graduates. The top job for males within this group is police officers, with a median basic pay of PHP 700 per day, whereas the top job for females is cashiers and ticket clerks, which has a median basic pay of only PHP 318 per day.

Work location aspiration

Majority of the graduates seem unhappy with their current employment or living situation (Annex 4-Table 39). More than half want to work somewhere else to improve their living conditions, which could mean anything from having higher pay, better social services, access to better infrastructure, and better work environment, among others (Annex 4-Table 40).

Some are interested in working anywhere but their current location, such as in Metro Manila and other big cities. An overwhelming 71 percent think working overseas can improve their lives (Annex 4-Table 41). The Fourth Quarter 2014 LFS data shows that 41 percent of overseas workers have at least a bachelor's degree. Annex 4-Table 42 shows that they prefer to work in Canada (24%), United States (16%), and United Arab Emirates (12%).

Factors affecting job choice

Graduates were also asked what they thought was the main reason for landing their current job. Annex 4-Table 43 shows a disaggregation of the total responses based on whether their current job is their first or not. The relative importance of the primary reasons did not change. Occupational skills are still the top reason, followed by work experience and personal connection. However, the answers of those who are still on their first job differ significantly from those who are not. Among those who are already on their second or third job, an equal share (35%) selected occupational skills and work experience as the main reason for getting their job. For those who are still on their first job, occupational skills, which is a proxy for what they learned from their degrees, is the most important reason for getting hired (44%).

Even though graduates stated that occupational skills landed them their job, they believe that the most critical factor for getting a job, in general, is work experience (Table 7). This is true whether or not the graduates are employed or on their first job.

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	Had a Job after Graduation (91) %	Current Job is Not Their First Job (50) %	Current Job is Their First Job (34) %	Currently Unemployed but Had Their First Job (16) %
Work experience	40.1	42.1	42.5	45.0
Occupational skills	38.3	37.4	34.1	34.1
Personal connection	10.0	8.3	11.4	11.9
University/school ranking	6.8	7.2	7.0	5.5
IT skills	1.8	1.6	2.2	1.7
Language skills, specify	1.4	1.6	1.2	1.1
Contract period	0.4	0.3	0.5	0.2
Religion	0.1	0.1	0.0	0.0
Gender	0.1	0.0	0.0	0.0
Other reasons	1.2	1.4	1.0	0.5

Table 7. Wost important factor for getting a jor	Table	7.	Most	imp	ortant	factor	for	getting	а	job
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Source: Authors' computation

Consequently, the same proportion of graduates (41%) also believe that the main barrier to getting a good job is not having sufficient work experience (Annex 4-Table 44). Around 26 percent think the main barrier is outdated or irrelevant skills, while 18 percent believe it is the lack of personal connections. Only 6 percent believe that lack of information on job openings is the primary constraint for getting a job, suggesting that the graduates have access to information on available jobs.

The graduates' preoccupation with work experience appears to be at odds with what employers claim as their primary considerations in hiring entry-level or early-career applicants. According to the 2015 Philippines Fresh Graduates Job and Salary Report of Jobstreet.com, the top five functional skills they look for are communication skills, trainability, competence, problem-solving and analytical skills, and technical know-how.¹¹ Competence and technical know-how may come from work experience, but these are mostly from college training for fresh graduates. Graduates correctly perceive that the communication,

¹¹ It is possible that employers ask for relevant work experience during hiring interviews, but they do not acknowledge this practice when asked for what they look for in fresh graduate applicants. Having relevant experience saves employers of training costs.

critical thinking, and problem-solving skills they learned in college are insufficient to make them competitive in the labor market.

The primary considerations for job choice are related to earnings (Table 8). Wage is the most critical factor, with 66 percent of graduates claiming that this is their top reason for choosing a job, with 84 percent choosing this in their top 3 reasons. The second top reason is work location (29% among the top 3), which, given the earlier results on graduates' reason for wanting to work elsewhere, is also related to pursuing better pay. Promotion possibilities (28% in the top 3) is naturally related to earnings as well. The high underemployment situation of graduates also figures as extra income-generating opportunities are in their top 3 for 22 percent of the time. Among other employment benefits, health insurance support is rated higher than housing. The employment sector, recognition from superiors, or infrastructure provided by the employer are not significant considerations of graduates in selecting a job.

	Rank 1 (%)	Rank 2 (%)	Rank 3 (%)	Among the Top 3 (%)
Wage	65.6	11.5	7.1	84.2
Work location	7.3	16.0	6.0	29.3
Education opportunities	5.0	8.4	12.6	26.0
Extra income-generating opportunities	3.2	9.4	9.6	22.2
Promotion possibilities	3.1	13.3	11.8	28.2
Professional environment	2.9	6.6	6.9	16.4
Proximity to family and friends	2.5	5.7	6.4	14.6
Housing benefit	2.1	8.9	6.1	17.1
Health insurance support	1.9	6.4	13.0	21.3
Access to further education	1.7	3.7	2.9	8.3
Workload/working hours	1.4	4.7	7.1	13.2
Reputation of company	1.4	2.3	4.7	8.4
Sector (public, private for-profit, NGO, etc.)	0.7	1.3	2.2	4.2
Recognition from supervisor/boss	0.4	1.1	2.2	3.7
Infrastructure	0.1	0.3	0.7	1.1
Other factors	0.7	0.5	0.6	1.8

Table 8. Three most important factors influencing a job choice

NGO = nongovernment organization Source: Authors' computation

Job-education mismatch

On the job-education mismatch, the following have been observed: (a) Only 70 percent of graduates think their college degree is relevant to their first job, (b) less than half of them consider occupational skills they learned in college as the main reason for landing their first or current jobs, and (c) around a fourth think that the outdated skills they learned in college keep them from getting a good job. This issue is further explored by looking at specific degree-occupation matches.¹²

To gauge the extent of mismatch, the current occupations of graduates are compared vis-à-vis their baccalaureate program. Horizontal mismatch, or the appropriateness of the degree completed with the job requirements, is assessed in this study. For instance, a graduate of Bachelor of Secondary Education is considered working in a "matched" occupation if he or she is employed as a secondary school teacher; a graduate of BS Electronics Engineering should be working in the electronics engineering profession to be considered as "matched". Horizontal matching was selected to reduce possible arbitrariness given the lack of information on core skills learned from a degree that may be useful in any possible occupations. Finally, since there is no official mapping of the baccalaureate programs and all their possible matched occupations, the analysis only includes programs requiring a professional license, which typically have more defined "matched" occupations.¹³

Table 9 presents the results of the matching exercise. Overall, 49 percent of graduates who took PRC-required courses and are employed during the reference period are in jobs that match their degree. Among the top 15 baccalaureate programs with a PRC license requirement, the BS in Pharmacy has the highest percentage of job-education fit. Almost 80 percent of their graduates work as pharmacists. On the other hand, only 2 percent of BS Customs Administration work as customs and border inspectors.

¹² Due to the data representativeness issue discussed earlier, the discussion in this section applies only to the sample of respondents interviewed, not the target population. Even though national representativeness through weighting is not possible, this exploration of job-education mismatch at the degree level remains meaningful and informative.

¹³ In previous GTS rounds, "matching" was done by pairing baccalaureate programs with broad occupation or industry groups. For instance, a BS Nursing graduate would be considered "matched" if he or she works in the health sector. This way, a BS Nursing graduate working as a receptionist in a hospital would be counted as having a "matched" occupation.

	% of graduates	Match %
BS in Nursing	25.5	52.5
Bachelor of Elementary Education	5.9	64.5
Bachelor of Secondary Education	4.2	59.4
BS in Criminal Justice/Criminology	3.3	50.3
BS in Accountancy	3.0	28.0
BS in Civil Engineering	1.4	51.3
BS in Electronics and Communications Engineering	1.1	14.3
BS in Agriculture	0.9	16.8
BS in Mechanical Engineering	0.8	33.0
BS in Electrical Engineering	0.7	32.1
BS in Architecture	0.6	45.6
BS in Elementary and Secondary Education	0.4	56.7
BS in Social Services/Social Work	0.4	64.3
BS in Customs Administration	0.3	2.0
BS in Pharmacy	0.2	78.4

Table 9. Match of occupations with baccalaureate programs

BS = Bachelor of Science

Source: Authors' computation

Annex 4-Table 45 to Annex 4-Table 49 present the occupations considered "not matched" for the top 5 baccalaureate programs with PRC license requirements.

Among BS Nursing graduates, 52 percent are working as nursing professionals. Annex 4-Table 45 shows the occupations of those who are not nursing professionals. Around 14 percent work as call center agents, 9 percent are retail or wholesale trade managers, and 6 percent are general office clerks.

Meanwhile, for the Bachelor of Elementary Education graduates, those that are working as early childhood educators (21%), general office clerks (10%), other teaching professionals (9%), secondary education teachers (5%), and university and higher education teachers (4%) are considered "not-matched" (Annex 4-Table 46). Majority of Bachelor of Secondary Education graduates who are not teaching in high school work mainly as primary school teachers (34%) (Annex 4-Table 47). The nonteaching jobs are clerks, shopkeepers, and sales representatives.

Among BS Criminal Justice graduates, the majority in "not matched" occupations include security guards (20%), followed by

firefighters (7%) (Annex 4-Table 48). Finally, Annex 4-Table 49 shows that BS Accountancy graduates who are not working as accountants are either accounting and bookkeeping clerks (24%) or accounting associate professionals (20%). These top 2 "not matched" occupations can be considered preparatory jobs toward an accountant position.

Overall, there is a substantial job-education mismatch among HEI graduates. The case is particularly alarming for BS Nursing graduates, who constitute one-fourth of the sample graduates. Their "not matched" jobs are unlike the BS Education graduates working as teachers but not at the level most suited to their degree, or the BS Accountancy graduates who are doing clerical or associate but accounting work. The "not matched" occupations of BS Nursing graduates are outside the field of human health and social work, as only 5 percent are working as health care assistants or nursing associate professionals.

Sociopolitical participation and life satisfaction

This section looks into the graduates' citizenship formation, ethical behavior, social and political activities, and community involvement. It also assesses their satisfaction with the different components of their lives and their lives in general.

Nearly all graduates (94%) are registered voters. The incidence of voting in the four most recent elections is also high—91 percent in the 2010 Presidential elections and 87 percent in the 2013 midterm elections (Annex 4-Table 50).

Good citizenship is mainly associated with voting, obeying laws, and paying taxes (Annex 5-Figure 7). A little over half (55%) think that being vigilant on the government's actions is "very important". Only around 36 percent are concerned with being active in social and political associations and serving the military at a time of need.

Most graduates have a clear belief on what ethical behavior is, although none of the actions considered received a rating higher than 90 percent for being "never justifiable" (Annex 5-Figure 8). Around 85 percent believe that cheating on taxes, buying something stolen, and accepting bribes are not justifiable. Alarmingly, only 78 percent strongly believe that one should not claim government benefits that are not entitled to them. Graduates barely participate in political and social actions (Annex 4-Table 51). Their most common social action is donating for a cause, with 51 percent of graduates having donated for a social cause in the past 12 months at interview time. Participation in other political and social actions is less than 10 percent. Only 4 percent contacted the media to express their views, although media establishments and media personalities are easily accessible through social media.

Participation in groups is also low across the board (Annex 4-Table 52). The highest participation rate is 35 percent for religious organizations. Leisure-related, voluntary, or professional associations only have 19–23 percent participation rates. Only 5 percent are members of a political party.

Figure 4 shows that around 82 percent are satisfied with their lives as a whole. They are most satisfied with their health and their homes, with 81 percent and 78 percent "totally satisfied" with these two aspects, respectively. This is not surprising considering that they are young, and most (76%) still live with their parents. They are also satisfied with their safety and belongingness to their communities. Around 74 percent and



Figure 4. How satisfied are you with the following aspects of your life?

Source: Authors' computation

70 percent of graduates gave these aspects "satisfied" and "totally satisfied" ratings, respectively. This result can be an overestimation because graduates in unsafe areas were not interviewed due to security reasons.¹⁴

Consistent with earlier findings on employment, graduates also gave lukewarm ratings to their current job and employment opportunities. Less than 25 percent said they are "totally satisfied", while a higher percentage gave neutral ratings (25% for current job and 28% for employment opportunities). Still, in line with their desire to earn more, graduates are least satisfied with their financial situation, which is understandable considering they are in the early stages of their careers. Only 14 percent are "totally satisfied" with their finances.

Across all aspects, satisfaction with the national government received the lowest rating. Around 21 percent are not satisfied, while 43 percent gave a neutral rating. However, it is unclear if their dissatisfaction with the national government is caused by their inactive political and social life.

Relationship of college experience with postcollege outcomes

This section explores the extent to which college experience influences postcollege outcomes, such as employment, sociopolitical participation, and life satisfaction. None of the previous GTS studies attempted this kind of analysis.

The information from the different aspects of college and postcollege experience captured in the survey was summarized and used in the regressions relating college experience with postcollege outcomes.

Taking off from and extending the approach by Webber et al. (2013), polychoric principal component analysis (PCA) was used as a dimensionality reduction technique to limit several indicators representing various aspects of college and postcollege life into a few indices that explain most of the variability in the data.¹⁵

For instance, indicators capturing "college experience" were reduced to seven indices:

 Learner engagement – aggregates dimensions on sense of belonging, feeling prepared for study, class participation and interaction with other students, and participation in extracurricular activities.

¹⁴ Some regions have reported this issue during data collection.

¹⁵ This kind of PCA is more appropriate for categorical variables, which is how the different components of college and postcollege outcomes were measured. More details of the methodology are provided in Annex 3.

- Intracurricular reflects emphasis on other components of learner engagement that are not extracurricular activities.
- Teaching quality aggregates dimensions on faculty giving clear explanations, good examples, helpful assignments, intellectual stimulation, useful comments, as well as to whether they were generally helpful or displayed subject mastery and time management.
- Support services aggregates dimensions on helpfulness of administrative staff, librarians, guidance counselors, religious guides, laboratory technicians, and research personnel.
- Noncore support services reflects emphasis on auxiliary services that are not necessarily present in other HEIs.
- Overall college experience aggregates dimensions on the extent that college experience helps students connect to the real world, apply classroom learnings into action, and positively influences intellectual and personal growth.
- Practicality of college experience reflects emphasis on applied aspects of college experience.

Questions on postcollege outcomes were reduced into nine indices and divided into two groups:

- 1. Citizenship, ethics, and participation
 - Citizenship aggregates dimensions on voting, tax evasion, obedience to laws and regulations, vigilance, social and political associations, and willingness to serve in the military.
 - Active participation preference reflects emphasis on "active" displays of citizenship (active watching of government actions, joining the military, participation in social or political associations over simply voting or not evading taxes).
 - Unethicality aggregates dimensions on how justifiable a respondent thinks certain questionable actions are ethical.
 - Nonparticipation in political/social action aggregates dimensions on forms of political/social action a person did not take, such as protest action, boycotts, donating money for political causes, and signing petitions.
 - Nonparticipation in groups aggregates dimensions on a respondent's nonparticipation in political parties, trade unions, church, sports, and volunteer organizations.

- Nonparticipation in political/economic groups reflects emphasis on nonparticipation in political parties and trade unions.
- 2. "Life satisfaction"
 - Overall life satisfaction aggregates dimensions on the respondent's satisfaction with her home, job, employment opportunities, financial situation, safety, belongingness, health, the national government, free time, and life as a whole.
 - Nonimmediate needs life satisfaction reflects emphasis on nonimmediate sources of life satisfaction, such as free time and health as opposed to immediate needs, such as job, financial situation, opportunities, and shelter.
 - External life satisfaction reflects emphasis on interactions with other people outside of family or community.

Details on how these indices were derived are discussed in Annex 3 on dimensionality reduction.

Regressions were then conducted to check the following relationships: (1) college experience indices to probability of employment; (2) college experience indices on citizenship, ethics, and participation; and (3) college experience and employment with life satisfaction indices. For all the regressions, a specific set of student characteristics and household characteristics, namely, sex, HEI type and regional location, poverty status, and parents' educational attainment, were used as control variables.

Each of the regressions is of the form $Y = F(\alpha + \beta' X + \lambda' Z + \varepsilon)$, where Y is any of the postcollege indexes developed earlier; X is the set of college experience indexes generated and hypothesized to affect Y; Z is the set of student characteristics and household characteristics mentioned above, ε is the error term, and F() is the functional form of the estimating equation that will depend on the nature of the dependent variable of interest (logistic for binary, ordinary least squares for the rest).

The results of the regressions are summarized in Table 10. Only the statistically significant estimates are shown in this summary table. Also, Table 10 and the subsequent regression tables only report the coefficients of X for parsimony.

The summary table shows that a positive college experience (in most of its multiple dimensions) is generally associated with (1) better overall life satisfaction, (2) a stronger sense of citizenship (although preference for more active displays of citizenship, which may have been induced by exposure to extracurricular activities was noted), and (3) less participation in political/economic groups.

Learner engagement improves employment, makes for a better citizen, and improves life satisfaction (with more emphasis on immediate needs). Lack of extracurricular activities may worsen employment outcomes though it may increase active group participation. Availability of support services seems to worsen employment outcomes but improves active citizenship and overall life satisfaction. One's sense of ethics is best improved by enhancing teaching quality, support services, and education's practicality.

Given that the explanatory variables are just principal components themselves, interpreting this result using the original variables is complicated but not impossible.

On learner engagement, it is established that a unit increase in learner engagement can be produced by a linear combination of increasing by one unit (in a range of 1 to 5) the original indicators. For instance, the learner engagement index can be increased by one unit by simultaneously increasing the answers to questions 3, 5, 6, and 7 by one unit (see Table 11 and Annex 3-Table 2). By doing so, the odds of the graduate being employed are increased by 9.8 percent.

Interpreting the other explanatory variables can proceed similarly.¹⁶ For the rest of the analysis, however, a simple OLS regression was used to deduce the association of the variables. Note that interpreting the magnitudes is a bit complicated at this point. For this purpose, it is sufficient to examine the direction (sign) and strength of the association (statistical significance).

¹⁶ This information can also be used to increase employment by considering it as an optimization problem. For instance, costs can be assigned to increase by one unit the answers to the questions in each aspect (e.g., what is the cost of increasing students' participation outside of study requirements?), then the least-cost option for increasing learner engagement can be computed given the costs and the weights (factor loadings) of each aspect.

Table 10. Summary of statis	stically sig	nificant re	elationshi	ps of colle	ege experi	ience with	postcolle	ge outcon	nes	
			Citize	nship, Ethi	ics, Particip	ation		Life	e Satisfactio	n
College experience indexes $(X)/Postcollege$ indices (Y)	(mod sbbo-gol ni) tnəmyolqm∃	qiAznszitiD	Active participation	VilsoidtenU	Nonparticipation in political and social action	Nonparticipation in groups	Nonparticipation in political/economic groups	noitsetsitse efil llerevO	Nonimmediate needs life satistaction	External life satisfaction
Learner engagement	1.098	0.141+	0.044+	0.027	-0.10+	-0.09+		0.083+	-0.02	0.019
Intracurricular thrust		0.053+	-0.02	0.043	0.054+	+60:0	-0.03+	0.100+		-0.07+
Teaching quality		0.067+	-0.02	-0.03+	0.023			0.066+		
Support services	0.942	0.026	0.038+	-0.10+			-0.02	0.111+		
Noncore support services			0.098+	0.105+	0.057					-0.04
Overall college experience	1.084	0.060+	-0.02	0.216+				0.148†		
Practicality of experience		0.054		-0.16†	0.154+	0.084+	-0.04			
Employment								0.751+	-0.95+	0.287
Note: All entries are significant at a estimates are provided in the succe Source: Authors' computation	i 5-percent si seding tables	gnificant lev	el. Those wit	h † are signi	ficant at a 1-	percent sign	ificant level.	Standard err	ors and p-va	ues of the

Question	Factor Loading
During that time, to what extent have you:	
(1 - Not at all, 2 - Very little, 3 - Some, 4 - A lot 5 - Very much)	
a. had a sense of belonging to your university?	0.1878
b. felt prepared for your study	0.2039
During that time, how frequently have you:	
(1 - Never, 2 - Rarely, 3 - Sometimes, 4 - Often, 5 – Very often)	
a. Participated in discussions online or face-to-face?	0.2608
b. Worked with other students as part of your study?	0.2372
c. Interacted with students outside your study requirements?	0.2618
d. Interacted with students who are very different from you?	0.2551
How frequently have you:	
(1 - Never, 2 - Rarely, 3 - Sometimes, 4 - Often, 5 – Very often)	
a. Participated in intramural/sports fest/varsity team?	0.2570
b. Held a leadership position in a student club, campus organization,	
residence hall, or fraternity/sorority?	0.3180
c. Been an active member of any nonacademic club?	0.3093
d. Been an active member of any academic club?	0.3281
e. Participated in a leadership training program?	0.3278
f. Affiliated with religious clubs/participated in religious activities?	0.2998
g. Participated in activities that helped you explore your career	
options?	0.3120

Table	11.	Factor	loadings	for	questions	related	to	learner	engagement	

Source: Authors' computation

College experience on employment

This study also looks at the relationship of college experience on employment and sociopolitical participation indices developed earlier: citizenship, active participation, unethicality, and participation in groups, specifically political/economic groups.

The dependent variable "employment status" is equal to 1 if the graduate is employed and 0 otherwise. Thus, logistic regression was used, and the odds ratios of the estimates were presented (Table 12). A unit increase in the overall college experience increases the odds ratio of employment by 8.4 percent, and a unit increase in learner engagement by 9.8 percent. Meanwhile, the support services index reduces the odds of employment by 5.8 percent.

This GTS survey results suggest that better college experience and learner engagement make for a more employable graduate. As for better

	Odds Ratio	Standard Error	p-value
Learner engagement index	1.098	0.022	0.000
Intracurricular index	0.968	0.030	0.300
Teaching quality index	0.972	0.022	0.202
Support services index	0.942	0.022	0.011
Noncore support services index	1.032	0.045	0.473
Overall college experience index	1.084	0.031	0.005
Practicality of college experience index	1.031	0.057	0.581
Pseudo R-squared	0.048		
Prob > chi2	0.000		
Number of cases	7280		

Table 12. Logistic regression of employment on college experience

Source: Authors' computation

support services, these are generally associated with more expensive schools, which are accessible to more affluent families who can cope with prolonged unemployment by its members.

College experience on citizenship, ethics, and participation

Citizenship. For the citizenship index, all explanatory variables are significant except for the noncore support services index (Annex 4-Table 53). This result is expected, except for the intracurricular index, which has a positive sign. The positive sign can be explained by looking at the active participation index (Annex 4-Table 54), which measures preference to civic participation that emphasizes action over passive citizenship, such as vigilance to government actions, willingness to join the armed forces, and participation in political associations. In this index, extracurricular emphasis is positive (intracurricular is negative), while overall college experience is negative. Poor teaching quality and possibly less satisfying experience during college may nudge individuals to become more active in pushing for political reforms postcollege.

Unethicality. The unethicality index is negatively associated with teaching quality, support services, and practicality of college experience but positively associated with everything else (Annex 4-Table 55). Thus, in the negative sense, better teaching quality, support services, exposure to extracurricular activities, and practicality of college experience make for a more ethical citizen after college.

Nonparticipation in political and social action. The political/social nonaction index is negatively associated with learner engagement but positively associated with noncore support services, intracurricular, thrust, and practicality of college experience (Annex 4-Table 56). In the negative sense, political/social action is positively associated with learner engagement but negatively associated with noncore support services, intracurricular, thrust, and practicality of college experience. It could be that more engaged students (through extracurricular activities and more social than technical education) tend to become more active politically later on.

Nonparticipation in groups. Results on participation in groups (Annex 4-Table 57) are similar to that of political and social participation, except that the noncore support services index is not statistically significant.

Finally, *nonparticipation in political/economic groups* only has three statistically significant explanatory variables, all of which have negative signs: intracurricular, support services, and practicality of college experience (Annex 4-Table 58). Students with less "practical" and more extracurricular college experience are more predisposed to join political groups over nonpolitical ones. The lack of support services also relates to increased participation in political groups.

College experience and employment outcomes on overall life satisfaction To analyze the graduates' life satisfaction, employment status is included as a control variable in these regressions.

Overall life satisfaction. Unsurprisingly, all explanatory variables are positively associated with life satisfaction, except for noncore support services and practicality of college experience (Annex 4-Table 59). Among college experience variables, support services and overall college experience indexes have the most significant effects. As expected, employment strongly relates to higher overall life satisfaction.

Nonimmediate needs life satisfaction. Only learner engagement has a statistically significant association with nonimmediate needs life satisfaction index (Annex 4-Table 60), and it is negative. Learner engagement seems to matter more in satisfying immediate needs, such as sources of employment and income. Meanwhile, employment has a negative effect, which suggests that nonimmediate needs come to the fore when an individual is unemployed. The 4th Philippine Graduate Tracer Study

External dimensions of life satisfaction. Intracurricular focus is negatively associated with external dimensions of life satisfaction index, an expected result since extracurricular activities may help shift the locus of satisfaction from the self to the external world (Annex 4-Table 61). Learner engagement is positively associated, which suggests that better college interaction also improves postcollege interaction with society.

Summary and Recommendations

GTS design

Summary of findings

Data quality is a critical factor in the success of a GTS. Complete and updated contact information of graduates, at least up to the point of exit from the HEI, is necessary to address the problem of a low response rate. In this GTS round, even obtaining the list of graduates took a long time, and the quality of contact information was not a priority. Midway through implementation, it became apparent that the contact details are of little help since they are incomplete or outdated.

One of this GTS round's primary goals is to capacitate the CHED, especially the regional offices, in managing data collection. The advocacy is that a national GTS should be carried out within CHED as it has the right policy motivations to come up with credible results.¹⁷ However, CHED has been encountering several challenges in piloting the GTS as designed. The study's administrative, financial, and audit aspects turned out to be a potent hurdle in operations. Due to an insufficient understanding of survey operations, CHED regional offices (CHEDROs) could not exercise flexibilities to respond to the GTS implementers' needs. One key element pointed as crucial in sustaining GTS implementation amid hurdles is the regional director's active support and involvement.

Although CHED encountered birthing pains, its central and regional offices found the experience of being the GTS implementer

¹⁷ The Technical Education and Skills Development Authority (TESDA) regularly produces studies (formerly called impact evaluation studies, which are tracer studies) on the employability of technical-vocational education and training (TVET) graduates. But unlike CHED, TESDA runs training institutes.

worthwhile. It is only in this round that they were able to directly interact with graduates by going through the various stages of transition from college to postcollege life. They developed a deeper understanding of the need to find out how higher education can be improved to make a dent in the youth's life trajectory. Some CHEDROs even expressed interest in analyzing the data on their own.

Recommendations

Graduates' data must be improved and systematized. A short-term solution is to institutionalize the collection of the list of graduates with updated contact details in CHEDROs. HEIs should be instructed to include this in their annual submission to CHEDROs before conferring degrees to their graduates. This calls for a substantial improvement in the record-keeping capacities of HEIs. HEIs may also conduct an exit survey for its graduates to collect updated contact information, gather preliminary data, and encourage graduates to participate in a tracer study if they are sampled.

A possible long-term solution is to develop student-level data in the CHED Management Information System, like the Learners' Information System of the Department of Education. This student-level data should be updated upon exit from the school, and the graduates should have a way to update selected items in their profile.

On top of improving data quality to increase response rates, another short-term solution is to develop an aggressive national communication campaign whenever a GTS is in operation. This campaign should target not only graduates but also HEIs, the private sector, and government institutions, including the Philippine Overseas Employment Administration and the Department of Foreign Affairs, to help generate familiarity among stakeholders of the conduct of the GTS by CHED.

There is also a need to consider separate modalities for tracing graduates from private and autonomous HEIs to address confidentiality issues. One option is to contract out the tracing component of the survey to HEIs. A transparent protocol should be established to ensure that the biases being avoided in an HEI-led enumeration are also accounted for in an HEI-led tracing.

Different strategies need to be developed for specific graduates. For instance, police and army officers and lawyers are sensitive to interviews.

They refused to participate or respond even to questions not related to employment. Information campaigns and targeted memorandums of agreement with their employers or professional associations could improve their reception to the study.

The learnings on research management in this round are enormous. There is a need to establish detailed and GTS-specific administrative, financing, and auditing guidelines to avoid the implementation's ambiguities. A separate orientation for administrative, finance, and audit personnel should be included in the project preparatory activities. There is also a need to address staffing constraints at the regional offices.

GTS results

Summary of findings

Private HEIs are the main provider of higher education in the country. They constitute the majority of colleges and universities, and consequently, graduate the majority of students. In terms of discipline groups, social sciences, business, and law courses (mostly BS Business Administration, BS Commerce, and BS Accountancy) are the most popular across public and private HEIs. Health and welfare courses (mostly BS Nursing) are relatively the turf of private HEIs, while public HEIs dominate the education domain. The graduates' choice of degree is driven by employment and career prospects, although public HEI graduates are limited to degrees that their families can afford.

A considerable share of graduates entered college without a specific preference for a degree. Only 70 percent preferred both their program and university when they entered college. This undefined or mismatch in preference seems to linger beyond college, which points to students' substantial and unmet need for the information they need in making important decisions.

Getting a college education is expensive. On average, graduates from public HEIs paid PHP 7,101 per semester on tuition, while their private HEI counterparts paid PHP 21,403 per semester. These are lower-bound results because big private schools are not well represented among respondents.

Overall, college life is mainly focused on academic activities and interactions. Graduates did not participate much in organizations nor interact with other students outside of school requirements. Looking back, they feel that college experience had a stronger influence on their personal and intellectual growth than on translating learning to action in the real world.

Majority of the graduates started looking for work right after graduation. The median length of a job search is 3 to 4 months. Graduates of programs requiring a PRC license started working 11 months after graduation. In comparison, those with programs that do not require a PRC license have a median job start of 5 months after graduation.

The labor force participation rate of graduates is 86 percent. Among those in the labor force, 89 percent were employed. Meanwhile, around 14 percent of graduates are not in the labor force, primarily to attend to family duties. In comparison, the labor force participation is higher than LFS estimates for the comparable period at 78.9 percent but lower in terms of employment rate, which is at 92 percent.

Between the top 2 discipline groups, graduates of health and welfare discipline seem to have worse employment outcomes. Only 84 of 100 are in the labor force, and only 72 of those are employed. Meanwhile, graduates of social sciences, business, and law have a labor force participation rate of 87.2 percent and an employment rate of 91.6 percent. The worse employment outcomes for graduates of health and welfare programs can be related to their more prolonged job transition phase. Graduates of education programs fare quite well in employment, with 90 out of 100 being in the labor force and an employment rate of 91 percent.

There are a number of telltale signs of job-education mismatch: (a) Graduates feel they did not sufficiently develop communication, critical thinking, and problem-solving skills; (b) only 70 percent think their college degree is relevant to their first job; (c) less than half consider occupational skills learned in college as the main reason for landing their first or current jobs; and (d) around a fourth think that outdated skills are keeping them from getting a good job. Overall, only 49 percent of graduates who took courses that required a professional license to practice their profession are employed in jobs that match their degree. The predominant "not matched" occupations are contact center agents and various clerks, retail, sales, and other service workers and laborers.

Graduates believe strongly in the importance of work experience to get a job. In addition, they gathered that employers look for communication skills, trainability, competence, and problem-solving and analytical skills. Graduates are aware that college did not sufficiently develop these skills, and they may be preoccupied with work experience to compensate for these. This could also explain why they are taking various jobs that require lower educational requirements.

Other aspects of postcollege life investigated in this study are sociopolitical participation and life satisfaction. Only a third of graduates believe that social and political aspects of life are "very important". Their contribution to the public good is confined to voting, obeying laws, and paying taxes. They barely participate in political and social actions, and participation in various associations is also low across the board. Meanwhile, despite being concerned about their earnings and rating themselves low in financial condition, overall life satisfaction is still high. They are most satisfied with their health and their homes, which is not surprising considering that most of them are young and still live with their parents.

In relating college experience to postcollege life, this study found that a positive college experience (in its multiple dimensions) is generally associated with (1) better life satisfaction, (2) a stronger sense of citizenship, although there is a preference for more active displays of citizenship that may have been induced by exposure to extracurricular activities, and (3) less participation in political/economic groups.

By unpacking the college experience component, it was found that learner engagement improves employment, citizenship, and life satisfaction. Learner engagement captures indicators, such as a sense of belongingness, preparedness, interaction, and participation, which, as reported earlier, learners tend to score low on. If learner engagement components are improved, it is possible to see improvements in employment outcomes and citizenship and life satisfaction indicators.

Improving extracurricular activities is associated with better employment outcomes while enhancing teaching quality, support services, and practicality of education is associated with a better sense of ethics. However, many graduates reported that college life is focused on intracurricular activities and less on practical learning applications. This suggests that employment and ethics outcomes can still be improved by promoting extracurricular activities and learnings grounded in the real world.

Recommendations

The GTS results point to several policy and research directions that are of interest to CHED. On the mismatch of the preferred programs and HEIs, labor market information must penetrate students in earlier stages of secondary education to better assess alternative career paths vis-à-vis their preferences.

College instruction must be thoroughly improved to substantially develop communication, critical thinking, and problem-solving skills among college students. Insufficient training on these aspects affects all discipline groups and HEI types surveyed in this GTS round, suggesting a structural problem. Graduates and employers agree that these skill gaps are preventing graduates from getting their preferred occupations. In addition to these skills, graduates also think that they need to upgrade their IT and occupational skills to current industry standards. In all of these, CHED needs to push HEIs and the industry to strategically collaborate to ensure effective responses.

There is still much to be learned on the job-education mismatch issue from the perspective of the learner. For instance, why are they employed in occupations with lower educational requirements? Is it the case that they did not pass their respective professional exams, so they had to work as associates or technicians? Or is it because there were not enough resources for or support during the review and the exam? It could be that they are working in "not matched" occupations for the first few years from graduation to save up for review and exam expenses. It is also possible that not so well-off graduates are compelled to work right away and thus accept jobs for which they are overeducated. It could also be that graduates taking jobs with lower educational requirements indicate their valuation of the quality of the education they received; they may not feel confident or competent enough to apply for jobs that are commensurate to their degree.

Meanwhile, the exercise on looking at composite indices representing college experience and postcollege outcomes needs further study. Still, it is evident that college experience strongly correlates with private and public returns to higher education.

Based on the different aspects of college experience tackled in this GTS, the CHED and HEIs can formulate improvements to a student's

college life that will have desirable effects beyond employment. For instance, to improve learner engagement, it might be helpful to conduct seminars that encourage and capacitate faculty members to see the world from the perspective of the student, i.e., the sources of their sense of belongingness, how they learn from various information sources, and how their views and strategies on social interaction are formed. Policymakers may also encourage and incentivize improvements in guidance counseling and other support services for students.

As mentioned earlier, going beyond mere textbook learning is associated with better employment outcomes and a sense of ethics. In this case, strengthening the on-the-job training program and encouraging students' immersion in communities and local and national organizations may be beneficial. This way, learners can test their theories and expectations on the labor market and society early on by embedding themselves in it prior to graduation.

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Annexes

Annex 1. Review of related literature

Higher education institutions

A comprehensive study examining higher education from the perspective of HEIs is that by Paqueo et al. (2011). They observed that the participation rate in higher education is not a problem since the rate is relatively higher in similarly situated economies. Rather, the problem lies with the quality of education reflected by professional board examinations performance, the low world ranking of local HEIs, and the high proportion of college graduates among the unemployed. They traced this to low expenditure per student, low faculty qualifications, and low program accreditation rate.¹⁸

The study also reported that discipline orientation continues to favor the low-priority fields of study. There is also an oversubscription to nonpriority programs, pointing to poor guidance on college-bound students and the relative cheapness of provisioning the oversubscribed courses, given HEI resource limitations. Finally, there is a substantial disparity in HEI attendance in terms of income (favoring the rich) and gender (favoring women).

Manasan and Parel (2014) point to three observations. First, state universities and colleges (SUCs), even if they already have broad mandates, to begin with, are allowed by their charters to offer programs outside of their core mandates. This results in substantial duplication in programs (and therefore higher cost per student for private HEIs) and quality deterioration. Second, while SUCs perform better than private HEIs in over 84 percent of PBEs, this advantage has slowly eroded. Third, there is a preponderance of HEIs with zero passing rates in many PBEs from 2004 to 2011. Therefore, CHED needs to strictly implement an effort to rationalize HEIs and their programs and improve instruction quality.

Manasan's (2012) paper on HEI rationalization found out that while existing funding formulas resulted in the SUCs' greater reliance on internally generated income, they have failed to shift SUCs enrollment toward priority courses and improve the quality of

¹⁸ The accreditation system of Philippine HEIs is thoroughly reviewed by Conchada and Tiongco (2015). The study insisted that quality assurance is also a matter of ensuring learners' outcomes and not just the quality of inputs and processes in the system.

instruction. A multiplicity of program offerings among SUCs is found to push per-student cost upwards. However, this is not found to have a statistically significant influence on the licensure examinations passing rate. Thus, there is some room for reducing per-student cost without necessarily affecting the quality of education provided by SUC.¹⁹

One can argue that provisioning programs outside of core mandates and the multiplicity of program offerings reflect the inherent inefficiency of the SUC. Cuenca (2011) conducted a data envelopment analysis on 78 SUCs and found that most SUCs are inefficient, with a substantial decline in efficient SUCs from 2007 to 2009. The study also concluded that the "year-on-year average efficiency score of all SUCs is considerably low, which indicates a substantial amount of inputs that could have been saved if only the SUCs had operated efficiently" (p.22).

Graduates and the labor market

Orbeta (2002) looks into developments in the dynamics between the Philippine education sector and the labor market in the last quarter of the 20th century. The study already noticed high unemployment rates among the highly educated, even as the share of those with college diplomas among the employed is rising. The incidence of underemployment among those who are at least college graduates also increased.

A wage study was conducted by Luo and Terada (2009) using data from the Philippine Labor Force Survey (LFS) from 2003 to 2007. The study reports that wage returns to education monotonically increase—workers with elementary education, secondary education, and tertiary education earn 10 percent, 40 percent, and 100 percent more, respectively, than those with no education. This was updated and extended by Punongbayan (2013) using 2010 data, reporting returns to elementary, secondary, and tertiary education at 14 percent, 50 percent, and 183 percent higher, respectively, than to no education. The study also demonstrated heterogeneous effects of education across income classes through quantile regression, reporting that returns to college education are higher for low-wage workers than high-wage workers in 2010, but this gap has diminished since 2001.

¹⁹ The study sees the amalgamation of SUCs as a potential way to reduce costs without compromising quality.

A wage premium analysis by Orbeta et al. (2016) revealed shortages in college graduates among fast-growing services sectors (medical, engineering, and architecture; social science, business, and law; sciences; and services disciplines) and oversupply in agriculture and humanities. The study mentions the Philippines Employment Projections Model results by the International Labour Organization (ILO) for 2001–2010, which show that the unemployment rate increases with educational attainment. This implies that as an individual climbs up the ladder of education (learning more skills), he/she tends to remain unemployed.

HEI-labor market dynamics

Given the information on the labor market's behavior vis-à-vis college graduates (and vice-versa), this paper looks at studies on how HEIs, being the producer of these graduates, respond to evolving labor market behavior. Edralin (2001) takes off from the perceived need for appropriate linkage and manpower matching strategies by HEIs and CHED (on top of quality assurance) and surveyed 198 colleges and universities and 810 establishments from 16 regions. The study found a "congruency" between the knowledge schools claimed to give their students and the knowledge expected by establishments from graduates. There is, however, a "noncongruency" in terms of skills.

The study also found out that schools rank developing technical skills related to specialization at the top of their list of priorities, followed by basic academic skills, information technology skills, and social skills. On the other hand, the industry gives more premium to basic academic skills, followed by information technology skills, with technical skills related to specialization ranking only third.

Finally, the study revealed a significant difference between schools' and establishments' ratings and assessments of the graduates' knowledge, values, and skills (evaluated by companies as on-the-job trainees). This result is established in all areas regardless of the type of school and status of accreditation. There is also a significant difference in the schools' and establishments' assessments of the effectiveness of on-the-job training programs. Thus, the study proposed the formulation of integrated human resource development and research and development frameworks by the Department of Labor and Employment and CHED.

A joint study by the ILO Bureau for Employers' Activities and the Employers Confederation of the Philippines (2015) looks into the "job mismatch" in three industries: automotive, semiconductors/electronics, and tourism. Through a combination of focused group discussions (FGD) and a survey, the study confirms that job mismatch—both in technical and soft skills—is more pronounced in the manufacturing sector (automotive and semiconductors) than services (tourism). The research identified three main factors behind the mismatch: (1) weak labor market information system, (2) inadequate training, and (3) weak support for science and technology.

Some studies also revealed that HEIs are putting in efforts to respond to industry requirements—both skill and specialization requirements. Orbeta et al. (2016), in particular, reports on FGDs with HEIs, revealing that HEIs change their academic programs primarily based on labor market information and enrollment. However, administrative bottlenecks and scarcity of resources often prevent the speedy implementation of these changes.²⁰

Learner-oriented studies

Before the 2014 round, there had been three nationwide GTS. The first GTS was conducted by Arcelo (2001) through the Fund for Assistance to Private Education. This round covered graduates from academic year (AY) 1994–1995. The study had 6,701 respondents (41% of the sample) from 653 participating schools. Using logistic regression, the study revealed that graduates with the highest probability of employment are male, married, with high self-rating, and products of the University of the Philippines, De La Salle University, or Ateneo de Manila University. The primary reasons for unemployment stated in the study are failure to find a job commensurate to one's academic preparation, lack of prestige of alma mater, and lack of interest.

The study found that optometry, foreign service, computer engineering, electronics and communication engineering, computer science, accounting, and industrial engineering courses have high employability, while law, architecture, commerce (nonaccounting), and chemical engineering courses have the most significant number of

²⁰ This is related to efficiency concerns discussed earlier in Cuenca (2011).

unemployed. On job-education fit, graduates of dentistry, commerce, language, engineering, and medicine found jobs that fit their academic training. In contrast, graduates of home economics and liberal arts programs had the least job-education fit. Although there is a mismatch in their academic qualifications and job requirements, economics and mass communication graduates are more flexible and have less difficulty finding jobs.

The second graduate tracer survey covered graduates from AY 2000–2001 to AY 2003–2004. It was implemented by the Asian Development Bank through the CHED Zonal Research Centers. A total of 61 (36 private and 25 public) HEIs were able to implement institutional graduate tracer surveys successfully, and these were integrated into a national dataset of 26,992 respondents.

The study found that the mean job search time for college graduates was 9 months, with graduates of service trades courses having the shortest search time at 5.26 months. In terms of employment tenure, graduates of business, education, engineering and technology, medical and allied courses, criminology, and IT-related disciplines are more likely to occupy regular or permanent positions. On initial earnings, graduates from cluster disciplines of law and jurisprudence, medical and allied courses, and transport services have the highest average initial income. Graduates with the lowest initial monthly income are from environmental protection, agriculture, and education, science, and teacher training disciplines. The top 3 reasons for being unemployed are difficulty finding a job, further study, and the presence of family concerns. Graduates from the natural science courses registered the highest unemployment rate, followed by graduates of agricultural courses.

The third nationwide graduate tracer survey covered graduates from the AY 2005–2006 to AY 2009–2010. CHED engaged the De La Salle University to implement the study. A total of 6,622 graduates (46% of the sample) participated in the survey.

Around 82 percent of the respondents were employed at the time of the survey, and majority are graduates of business administration and other business-related courses. They found that age, course, batch, and funding source are significant predictors of employment status. The study also found that the education/teacher training program exhibits the highest job-education fit (76.44%), which means graduates from this program find employment in the education industry. Meanwhile, the unemployed are primarily females (62%), graduates of private HEIs (84%), and medical and allied courses graduates (30%). The top reasons cited for unemployment are professional training, lack of employment opportunities, lack of work experience, lack of connections, and plans to migrate or work abroad.

Overall college experience

Quantifying "college experience" to relate it with success in college or employment is not a trivial exercise. Several studies attempt to aggregate various facets of school experience. Using principal components analysis (PCA), Webber et al. (2013) transformed variables from the US National Survey of Student Engagement into "student engagement" components, the relationship of which to GPA and college satisfaction was explored via ordinary least squares regression and ordinal logit.

The PCA was able to deduce 10 components, which Webber et al. (2013) labeled as (1) course work emphasis, (2) interactions with faculty, (3) institutional emphasis on support and interaction, (4) quality of relationships, (5) undergrad research/capstone, (6) diversity with peers, (7) academic interaction with peers, (8) pages in written papers, (9) community service, and (10) time on study/academic work. Students with activities related to items 1, 2, 4, 7, and 10 reported significantly higher overall academic satisfaction.

"College experience" plays significantly in the decision to finish college or not. Azarcon et al. (2014) used conjoint analysis, a market research tool to identify consumers' underlying preferences and the trade-offs they make, to characterize students' decision-making process related to retention and attrition. For the sampled students in the University of the Cordilleras in Baguio City, the perceived quality of education comes out as the top factor affecting this process, followed by faculty quality and increase in total fees.

Annex 2. Deriving sampling weights for GTS 2014²¹

The 2014 GTS sampling was designed to be representative at the regional level to make survey data useful in regional planning. The CHED also intends to make this a regular activity among its regional offices. Thus, the research also includes training the regional CHED officers in the management of this survey. The original sampling was designed to be self-weighting. However, the conduct of graduate tracer surveys across the regions was uneven. Sampling weights are computed to correct for this varied enumeration performance and regain the sample's representativeness, at least at the national level.

The starting point in the construction of survey weights is the selection probabilities of the original targeted sample units. The initial or base weights for the sample are the inverses of the units' respective selection probabilities. These base weights are then adjusted to compensate for the nonrespondents. A further adjustment may also be applied to make the adjusted weighted sample distribution conform to the known distribution from an external source. The study also performs nonresponse adjustments of the base weights based on poststratification of regions, discipline groups, types of HEIs, and sex.

The original sampling design stratifies each region by (a) type of institutions (private nonsectarian, private sectarian, local universities and colleges, and state universities and colleges) and (b) 19 discipline groups. Sampling was proportional for each stratum, thus, designed to be self-weighting.

Methodology

Table 1 of the report shows the original sample and the actual number of enumerated samples. As observed, no region has enumerated the number in the original sample, as per design. To still capture variations across regions, "megaregions" were created to distribute the total

²¹ Prepared by Dr. Aniceto Orbeta. The inputs of Dr. Jose Ramon Albert, PIDS senior research fellow, in finalizing the computations is acknowledged.
			Megaregi	on		T -4-1
Discipline Group	1	2	3	4	5	– lotai
General, humanities and arts	5	6	6	3	4	24
Education	37	70	52	54	69	282
Social sciences, business and law	45	80	58	23	44	250
Science, Agriculture	90	94	88	37	92	401
Engineering, manufacturing and construction	61	153	112	46	69	441
Health and welfare	33	38	19	48	11	149
Services	42	34	46	38	21	181
Total	313	475	381	249	310	1,728

Annex 2-Table 1. Sample graduates: Public HEIs, male

Source: Authors' computation

enumerated sample into geographically contiguous areas (and roughly having similar characteristics). For instance, CAR, Regions 1, and 2 can constitute Group 1; Regions 3, 4A, 4B, NCR, and 5 as Group 2; Regions 6, 7, and 10 as Group 3; Regions 9, 12, and the Autonomous Region in Muslim Mindanao as Group 4; and Regions 11 and Caraga as Group 5.

Similarly, disciplines were grouped into broad groups and fused general, humanities, and arts into one. Finally, HEIs were grouped into types—public and private. Consequently, megaregions would have at least 600 respondents from public HEIs and at least 1,000 from private HEIs. The cell-weighting procedure was used to compute the weights (Kalton and Flores-Cervantes 2003).

Results

The survey results are shown by discipline group, regional group, type of HEI, and sex.

Sample

The resulting tables for the sample are as follows:

The 4th Philippine Graduate Tracer Study

		Megaregion					
Discipline Group	1	2	3	4	5	– lotai	
General, humanities and arts	9	18	11	13	9	60	
Education	129	211	188	132	157	817	
Social sciences, business and law	113	196	108	43	65	525	
Science, Agriculture	80	87	103	61	109	440	
Engineering, manufacturing and construction	9	63	36	17	33	158	
Health and welfare	63	73	30	99	9	274	
Services	30	38	54	38	19	179	
Total	433	686	530	403	401	2,453	

Annex 2-Table 2. Sample graduates: Public HEIs, female

Source: Authors' computation

Annex 2-Table 3. Sample graduates: Private HEIs, male

			Megaregi	on		Tetel
Discipline Group	1	2	3	4	5	– lotai
General, humanities and arts	9	15	25	19	39	107
Education	37	38	42	38	59	214
Social sciences, business and law	85	105	116	122	198	626
Science, Agriculture	65	78	73	76	95	387
Engineering, manufacturing and construction	88	65	78	56	69	356
Health and welfare	175	147	177	95	162	756
Services	114	136	137	86	162	635
Total	573	584	648	492	784	3,081

Source: Authors' computation

Annex 2-Table 4. Sample graduates: Private HEIs, female

		Megaregion					
Discipline Group	1	2	3	4	5	– Iotai	
General, humanities and arts	8	9	13	9	21	60	
Education	80	116	126	102	154	578	
Social sciences, business and law	147	231	244	189	371	1,182	
Science, agriculture	56	70	82	67	79	354	
Engineering, manufacturing and construction	25	19	16	12	20	92	
Health and welfare	317	292	345	172	376	1,502	
Services	57	93	75	45	98	368	
Total	690	830	901	596	1,119	4,136	

Target population

The tables for the target population are as follows:

Dissipling Crown		Tetal				
	1	2	3	4	5	- 10tai
General, humanities and arts	797	1,775	638	238	63	3,511
Education	3,222	10,457	3,938	1,727	1,568	20,912
Social sciences, business and law	3,622	30,359	5,482	1,800	813	42,076
Science, Agriculture	4,819	14,589	5,785	2,213	2,136	29,542
Engineering, manufacturing and construction	4,304	28,872	10,722	2,212	1,974	48,084
Health and welfare	1,663	6,248	908	1,234	26	10,079
Services	2,023	2,993	3,471	1,005	66	9,558
Total	20,450	95,293	30,944	10,429	6,646	163,762

Annex 2-Table 5	Sample	araduates	Public HFIs	male
Alliex 2- lable 5.	Sample	graduates.	PUDIIC HEIS,	male

Source: Authors' computation

Annex 2-Table 6. Sample graduates: Public HEIs, female

Dissipling Crown		Tatal				
Discipline Group -	1	2	3	4	5	- 10tai
General, humanities and arts	857	2,441	1,329	387	210	5,224
Education	8,306	24,530	15,115	4,731	3,921	56,603
Social sciences, business and law	8,428	41,357	11,784	2,875	1,375	65,819
Science, Agriculture	6,117	16,889	8,373	2,439	2,501	36,319
Engineering, manufacturing and construction	1,503	15,094	3,216	829	668	21,310
Health and welfare	4,054	13,909	2,139	3,043	62	23,207
Services	1,238	3,050	2,253	798	158	7,497
Total	30,503	117,270	44,209	15,102	8,895	215,979

Dissipling		Tatal				
Discipline group	1	2	3	4	5	- Iotai
General, humanities and arts	685	4,927	1,851	424	696	8,583
Education	1,301	5,413	2,634	1,158	1,146	11,652
Social sciences, business and law	7,502	48,335	14,492	4,700	6,909	81,938
Science, Agriculture	4,330	20,332	6,215	2,333	1,744	34,954
Engineering, manufacturing and construction	5,841	21,212	13,223	1,936	2,065	44,277
Health and welfare	11,849	49,473	17,063	3,918	4,862	87,165
Services	8,162	17,074	15,947	4,483	4,394	50,060
Total	39,670	166,766	71,425	18,952	21,816	318,629

Annex 2-Table 7. Sample graduates: Private HEIs, male

Source: Authors' computation

Annex 2-Table 8. Sample graduates: Private HEIs, female

Discipling Croup		Total				
Discipline Group	1	2	3	4	5	- IOLAI
General, humanities and arts	556	3,664	1,057	384	453	6,114
Education	3,802	16,087	10,542	3,275	3,375	37,081
Social sciences, business and law	13,604	75,467	27,394	7,863	12,039	136,367
Science, Agriculture	3,622	15,248	5,911	1,959	1,662	28,402
Engineering, manufacturing and construction	1,421	6,314	2,598	291	470	11,094
Health and welfare	25,917	99,325	40,400	8,816	10,895	185,353
Services	3,314	8,541	3,158	879	1,111	17,003
Total	52,236	224,646	91,060	23,467	30,005	421,414

Computed weights

The resulting weights to be used for analytical purposes would then be the reciprocal of the probability of selection. These are given in the following tables:

		Megaregion						
Discipline Group	1	2	3	4	5			
General, humanities and arts	159.40	295.83	106.33	79.33	15.75			
Education	87.08	149.39	75.73	31.98	22.72			
Social sciences, business and law	80.49	379.49	94.52	78.26	18.48			
Science, Agriculture	53.54	155.20	65.74	59.81	23.22			
Engineering, manufacturing and construction	70.56	188.71	95.73	48.09	28.61			
Health and welfare	50.39	164.42	47.79	25.71	2.36			
Services	48.17	88.03	75.46	26.45	3.14			

Annex 2-Table 9. Derived weights: Public HEIs, male graduates

Source: Authors' computation

Discipling Crown			Megaregior	1 I	
Discipline Group	1	2	3	4	5
General, humanities and arts	95.22	135.61	120.82	29.77	23.33
Education	64.39	116.26	80.40	35.84	24.97
Social sciences, business and law	74.58	211.01	109.11	66.86	21.15
Science, Agriculture	76.46	194.13	81.29	39.98	22.95
Engineering, manufacturing and construction	167.00	239.59	89.33	48.76	20.24
Health and welfare	64.35	190.53	71.30	30.74	6.89
Services	41.27	80.26	41.72	21.00	8.32

Annex 2-Table 10. Derived weights: Public HEIs, female graduates

Discipline Group	Megaregion						
Discipline Group	1	2	3	4	5		
General, humanities and arts	76.11	328.47	74.04	22.32	17.85		
Education	35.16	142.45	62.71	30.47	19.42		
Social sciences, business and law	88.26	460.33	124.93	38.52	34.89		
Science, Agriculture	66.62	260.67	85.14	30.70	18.36		
Engineering, manufacturing and construction	66.38	326.34	169.53	34.57	29.93		
Health and welfare	67.71	336.55	96.40	41.24	30.01		
Services	71.60	125.54	116.40	52.13	27.12		

Annex 2-Table 11. Derived weights: Private HEIs, male graduates

Source: Authors' computation

Annex 2-Table 12. Derived weights: Private HEIs, female graduates

Dissipling Crown	Megaregion				
Discipline Group	1	2	3	4	5
General, humanities and arts	69.50	407.11	81.31	42.67	21.57
Education	47.53	138.68	83.67	32.11	21.92
Social sciences, business and law	92.54	326.70	112.27	41.60	32.45
Science, Agriculture	64.68	217.83	72.09	29.24	21.04
Engineering, manufacturing and construction	56.84	332.32	162.38	24.25	23.50
Health and welfare	81.76	340.15	117.10	51.26	28.98
Services	58.14	91.84	42.11	19.53	11.34

Source: Authors' computation

Annex 3. Dimensionality reduction

Both the college experience and postcollege outcomes modules feature several questions that intend to capture college and postcollege life features. The questions in each feature (sub-module) are supposed to exhaust a feature's most important elements. As such, the volume of questions in a single feature (say Learner Engagement) is large enough to make direct analysis difficult, thus requiring the use of dimensionality reduction techniques. Here, the PCA was used, taking off from and extending the approach by Webber et al. (2013).

Using PCA, a set of variables can be represented by smaller sets of orthogonal components—linear combinations of variables—that capture their variability. This is usually done by eigenvalue decomposition of the covariance or correlation matrix of the variables. The authors then analyze the resulting component scores—transformed values corresponding to data points and loadings—multiplicative weight of each original variable to get the component score. Usually, the first few components (1-3) capture the bulk of the variability of the original sets of variables.

PCA methods usually calculate the covariance or correlation matrix using the Pearson correlation, which assumes that variables are continuous and normally distributed. This may be problematic in the case of Likert scale variables used in the study. Thus, a flavor of PCA called polychoric PCA, which assumes that variables are ordered measurements of a given continuum, was used. It uses polychoric correlations, which are also maximum likelihood-based and have the same range as Pearson correlation, and, therefore, can be interpreted in the same way.

Polychoric PCA was employed to reduce the questions in a feature of college experience captured through several questions into one to three indices, depending on the variability explained and interpretability of the components (based on the sign of the loadings). As input for the polychoric PCA, a mean, standard deviations, and a polychoric correlation matrix on weighted data were also generated.

For college experience, the study used a separate polychoric PCA for learner engagement (Annex 5-Figures 3 and 13 questions), teaching quality (Annex 5-Figures 4 and 7 questions), student support services (Annex 5-Figure 6 questions), overall college experience (Annex 5-Figures 3 and 4 questions). For sociopolitical participation, polychoric PCA for good citizenship (Annex 5-Figures 7 and 6 questions), ethics (Annex 5-Figures 8 and 5 questions), political and social action (Annex 4-Table 51 and Annex 5-Figure 9 questions), and joining a group or association (Annex 4-Table 52 and Annex 5-Figure 5 questions) were also assessed. Finally, a PCA was also run to assess overall life satisfaction (Annex 5-Figures 4–10 questions).

For learner engagement, two principal components from the ten questions explaining 60 percent of the variability (Annex 3-Table 1) were extracted.

The principal component can then be interpreted as the "learner engagement index", representing the bulk of information from the 13 questions (Annex 3-Table 2). Orthogonal to this is the second principal component, which, by looking at the signs of the factor loadings, can be

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Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	5.8185	3.8073	0.4476	0.4476
Comp2	2.0112	0.8999	0.1547	0.6023
Comp3	1.1113	0.4212	0.0855	0.6878
Comp4	0.6901	0.0045	0.0531	0.7409
Comp5	0.6856	0.1044	0.0527	0.7936
Comp6	0.5812	0.1750	0.0447	0.8383
Comp7	0.4061	0.0351	0.0312	0.8695
Comp8	0.3710	0.0311	0.0285	0.8981
Comp9	0.3399	0.0485	0.0261	0.9242
Comp10	0.2914	0.0491	0.0224	0.9466
Comp11	0.2423	0.0087	0.0186	0.9653
Comp12	0.2336	0.0157	0.0180	0.9832
Comp13	0.2178		0.0168	1.0000

Annex 3-Table 1. Components and variables explained for learner engagement

Comp = component

Source: Authors' computation

Annex 3-Table	2. Factor loadin engagement	gs: Principal cor	nponents anal	ysis for learner
Variable	Comp1	Comp2	Comp3	Unexplained

Variable	Comp1	Comp2	Comp3	Unexplained
C1A_1	0.1878	0.3306	0.5765	0.2056
C1A_2	0.2039	0.3218	0.5658	0.1941
C1B_1	0.2608	0.2815	-0.1183	0.4293
C1B_2	0.2372	0.3971	-0.2410	0.2908
C1B_3	0.2618	0.3568	-0.3652	0.1968
C1B_4	0.2551	0.2815	-0.3435	0.3307
C1C_1	0.2570	-0.1776	-0.0370	0.5507
C1C_2	0.3180	-0.2560	-0.0396	0.2780
C1C_3	0.3093	-0.2698	-0.0326	0.2959
C1C_4	0.3281	-0.2647	0.0204	0.2322
C1C_5	0.3278	-0.2406	0.0534	0.2552
C1C_6	0.2998	-0.1990	0.0791	0.3904
C1C_7	0.3120	-0.0791	0.1024	0.4095

Source: Authors' computation

interpreted as an "intracurricular index". It represents the emphasis of learner engagement on nonextracurricular activities.

For teaching quality, the first principal component already explains 69.6 percent of the variation, interpreted as the "teaching quality index" (Annex 3-Table 3). There is no need to look into the second principal component via factor loadings since only the first one is used.

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	5.5681	5.0552	0.6960	0.6960
Comp2	0.5128	0.0341	0.0641	0.7601
Comp3	0.4788	0.0815	0.0598	0.8200
Comp4	0.3972	0.0784	0.0497	0.8696
Comp5	0.3188	0.0448	0.0398	0.9095
Comp6	0.2740	0.0254	0.0342	0.9437
Comp7	0.2486	0.0467	0.0311	0.9748
Comp8	0.2018		0.0252	1.0000

Annex 3-Table 3. Components and variables explained for faculty

Comp = component

Source: Authors' computation

For student support services, the authors opted to look into the "helpfulness" questions since they are more representative of the actual presence of support (Annex 3-Table 4). Looking at the polychoric PCA analysis, the first two principal components explain 75.3 percent of the variation. The first component can be interpreted as the "support services index".

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	3.7837	3.0479	0.6306	0.6306
Comp2	0.7358	0.2091	0.1226	0.7532
Comp3	0.5267	0.1535	0.0878	0.8410
Comp4	0.3732	0.0748	0.0622	0.9032
Comp5	0.2984	0.0161	0.0497	0.9530
Comp6	0.2823		0.0470	1.0000

Annex 3-Table 4. Components and variables explained for support services

Comp = component

Source: Authors' computation

Looking at the signs of the factor loadings of the second principal component, the second component can be intuitively defined as the "noncore support services index" since it gives less priority to core staff like administrative staff, librarians, and guidance counselors over religious support, laboratory support, and research personnel (Annex 3-Table 5).²²

²² The third principal component, which gives emphasis on the provision of services related to psychological health and spiritual development, is no longer included in the analysis.

	Services			
Variable	Comp1	Comp2	Comp3	Unexplained
C3B_1	0.4021	-0.5068	-0.1649	0.1851
C3B_2	0.4107	-0.5107	-0.0107	0.1698
C3B_3	0.4228	-0.1432	0.3798	0.2325
C3B_4	0.3811	0.4152	0.6849	0.0766
C3B_5	0.4166	0.4015	-0.3829	0.1476
C3B_6	0.4149	0.3581	-0.4613	0.1423

Annex 3-Table 5. Factor loadings:	Principal components analysis for support
services	

Source: Authors' computation

For overall college experience, the first two components (explaining 91.32% of the variation) are also useful (Annex 3-Table 6). The principal component is interpreted as "overall college experience index", while the factor loadings of the second component suggest its interpretation as "practicality of college experience index" given its information on the translatability of college experience to real-life situations (Annex 3-Table 7).

On the sociopolitical module, the good citizenship questions include the first two principal components (explaining 79.61% of the

	experience			
Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	3.2901	2.9276	0.8225	0.8225
Comp2	0.3625	0.1774	0.0906	0.9132
Comp3	0.1851	0.0228	0.0463	0.9594
Comp4	0.1623		0.0406	1.0000

Annex 3-Table 6. Components and variables explained for overall college experience

Comp = component

Source: Authors' computation

Annex 3-Table 7	. Factor loadings:	Principal component	s analysis for	r overall
	college experier	ice		

Variable	Comp1	Comp2	Comp3	Unexplained
C4_1	0.4961	0.5505	0.5604	0.0222
C4_2	0.5027	0.4460	-0.5761	0.0351
C4_3	0.5035	-0.4522	-0.4065	0.0611
C4_4	0.4977	-0.5418	0.4345	0.0438

variability) because of the variance explained and the interpretability of the components (Annex 3-Table 8). The principal component then becomes the "citizenship index" because it captures what an individual sees as features of being a good citizen.

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	3.8346	2.8926	0.6391	0.6391
Comp2	0.9420	0.5156	0.1570	0.7961
Comp3	0.4264	0.1082	0.0711	0.8672
Comp4	0.3182	0.0334	0.0530	0.9202
Comp5	0.2848	0.0909	0.0475	0.9677
Comp6	0.1940		0.0323	1.0000

Annex 3-Table 8. Components and variables explained for citizenship

Comp = component

Source: Authors' computation

A cursory analysis on the loadings of the second component suggests that it represents an individual's preference for "active" displays of citizenship (active watching of government actions, joining the military, participation in social or political associations over simply voting or not evading taxes) (Annex 3-Table 9). Thus, we can interpret the second component as the "active participation preference index".

Variable	Comp1	Comp2	Comp3	Unexplained
E3_1	0.4240	-0.2973	0.0407	0.2267
E3_2	0.4125	-0.4071	0.2631	0.1618
E3_3	0.4299	-0.3607	0.0863	0.1655
E3_4	0.4419	0.1221	-0.5102	0.1262
E3_5	0.3948	0.4799	-0.4315	0.1061
E3_6	0.3378	0.6088	0.6894	0.0106

Annex 3-Table 9. Factor loadings: Principal components analysis for citizenship

Source: Authors' computation

For the ethics questions, the principal component already explains 92.9 percent of the variation. The principal component is interpreted in a negative sense (the items included in the questions are ethically questionable in nature, and the respondent is asked how justifiable the items are). This is interpreted as the "unethicality index" (Annex 3-Table 10).

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			-	-
Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	4.6452	4.4781	0.9290	0.9290
Comp2	0.1671	0.0714	0.0334	0.9625
Comp3	0.0956	0.0375	0.0191	0.9816
Comp4	0.0581	0.0242	0.0116	0.9932
Comp5	0.0339		0.0068	1.0000

Annex 3-Table 10. Components and variables explained for unethicality

Comp = component

Source: Authors' computation

For questions on political and social action, only the principal component was taken, even as it explains only 62.6 percent of the variability, due to the lack of variance explained and difficulty in interpreting the second and third components (Annex 3-Table 11). As with above, the first component is interpreted in a negative sense, given the way the question was set up (Yes=1, No=2). The first component is labeled as the "political/social nonaction index".

		-			
Component	Eigenvalue	Difference	Proportion	Cumulative	
Comp1	5.6372	4.7146	0.6264	0.6264	
Comp2	0.9226	0.1951	0.1025	0.7289	
Comp3	0.7275	0.2621	0.0808	0.8097	
Comp4	0.4654	0.1139	0.0517	0.8614	
Comp5	0.3515	0.0513	0.0391	0.9005	
Comp6	0.3003	0.0638	0.0334	0.9338	
Comp7	0.2365	0.0438	0.0263	0.9601	
Comp8	0.1927	0.0264	0.0214	0.9815	
Comp9	0.1663		0.0185	1.0000	

Annex 3-Table 11. Components and variables explained for political and social action

Comp = component

Source: Authors' computation

For questions on active participation in groups and associations, the first two principal components were used, explaining 72.3 percent of the variation. As with the above, these are interpreted in the negative sense. The principal component is simply interpreted as "nonparticipation in groups index", while the second component is interpreted as "nonparticipation in political/economic groups index"

Variable	Comp1	Comp2	Comp3	Unexplained
E5_1	0.3513	0.0449	-0.3322	0.2223
E5_2	0.3450	0.1903	-0.4662	0.1376
E5_3	0.3279	0.3334	-0.4095	0.1694
E5_4	0.3400	-0.2716	-0.0709	0.2764
E5_5	0.3401	-0.3600	0.1320	0.2158
E5_6	0.3630	-0.1745	0.1487	0.2130
E5_7	0.2136	0.7420	0.4819	0.0658
E5_8	0.3422	-0.2536	0.3124	0.2094
E5_9	0.3525	0.0445	0.3607	0.2030

Annex 3-Table 12. Factor loadings: Principal components analysis for political and social action

Source: Authors' computation

Annex 3-Table 13. Components and	variables explained for parti	cipation in
groups		

Component	Eigenvalue	Difference	Proportion	Cumulative	
Comp1	2.9045	2.1940	0.5809	0.5809	
Comp2	0.7105	0.0925	0.1421	0.7230	
Comp3	0.6180	0.2235	0.1236	0.8466	
Comp4	0.3945	0.0220	0.0789	0.9255	
Comp5	0.3725		0.0745	1.0000	

Comp = component

Source: Authors' computation

Annex 3-Table 14.	Factor loadings:	Principal	components	analysis for
	participation in	groups		

Variable	Comp1	Comp2	Comp3	Unexplained
E6_1	0.4095	0.7005	-0.3633	0.0827
E6_2	0.4142	0.3049	0.8091	0.0310
E6_3	0.4412	-0.5902	0.1748	0.1681
E6_4	0.4718	-0.2515	-0.3995	0.2098
E6_5	0.4933	-0.0690	-0.1520	0.2754

due to the interpretation of loadings as favoring political or economic organizations over others.

The results for the overall life satisfaction questions are shown in Annex 3-Table 15. The GTS asked respondents if they are satisfied with their home, current job, employment opportunities, financial situation, among others. A polychoric PCA was used to analyze the answers. The first principal component was only able to explain 47.8 percent of the variation. Hence, the authors found it fit to use the first three principal components, which can explain 67 percent of the variation. The first principal component is a straightforward interpretation of the "overall life satisfaction index".

The second component is also easy to interpret if the loadings are sorted (Annex 3-Table 16). Negative loadings appear for "immediate needs", such as job, financial situation, opportunities, and shelter, with the highest positive loads for nonimmediate benefits, such as free time and health. This component is therefore interpreted as "**nonimmediate needs life satisfaction index**".

The third is a bit more complex, but the positive loadings indicate satisfaction with respect to aspects of life that involve interaction with other people outside of family or community (free time can be interpreted as leisure time, which usually involves interacting with strangers). The third component is therefore considered an "external life satisfaction index".

The indices generated are the explanatory or outcome variables used in the subsequent econometric analysis. Note that these indices are composite variables and linear combinations of the original variables. Therefore, interpretation of the elasticities can be broken down to original variables using the factor loadings, if necessary.

	Satisfaction			
Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	4.7823	3.6765	0.4782	0.4782
Comp2	1.1058	0.2918	0.1106	0.5888
Comp3	0.8140	0.1241	0.0814	0.6702
Comp4	0.6899	0.0917	0.0690	0.7392
Comp5	0.5982	0.0629	0.0598	0.7990
Comp6	0.5353	0.1040	0.0535	0.8526
Comp7	0.4313	0.0458	0.0431	0.8957
Comp8	0.3856	0.0262	0.0386	0.9342
Comp9	0.3594	0.0613	0.0359	0.9702
Comp10	0.2981		0.0298	1.0000

Annex 3-Table 15. Co	mponents and	variables	explained	for overal	l life
sat	isfaction				

Comp = component Source: Authors' computation

Annex 3-Table 16. Factor loadings:	Principal components	analysis for overall
life satisfaction		-

Variable	Comp1	Comp2	Comp3	Unexplained
E9_1	0.2923	-0.0145	-0.4433	0.4310
E9_2	0.3322	-0.4913	0.1190	0.1939
E9_3	0.3199	-0.5037	0.0912	0.2233
E9_4	0.3485	-0.3033	0.0664	0.3138
E9_5	0.3403	0.1550	-0.2573	0.3658
E9_6	0.3273	0.2235	-0.0242	0.4320
E9_7	0.3145	0.3110	-0.2063	0.3854
E9_8	0.2501	0.2035	0.7777	0.1629
E9_9	0.2738	0.4318	0.2013	0.4022
E9_10	0.3479	0.1192	-0.1480	0.3877

Annex 4. Tables

Age	Total %
21-23 years old	9.3
24-27 years old	74.8
28-30 years old	10.6
Above 30 years old	5.3

Annex 4-Table 1. Respondents by age group

Source: Authors' computation

Annex 4-Table 2. Respondents' marital status by sex

Marital Status	Total %	Male %	Female %
Never Married (single)	74.7	77.5	72.5
Married	20.7	17.8	22.9
Living-in	4.2	4.3	4.1
Others	0.4	0.3	0.4
Pearson chi2 p-value		0.	000

Source: Authors' computation

	Educational Attainment of Mother					
Educational Attainment of Father	Elementary Graduate or Lower %	Some High School %	High School Graduate %	Some College %	College Graduate or Higher %	Total %
Elementary graduate or lower	7.9	1.8	2.8	1.2	1.2	14.9
Some high school	1.4	1.7	1.2	0.7	0.9	5.9
High school graduate	2.5	1.0	11.1	3.2	4.5	22.3
Some college	1.1	0.8	4.6	8.0	7.8	22.3
College graduate or higher	0.9	0.5	3.4	4.7	25.2	34.6
Total	13.8	5.9	23.0	17.8	39.5	100.0

Annex 4-Table 3. Highest educational attainment of parents

Annex 4-Table 4. Highest educational attainment of parents by poverty status

	Father		Moth	ner
-	Nonpoor %	Poor %	Nonpoor %	Poor %
Elementary graduate or below	10.4	32.3	10.4	27.1
Some high school	5.0	9.7	4.8	10.3
High school graduate	21.5	25.5	22.0	26.9
Some college	23.5	17.4	18.2	16.1
College graduate or higher	39.7	15.0	44.6	19.7

Source: Authors' computation

Annex 4-Table 5. Reasons for taking the baccalaureate degree

	Total %	Public %	Private %	Pearson chi2 p-value
Immediate employment prospects	72.4	71.0	73.1	0.000
Prospect of career advancement	72.0	70.0	73.0	0.000
Availability in chosen HEI	69.5	71.7	68.3	0.000
Strong passion for profession	67.1	67.0	67.1	0.140
Prestige of the profession	66.7	63.1	68.6	0.000
Attractive compensation	66.1	62.1	68.1	0.000
Good grades in high school	64.3	64.2	64.4	0.124
Influence of parents/relatives	64.2	60.7	66.0	0.000
Affordable for the family	64.2	71.8	60.2	0.000
Overseas employment prospect	56.9	50.7	60.1	0.000
Inspired by a role model	51.3	51.0	51.5	0.000
Peer influence	41.9	40.5	42.7	0.000
CHED priority course	22.9	22.9	23.0	0.198
No particular choice	18.6	16.1	19.8	0.000
Personal choice/desired course	2.8	2.9	2.8	0.233

Source: Authors' computation

Annex 4-Table 6. Preferred program/HEI before starting college

le it your proferred	l	s it your preferred HEI	?
Program?	Yes %	No %	Total %
Yes	69.6	8.2	77.8
No	14.4	7.8	22.2
Total	84.1	15.9	100.0

HEI = higher education institution

ls it your preferred	Given what you know today about this course, would you have changed your course?			
program at that time?	Yes %	No %	Total %	
Yes	8.3	69.6	77.9	
No	7.2	14.9	22.1	
Total	15.5	84.5	100.0	

Annex 4-Table 7. Preference versus incidence of changing course

Source: Authors' computation

Annex 4-Table 8. Preference versus incidence of changing HEI

ls it your preferred	Given what you know today about your course, would you have chosen another HEI?				
HEI at that time?	Yes %	No %	Total %		
Yes	7.7	76.5	84.1		
No	7.0	8.9	15.9		
Total	14.6	85.4	100.0		

HEI = higher education institution

Source: Authors' computation

Annex 4-Table 9. Average expenses (in PHP)

	Tuition and Other Fees per Sem	Allowance per Month	Rent per Month	Supplies per Sem	Academic Activities per Sem	Extracurricular Activities per Sem
Total	16,557	3,247	1,546	3,833	3,503	1,631
Public	7,101	2,301	973	2,368	2,190	1,255
Private	21,403	3,735	1,816	4,589	4,184	1,827
T-test p-value	0.000	0.000	0.000	0.000	0.000	0.000

sem = semester; PHP = Philippine peso

Source: Authors' computation

Annex 4-Table 10. Primary source of college funds

	%
Support from parents	77.0
Support from other relatives	12.1
Scholarship	6.9
Self-support	3.4
Grants-in-aid	0.3
Loans	0.1
Other sources	0.1

	%
Nurse	47.7
Professional teacher	25.7
Criminologist	6.1
Certified public accountant	4.4
Civil engineer	2.3
Mechanical engineer	1.6
Electronics and communications engineer	1.5
Architect	1.0
Social worker	0.8
Electronics engineer	0.8
Other exams	9.1
Source: Authors' computation	

Annex 4-Table 11. Professional/licensure exam taken

Annex 4-Table 12. Government exam taken

	%
Career service exam - Professional	71.7
TESDA exam (various NC exams)	10.2
NAPOLCOM/police entrance exam	7.7
Career service exam – subprofessional	6.4
Department of Public Works and Highways qualifying exam	0.4
Penology office qualifying exam	0.4
Senior police officer exam (promotional exam)	0.3
RN Heals entrance examination	0.3
Philippine Coast Guard commisionship exam	0.3
Foreign service officer exam	0.2
Other exams	2.1

NC = national certificate; TESDA = Technical Education and Skills Development Authority; NAPOLCOM = National Police Commission ; RN = registered nurse Source: Authors' computation

Annex 4-Table 13. Incidence of taking any kind of training

	Total %	Public %	Private %
Yes	27.1	24.7	28.4
No	72.9	75.3	71.6
Pearson chi2 p-value		0.0	000

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	Total %	Public %	Private %	Pearson chi2 p-value
Related to profession	74.7	69.2	77.2	0.000
Other professional skills	38.0	40.1	37.0	0.000
General skills	16.0	20.5	13.9	0.000

Annex 4-Table 14. Advanced courses/trainings taken

Source: Authors' computation

Annex 4-Table 15. Purpose for taking training

	Total %	Public %	Private %	Pearson chi2 p-value
Professional development	82.5	82.1	82.7	0.000
Personal development	48.9	50.2	48.4	0.000
Promotion	18.9	22.3	17.4	0.000

Source: Authors' computation

Annex 4-Table 16. Sources of funds for training

	Total %	Public %	Private %	Pearson chi2 p-value
Respondent/family/relatives	61.7	54.0	65.1	0.000
Employer	29.4	33.5	27.5	0.000
Public/state orgs	7.4	12.4	5.2	0.000
Other private/NGOs	5.9	7.9	5.0	0.000
International orgs	0.6	0.8	0.6	0.000

NGOs = nongovernment organizations

Source: Authors' computation

Annex 4-Table 17. Incidence of taking graduate studies

Total %	Public %	Private %
8.7	3.4	5.2
91.3	30.7	60.7
	0.0	000
	Total % 8.7 91.3	Total Public % % 8.7 3.4 91.3 30.7 0.0

	% Yes
Prospect of career advancement	83.8
Strong passion for profession	79.4
Prestige of the profession	74.8
Immediate employment prospects	74.4
Attractive compensation	70.5
Availability in chosen HEI	64.4
Inspired by a role model	63.0
Affordable for the family	57.6
Good grades in high school	52.7
Peer influence	44.6
Influence of parents/relatives	43.3
Overseas employment prospect	43.2
CHED priority course	24.0
No particular choice	9.5
Source: Authors' computation	

Annex 4-Table 18. Reasons for taking graduate studies

Annex 4-Table 19. Did you start looking for work right after graduation?

	Total %	Public %	Private %	
Yes	58.5	66.1	54.5	
No	41.5	33.9	45.5	
Pearson chi2 p-value		0.000		

Source: Authors' computation

Annex 4-Table 20. Main reason for not looking for work right after graduation

	Total	Public	Private
	70	70	70
Board/bar review	41.2	31.6	44.9
Rest	33.4	40.4	30.8
Got pregnant	4.9	6.0	4.5
Family/household duties	4.0	3.7	4.1
Further study	3.8	3.4	3.9
Skills training	3.2	4.0	2.9
Got married	2.7	3.2	2.5
Other reasons	6.8	7.7	6.4
Pearson chi2 p-value		0.0	000

Annex 4-Table 21. Job transition ind	icators					
	No. of Mont Job Search	hs before Starting after Graduation	No. of Mo	nths Spent Looking for Work	No. of Months Work after	before Starting Graduation
	Mean	Median	Mean	Median	Mean	Median
Total	4.6	0.0	8.2	4.0	12.8	9.0
Public	3.3	0.0	7.2	3.0	10.7	6.0
Private	5.3	0.0	8.8	4.0	13.9	10.0
T-test p-value	0.000		0.000		0.000	
With PRC license	5.9	0.0	0.6	5.0	15.0	11.0
Without PRC license	3.2	0.0	7.4	3.0	10.5	5.0
T-test p-value	0.000		0.000		0.000	
Source: Authors' computation						
	-					
Annex 4-lable 22. Job transition by I	field of study					
	% of Graduates	No. of Months k Starting Job Searc	oefore ch after	No. of Months Spen Looking for Work	t No. of N Startin	1000 Aonths Before g Work after

	% of Graduates	No. of Mo Starting Job Gradi	nths before Search after Lation	No. of Mo Looking	nths Spent for Work	No. of Moi Starting V Gradu	nths Before Vork after Iation
		Mean	Median	Mean	Median	Mean	Median
Social sciences, business and law	29.1	3.4	0.0	7.0	3.0	10.4	5.0
Health and welfare	27.3	7.1	0.0	10.2	6.0	17.3	14.0
Science, Agriculture	11.5	2.5	0.0	7.7	4.0	10.1	5.0
Education	11.3	3.4	0.0	7.1	2.0	10.6	6.0
Engineering, manufacturing and construction	11.1	5.1	0.0	7.3	4.0	12.4	0.6
Services	7.5	5.2	0.0	10.2	6.0	15.1	12.0
General, humanities and arts	2.1	3.8	0.0	6.7	3.0	10.7	5.0
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Annex 4-Table 23. Job search method

	Total	Public	Private
	70	70	70
Approached employer directly	38.4	38.4	38.4
Approached relatives or friends	22.8	22.6	23.0
Placed or answered advertisements	11.9	12.4	11.7
Registered in private employment agency	11.5	12.5	10.9
Registered in public employment agency	7.4	6.8	7.7
School placement office	4.2	4.0	4.3
Other methods	3.8	3.3	4.0
Pearson chi2 p-value			0.000

Source: Authors' computation

Annex 4-Table 24. Minimum educational requirement for first job

	Total %	Public %	Private %
No education	0.5	0.6	0.5
Elementary	0.2	0.0	0.3
High school	4.4	5.4	3.9
Vocational	1.4	1.8	1.1
College undergraduate	9.6	10.4	9.1
College graduate	74.5	73.9	74.9
Graduate degree	6.6	5.5	7.3
No minimum requirement	2.7	2.4	2.9
Pearson chi2 p-value		0.0	000

Source: Authors' computation

Annex 4-Table 25. Main task in first job

	Total %	Public %	Private %
Technical/professional	47.6	43.9	49.5
Manual	24.4	28.4	22.2
Clerical	21.2	21.7	20.9
Managerial/supervisory	6.7	5.8	7.1
Others	0.2	0.1	0.3
Pearson chi2 p-value		0.0	000

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	Total %	Public %	Private %	Male %	Female %
Armed Forces Occupations	0.2	0.2	0.1	0.3	0.1
Managers	4.8	4.2	5.1	5.2	4.5
Professionals	33.3	29.8	35.1	30.3	35.5
Technicians and Associate Professionals	14.8	15.4	14.5	18.2	12.2
Clerical Support Workers	26.9	26.4	27.2	22.5	30.3
Service and Sales Workers	14.9	15.9	14.4	14.5	15.2
Skilled Agricultural, Forestry and Fishery Workers	0.3	0.5	0.2	0.6	0.1
Craft and Related Trades Workers	1.4	2.8	0.6	2.7	0.4
Plant and Machine Operators and Assemblers	1.3	1.5	1.3	2.4	0.5
Elementary Occupations	2.1	3.3	1.5	3.3	1.2
Pearson chi2 p-value		0.0	000	0.0	000

Annex 4-Table 26. Occupation in first job after graduation

Source: Authors' computation

Annex 4-Table 27. Whether college degree was relevant to first job

	Total %	Public %	Private %
Yes	69.9	67.1	71.5
No	30.1	32.9	28.5
Pearson chi2 p-value		0.0	000

Source: Authors' computation

Annex 4-Table 28. Main reason for landing first job

	Total %	Public %	Private %
Occupational skills	43.6	43.1	43.9
Work experience	20.0	20.5	19.8
Personal connection	18.4	18.0	18.7
University/school ranking	7.6	7.8	7.5
Others	3.1	2.8	3.3
Language skills	2.8	2.7	2.9
IT skills	2.6	3.1	2.3
Contract period	1.5	1.8	1.4
Gender	0.1	0.2	0.1
Religion	0.1	0.1	0.1
Pearson chi2 p-value		0.0	00

	Total %	Public %	Private %	Male %	Female %
Household, family duties	59.7	66.4	57.0	38.9	69.3
Schooling	15.5	10.8	17.3	20.7	13.0
Awaiting results of previous job	8.7	8.9	8.6	14.1	6.1
Tired/believe no work available	3.6	2.7	3.9	4.8	3.0
Rest/in-between plans	3.5	2.4	4.0	7.7	1.6
Temporary illness/disability	2.4	2.3	2.5	4.1	1.6
Others	2.2	2.6	2.0	3.0	1.8
Waiting for rehire/job recall	2.0	1.6	2.2	3.0	1.6
Waiting for board exam results	2.0	1.5	2.2	2.9	1.5
Permanent disability	0.4	0.5	0.4	0.4	0.4
Bad weather	0.1	0.4	0.0	0.3	0.0
Pearson chi2 p-value		0.0	000	0.	000

Annex 4-Table 29. Reasons for not looking for work (among not in the labor force)

Source: Authors' computation

Annex 4-Table 30. Underemployment status

	Total %	Public %	Private %	Male %	Female %
Underemployed	27.0	27.5	26.8	29.3	25.1
Not underemployed	73.0	72.5	73.2	70.7	74.9
Pearson chi2 p-value		0.0	000	0.	000

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	Underemployed %	Not underemployed %
Social sciences, business and law	27.2	72.8
Health and welfare	27.5	72.5
Education	25.1	74.9
Engineering, manufacturing and construction	26.5	73.5
Science, agriculture	28.5	71.5
Services	25.0	75.0
General, humanities and arts	32.5	67.5
Source: Authors' computation		

Annex 4-Table 31. Underemployment status by field of study

Annex 4-Table 32. Primary occupation by major occupation group

	Total %	Public %	Private %	Male %	Female %
Armed Forces occupations	0.3	0.4	0.2	0.4	0.2
Managers	10.1	7.6	11.4	10.0	10.2
Professionals	38.1	37.6	38.4	34.3	41.3
Technicians and associate professionals	14.3	14.5	14.2	17.5	11.7
Clerical support workers	22.2	22.6	21.9	17.6	25.9
Service and sales workers	10.8	11.1	10.6	13.0	8.9
Skilled agricultural, forestry, and fishery workers	0.4	0.6	0.3	0.7	0.1
Craft and related trades workers	1.4	2.4	0.9	2.4	0.6
Plant and machine operators, and assemblers	1.4	1.2	1.4	2.5	0.4
Elementary occupations	1.2	2.1	0.7	1.8	0.6
Pearson chi2 p-value		0.0	000	0.0	000

Annex 4-Table 33. Industry engaged in

	Total %	Public %	Private %	Male %	Female %
Education	16.1	23.9	11.9	11.8	19.6
Wholesale and retail trade; repair of motor vehicles	15.6	17.3	14.6	14.5	16.5
Human health and social work activities	12.8	4.8	17.1	8.6	16.3
Public administrative and defense; compulsory social security	12.5	12.8	12.3	15.3	10.2
Financial and insurance activities	9.5	8.7	9.9	8.9	10.0
Administrative and support service activities	8.2	6.3	9.2	8.9	7.6
Manufacturing	7.9	8.9	7.4	10.6	5.7
Accommodation and food service activities	3.2	3.0	3.3	3.4	3.0
Information and communication	2.9	3.2	2.7	3.8	2.1
Construction	2.3	3.1	1.9	3.4	1.4
Professional, scientific and technical services	2.3	2.1	2.5	3.0	1.8
Transportation and storage	2.0	1.4	2.3	2.5	1.5
Electricity, gas, steam and air- conditioning supply	1.1	1.1	1.0	1.4	0.8
Real estate activities	0.7	0.6	0.8	0.4	1.0
Arts, entertainment and recreation	0.7	0.5	0.7	0.8	0.5
Other service activities	0.7	0.6	0.8	0.5	0.8
Agriculture, forestry and fishing	0.6	0.7	0.5	0.9	0.3
Mining and quarrying	0.5	0.6	0.4	0.8	0.2
Water supply, sewerage, waste management	0.3	0.2	0.3	0.3	0.2
Activities of private households as employers	0.2	0.0	0.3	0.1	0.3
Activities of extraterritorial organizations	0.2	0.2	0.2	0.2	0.2
Pearson chi2 p-value		0.000		0.000	

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Worked for private household 14	1.4 59.7	1.5
	59.7	1.J
	59.7	C A 7
Worked for private establishment 62.9		64.7
Worked for gov't/gov't corporation27.3	32.5	24.5
Self-employed without any employee 3.2	3.0	3.4
Employer in own family-operated farm or business 2.9	1.9	3.4
Worked with pay on own family-operated farm/business 1.0	0.5	1.2
Worked without pay on own family-operated farm/business 1.2	1.0	1.3
Pearson chi2 p-value	(0.000

Annex 4-Table 34. Class of worker by HEI type and sex

HEI = higher education institution Source: Authors' computation

Annex 4-Table 35. Nature of current employment by HEI type

	Total %	Public %	Private %
Permanent	66.9	67.0	66.8
Short-term, seasonal, or casual	31.5	31.4	31.6
Day to day or week to week basis	1.6	1.6	1.6
Pearson chi2 p-value		0.	122

Source: Authors' computation

Annex 4-Table 36. Median basic pay per day by major occupation

	Total	LFS 2014 Q4*
Armed Forces occupations	800	909
Managers	600	769
Professionals	618	808
Technicians and associate professionals	454	545
Clerical support workers	426	465
Service and sales workers	409	460
Skilled agricultural, forestry, fishery workers	310	133
Craft and related trades workers	350	384
Plant and machine operators and assemblers	580	360
Elementary occupations	300	270
Total	500	577

LFS = Labor Force Survey; Q4 = fourth quarter

*Fourth Quarter Labor Force Survey data are among college graduates. Source: Authors' computation

	Total	Public	Private	Pearson chi2 p-value
Armed Forces occupations	800	800	850	0.000
Managers	600	409	692	0.000
Professionals	618	727	550	0.000
Technicians and associate professionals	454	430	462	0.000
Clerical support workers	426	400	454	0.000
Service and sales workers	409	346	467	0.000
Skilled agricultural, forestry, fishery workers	310	310	310	0.067
Craft and related trades workers	350	310	450	0.000
Plant and machine operators and assemblers	580	375	750	0.000
Elementary occupations	300	270	325	0.000

Annex 4-Table 37. Median basic pay per day by major occupation and type of HEI

HEI = higher education institution

Source: Authors' computation

Annex 4-Table 38. Median basic pay per day by major occupation and sex

	Total	Male	Female	Pearson chi2 p-value
Armed Forces occupations	800	909	800	0.000
Managers	600	591	600	0.778
Professionals	618	680	600	0.000
Technicians and associate professionals	454	450	461	0.000
Clerical support workers	426	455	417	0.000
Service and sales workers	409	500	346	0.000
Skilled agricultural, forestry, fishery workers	310	301	590	0.000
Craft and related trades workers	350	350	338	0.553
Plant and machine operators and assemblers	580	660	364	0.000
Elementary occupations	300	280	325	0.000
Source: Authors' computation				

Source: Authors' computation

Annex 4-Table 39. Do you want to work away from your current location?

	Total %	Public %	Private %
Yes	53.3	49.8	55.2
No	46.7	50.2	44.8
Pearson chi2 p-value		0.0	000

Annex 4-Table 40. Main reason for wanting to work away from current location

	%
Better living condition	61.2
Better experience/skills/career opportunities	18.8
Be independent	7.7
New environment	4.3
Salary/bigger or higher salary/financial reasons	3.3
Be near my friends/family/relatives	2.1
Pursue further education	1.9
Other reasons	0.7
Source: Authors' computation	

Annex 4-Table 41. Preferred work location

	%
Overseas	71.3
Anywhere	11.3
Metro Manila	9.0
Big cities (excluding metro manila)	6.5
Villages	0.7
Residence/near residence/near family/hometown	0.4
Within region/province	0.3
Other locations	0.5
Source: Authors' computation	

Annex 4-Table 42. In which country are you willing to work the most?

	%
Canada	24.3
United States of America	16.1
United Arab Emirates	12.4
Singapore	7.5
Australia	5.4
Saudi Arabia	4.2
International	4.1
United Kingdom	4.0
Japan	3.7
Europe	2.9
New Zealand	2.1
Taiwan	1.8
Hong Kong	1.3
Middle East	1.2
Asia	1.2
South Korea	1.0
Other countries	6.8

	Employed (N=8,738) %	Current Job is Not the First Job (61%) %	Current Job is the First Job (39%) %
Occupational skills	38.8	35.4	44.4
Work experience	29.9	35.6	22.0
Personal connection	16.1	14.5	18.0
University/school ranking	6.0	5.4	6.9
IT skills	2.4	2.4	2.2
Language skills, specify	1.4	1.3	1.2
Contract period	0.7	0.5	0.8
Religion	0.3	0.3	0.2
Gender	0.1	0.0	0.1
Other reasons	4.5	4.5	4.2

Annex 4-Table 43. Main reason for landing current job

Source: Authors' computation

Annex 4-Table 44. Main barrier for getting a good job (top responses)

	Had a Job after Graduation %	Current Job is Not the First Job %	Current Job is the First Job %	Unemployed but Had a First Job %
No/little work experience	40.8	43.0	37.0	42.5
Outdated/irrelevant skills learned	25.6	24.8	28.1	23.2
No personal connections	18.1	16.5	19.3	20.5
Poor university ranking	6.7	6.9	7.0	5.7
No information on job openings	6.1	5.8	6.2	6.2
Other barriers	2.7	3.0	2.4	1.9

Source: Authors' computation

Annex 4-Table 45. Top 10 "not matched" occupations of BS Nursing graduates

	%
Contact center information clerks	14.1
Retail and wholesale trade managers	9.0
General office clerks	6.1
Technical and medical sales professionals (excluding ICT)	2.8
Health care assistants	2.8
Nursing associate professionals	2.5
Commercial sales representatives	2.1
Services managers NEC	2.1
Cashiers and ticket clerks	1.9
Sales and marketing managers	1.9

BS = Bachelor of Science; ICT = information and communications technology; NEC = not elsewhere classified (a category used by the Philippine Statistics Authority to lump occupations with small incidence within a category) Source: Authors' computation

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Annex 4-Table 46.	Top 10	"not	matched"	occupations of Bachelor of
	Elemer	ntary	Education	graduates

	%
Early childhood educators	20.5
General office clerks	10.3
Teaching professionals NEC	8.6
Secondary education teachers	4.8
Retail and wholesale trade managers	4.1
University and higher education teachers	4.0
Commercial sales representatives	3.3
Shop supervisors	2.3
Secretaries (general)	2.1
Cashiers and ticket clerks	1.9

NEC = not elsewhere classified (a category used by the Philippine Statistics Authority to lump occupations with small incidence within a category) Source: Authors' computation

Annex 4-Table 47. Top 10 "not matched" occupations of Bachelor of Secondary Education graduates

	%
Primary school teachers	34.4
Teaching professionals NEC	5.3
University and higher education teachers	4.8
Early childhood educators	3.7
General office clerks	3.4
Contact center information clerks	3.4
Cashiers and ticket clerks	2.8
Shopkeepers	2.7
Sales demonstrators	1.5
Office supervisors	1.5

NEC = not elsewhere classified (a category used by the Philippine Statistics Authority to lump occupations with small incidence within a category) Source: Authors' computation

	%
Security guards	19.6
Fire-fighters	7.3
Protective services workers NEC	4.5
Retail and wholesale trade managers	3.7
Commercial sales representatives	3.2
Shopkeepers	3.1
Credit and loans officers	3.0
General office clerks	2.9
Debt-collectors and related workers	2.9
University and higher education teachers	2.5

Annex 4-Table 48. Top 10 "not matched" occupations of BS Criminal Justice/Criminology graduates

BS = Bachelor of Science; NEC = not elsewhere classified (a category used by the Philippine Statistics Authority to lump occupations with small incidence within a category) Source: Authors' computation

Annex 4-Table 49. Top 10 "not matched" occupations of BS Accountancy graduates

	%
Accounting and bookkeeping clerks	23.8
Accounting associate professionals	20.1
Bank tellers and related clerks	5.1
General office clerks	4.6
Financial analysts	4.5
Debt-collectors and related workers	3.4
Finance managers	2.3
Manufacturing managers	2.2
Primary school teachers	2.2
Authors and related writers	2.2

BS = Bachelor of Science Source: Authors' computation

	% Yes
2010 Presidential elections	90.5
2010 Barangay elections	87.2
2013 Midterm elections	87.0
2013 Barangay elections	84.6

Annex 4-Table 50. Incidence of voting in selected elections

Source: Authors' computation

Annex 4-Table 51. Participation in political and social action (past 12 months)

	% Yes
Donated money or goods for a social cause	50.5
Bought certain products for political, ethical, environmental reasons	9.3
Signed a petition to support an ordinance or a bill	9.0
Joined an Internet political forum or discussion group	8.4
Boycotted certain products for political, ethical, environmental reasons	6.5
Attended a political meeting or rally	5.6
Took part in a demonstration	5.3
Contacted, or attempted to contact, a politician or a civil servant to express	
your views	5.1
Contacted or appeared in the media to express your views	3.8
Source: Authors' computation	

Annex 4-Table 52. Participation in groups (past 12 months)

	% Yes
A church or other religious organization	34.6
A sports, leisure, or cultural group	22.7
Another voluntary association	20.3
A trade union, business, or professional association	19.2
A political party	5.2

	Estimate	Standard Error	p-value
Learner Engagement Index	0.141	0.010	0.000
Intracurricular Index	0.053	0.015	0.000
Teaching Quality Index	0.067	0.011	0.000
Support Services Index	0.026	0.011	0.019
Noncore Support Services Index	-0.002	0.021	0.938
Overall College Experience Index	0.060	0.013	0.000
Practicality of College Experience Index	0.054	0.027	0.046
R-squared	0.161		
Number of cases	8393		

Annex 4-Table 53. Linear regression of citizenship index on college experience

Source: Authors' computation

Annex 4-Table 54. Linear regression of active participation index on college experience

	Estimate	Standard Error	p-value
Learner Engagement Index	0.044	0.006	0.000
Intracurricular Index	-0.023	0.009	0.011
Teaching Quality Index	-0.015	0.007	0.022
Support Services Index	0.038	0.007	0.000
Noncore Support Services Index	0.098	0.012	0.000
Overall College Experience Index	-0.018	0.008	0.028
Practicality of College Experience Index	0.003	0.016	0.867
R-squared	0.109		
Number of cases	8393		

Source: Authors' computation

Annex 4-Table 55. Linear regression of unethicality index on college experience

	Estimate	Standard Error	p-value
Learner Engagement Index	0.027	0.011	0.013
Intracurricular Index	0.043	0.017	0.013
Teaching Quality Index	-0.033	0.012	0.008
Support Services Index	-0.102	0.013	0.000
Noncore Support Services Index	0.105	0.024	0.000
Overall College Experience Index	0.216	0.015	0.000
Practicality of College Experience Index	-0.161	0.031	0.000
R-squared	0.149		
Number of cases	8408		

	Stanuaru Error	p-value
-0.096	0.010	0.000
0.054	0.016	0.001
0.023	0.012	0.046
-0.005	0.012	0.660
0.057	0.022	0.011
0.012	0.014	0.402
0.154	0.029	0.000
0.078		
8444		
	-0.096 0.054 0.023 -0.005 0.057 0.012 0.154 0.078 8444	-0.096 0.010 0.054 0.016 0.023 0.012 -0.005 0.012 0.057 0.022 0.012 0.014 0.154 0.029 0.078 8444

Annex 4-Table 56. Linear regression of political/social action index on college experience

Source: Authors' computation

Annex 4-Table 57. Linear regression of participation in groups index on college experience

	Estimate	Standard Error	p-value
Learner engagement index	-0.089	0.008	0.000
Intracurricular index	0.090	0.013	0.000
Teaching quality index	0.012	0.009	0.202
Support services index	0.007	0.009	0.476
Noncore support services index	-0.022	0.017	0.215
Overall college experience index	-0.015	0.011	0.189
Practicality of college experience index	0.084	0.022	0.000
R-squared	0.097		
Number of cases	8444		

Source: Authors' computation

Annex 4-Table 58. Linear regression of political/economic group index on college experience

	Estimate	Standard Error	p-value
Learner engagement index	0.003	0.006	0.640
Intracurricular index	-0.026	0.009	0.003
Teaching quality index	0.009	0.006	0.179
Support services index	-0.016	0.007	0.017
Noncore support services index	-0.019	0.012	0.122
Overall college experience index	-0.001	0.008	0.896
Practicality of college experience index	-0.037	0.016	0.019
R-squared	0.018		
Number of cases	8444		
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	Estimate	Standard Error	p-value
Learner engagement index	0.083	0.019	0.000
Intracurricular index	0.100	0.030	0.001
Teaching quality index	0.066	0.022	0.002
Support services index	0.111	0.021	0.000
Noncore support services index	-0.045	0.040	0.257
Overall college experience index	0.148	0.027	0.000
Practicality of college experience index	0.084	0.050	0.098
Employment	0.751	0.196	0.000
Being in labor force but unemployed	0.221	0.284	0.436
R-squared	0.128		
Number of cases	6552		

Annex 4-Table 59. Linear regression of life satisfaction index on college experience and employment

Source: Authors' computation

Annex 4-Table 60. Linear regression of nonimmediate satisfaction index on college experience and employment

	Estimate	Standard Error	p-value
Learner engagement index	-0.023	0.010	0.015
Intracurricular index	0.001	0.016	0.943
Teaching quality index	0.012	0.010	0.254
Support services index	0.004	0.011	0.698
Noncore support services index	-0.007	0.019	0.733
Overall college experience index	0.001	0.013	0.964
Practicality of college experience index	0.018	0.027	0.511
Employment	-0.946	0.138	0.000
Being in Labor Force but Unemployed	0.309	0.231	0.181
R-squared	0.077		
Number of cases	6552		

Source: Authors' computation

Annex 4-Table 61. Linear regression of external satisfaction index on college experience and employment

	Estimate	Standard Error	p-value
Learner engagement index	0.019	0.009	0.024
Intracurricular index	-0.065	0.014	0.000
Teaching quality index	0.003	0.009	0.717
Support services index	0.002	0.010	0.852
Noncore support services index	-0.036	0.018	0.045
Overall college experience index	-0.006	0.013	0.625
Practicality of college experience index	0.045	0.025	0.073
Employment	0.287	0.127	0.024
Being in Labor Force but Unemployed	-0.019	0.182	0.916
R-squared	0.056		
Number of cases	6552		

Annex 5. Figures

Annex 5-Figure 1. During that time, to what extent have you...



Source: Authors' computation

Annex 5-Figure 2. During that time, how frequently have you...

Participated in discussions online or face to face?			30			47			15
Worked with other students as part of your study?		20	48				26		
Interacted with students outside your study requirements?			30		43				18
Interacted with students who are very different from you?			35		36		36		13
	0% 10	0% 20	% 30	% 40%	6 50%	60%	70%	80% 5	90% 100%

■ Never
Rarely ■ Sometimes ■ Often ■ Very often



Annex 5-Figure 3. During that time, how frequently have you...

■ Never Sarely Sometimes Coften Very often

Source: Authors' computation

Annex 5-Figure 4. How often have you experienced faculty...



Never Rarely Sometimes Often Very often



Annex 5-Figure 5. During your time in college, was ... available?





Source: Authors' computation

Annex 5-Figure 7. As far as you are concerned personally, how important is...



■ Not Natall ■ important A Very ■ important

Source: Authors' computation

Annex 5-Figure 8. Is ... never justifiable, always justifiable, or something in between?

Claiming government benefits to which you are not entitled	78	6 8		
Avoiding a fare on public transport	79	6 7		
Cheating on taxes if you have a chance	84	5 4		
Buying something you knew was stolen	85	54		
Someone accepting a bribe in the course of their duties	84	54		
0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%				
Never justifiable 🔳 🔳 🔳 Always justifiable				

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