

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

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from the Learner's Perspective

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Abstract

A Graduate Tracer Survey (GTS) collects data on the graduate's college experience – skills learned, quality of instruction, and how it relates to employability. GTS allows us to illuminate the relationship between college experience and labor market outcomes, and to formulate course of actions for the higher education sector. In this round, we investigate further and look at the influence of college experience on socio-political participation and life satisfaction.

This study reports on the results of the 4th Philippine Graduate Tracer Survey. It covers graduates from AY 2009-2011. A total 11,547 graduates were surveyed, representing 32.7% of the total sample. This GTS round piloted several study design improvements and administrative arrangements aimed at capacitating the CHED. Several challenges affected the response rate, but it is still a successful demonstration of the desired GTS implementation set-up for succeeding rounds.

The results show that graduates are motivated by earnings and career advancement in their choice of baccalaureate programs. They are concentrated in a few courses, and except for nursing and IT-related courses, their courses are not the high-paying ones. For graduates of courses without professional license requirement, the median length of working on their first job from graduation is 5 months. It takes 11 months to start on their first job for those who took license-requiring courses. Only 86 out of 100 are in the labor force, of which 76 are employed.

There are a number of tell-tale signs of job-education mismatch: graduates (a) feel that they did not sufficiently develop communication, critical thinking, and problem-solving skills; (b) only 70% 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learned in college as the main reason for landing their first or current jobs; and (d) around a fourth think that outdated skills is keeping them from getting a good job. Overall, only 49% 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 and various types of clerks, retail, 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 various types of associations is also low. Meanwhile, despite being concerned about their earnings and rating themselves low in financial condition, overall life satisfaction is still high. In relating college experience to post-college life, we find that positive college experience (in its multiple dimensions) is generally associated with better employability, stronger sense of citizenship, less predisposition to political action, and better life satisfaction.

Keywords: higher education, graduate tracer study

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The 4th Philippine graduate tracer study: Examining higher education as pathway to employment, citizenship, and life satisfaction from the learner's perspective*

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1. Introduction

Even with the steady rise of enrollment in higher education, global estimates of the private average rate of return to schooling did not change much since the 1960s (Psacharopoulos and Patrinos, 2018). The primary explanation for this is that technological progress favors educated and high-skilled labor. This underscores the role of education in sustaining economic growth.

In the Philippines, the tertiary gross enrollment rate is 33 percent. Meanwhile, 23% of the population of 15-30 years old who are at least college graduates are unemployed in 2018. Hence, while the country is at par with middle-income countries in terms of college participation rates, it suffers from low employment among the educated youth. Even though unemployment correlates poorly with poverty (de Dios and Dinglasan, 2014), this problem needs to be addressed as 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 unavailability of relevant labor market information to guide manpower planning, course offering, and student choice, and inadequate preparation of graduates due to insufficient participation of industry in faculty training, and course and curriculum development (DOLE Project Jobsfit Report 2011-2020). It should be noted, however, that while all of these are expected to alleviate the problem, the skills required are changing and with the Fourth Industrial Revolution, the pace of change is increasing (Dadios, et al., 2018).

Higher education has been substantially explored using the lens of employers, educational institutions, and the labor market.² However, there remains a dearth of literature assessing it from *the perspective of the learner*. This is an important deficit. It is the “student” which selects 1) schools based on the constraints imposed by their household conditions and location, 2) programs based on interests, aptitude and perceived future returns, and 3) occupations, depending on labor market opportunities and school performance. It is also the learners and their household that experience the consequences of these decisions. It is the learner who can judge training adequacy based on early employment experience. It is the entry-level employee who can determine job satisfaction, or if the job experience is in line with the expectations.

A Graduate Tracer Survey (GTS) collects data on the graduate’s college experience. A GTS allows us to illuminate the relationship between college experience and labor market outcomes, and to formulate course of actions for the higher education sector. To date, there are 3

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² Annex 1 provides a review of the relevant literature.

nationwide graduate tracer studies. This report presents the results of the 4th Philippine Graduate Tracer Survey, covering graduates from AY 2009-2011.

2. Research and policy objectives

Because of their nature, graduate tracer studies typically have similar objectives, i.e., to find out the results of higher education and training in terms of employment outcomes to improve higher education provision. In this study, we take a couple of steps further to get a sense of the broader college experience and how it relates not just to employment outcomes but to socio-civic participation and overall life satisfaction.

We tackle the following policy questions:

1. What has been the college learning experience of higher education graduates? Here we look at learner engagement, teaching quality, student support services, and overall college experience.
2. What has been their experience after college graduation overall and on specific aspects of post-college life? We investigate their experiences with regards the following dimensions: (a) labor market and livelihood; (b) political and social participation; (c) contributions to community and public good; (d) life satisfaction.
3. Is there a mismatch between what students learned in college and the work they are doing now or in their first job after college?
4. To what extent does better college experience influence post-college experience overall, as well as on specific aspects of post-college life? Relatedly, how could college experience be improved to raise the private and public benefits from higher education?

CHED can thus have a sound empirical basis for the decisions it has to make on: (a) higher education priorities and corresponding resource requirements; (b) steering HEIs to be more “strategic” in developing their curricula and upgrading education provision; (c) helping students and families make choices on study programs and HEIs.

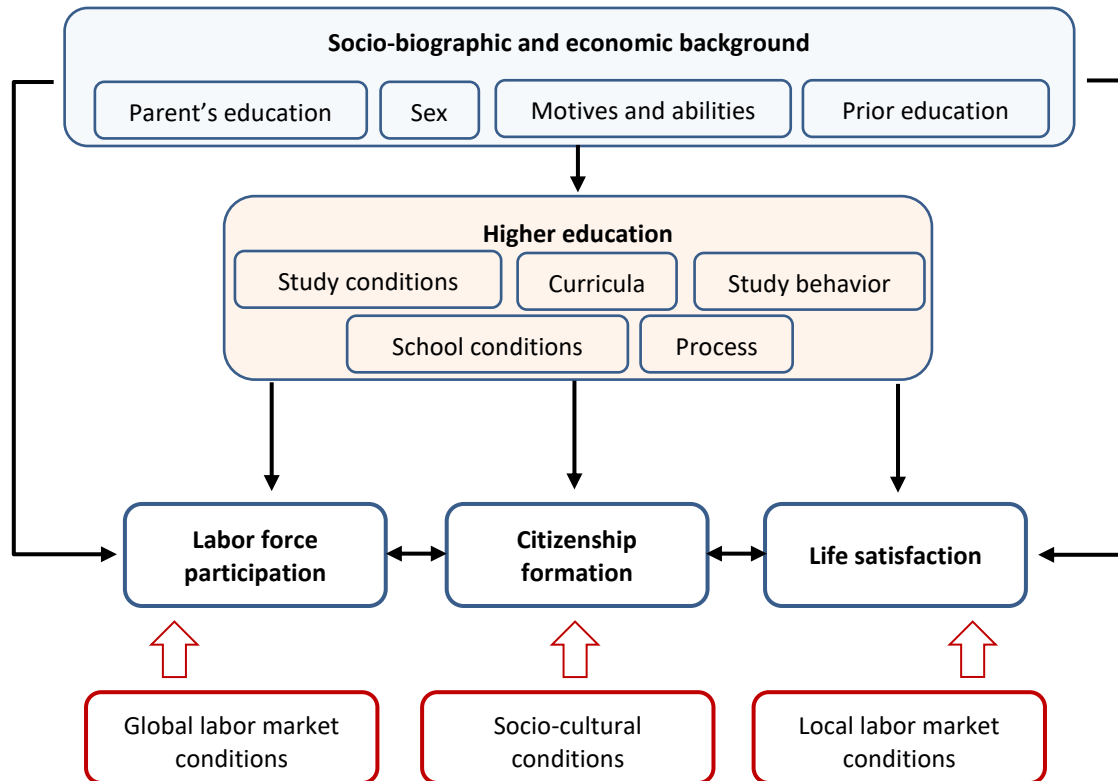
3. Conceptual framework

We utilize a broad framework motivating higher education investments (Figure 1). The decision to undertake college education is a household decision. Sending a child to college means delaying her or his full participation in the labor force and it is the household that carries the bulk of actual and opportunity costs. This decision is influenced by several factors, not the least of which is the parent’s education, also a good proxy for the family’s economic status. Educated parents are more likely to send their children to pursue college, not only because they may have the means but also because they want their children to reap the returns to higher education as they do. This intergenerational effect also translates to a strong parental influence on the choice of program and higher education institution.

Individual factors also influence the decision to take college, as these directly influence their expected utility and college experience. For instance, it is stereotypical that parents prioritize educating their sons because they are expected to be the providers of their own families and of

their parents in old age, while 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. Individual interests and intended learning outcomes – and the required aptitude and discipline required to achieve them – are in general formed before higher education. Students are products first of basic education, their households, and other influences before they embark on their college journey.

Figure 1. Conceptual Framework



Source: Adapted from Schomburg (2010).

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

1. *Program to enroll in.* The program should either a) be aligned with the student's interests and self-perceived aptitude, b) promise future returns, or c) both.
2. *School to enroll in.* After a cost-benefit calculation – considering location, perceived quality of school, parental, peer, and societal pressure, among others – the student/household selects a school. Note that the school and programs can be chosen together rather than sequentially.

Once the above choices are made, a student's college journey will be determined by the learning environment: the quality of the curricula, of the faculty, and of the school facilities and support services. The HEI's conditions – whether it is a private or public school, its geographical location, its 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 that there are good opportunities for their graduates. The student's behavior and the

process of learning are all affected by individual motivations, school standards, and competence of the faculty. Collectively, we call these factors as determinants of the student's college experience.

Hence, we consider a strategic HEI the one that decides on program offerings, target population, budget, fees, and overall education provision quality a) considering students' pre-college experience; b) in a way that maximizes the quality of their college experience, c) and ensures the best possible post-college experience.

A college education's direct output is the set of knowledge and skills that can be translated into competences that are ideally relevant to industry needs. These competences 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 socio-economic background in as much as the household she or he belongs provides access to job opportunities. The HEI itself can also influence the transition process through programs targeted to assisting their graduates in job search or additional short-term trainings.

Once the graduate crosses the bridge from student life to work life, we can now observe labor force participation outcomes. These can also 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, and some would argue is superior to earnings, is citizenship formation. A college education is supposed to imbibe in the individual a deeper understanding of her or his relationship with the state. Thus, we can look at the graduates' perception of and engagement with various types of socio-political activities, formed through college education and family and peer influence.

Moreover, college education affects life satisfaction. Traditionally, we think of the graduate's employment outcomes as the determining factor of overall life satisfaction as the job affords the graduates the capacity to provide for their and their households' needs. However, a college education can directly affect life satisfaction to the extent that learning itself provides fulfillment, and the desire to explore productive activities outside of the labor force. Again, the graduate's socio-economic background has a role in this, in as much as the household provides other fulfilling experiences. The quality of the education and training received from the HEI also has a direct contribution to the graduate's overall welfare.

The graduate's post-college college life – labor force participation, citizenship formation, and life satisfaction – are all interconnected. A graduate with a satisfying employment condition will have a good standard of living and can pursue an engaged socio-political life. On the other hand, a non-satisfying work condition may also be pushed to engage in socio-political action as an attempt to understand or change her or his condition. In turn, socio-political awareness may also influence the graduate's outlook on her or his condition.

Finally, this journey from pre- to post-college life is affected by the prevailing conditions – socio-cultural, global, and local labor market. The HEI's decision set is shaped by the extent of interaction with local and global 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 women versus men due to socio-cultural norms.

4. Methodology

This GTS round is a first of its kind in many respects. It is more comprehensive in intent and in design, and it also 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 that has 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 consolidation of the sampling frame to conducting interviews to questionnaire editing. The Regional Director provides overall supervision while a Project Director oversees day-to-day operations. The Project Director manages the team of field supervisors, enumerators, tracers, and editors hired for the study. She/he is also responsible for all the administrative, financial, and other logistical requirements. The intention is to make this pilot set-up replicable in future GTS rounds.

Another first in this study is the technical support provided by PIDS. The technical support covers questionnaire development, sampling, training of GTS field supervisors, overseeing data collection and processing, and analysis.

Sampling

This round's sampling design is envisioned to allow for levels of analysis that are actionable not just for the CHED central office but for the regional offices as well. Thus, it is designed to be representative at the regional level. Within each region, proportional allocation was done across nineteen discipline groups and four types of HEIs, namely state universities and colleges (SUCs), local universities and colleges (LUCs), private sectarian (PS) and private non-sectarian (PN). In contrast, the earlier GTS rounds have all had nationally representative samples only.

The population of this GTS round is college graduates from AY 2009-2011. There are 1,119,784³ graduates during this period. 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. The "Additional Sample" column refers to the replacement sample requested by some regions due to untraced graduates.⁴

Sampling Weights

As tackled in the next subsection, the conduct of the survey across regions was uneven. To correct for this uneven performance and still ensure representativeness at the national level, we

³ The original target population is 1,197,460 graduates, which excludes Regions ARMM and 8 by design. However, due to non-participation, Region MIMAROPA is also excluded in the analysis.

⁴ 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.

derived sampling weights by incorporating key elements of the sampling stratification variables, such as discipline groups, type of HEI, discipline groups, and sex of graduates. Regional locations had to be merged into 5 mega-regions to generate more evenly distributed sample across mega-regions. Thus, while initially the sampling design aimed for a regional level analysis, it is no longer warranted by the data. Similarly, because of small number of observations for some discipline groups, they had to be aggregated into seven. Finally, the types of HEIs had to be aggregated from four into two – public and private.

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

Data collection

A perennial problem from previous GTS rounds is low response rate. The response rates of previous CHED GTS rounds are 40%, 88%, and 46%, respectively. The second round was HEI-led, and there are methodological concerns in the design.⁵ Meanwhile, the third GTS utilized a volitional response design that potentially introduced bias on the study’s results.

To address these issues, a tracing stage is incorporated in this GTS round. The list of sampled graduates includes contact details (phone number, email, and home address) that are used to track the graduates from the point of graduation to their status. Office-based tracing is conducted by dedicated tracers and only those traced were endorsed for enumeration. Table 1 shows the tracing results. Nationwide, only 43.3% of the sample graduates are traced. Performance of the regions is highly varied – from a high of 93% in Region CAR to a low of 7% in NCR. Regions with tracing rates of more than 70% are Regions CAR, 1, 2, 5, and 7.

Data collection ran from July 2014 to June 2015. A total of 11,547 face-to-face interviews are completed, representing just 32.7% of the target sample size (52% based on the number of traced graduates). Global experience with graduate tracer surveys put the response rates anywhere from 30 to 60% (Schomburg, 2003). Region 9 enumerated the greatest number of graduates at 1,222 or 59.6% of the sample. It is followed by Regions Caraga and 5 with 59.3% and 48.3% response rates, respectively. Region MIMAROPA did not implement the GTS, while Regions CAR and NCR attained only 12.6% and 10.6% of their targets, respectively.⁶

Table 1. Summary of Sample Size, Tracing and Enumeration Status

Region	Original sample	Additional sample	Tracing status				Enumeration	
			Traced	Untraced	Duplicate	No Report	N	%
PH	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	8	278	1,145	43.4
2	2,126		1,557	543	26	0	536	25.2
3	2,059	2,348	888	10		3,509	429	20.8

⁵ 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% response rate mentioned in the report is based on the 36 private and 25 public HEIs that successfully completed the survey and submitted “acceptable” datasets, i.e. those that follow the coding protocols and can be merged with other datasets. As can be imagined, there may be substantial systematic differences between HEIs that completed and HEIs that did not complete their graduate tracer survey. If we consider all HEIs and SUCs that were included in the study, the comparable response rate for this GTS round would be 36%.

⁶ For a detailed discussion of the challenges encountered in implementation of this GTS, refer to the final report of the Technical Assistance on the Operational Aspects of the CHED-PIDS Graduate Tracer Study (2015). Available upon request.

Region	Original sample	Additional sample	Tracing status				Enumeration	
			Traced	Untraced	Duplicate	No Report	N	%
4A	2,205		1,456		22	727	912	41.4
MIMAROPA	1,224		175	979	70	0	1	0.1
5	2,057		1,495	50	20	492	993	48.3
6	2,093		846	136		1,111	532	25.4
7	2,855		2,515	300	40	0	749	26.2
9	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	3	2,815	278	10.6
CARAGA	2,209	799	1,761	389	33	825	1,310	59.3

Notes:

a) Regions ARMM and 8 are not included in this round of GTS. Region MIMAROPA did not implement the survey.

b) The “Untraced” column includes those that did not have contact information

c) The “No Report” column is used to balance the discrepancies in the tracing monitoring data.

Source: Authors’ compilation from tracing and enumeration status reports of CHED Regional offices.

Analysis

To address the research objectives and guided by the conceptual framework discussed above, a combination of descriptive statistics and econometric techniques is employed.

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) Socio-political participation; and (7) Life satisfaction. Whenever meaningful, we present the descriptive results with type of HEI, discipline group, and sex of graduate disaggregation. 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 the survey questions into fewer variables of interest. Several indicators representing “college experience” were reduced to seven indices: learner engagement, intra-curricular, teaching quality, support services, non-core support services, overall college experience, and practicality of college experience. Post-college outcomes were reduced to nine indices: citizenship, active participation preference, unethicity, political/social action, group participation, political/economic group participation, overall life satisfaction, non-immediate needs life satisfaction, and external life satisfaction, which are then grouped into two subgroups: “citizenship, ethics, and participation” indices and “life satisfaction” indices.

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

5. Limitations of the study

A key limitation of the study is the low response rate. Even though the national response rate is within global experience, 8 of the 15 regions had response rates of below 30%. The primary reason for this is the quality of the database of graduates obtained from the HEIs. Many HEIs refused to share the contact details of their graduates, and those who shared had outdated information (collected upon student's entry, not upon graduation).⁷ Regions CAR and NCR, which are among the top regions in terms of the number of graduates, have the lowest enumeration rates at 13% and 11%, respectively. In fact, the University of the Philippines System, the Ateneo University System, and the De la Salle University System, the considered Big 3 in Philippine higher education, account for less than 5% of the sample.

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

6. Results

The Results section proceeds as follows. We discuss the graduates' demographic and college education profile. We then proceed to post-college experience, from employment to socio-political participation, and life satisfaction.

6.1. Demographic profile of graduates

Since our samples are 2009 to 2011 graduates, most of them (74.8%) are 24 to 27 years old (Annex 4 Table 1). Almost eleven percent are 28-30 years old and 9.3% are 21-23 years old. Around 5% are above 30 years old.

Almost seventy-five percent of graduates have never been married (Annex 4 Table 2). Ninety-five percent of them intend to get married in the future, at an average age of 31 years old. Around a fifth of graduates are married, and eighty-three percent of them did so 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% of respondents have parents who are both at least college graduates. In fact, almost 46% of respondents have at least one parent with some college education. As shown in our conceptual framework, parental education is an important 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. We used the asset ownership data of households to construct a wealth index⁸ and to categorize households into poor and non-poor using a cut-off of 26%, the first-half national poverty incidence in 2015. Annex 4 Table 4 tabulates the poverty status from this

⁷ 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 tracer survey (Arcelo, 1995). For a detailed discussion of the issues surrounding the operational aspects of this GTS round, refer to the Final Report of the Technical Assistance to the Operational Aspects of the CHED-PIDS Graduate Tracer Study. The report is available upon request, but a summary of the findings is provided in Section 7.1.

⁸ To construct a summary measure of households' socio-economic status, we ran principal components analysis using data on asset ownership. The predicted values for the first principal component constitute the wealth index and households with a wealth index value from the 26th percentile and below are considered poor.

exercise with the educational attainment of the graduates' parents. It is evident that fathers and mothers from non-poor households are better educated than their counterparts.

Meanwhile, a good indication of improving equity in access to higher education is whether the share of graduates with less-educated parents is increasing over time. A comparison of results with the 3rd Philippine Graduate Tracer Survey indicates this trend. Based on that survey, 68% of mothers and 64% of fathers of the respondents are college graduates or higher. The corresponding shares for this round are 39.3% and 34.3%, respectively. Thus, the share of college graduates with parents who are not college-educated have increased since then.

6.2. Educational profile

HEI and Program graduated in

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

Table 2 shows the graduates' discipline group by type of HEI. There are some stark differences in the choices of students who studied in a private versus a public HEI. For instance, 36.8% of graduates completed a program from the Health and welfare discipline group (mostly BS Nursing) in private HEIs, while only 8.4% of graduates from public HEIs did so. Meanwhile, more than a fifth of public HEI graduates finished a course from the Education group compared to only 6.6% of private HEI graduates. Courses from the Social sciences, business and law discipline (mostly BS Business Administration, BS Commerce, and BS Accountancy) are popular among both graduates, which were taken by 28.4% and 29.5% 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.

Table 2. Discipline group graduated in by HEI type

	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			0.000		0.000

Source: Authors' computation.

The graduates' choice of degree is driven by immediate employment and career prospects (Annex 4 Table 5). In this aspect, there are some differences too between public and private HEI graduates. Graduates of private HEIs rated the following reasons higher than their public

counterparts: Immediate employment prospects, Prospect of career advancement, Prestige of the profession, Influence of parents and relatives, Attractive compensation, and Overseas employment prospect. Meanwhile, the more salient reasons for choice of degree for public HEI graduates are Availability in chosen HEI and Affordable for the family. These differences indicate that public HEI graduates had a limited choice set, defined by the capacities of their families and the availability of courses in likely the closest or only public HEI in their area.

Finally, almost 20% of graduates claimed that they had no preferred degree at the time that they chose one. This apparent mismatch in preferences at the time of entering college is corroborated by results of Annex 4 Table 6, where graduates were asked whether they preferred their baccalaureate program and the HEI they took it in at that time. Only 70% both preferred their program and university at the time they entered college. Around 14% preferred only their university but not their program, while 8% prefers just their program. Meanwhile, another 8% of graduates would rather take another program at another university at that time.

This mismatch in preference also seem to linger after college. Around 7% of graduates who did not like their course or university upon entry said that they would have changed their course or university given what they know of it at present (Annex 4 Table 7, Annex 4 Table 8). These results show that there is a substantial and unmet information need. CHED should find out why high school students are unable to develop their preferences well. It can promote collaboration between HEIs and secondary schools for a communications and information campaign to give students and their families' better ideas on the different programs and career prospects. This can improve their decision-making ability to match the alternatives with their preferences.

Cost of college education

Graduates from public HEIs paid Php7,101 on average per semester on tuition, while their private HEI counterparts paid on average Php21,403 per semester. Thus, private HEI school fees are on average 3 times as much as public HEIs.

In addition to school fees, graduates also spent on allowances, rent, supplies, and academic and extra-curricular activities (Annex 4 Table 9). On average, graduates spent Php3,247 and Php1,546 per month on allowance and rent. Meanwhile, per semester they spent on average Php3,833, Php3,503, and Php1,631 on supplies, academic activities, and extra-curricular activities, respectively. As in school fees, we also see a marked higher spending among graduates from private HEIs (at least 50% higher on any of the cost items). Given that majority of 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% have already taken a professional or licensure exam at the time the survey. Given the volume of graduates that took these courses, the top professional exams taken are those for nurses, teachers, criminologist, accountants, and civil engineers (Annex 4 Table 11).

Only 20% of graduates have taken any government exam. This is low given that the career service exam is applicable to all college graduates. This could indicate their perception of the returns to working in the government versus the private sector. The top government exam taken

is the Civil Service Commission's Career Service Exam – Professional at 71.7% (Annex 4 Table 12). A considerable proportion of graduates also took technical and vocational competency assessments.

Training and advanced studies

Around 27% of graduates have taken any training since their graduation (Annex 4 Table 13). Expectedly, the most common training is related to their profession (74.7%) (Annex 4 Table 14). Around 38% and 16% took training to learn other professional and general skills, respectively. Interestingly, only 19% of graduates said they took the trainings to get promoted (Annex 4 Table 15).

Only around 30% of respondents experienced trainings that are shouldered by their employers (Annex 4 Table 16). More than 60% said that they financed it using their own money or that of their family. A higher proportion of private HEI graduates paid for their own training. Consequently, more graduates from public HEIs took training that was paid for by their employers or by other public organizations.

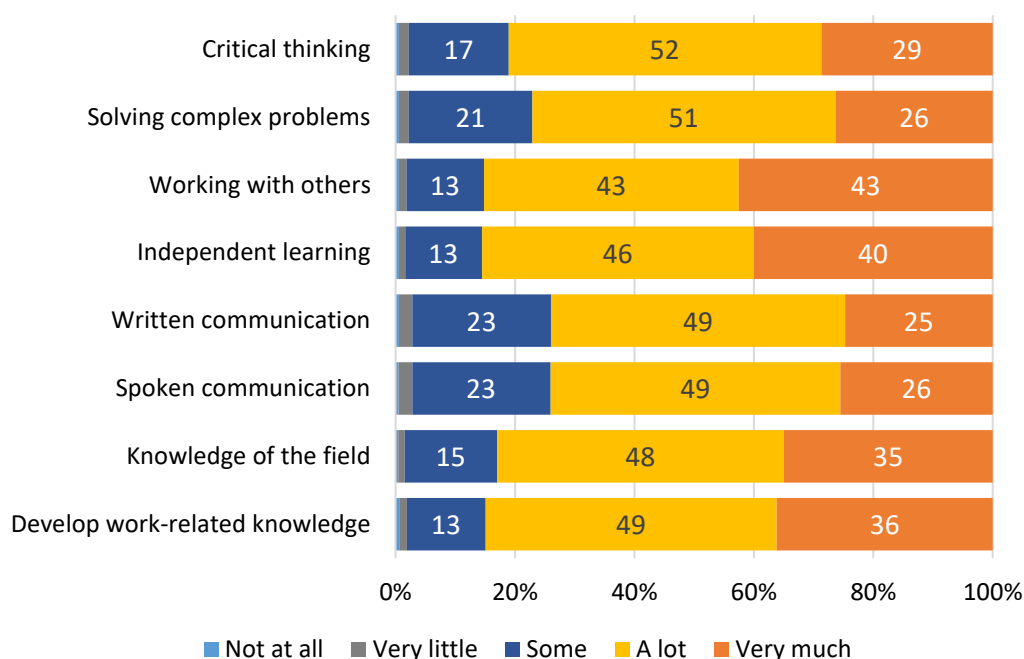
Around 9% of graduates are pursuing graduate studies, only after 3 to 5 years from college graduation (Annex 4 Table 17). Graduates believe that graduate studies is key to advancing their career (Annex 4 Table 18). Many are also driven by passion for and prestige of their profession. Meanwhile, around 24% of graduates took masters' degrees that are CHED priority courses.

Skills Development

Graduates were asked to assess the extent to which their program developed a set of selected vital skills. For each skill, they must select from a 5-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 on developing skills to work with others, to learn independently, and to obtain work-related knowledge. Eighty-six percent rated their program as having developed these skills "A lot" and "Very much" (Figure 2). On the other hand, graduates felt that their programs did not perform quite as well in honing their communication, problem-solving, and critical thinking skills. Less than a third of graduates felt that their program developed these skills "very much". This confirms the observations of professional recruiters' associations such as the People Management Associations of the Philippines that fresh graduates are deficient in critical thinking, problem solving, and communication – the top competencies that employers look for among applicants (PMAP, 2019).

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



Source: Authors' computation.

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

Table 3. Overall, did the curriculum enable you to compete in the labor market?

	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		0.000	

Source: Authors' computation.

Graduates who gave a rating of “Some” to “Not at all” were asked which courses or training programs should be added to their curriculum to help them be more competitive in the labor market (Table 4). Communication courses rank highest at 47%. Thus, graduates are aware that they were not trained well on this and that this is a critical requirement to get hired. Graduates also felt that their curriculum did not provide sufficient training on occupational skills (40%) and information technology (31%). As occupational skills are directly related to their course, and information technology is critical for the Fourth Industrial Revolution, HEIs would do well to heed this curriculum gap.

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

	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

Source: Authors' computation.

College experience

In this section, we look at the graduates' assessment of the totality of their college experience. First, we asked them to rate their engagement with the university and their program. This is followed by their assessment of teaching quality and student support services. Finally, we asked them 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 at the time they were in college. Only 27% and 24% of graduates gave top ratings for these two indicators (Annex 5 Figure 1). It is quite unfortunate that one fourth of graduates do not feel prepared for college.

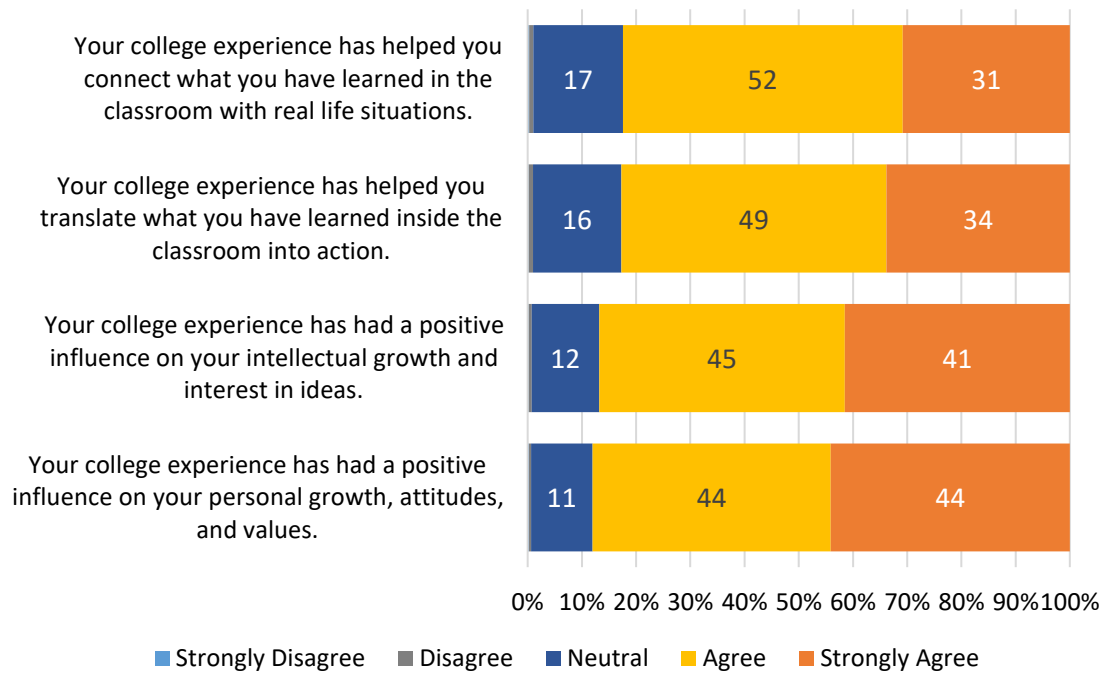
Regarding their interactions with other students, 26% of graduates claimed that they worked "very often" with other students to fulfil academic requirements (Annex 5 Figure 2Annex 5 Figure 2.). However, only 18% said that this interaction continued outside of study requirements. Graduates also did not spend a lot of their 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 extra-curricular activities appear low overall (Annex 5 Figure 3). Sports and career options-related activities are the most popular, with 15% and 17% of graduates saying that they took part in these activities "very often". Membership in student organizations are low whether these organizations are academic, non-academic, or religious ones. Student organizations are good avenues for developing problem-solving, communication, and collaborative skills as students have to execute projects. These projects often involve raising funds, dealing with school administrators, working with students from different programs, and problem-solving. Student organizations also develop initiative, creativity, self-reliance, and resourcefulness. Access and participation in these activities are however influenced by one's 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% of graduates gave "Often" and "Very often" ratings to their faculty in all the eight indicators assessed. The highest rating is for mastery of the subject (33% for the top rating), followed by helpfulness and approachability, and giving assignments that helped in the learning process. Graduates meanwhile would have preferred that their teachers provide clearer explanations and use examples and illustrations to explain difficult 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 services staff (Annex 5 Figure 5). Correspondingly, graduates find librarians and administrative staff most helpful (Annex 5 Figure 6). Unfortunately, laboratory technicians and research personnel do not appear as salient in their college experience.

Figure 3. Overall college experience



Source: Authors’ computation.

For overall college experience, we looked at four aspects (Figure 3). Graduates felt that their college experience had the strongest effect on personal and intellectual growth. Around 44% of graduates “strongly” agreed that college had a positive influence on their personal growth, attitudes, and values. For intellectual growth, the corresponding top rating is 41%. College experience’ impact on translating learning into action or to real-life situations is not as compelling, with only around a third of graduates giving these aspects the top rating. In fact, 17% of graduates felt “neutral” about college’s influence on these aspects. Clearly, graduates feel some disconnect between college life and what they have experienced so far post-college. We will see several supporting results to this as we examine the graduates’ employment and other post-college outcomes.

6.3. 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 started looking for work sooner – 66% versus 55% for private HEI graduates. Graduates who said that they did not look for work right away includes those that have started working even before finishing their studies. But among those who were not working at the time of their graduation, the main reason for not looking for work are to

review for licensure exams (41%) and to rest (33%) (Annex 4 Table 20). Around 12% did not look for work because they got married, got pregnant, or had to take care of family duties.

Annex 4 Table 21 shows the average and median length of various indicators of job transition. We computed for the number of months that the graduates started searching for a job after graduation, the number of months they spent looking for work, and finally the number of months they started working after graduation (regardless of when they looked for work). This last indicator can be viewed as a “dependency” period after graduation. We provide disaggregation by type of HEI and whether the program requires a PRC license or not.

On average, graduates looked for worked 4.6 months after their graduation. Graduates from public HEIs looked for work sooner, at 3.3 months. 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 between public and private graduates may be brought by differences in the share of programs that require a PRC license. Among graduates of private HEIs, 57% took programs that require a PRC license, as opposed to 40% among graduates of public HEIs. As the bottom panel of Annex 4 Table 21 shows, graduates of programs requiring a PRC license started their job search on average 5.9 months after graduation, they spent 9 months looking for work, and started their first job 15 months after finishing college. The corresponding amounts for time for graduates on non-PRC programs are 3.2, 7.4, and 10.5 months, respectively.

The median of these three indicators show 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 programs, it is 11 months, while those who do not require a PRC license have a median job start of 5 months after graduation.

In Annex 4 Table 22 we breakdown the job transition indicators by discipline group. Graduates of Education and Social sciences, business and law appear to have the shortest transition to employment. Job search length is 2 and 3 months at median, respectively, and graduates are already working 6 and 5 months after getting their degree. Graduates of Health and welfare courses, meanwhile, seem to pay a high price for their perceived salary premium. They spend 6 months looking for a job at median, and their overall “dependency” period is 14 months.

First job after college graduation

At the time of the survey, eighty Eighty-five percent of the graduates have had a first job after graduation.⁹ Their methods of job search are in Annex 4 Table 23. Most commonly, they applied to employers directly (38%), while more than a fifth (23%) found their first job through their relatives and friends. HEIs play a minimal role in placing their graduates in their first job, with only 4% employing this search method. Graduates of public and private HEIs employed the same methods in looking for their first job.

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

Expectedly, majority (75%) of the first jobs acquired by the graduates required a minimum of a college degree for acceptance (Annex 4 Table 24). Around 10% landed on jobs that only required some college level education, 6% took jobs that required only a high school diploma, and another 3% said their job has minimal educational requirement.

For their first job, 54% of graduates had technical or managerial tasks, while 46% 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% of the graduates were Professionals, Technicians and Associate Professionals, and Managers and 42% were Clerical Support Workers and Service and Sales Workers. There were more private HEI graduates who were Professionals and more female graduates who were Clerical Support Workers in their first job.

In relation to the jobs that required minimal educational requirement, almost 5% of graduates are working 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%), Cleaners and helpers in offices (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 worked or are working in first jobs that are low-skilled and mostly required physical labor.

Only 70% of graduates think that their college degree is relevant to their first job (Annex 4 Table 27). In addition, only 44% of them 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 job-education mismatch from the perspective of the graduates.

Meanwhile, around 20% and 18% believe that work experience and personal connection is the main reason for landing their first job, respectively. Those who claimed that work experience is the main reason for landing their first job are most likely referring to their internship experience, as only 16% of them did work before graduation. On the other hand, 93% of graduates had an internship or on-the-job (OJT) training program during college.

Current employment

We now look at the graduates' current employment status.¹⁰ Following the Labor Force Survey (LFS) of the Philippine Statistics Authority (PSA), the reference period for employment indicators in this section is the past week. Table 5 shows that the national labor force participation rate of our graduates is 86.6%, which means that 86 out of 100 graduates are either

¹⁰ We implement the Philippine Statistics Authority's definitions 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 - 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 - persons 15 years old and over who simultaneously satisfy the following three (3) criteria: a) without work or had no job/business; b) looking or seeking work; and c) 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: a) tired/ believed no work available, i.e., the discouraged workers; b) awaiting results of previous job application; c) temporary illness/ disability; d) bad weather; and e) waiting for rehire/job recall. Unemployment rate = number of unemployed / labor force

employed or unemployed. This is higher than the 4th quarter of the LFS in 2014, wherein 78.9% of college graduates were in the labor force.¹¹ Female graduates have significantly lower labor force participation rate.

Table 5. Employment status by HEI type

	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		0.000		0.000	

Source: Authors' computation.

Around 14% of graduates are not in the labor force. As in the LFS, graduates who are not available for work during the reference period or within two weeks after a job interview, or 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 for not being available to work is family duties (60%), and more graduates from public HEIs are not in the labor force because of this. Only around 16% said that they are studying, and 9% are waiting for results of their job applications.

Among graduates in the labor force, 89% were employed during the reference period. The corresponding LFS results reflect a slightly better condition at 92% employment rate. 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 fare best in this regard, with 90 out of 100 being in the labor force and a high employment rate of 91%. Engineering, manufacturing, and construction graduates are also doing well, with a labor force participation rate of 89.3%. Their employment rate is close to the national average at 88.4%.

Between the top 2 discipline groups, graduates from the Health and welfare discipline seem to have worse employment outcomes. Only 84 out 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%, and an employment rate of 91.6%. The worse employment outcomes for graduates of Health and welfare programs can be related to their longer job transition phase discussed earlier.

Graduates of Science and Agriculture programs are faring quite well – 87 out of 100 are in the labor force, and 77 of those are currently working. This contrasts with the situation of those that took Services programs, where only 85 out of 100 are in the labor force, and only 70 of them are employed. Graduates of General, humanities, and arts programs have the lowest labor force participation rate at 78.5%, but 91% of those are employed.

¹¹ In order to provide a reference, whenever relevant, we compare the GTS results with that of the 4Q Labor Force Survey in 2014. Majority of the interviews were conducted on the second half of 2014. The employment module of the questionnaire is also adapted from the LFS questionnaire.

Table 6. Employment status by discipline group

	% 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

Source: Authors' computation.

An employed person is considered underemployed if he or she wanted additional work (wanted additional hours of work in present job, or 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 as well.

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 and this is true regardless of their type of HEI or sex. In Annex 4 Table 31, we can see that underemployment rates across discipline groups are around 25% to 28%, except for graduates of General, humanities and arts, wherein a third of the employed wanted additional work.

Moving on to occupation groups, Annex 4 Table 32 shows that 38% and 14% of the graduates are employed as Professionals and Associate Professionals. Around 10% are working as Managers, and more private HEI graduates are doing so. A third of them are doing clerical support, service, and sales work. Four percent remains in low-skilled occupations. Significantly more females are working as Professionals and Clerical Support workers, while more males are Technicians and Associate Professionals, and Service and Sales workers.

In Annex 4 Table 33, we tabulate the major industries engaged in by the graduates' employers. Sixteen percent of the graduates are employed in the Education and Wholesale and retail trade, repair of motor vehicles 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 of the 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 working in the Public administrative and defense, compulsory social security and Manufacturing industries. These results are consistent with the distribution of graduates presented earlier.

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

The median basic pay is Php500 per day (Annex 4 Table 36). Those working for the Armed Forces earn the highest at Php800 per day. For occupation groups that constitute majority of

the graduates (Professionals, Clerical support workers, and Technicians and associate professionals, account for 75% of employed graduates), the median basic pay is lower than the LFS estimates by around 8%-24%. For Managers and Service and Sales workers, which account for 10% each of graduates, the median basic pay is 22% and 11% lower than LFS estimates. The most likely explanation is that our population of graduates are in lower-paying jobs within these occupation groups, on account of them being relatively new entrants to the labor market.

Graduates of private HEIs who are working as Managers earn substantially more than their public counterparts (Annex 4 Table 37). Looking at the top 3 Managerial jobs (Retail and wholesale trade managers, Sales and marketing managers, Other Services managers) private HEI graduates' basic pay per day is around 40%-65% higher than graduates of public HEIs. Meanwhile, a cursory comparison of the median basic pay for Professionals show that public HEI graduates earn more. However, looking at the specific jobs within this occupation group show that this is not the case. The lower median basic pay for private HEI graduates is due to the large number of nursing professionals among private HEI graduates, which already takes up almost 50% of the distribution, and are earning Php454 per day at median.

Male and female graduates receive similar pay among occupation groups that constitute majority of the graduates (Annex 4 Table 38). However, there is a substantial difference for Service and Sales workers, which account for 10% of the graduates. The top job for males within this group is Police officers, with a median basic pay of Php700 per day, whereas the top job for females is Cashiers and ticket clerks, which has a median basic pay of just Php318 per day.

Work location aspiration

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

Some are interested to work anywhere but their current location, big cities excluding Metro Manila, and Metro Manila. However, an overwhelming 71% see working overseas as the way to improve their lives (Annex 4 Table 41). Indeed, 41% of overseas workers have at least a bachelors' degree based on the 4th Quarter 2014 LFS data. Annex 4 Table 42 shows that their most preferred country to work in is Canada (24%), followed by the United States (16%) and the United Arab Emirates (12%).

Factors affecting job choice

Like their first job, graduates were asked what they thought was the main reason for landing their current job. We present the results in Annex 4 Table 43, disaggregating the total responses based on whether their current job is their first one. 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 choices 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 our proxy for what they learned from their degrees, is the most important reason for getting hired (44%).

Even though graduates said that occupational skills landed them their job, they believe that the most important factor for getting a job in general is work experience (Table 7). This is true whether the graduate is currently employed or not, and whether he or she is on his or her first job or not.

Table 7. Most important factor for getting a job

	Total among who ever had a job after graduation (91%) %	Among current job is not first job (50%) %	Among current job is first job (34%) %	Among unemployed but had 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

Source: Authors' computation.

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

The graduates' preoccupation with work experience appear to be at odds with what employers claim as their main 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 5 functional skills that they look for are communication skills, trainability, competence, problem-solving and analytical skills, and technical know-how.¹² Competence and technical know-how may come from work experience, but for fresh graduates these are mostly from college training. Graduates correctly perceive that the communication, critical thinking, and problem-solving skills they learned in college are not sufficient to make them competitive in the labor market.

The main considerations for job choice are related to earnings (Table 8). Wage is the most important factor, with 66% of graduates claiming that this is their top reason for choosing a job, and 84% of them choosing this in their top 3 reasons. The second top reason is work location (29% in the top 3), which, given our earlier results on graduates' reason for wanting

¹² 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.

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 our graduates also figures, as extra income generating opportunities are in their top 3 22% of the time. Among other employment benefits, health insurance support is rated higher than housing. The sector of employment, recognition from superiors, or infrastructure provided by the employer are not significant considerations of our graduates in selecting a job.

Table 8. 3 most important factor influencing job choice

	% Rank 1	% Rank 2	% Rank 3	% in 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

Source: Authors' computation.

Job-education mismatch

So far, we have observed the following with regard to job-education mismatch: (a) only 70% of graduates think that their college degree is relevant to their first job; (b) less than half of them consider occupational skills, which they learned in college, as the main reason for landing their first or current jobs; (c) around a fourth of them think that outdated skills learned in college is keeping them from getting a good job. Here, we explore the issue further by looking at specific degree-occupation matches.¹³

We attempt to gauge the extent of mismatch by comparing the current occupations of our graduates vis-à-vis their baccalaureate program. This mismatch is admittedly a narrow one, as we are only assessing “horizontal” mismatch, or the appropriateness of the degree completed with the requirements of the job. 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”. The decision to do so was made to reduce possible arbitrariness given our lack of information regarding core skills learned from

¹³ Due to the data representativeness issue discussed earlier, the discussion in this subsection applies only to the sample of respondents interviewed, not to the target population. Even though we cannot recover national representativeness through weighting, we believe that this exploration of job-education mismatch at the degree level remains meaningful and informative.

a degree that is of use to all possible occupations. Finally, since there is no official mapping of the baccalaureate programs to all their possible matched occupations, we focus our analysis on programs that require a professional license. These courses typically have more defined “matched” occupations.¹⁴

Table 9. Match of occupations with baccalaureate program

	% 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

Source: Authors’ computation.

In Table 9 we present the results of our matching exercise. Overall, 49% 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 PRC requirement, the Bachelor Science in Pharmacy have the highest percentage of job-education fit. Almost 80% of their graduates work as pharmacists. On the other hand, only 2% of BS Customs Administration work as customs and border inspectors.

In Annex 4 Table 45 to Annex 4 Table 49, we present the occupations considered as “not matched” for the top 5 baccalaureate programs with PRC license requirement.

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

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

¹⁴ In previous GTS rounds, “matching” was done by pairing baccalaureate programs with broad occupation or industry groups. For instance, a Nursing graduate would be considered “matched” if he or she works in the health sector.

Among BS Criminal Justice graduates, the majority in “not matched” occupations are security guards (20%), followed by fire-fighters (7%) (Annex 4 Table 48). Finally, Annex 4 Table 49 shows that BS Accountancy graduates who are not working as accountants are primarily either accounting and bookkeeping clerks (24%) or accounting associate professionals (20%). Admittedly, these top 2 “not matched” occupations can be considered preparatory jobs towards an accountant position.

Overall, we see that there is substantial job-education mismatch among our graduates. The case is particularly alarming for BS Nursing graduates, who constitute one fourth of our sample graduates. Their “not matched” jobs are unlike the Education graduates who are working as teachers but not at the level most suited to their degree, or the 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% are working as health care assistants or nursing associate professionals.

6.4. Socio-political participation and life satisfaction

After exploring the graduates’ employment journey so far, we now turn to other vital aspects of adult life. We look at citizenship formation, ethical behavior, social and political activities and community involvement. We also look at graduates’ satisfaction about the different components of their lives, and of their lives as a whole.

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

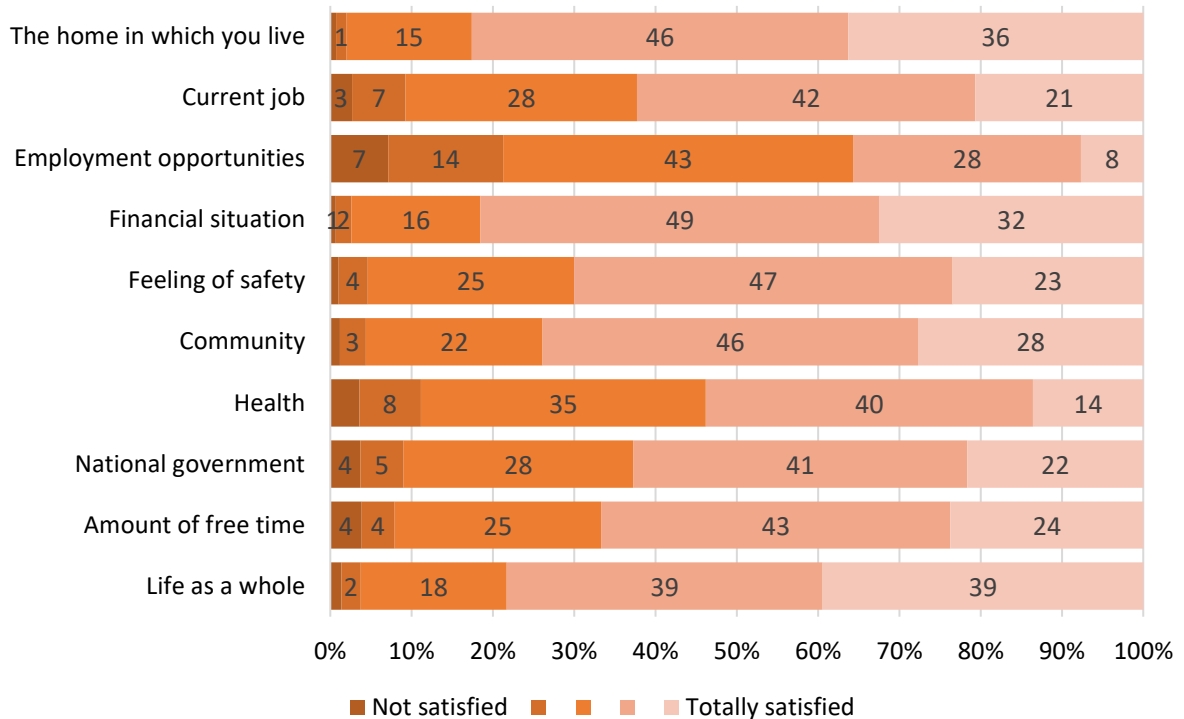
Good citizenship is mostly associated with voting, obeying laws, and paying taxes (Annex 5 Figure 7). A little over half (55%) think that being vigilant on the actions of the government is “very important”. Only around 36% are concerned with being active in social and political associations and in serving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

Most graduates have a clear belief on what is ethical behavior, although none of the actions considered received a higher than 90% rating for being “never justifiable” (Annex 5 Figure 8). Around 85% believe that cheating on taxes, buying something stolen, or accepting a bribe are not justifiable. Alarmingly, only 78% 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). The most common social action is donating for a cause – 51% of graduates donated for a social cause in the past 12 months. Participation in the rest of the political and social actions is less than 10%. In fact, only 4% contacted the media to express their views. This is particularly low because media establishments and even 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%, for religious organizations. Leisure-related, voluntary or professional associations only have 19%-23% participation rates. Only 5% are members of a political party.

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



Source: Authors' computation.

In Figure 4 we see that around 82% are satisfied with their lives as a whole. They are most satisfied with their health and their homes – 81% and 78% are “totally satisfied” with these two aspects, respectively – not surprising considering that they are young and 76% still live with their parents. They are also satisfied with their safety and belongingness to their communities. Around 74% and 70% of graduates gave these aspects “satisfied” and “totally satisfied” ratings, respectively. This can be an overestimate, to the extent that graduates in unsafe areas were not interviewed due to security reasons.¹⁵

Consistent with our earlier findings on the graduates' employment situation, here they gave lukewarm ratings to their current job and employment opportunities. Less than 25% of graduates said that they are “totally satisfied”. In fact, a higher percentage gave a neutral rating (25% for current job and 28% for employment opportunities). Still in line with their desire to earn more and understandable given that they are in the early stages of their career, graduates are least satisfied with their financial situation. Only 14% of them are “totally satisfied” with their finances.

Across all aspects, satisfaction with the national government is the lowest. Around 21% are not satisfied, and 43% gave a neutral rating. We cannot tell though whether their dissatisfaction

¹⁵ Some regions have reported this issue during data collection.

with the national government is caused by or the effect of their inactive political and social life.

6.5. Relationship of college experience to post-college outcomes

In this section, we explore the extent to which college experience influence post-college outcomes such as employment, socio-political participation, and life satisfaction. None of the previous GTS studies attempted this kind of analysis.

We summarize first the information from the different aspects of college and post-college experience captured in our survey. We then use this summarized information in our regressions relating college experience to post-college outcomes.

Taking off from and extending the approach by Webber, et al. (2013), we use polychoric Principal Component Analysis (PCA) as a dimensionality reduction technique, which reduces several indicators representing various aspects of college and post-college life into a few indices that explain most of the variability in the data.¹⁶

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 extra-curricular activities;
- Intra-curricular – reflects emphasis on other components of learner engagement that are not extra-curricular activities;
- Teaching Quality – aggregates dimensions on faculty giving clear explanations, good examples, helpful assignments, intellectual stimulation, useful comments, as well as if they were generally helpful or displayed subject mastery and time management;
- Support Services – aggregates dimensions on helpfulness of administrative staff, librarians, guidance counsellors, religious guides, laboratory technicians, and research personnel;
- Non-core 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 helped the student connect to the real world, apply classroom learnings into action, and had positive influence on intellectual and personal growth; and
- Practicality of College Experience – reflects emphasis on applied aspects of college experience.

Questions on post-college outcomes were reduced into nine indices which we divide 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 service in the military;

¹⁶ This kind of PCA is more appropriate for categorical variables, which is how the different components of college and post-college outcomes were measured. More details of the methodology are provided in Annex 3.

- 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 think certain ethically questionable actions are;
- Non-participation 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;
- Non-participation in Groups – aggregates dimensions on non-participation of respondent to political parties, trade unions, and church, sports, and volunteer organizations;
- Non-participation in Political/Economic Groups – reflects emphasis on not participating 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;
- Non-immediate Needs Life Satisfaction – reflects emphasis on non-immediate 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 deriving these indices are in Annex 3: Dimensionality Reduction.

We then conducted regressions 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, we used as control variables a specific set of student characteristics and household characteristics, namely sex, HEI type, region graduated from, poverty status, and the educational attainment of the father and mother.

Each of the regressions are of the form $Y = F(\alpha + \beta'X + \lambda'Z + \varepsilon)$, where Y is any of the post-college indexes we developed earlier; X is the set of college experience indexes that we also generated and are 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 below. College experience indices are in the rows and post-college outcomes are in the columns. In this summary table, we only show the statistically significant estimates. Note also that here and in subsequent regression tables, we only report the coefficients of X for parsimony.

Table 10. Summary of Statistically Significant Relationships of College Experience to Post-college Outcomes

College Experience Indexes (X) / Post-College Indices (Y)	Employment (in log-odds form)	Citizenship, Ethics, Participation						Life Satisfaction		
		Citizenship	Active Participation	Unethicality	Non-participation in political and social action	Non-participation in groups	Non-participation in political/economic groups	Overall Life Satisfaction	Non-immediate needs life satisfaction	External Life Satisfaction
Learner Engagement	1.098	0.141 [†]	0.044 [†]	0.027	-0.10 [†]	-0.09 [†]	0.083 [†]	-0.02	0.019	
Intra-curricular Thrust		0.053 [†]	-0.02	0.043	0.054 [†]	0.09 [†]	-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 [†]		
Non-Core 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 5% significant level. Those with [†] are significant at 1% significant level. Standard errors and p-values of the estimates are provided in the succeeding tables.

Source: Authors' computation.

The summary table shows that positive college experience (in most of its multiple dimensions) is generally associated with 1) better overall life satisfaction, 2) stronger sense of citizenship (although we have noted the preference for more active displays of citizenship, which may have been induced by exposure to extra-curricular activities), 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 extra-curricular activities might 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 practicality of education.

Given that the explanatory variables are just principal components themselves, how do we interpret this result using the original variables? This is a bit complicated, but not impossible.

Table 11. Factor Loadings for Questions related to Learner Engagement

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 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 non-academic 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 me explore my career options?	0.3120

Source: Authors’ computation.

Consider learner engagement: we must establish 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 by one unit the answers to questions 3, 5, 6, and 7 (see Table 11, Annex 3 Table 2). By doing so, we increase by 9.8% the odds of the graduate being employed.

Interpreting the other explanatory variables can proceed similarly.¹⁷ 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 our current purpose, it is sufficient to examine the direction (sign) and strength of the association (statistical significance).

¹⁷ So how do we use this information to increase employment? We can consider it as an optimization problem. For instance, we can assign costs to increasing 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 compute the least cost option for increasing learner engagement given the costs and the weights (factor loadings) of each aspect.

College experience on employment

We first look at the relationship of college experience on employment and on socio-political participation indices we developed earlier: citizenship, active participation, unethicity, participation in groups, and political/economic groups' participation.

For the dependent variable employment status, it is equal to 1 if the graduate is employed and 0 otherwise. Thus, we utilize the logistic regression, and we present the odds ratios of the estimates (Table 12). We note that a unit increase in overall college experience and a unit increase learner engagement increases the odds ratio of employment by 8.4% and 9.8%, respectively, while the support services index reduces the odds of employment by 5.8%.

Table 12. Logistic regression of employment on college experience

	Odds Ratio	Standard error	p-value
Learner Engagement Index	1.098	0.022	0.000
Intra-curricular 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
Non-Core 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		
N. of cases	7280		

Source: Authors' computation.

So how do we interpret this? Better college experience and learner engagement makes for a more employable graduate. As for better support services, it is generally associated with more expensive schools, which are more accessible to richer families. Richer families 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 non-core support services index (Annex 4 Table 53). This is an expected result except for the intra-curricular index, which has a positive sign. But this result can be clarified when we look at the active participation index, which measures preference to civic participation that emphasize action over passive citizenship – vigilance to government action, willingness to join the armed forces, service in political associations (Annex 4 Table 54). Here, extra-curricular emphasis helps (intra-curricular is negative), while overall college experience is negative. Poor teaching quality and possibly less satisfying experience during college may nudge individuals into becoming more active for political reform post-college.

Unethicity. As for the unethicity index, it is negatively associated with teaching quality, support services, and practicality of college experience, and has positive association with everything else (Annex 4 Table 55). Interpreting this in the negative sense: better teaching quality, support services, exposure to extra-curricular activities, and practicality of college experience make for a more ethical citizen after college.

Non-participation in political and social action. The political/social non-action index is negatively associated with learner engagement, but positively associated with non-core support services, intra-curricular, thrust and practicality of college experience (Annex 4 Table 56). Interpreting in the negative sense, political/social action is associated with learner engagement, but negatively associated with non-core support services, intra-curricular, thrust and practicality of college experience. It could be that more engaged students (through extra-curricular activities and more social than technical education), tend to become more politically active later on.

Non-participation in groups. Results on participation in groups (Annex 4 Table 57) shows similarity with that of political and social participation, except that non-core support services index is not statistically significant.

Finally, **non-participation in political/economic groups** only has three statistically significant explanatory variables, all of which have negative signs: intra-curricular, support services, and practicality of college experience (Annex 4 Table 58). This is not surprising; students with exposure to less “practical” and more extracurricular college experience would be more predisposed to join political groups over non-political ones. The lack of support services also relates to increased participation in political groups.

College experience and employment outcomes on overall life satisfaction

We can now look at the factors associated with the life satisfaction of the graduates. In these regressions, we included employment status as a control variable.

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

Non-immediate needs life satisfaction. We find that only learner engagement has a statistically significant association with non-immediate needs life satisfaction index (Annex 4 Table 60), and it is negative. Learner engagement seems to matter more in satisfying needs which are more immediate, like sources of employment and income. Somewhat unsurprisingly, employment has a negative effect – which may suggest that the emphasis on non-immediate needs of life come to fore when an individual is unemployed.

“External” dimensions of life satisfaction. We find that intra-curricular focus is negatively associated with “external” dimensions of life satisfaction index – an expected result given that extra-curricular 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 post-college interaction with society.

7. Summary and recommendations

We present the summary of findings and recommendations in two parts. First, we incorporate the results from the operational assessment of the GTS implementation conducted in 2015. This is to achieve an integrative report tackling both the administrative and analytical aspects piloted in this GTS round. We then proceed with the findings and recommendations regarding the survey results.

7.1. GTS Design

Summary of findings

Data quality is a critical factor in GTS success. Complete and updated contact information, at least up to the point of exit from the school, is necessary to address the age-old problem of 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 and/or outdated.

One of the primary goals of this GTS round is to capacitate the CHED, especially the regional offices, in managing data collection. The advocacy is that a national graduate tracer study should be carried out within CHED as it has the right policy motivations to come up with credible results.¹⁸ Expectedly, CHED encountered several challenges in piloting the GTS as designed. The administrative, financial, and audit aspects of the study turned out to be a potent hurdle in operations. Due to insufficient understanding of survey operations, CHEDROs were unable to exercise flexibilities to be more responsive to the needs of the GTS implementers. One key element pointed as crucial in sustaining GTS implementation amidst hurdles is the active support and involvement of the Regional Director.

While CHED encountered birthing pains, the Central and Regional offices see the value in being the GTS implementer. They all found the experience worthwhile. It is only in this round that they experienced direct interaction with graduates going through various stages of transition to post-college life. They developed a deeper understanding for the need to find out how higher education can be improved to really make a dent in our 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 CHED Regional offices. HEIs should be instructed to include this in their annual submission to CHEDROs prior to conferring degrees to their graduates. Necessarily, this calls for substantial improvement in record-keeping capacities of HEIs. HEIs may also conduct an exit survey for its graduates. They can collect updated contact information, gather preliminary data, and encourage graduates to participate in a tracer study in case they will be sampled.

¹⁸ TESDA produces regularly what they call study on the employability of TVED graduates (used to be called impact evaluation studies) which are really tracer studies of TVET graduates. Although, unlike CHED, TESDA run training institutes.

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. Again, data for this 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 communications campaign whenever a GTS is in operation. This campaign should target not just graduates but also HEIs, the private sector, and government institutions, including the Philippine Overseas Employment Agency and Department of Foreign Affairs. This will help generate familiarity among stakeholders of graduate tracer studies being conducted by CHED.

There might also be 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 to HEIs. A transparent protocol should be established to ensure that the biases being avoided in HEI-led enumeration is 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 non-employment related questions. The information campaign may help improve their reception to the study, as well as targeted Memorandums of Agreement with their employers or professional associations.

The learnings in this round with respect to research management are enormous. Clearly, there is a need to establish detailed and GTS-specific administrative, financing, and auditing guidelines to avoid the ambiguities that hindered implementation in this round. 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.

7.2. 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 both HEI types. Health and welfare courses (mostly BS Nursing) is 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, but public HEI graduates had to limit their choice among degrees that are affordable for their family.

A considerable share of graduates entered college without a particular preferred degree, and only 70% preferred both their program and university at that time. This undefined or mismatch in preference seem to linger after college, which point to a substantial and unmet information need during the critical period that students make their decision.

Getting a college education is expensive. Graduates from public HEIs paid Php7,101 on average per semester on tuition, while their private HEI counterparts paid on average

Php21,403 per semester. These are lower-bound results because the big private schools are not well-represented among respondents.

Overall, college life is mostly 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 or the ‘real’ world.

Majority of the graduates started looking for work right after graduation. The median length of job search is just 3 to 4 months. Graduates of PRC programs were able to start working 11 months after graduation, while those who do not require a PRC license have a median job start of 5 months after graduation.

Labor force participation rate of our graduates is 86%. Among those in the labor force, 89% were employed. Around 14% of graduates are not in the labor force, primarily to attend to family duties. In terms of labor force participation, these are better than LFS estimates for the comparable period, where only 78.9% of college graduates were in the labor force, but lower compared to employment as 92% of those in the labor force are employed.

Between the top 2 discipline groups, graduates from the Health and welfare discipline seem to have worse employment outcomes. Only 84 out 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%, and an employment rate of 91.6%. The worse employment outcomes for graduates of Health and welfare programs can be related to their longer 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%.

There are a number of tell-tale signs of job-education mismatch: graduates (a) feel that they did not sufficiently develop communication, critical thinking, and problem-solving skills; (b) only 70% of graduates think that 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; (d) around a fourth think that outdated skills is keeping them from getting a good job. Overall, only 49% 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 and various types of clerks, retail, sales, and other service workers, and laborers.

Graduates believe strongly in the primacy of work experience in order 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 developed 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 less educational requirement.

Other aspects of post-college life that we looked at in this study are socio-political 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 types of 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, not surprising considering that they are young and mostly live with their parents.

In relating college experience to post-college life, we find that positive college experience (in its multiple dimensions) is generally associated with 1) better life satisfaction, 2) stronger sense of citizenship (although we have noted the preference for more active displays of citizenship, which may have been induced by exposure to extra-curricular activities), 3) less participation in political/economic groups.

Unpacking the components of college experience, we find that learner engagement improves employment, citizenship, and life satisfaction. Learner engagement captures indicators such as sense of belongingness, preparedness, interaction, and participation – which unfortunately, as we reported earlier, our learners tend to score low on. If we get to improve the components of learner engagement, then it is possible to see improvements in employment outcomes and even indicators on citizenship and life satisfaction.

Improving extra-curricular 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 intra-curricular activities and less on practical applications of learning. This suggests that employment and ethics outcomes can still be improved by promoting extracurricular activities and learnings grounded on the real world.

Recommendations

The GTS results point to several policy and research directions that are of interest to CHED. On the mismatch of preferred program and HEIs, labor market information must penetrate students in earlier stages of secondary education to allow them to better assess among 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 affect all discipline groups and all types of HEIs surveyed in this GTS round, suggesting that it is a structural problem. Graduates and employers agree that these skills gap are preventing our graduates to get 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 response.

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 less 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 for the first few years from graduation, they are working in “not matched” occupations to save up for review and exam expenses. It is also possible of course that not so well-off graduates are compelled to work right away and thus accept jobs for which they are over-educated. It could also be that graduates taking jobs with less 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.

Our exercise on looking at composite indices representing college experience and post-college outcomes need further study, but it is evident that college experience is strongly correlated with private and public returns to higher education.

Based on the different aspects of college experience tackled in this GTS, 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 useful 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, how their views and strategies on social interaction are formed. Policy makers might also encourage and incentivize improvements in guidance counselling and other support services for students.

As we mentioned earlier, going beyond mere textbook learning is associated with better employment outcomes and sense of ethics. In this case, strengthening the on-the-job training program and encouraging immersion of students in actual communities, and local and national organizations may be beneficial. That 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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9. Annexes

9.1. Annex 1: Review of related literature

Higher education institutions

A comprehensive study examining higher education from the perspective of HEIs is that by Paqueo, Orbeta, & Albert (2011). They observed that the participation rate in higher education is not a problem (rate is relatively higher to similarly-situated economies); rather, the problem lies with the quality of education reflected by PBE performance, low world ranking of our HEIs, and the high proportion of college graduates among the unemployed. They traced this to low expenditure per student, low qualifications of faculty, and low program accreditation rate¹⁹.

The study also reported that “discipline orientation continues to favor so-called low priority fields of study” and oversubscription on non-priority programs, pointing to poor guidance on college-bound students and the relative cheapness of provisioning the oversubscribed courses given limitations of HEI resource. Finally, there is 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 (SUC), even if they already have broad mandates to begin with, are allowed by their charters to offer programs that are outside of their core mandates, resulting 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% of PBEs, this advantage is slowly being eroded. Third, there is a preponderance of HEIs with zero passing rates in many PBEs from 2004 to 2011. All of these point to the need for CHED to strictly implement an effort to rationalize HEIs and their programs as well as improve the quality of instruction.

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 instruction. Multiplicity of program offerings amongst SUCs is found to push SUCs’ per student cost upwards, although per student cost is not found to have statistically significant influence on the licensure examinations passing rate. Thus, “some scope for reducing per student cost without necessarily affecting the quality of education provided by SUC”²⁰.

One can argue that provisioning programs that are outside of core mandates, as well as the multiplicity of program offerings, reflect the inherent inefficiency of the SUC. Cuenca (2011) conducted a data envelopment analysis (DEA) on 78 SUCs and found out that the majority of SUCs are indeed, inefficient, with a substantial decline in efficient SUCs from 2007 to 2009. The study also concluded that “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”.

¹⁹ The accreditation system of Philippine HEIs is thoroughly reviewed by (Conchada & 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.

²⁰ The study sees the amalgamation of SUCs as potential way to reduce costs without compromising quality.

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 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 the underemployed who are at least college graduates also increased.

A wage study was conducted by Luo & 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%, 40%, 100% more than those with no education. This was updated and extended by Punongbayan (2012) using 2010 data, reporting returns to elementary, secondary, and tertiary education at 14%, 50%, and 183% higher to no education, respectively. The study also demonstrated heterogeneous effects of education across income classes via 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.

A wage premium analysis by Orbeta, Gonzales, & Cortes (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 results of the Philippines Employment Projections Model (PEPM) by the International Labour Organization for 2001-2010 showing that “unemployment rate increases with the level of educational attainment”, implying that “as an individual climbs up the ladder of education – learning more skills – it tends to prefer to remain unemployed rather than taking up any kind of employment”.

HEI-labor market dynamics

Given information on labor market’s behavior with college graduates (and vice-versa), we can now take a look at studies on how HEIs which produced those 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 proceeded to survey 198 colleges and universities and 810 establishments from 16 regions. The study found out that there is “congruency” between the knowledge schools claimed to give their students and the knowledge expected by establishments from graduates, but a “non-congruency” in terms of skills.

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

Finally, the study revealed a significant difference between ratings of schools and ratings of establishments with respect to their assessment of the graduates’ (evaluated by industry as on-the-job trainees) knowledge, values, and skills. 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 assessment of schools and establishments on the effectiveness of the on-the-job training

program. The study then proposed the formulation (by DOLE and CHED) of integrated HRD and R&D frameworks.

A joint study by the ILO Bureau for Employers' Activities (ACT/EMP) and the Employers Confederation of the Philippines (ECOP) (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 the existence of mismatch - both in technical and soft skills - which affects the manufacturing sector (automotive and semiconductors) more 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 effort to respond to industry requirements – both in terms of skill and specialization requirements. Orbeta, Gonzales, & Cortes (2016), in particular, reports on FGDs with HEIs revealing that HEIs change their academic programs primarily based on labor market information and enrollment, although administrative bottlenecks and scarcity of resources often prevent speedy implementation of these changes²¹.

Learner-oriented studies

As mentioned earlier, so far there are 3 nationwide graduate tracer studies. The first is by Arcelo (2001) through the Fund for Assistance to Private Education (FAPE) covering graduates from SY 1994 to 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. Looking at the unemployed, the primary reasons stated 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 out that optometry, foreign service, computer engineering, electronics and communication engineering, computer science, accounting, and industrial engineering courses have high employability, while law, architecture, commerce (non-accounting) and chemical engineering courses have the greatest number of unemployed. Regarding job-education fit, graduates of dentistry, commerce, language, engineering, and medicine found jobs fit to their academic training, while graduates of home economics and liberal arts programs had the least job-education fit. Interestingly, where there is a mismatch in academic qualifications and job requirements, economics and mass communications graduates are found to be more flexible and experienced less difficulty in finding jobs.

The second graduate tracer survey covered graduates from SY 2000-2001 to SY 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 successfully implement institutional graduate tracer surveys 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 and graduates of service trades courses had the shortest search time at 5.26 months. In terms of employment tenure, graduates of business education, engineering and technology, medical and

²¹ This is probably related to efficiency concerns discussed earlier in Cuenca (2011).

allied courses, criminology, and IT-related disciplines are the ones more likely to occupy regular or permanent positions. Meanwhile, regarding initial earnings, graduates from cluster disciplines of law and jurisprudence, medical and allied courses, and transport services are the ones with the highest average initial income. Graduates with the lowest initial monthly income are from the environmental protection, agriculture, and education science and teacher training disciplines. The top 3 reasons for being unemployed are: difficulty to find a job, further study, and presence of family concerns. Graduates from the natural science courses registered the highest unemployment rate, followed by those from agricultural courses.

Finally, the third nationwide graduate tracer survey covered graduates from the SY 2005-2006 to SY 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% 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 source of funding 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 that graduates from this program find employment in the education industry. Meanwhile, the unemployed are mostly females (62%), graduates from private HEIs (84%), and from medical and allied courses (30%). Reasons 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

We need to quantify “college experience” to be able to relate it with success in college or in employment. This, however, is not a trivial exercise. We looked at studies that attempt to aggregate various facets of school experience. Webber, et al. (2013) transformed variables – using principal components analysis (PCA) – 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 satisfaction regarding overall academic experience.

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

9.2. Annex 2: Deriving Sampling Weights for GTS 2014²²

A. Introduction

The sampling of the 2014 GTS was designed to be representative at the regional level. The intention of making the survey representative at the regional level is to make the data an input to regional planning. It was also the intention to make this a regular activity of the CHED regional office. The research include training the regional CHED off in the management of this survey to prepare them to make this a regular activity. The original sampling was designed to be self-weighting. However, the conduct of graduate tracer survey across the regions was uneven. To correct for this varied enumeration performance and regain the representativeness of the sample at least at the national level, sampling weights need to be computed.

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 non-respondents. A further adjustment may also be applied to make the adjusted weighted sample distribution conform to the known distribution from an external source. Here, we perform non-response adjustments of the base weights based on post-stratification of region, discipline groups, types of HEIs and sex.

The original sampling design stratifies each region by (a) type of institutions (private non-sectarian (PN), private sectarian (PS), local universities and colleges (LUC) and state universities and colleges (SUC) and (b) nineteen discipline groups. Sampling was proportional for each stratum, so it was designed to be self-weighting.

B. Methodology

Table 1 of the report shows the original sample and the actual number of enumerated sample. As can be observed, there is no region that has enumerated the number in the original sample, as per design. In order to still capture variations across regions, we create "mega regions" to distribute the total enumerated sample into areas that are geographically contiguous (and roughly having similar characteristics). For instance, CAR, Region I, II can constitute Group 1; regions 3, 4A, 4B, NCR and 5 as Group 2; regions 6, 7, 10 as group 3; regions 9, 12 and ARMM as group 4; and regions 11 and Caraga as group 5.

Similarly, we grouped disciplines into broad groups and even fused general, humanities and arts into one. Finally, we group the type of HEIs into two, public and private. In consequence, mega-regions would have at least 600 respondents among public HEIs, and at least 1,000 in private HEIs. We used cell-weighting procedure to compute the weights (Kalton and Flores-Cervantes, 2003).

C. Results

Now, we show the results by discipline group, regional group, by type of HEI, and by sex.

a. Sample

²² Prepared by Dr. Aniceto Orbeta. Dr. Orbeta acknowledges the inputs of Dr. Jose Ramon Albert, PIDS Senior Research Fellow, in finalizing the computations.

The resulting tables for the sample are as follows:

Annex 2 Table 1. Sample graduates - Public HEIs, Male graduates

Discipline group	Mega-region					Total
	1	2	3	4	5	
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

Source: Authors' computation.

Annex 2 Table 2. Sample graduates - Public HEIs, Female graduates

Discipline group	Mega-region					Total
	1	2	3	4	5	
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

Source: Authors' computation.

Annex 2 Table 3. Sample graduates - Private HEIs, Male graduates

Discipline group	Mega-region					Total
	1	2	3	4	5	
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 graduates

Discipline group	Mega-region					Total
	1	2	3	4	5	
General, humanities and arts	8	9	13	9	21	60
Education	80	116	126	102	154	578

Annex 2 Table 4. Sample graduates - Private HEIs, Female graduates

Discipline group	Mega-region					Total
	1	2	3	4	5	
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

Source: Authors' computation.

b. Target population

The tables for the target population are as follows:

Annex 2 Table 5. Sample graduates - Public HEIs, Male graduates

Discipline group	Mega-region					Total
	1	2	3	4	5	
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

Source: Authors' computation.

Annex 2 Table 6. Sample graduates - Public HEIs, Female graduates

Discipline group	Mega-region					Total
	1	2	3	4	5	
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

Source: Authors' computation.

Annex 2 Table 7. Sample graduates - Private HEIs, Male graduates

Discipline group	Mega-region					Total
	1	2	3	4	5	
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

Source: Authors' computation.

Annex 2 Table 8. Sample graduates - Private HEIs, Female graduates

Discipline group	Mega-region					Total
	1	2	3	4	5	
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

Source: Authors' computation.

c. 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.

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

Discipline group	Mega-region				
	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

Source: Authors' computation.

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

Discipline group	Mega-region				
	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

Source: Authors' computation.

Annex 2 Table 11. Derived weights – Private HEIs, Male graduates

Discipline group	Mega-region				
	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

Source: Authors' computation

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

Discipline group	Mega-region				
	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.

9.3. Annex 3: Dimensionality Reduction

Both the college experience and post-college outcomes modules feature several questions that intend to capture various features of college and post-college life. The questions in each feature (sub-module) are supposed to exhaust the most important elements of a feature. 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, we use the Principal Component Analysis (PCA), taking off from and extending the approach by Webber, et al. (2013).

PCA allows us to represent a set of variables into 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. We 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, we are interested in the first few components (1-3) that capture the bulk of the variability of the original sets of variables.

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

We used polychoric PCA 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, we generated a means, standard deviations, and a polychoric correlation matrix on weighted data.

For college experience, we did separate polychoric PCA for learner engagement (Annex 5 Figure 3, 13 questions), teaching quality (Annex 5 Figure 4, 7 questions), student support services (Annex 5 Figure 6, 6 questions), overall college experience (Figure 3, 4 questions). For socio-political participation, we ran polychoric PCA for good citizenship (Annex 5 Figure 7, 6 questions), ethics (Annex 5 Figure 8, 5 questions), political and social action (Annex 4 Table 51, 9 questions), and joining a group or association (Annex 4 Table 52, 5 questions). Finally, we also ran PCA on overall life satisfaction (Figure 4, 10 questions).

For learner engagement, we decided to extract two principal components from the 10 questions explaining 60% of the variability (Annex 3 Table 1).

Annex 3 Table 1. Components and variables explained for Learner engagement

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

Source: Authors' computation.

Annex 3 Table 2. Factor Loadings – Principal Components Analysis for Learner engagement

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.

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 components, which, by looking at the signs of the factor loadings, can be interpreted as an “**intra-curricular index**”. It represents the emphasis of the learner engagement on non-extra-curricular activities.

For teaching quality, the first principal component already explains 69.6% of the variation, which we interpret as the “**teaching quality index**” (Annex 3 Table 3). We need not look into the second principal component via factor loadings since we are just using the first one.

Annex 3 Table 3. Components and Variables Explained for Faculty

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

Source: Authors' computation.

For student support services, we opted to look into the “helpfulness” questions since we believe that it is 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% of the variation. The first component can be interpreted as the “**support services index**”.

Annex 3 Table 4. Components and Variables Explained for Support Services

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

Source: Authors’ computation.

Annex 3 Table 5. Factor Loadings – Principal Components Analysis for Support 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

Source: Authors’ computation.

Looking at the signs of the factor loadings of the second principal component, we can intuitively define the second component as the “**non-core 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).²³

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 components suggests its interpretation as “**practicality of college experience index**” given its information on translatability of college experience to real-life situations (Annex 3 Table 7).

Annex 3 Table 6. Components and Variables Explained for Overall college 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

Source: Authors’ computation.

²³ While we no longer included for analysis the third principal component, notice that it gives emphasis on provision of services related to psychological health and spiritual development.

Annex 3 Table 7. Factor Loadings – Principal Components Analysis for Overall college experience

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

Source: Authors' computation.

We now go to the socio-political module. For the good citizenship questions, we opted to use the first two principal components (explaining 79.61% of the variability), both because of the variance explained and the interpretability of the components (Annex 3 Table 8). The principal component then becomes “**citizenship index**”, for it captures what an individual sees as features of being a good citizen.

Annex 3 Table 8. Components and Variables Explained for Citizenship

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

Source: Authors' computation.

Annex 3 Table 9. Factor Loadings – Principal Components Analysis for Citizenship

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

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 “**active participation preference index**”.

For the ethics questions, the principal component already explains 92.9% of the variation. We interpret the principal component in a negative sense – the items listed in the question are ethically questionable in nature and the respondent is asked how justifiable the items are. We simply interpret it as the “**unethicality index**” (Annex 3 Table 10).

Annex 3 Table 10. Components and Variables Explained for Unethicality

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

Source: Authors' computation.

For questions on political and social action, we also just take the principal component, even as it explains only 62.6% of the variability, due to the lack of variance explained by, and difficulty in interpreting, the second and third components (Annex 3 Table 11). As with above, we have to interpret the first component in a negative sense, given the way the question was set up (Yes=1, No=2). We call the first component the “**political/social non-action index**”.

Annex 3 Table 11. Components and Variables Explained for Political and social action

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

Source: Authors' computation.

Annex 3 Table 12. Factor Loadings – Principal Components Analysis for Political and social action

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

Source: Authors' computation.

For questions on active participation in groups and associations, we decided to use the first two principal components, explaining 72.3% of the variation. As with above, we interpret them in the negative sense. The principal component is simply interpreted as “**Non-participation in groups index**” while the second component, due to the interpretation of loadings as favoring political or economic organizations over others, was interpreted as “**non-participation in political/economic groups index**”.

Annex 3 Table 13. Components and Variables Explained for Participation 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

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

Source: Authors' computation.

We finally arrive at the overall life satisfaction questions (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 were used to analyze the answers. The first principal component was only able to explain 47.8% of the variation, so we found it fit to use the first three principal components, which can now explain 67% of the variation. As with before, the first principal component as a straightforward interpretation as “**overall life satisfaction index**”.

Annex 3 Table 15. Components and Variables Explained for Overall life 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

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

Source: Authors' computation.

The second component is also easy to interpret if we sort the loadings (Annex 3 Table 16). It will appear that negative loadings appear for “immediate needs” such as job, financial situation, opportunities, and shelter and the highest positive loads are for non-immediate benefits such as free time and health. We therefore interpret this component as “**non-immediate 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). We can therefore see the third component as an “**external life satisfaction index**”.

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

9.4. Annex 4: Tables

Annex 4 Table 1. Respondents by age group

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

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.

Annex 4 Table 3. Highest educational attainment of parents

Educational attainment of father	Educational attainment of mother					Total %
	Elementary graduate or lower %	Some high school %	High school graduate %	Some college %	College graduate or higher %	
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

Source: Authors' computation.

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

	Father		Mother	
	Non-poor %	Poor %	Non-poor %	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 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. Is this your preferred program / HEI at that time?

Preferred program?	Preferred HEI?		Total %
	Yes %	No %	
Yes	69.6	8.2	77.8
No	14.4	7.8	22.2
Total	84.1	15.9	100.0

Source: Authors' computation.

Annex 4 Table 7. Preference vs incidence of changing course

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

Source: Authors' computation.

Annex 4 Table 8. Preference vs incidence of changing HEI

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

Source: Authors' computation.

Annex 4 Table 9. Average expenses (Php)

	Tuition and other fees per sem	Allowance per month	Rent per month	Supplies per sem	Academic activities per sem	Extra-curricular 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

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

Source: Authors' computation.

Annex 4 Table 11. Professional / licensure exam taken

	%
Nurse	47.7
Professional Teacher	25.7
Criminologist	6.1
Certified Public Accountant (CPA)	4.4
Civil Engineer	2.3
Mechanical Engineer	1.6
Electronics & Communication Engineer	1.5
Architect	1.0
Social Worker	0.8
Electronics Engineer	0.8
Other exams	9.1

Source: Authors' computation.

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 – Sub-professional	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

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	0.000		

Source: Authors' computation.

Annex 4 Table 14. Advanced courses / trainings taken

	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

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

Source: Authors' computation.

Annex 4 Table 17. Incidence of taking graduate studies

	Total %	Public %	Private %
Yes	8.7	3.4	5.2
No	91.3	30.7	60.7
Pearson chi2 p-value	0.000		

Source: Authors' computation.

Annex 4 Table 18. Reasons for taking graduate studies

	% 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 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 %
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	0.000		

Source: Authors' computation.

Annex 4 Table 21. Job transition indicators

	No. of months started search after grad		No. of months looked for work		No. of months started work after grad	
	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	9.0	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 Table 22. Job transition - by field of study

	% of graduates	No. of months started search after grad		No. of months looked for work		No. of months started work after grad	
		Mean	Median	Mean	Median	Mean	Median
		Social sciences, business and law	29.1	3.4	0.0	7.0	3.0
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	9.0
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

Source: Authors' computation.

Annex 4 Table 23. Job search method

	Total %	Public %	Private %
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		0.000	

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	0.000		

Source: Authors' computation.

Annex 4 Table 26. Occupation in first job after graduation

	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	0.000			0.000	

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	0.000		

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	0.000		

Source: Authors' computation.

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

	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		0.000		0.000	

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		0.000		0.000	

Source: Authors' computation.

Annex 4 Table 31. Underemployment status by field of study

	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 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		0.000		0.000	

Source: Authors' computation.

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	

Source: Authors' computation.

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

	Total %	Public %	Private %
Worked for private household	1.4	1.4	1.5
Worked for private establishment	62.9	59.7	64.7
Worked for gov't/ gov't corporation	27.3	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	

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 or 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

*4th Quarter Labor Force Survey data is among college graduates.

Source: Authors' computation.

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

	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

Source: Authors' computation.

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

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	0.000		

Source: Authors' computation.

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 (USA)	16.1
United Arab Emirates (UAE)	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

Source: Authors' computation.

Annex 4 Table 43. Main reason for landing current job

	Total among employed (N=8,738) %	Among current job is not first job (61%) %	Among current job is 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

Source: Authors' computation.

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

	Total among who ever had a job after graduation %	Among current job is not first job %	Among current job is first job %	Among unemployed but had 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

* NEC means "not elsewhere classified", a category used by the Philippine Statistics Authority to lump occupations within a category that have small incidence.

Source: Authors' computation.

Annex 4 Table 46. Top 10 “Not matched” occupations of Bachelor of Elementary 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 means “not elsewhere classified”, a category used by the Philippine Statistics Authority to lump occupations within a category that have small incidence.

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 centre information clerks	3.4
Cashiers and ticket clerks	2.8
Shopkeepers	2.7
Sales demonstrators	1.5
Office supervisors	1.5

* NEC means “not elsewhere classified”, a category used by the Philippine Statistics Authority to lump occupations within a category that have small incidence.

Source: Authors’ computation.

Annex 4 Table 48. Top 10 “Not matched” occupations of BS Criminal Justice / Criminology graduates

	%
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

* NEC means “not elsewhere classified”, a category used by the Philippine Statistics Authority to lump occupations within a category that have small incidence.

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

Source: Authors' computation.

Annex 4 Table 50. Incidence of voting in selected elections

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

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

Source: Authors' computation.

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

	Estimate	Standard error	p-value
Learner Engagement Index	0.141	0.010	0.000
Intra-curricular 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
Non-Core 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		
N. of cases	8393		

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
Intra-curricular 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
Non-Core 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		
N. of cases	8393		

Source: Authors' computation.

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

	Estimate	Standard error	p-value
Learner Engagement Index	0.027	0.011	0.013
Intra-curricular 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
Non-Core 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		
N. of cases	8408		

Source: Authors' computation.

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

	Estimate	Standard error	p-value
Learner Engagement Index	-0.096	0.010	0.000
Intra-curricular Index	0.054	0.016	0.001
Teaching Quality Index	0.023	0.012	0.046
Support Services Index	-0.005	0.012	0.660
Non-Core Support Services Index	0.057	0.022	0.011

Overall College Experience Index	0.012	0.014	0.402
Practicality of College Experience Index	0.154	0.029	0.000
R-squared	0.078		
N. of cases	8444		

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
Intra-curricular 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
Non-Core 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		
N. 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
Intra-curricular 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
Non-Core 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		
N. of cases	8444		

Source: Authors' computation.

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

	Estimate	Standard error	p-value
Learner Engagement Index	0.083	0.019	0.000
Intra-curricular 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
Non-Core 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		

N. of cases	6552
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Source: Authors' computation.

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

	Estimate	Standard error	p-value
Learner Engagement Index	-0.023	0.010	0.015
Intra-curricular 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
Non-Core 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		
N. of cases	6552		

Source: Authors' computation.

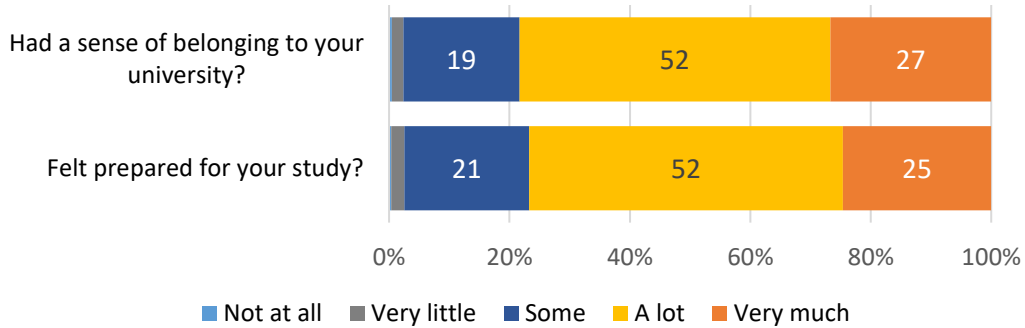
Annex 4 Table 61. Linear regression of external satisfaction index on college experience and employment

	Estimate	Standard error	p-value
Learner Engagement Index	0.019	0.009	0.024
Intra-curricular 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
Non-Core 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		
N. of cases	6552		

Source: Authors' computation.

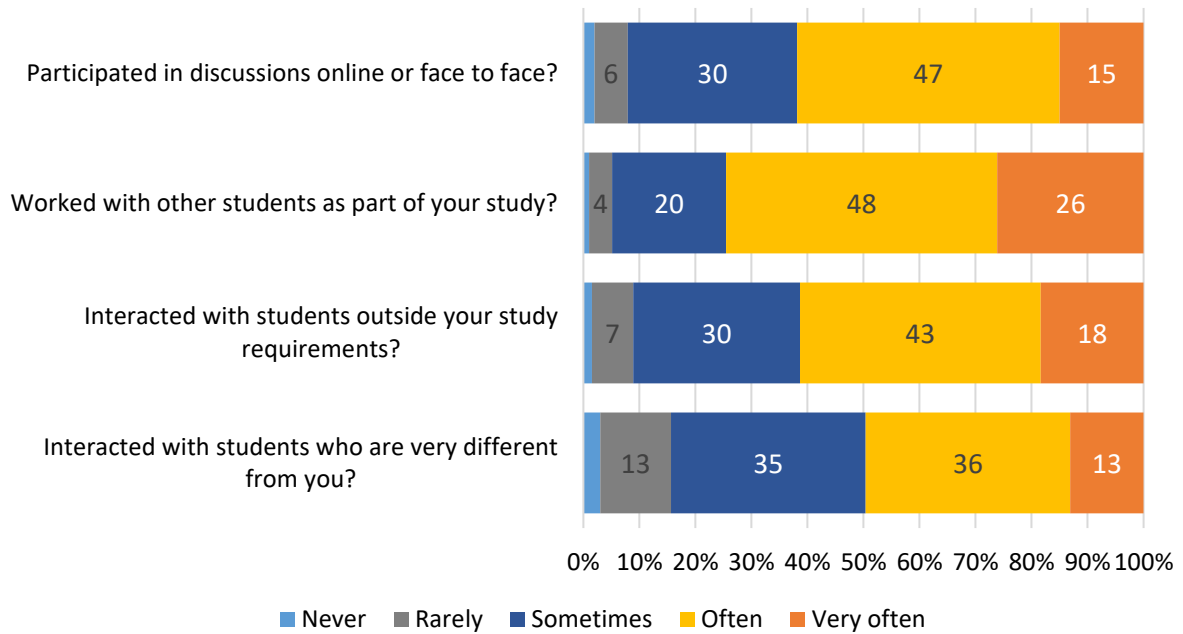
9.5. Annex 5: Figures

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



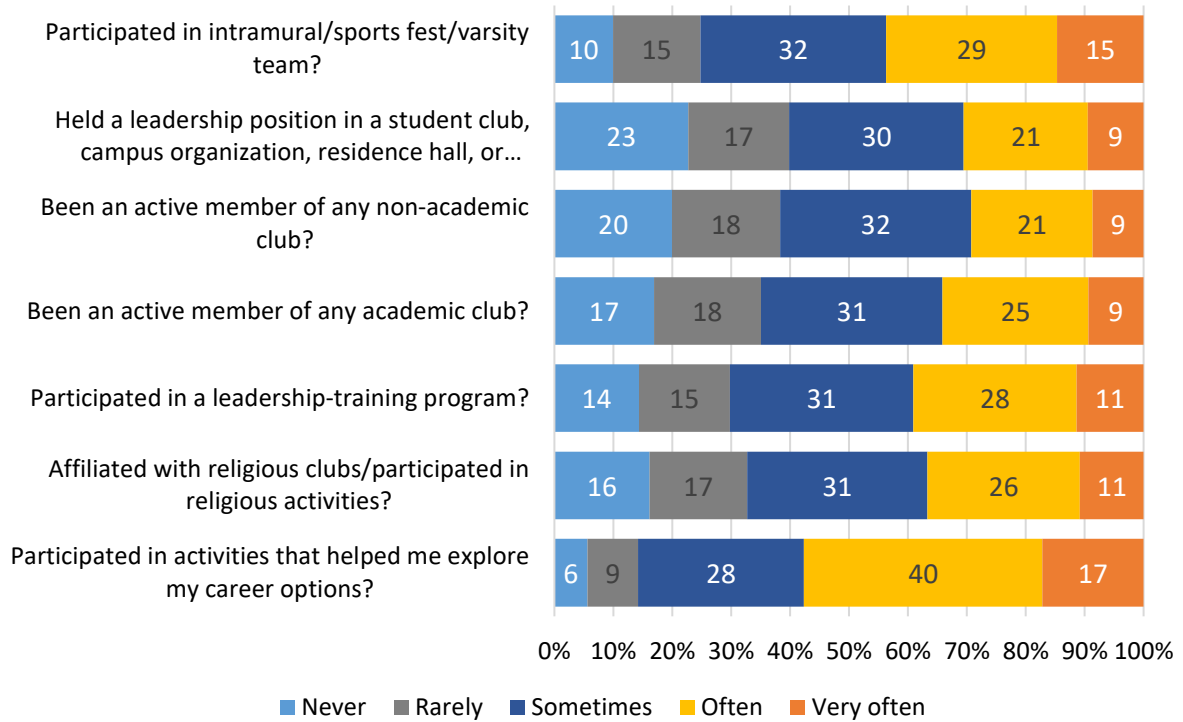
Source: Authors' computation.

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



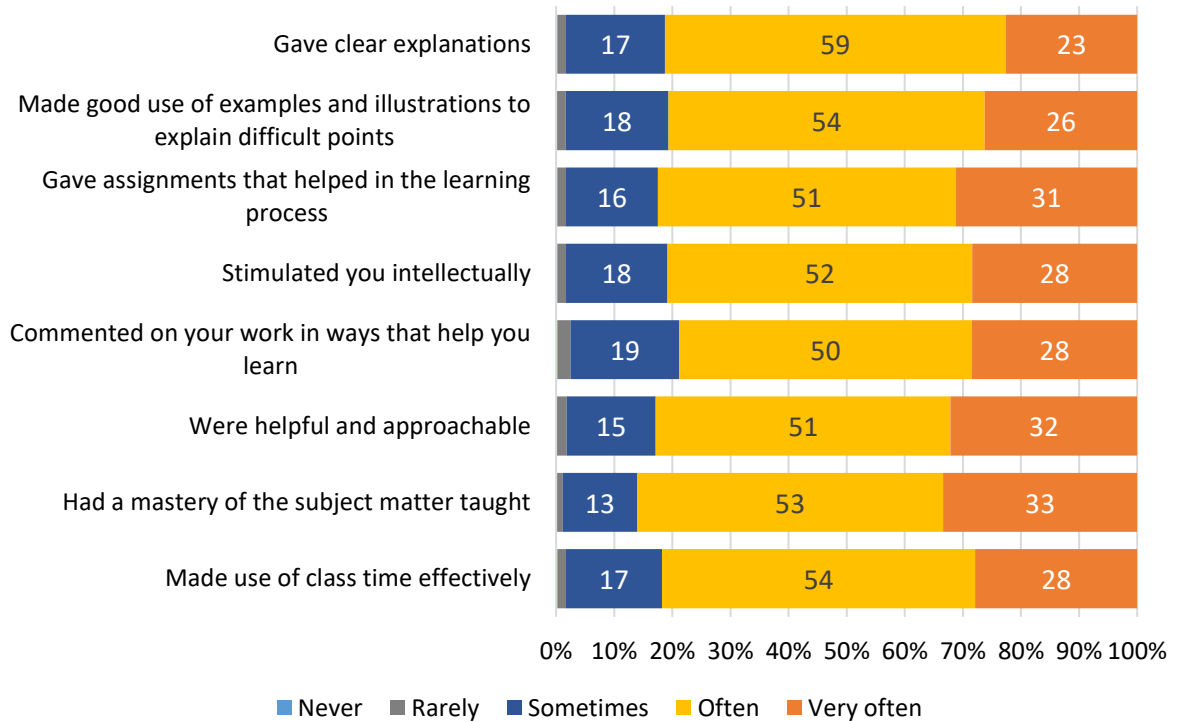
Source: Authors' computation.

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



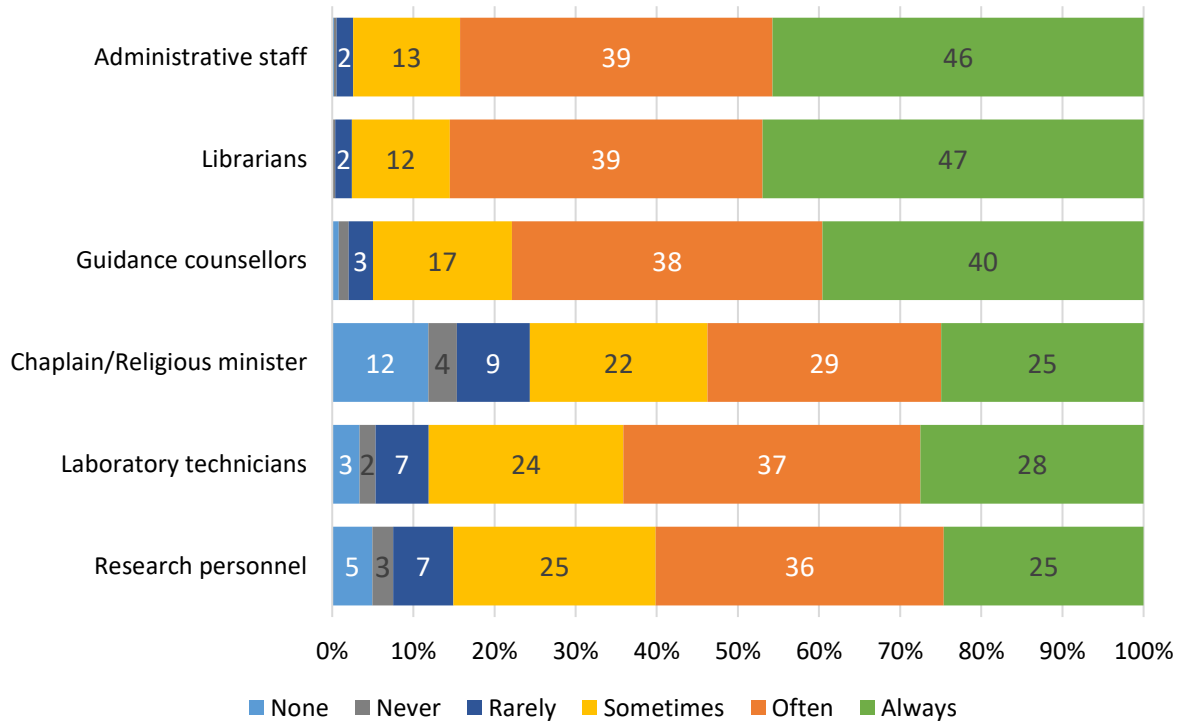
Source: Authors' computation.

Annex 5 Figure 4. How often have you experience faculty...



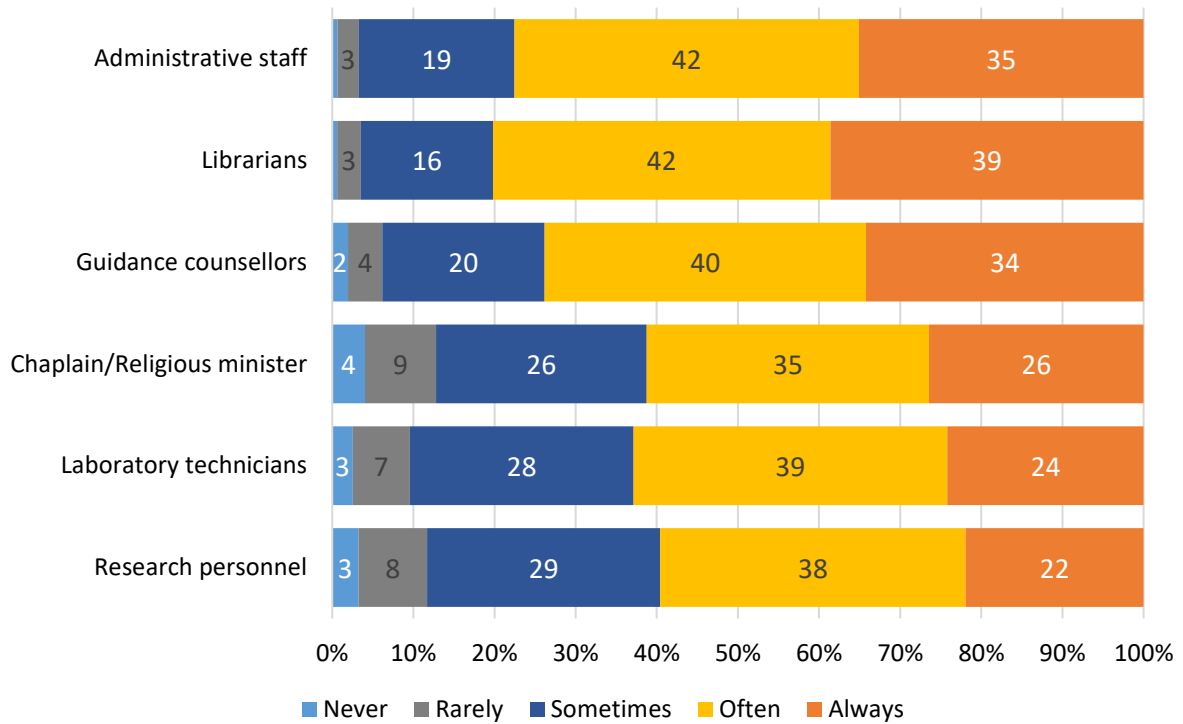
Source: Authors' computation.

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



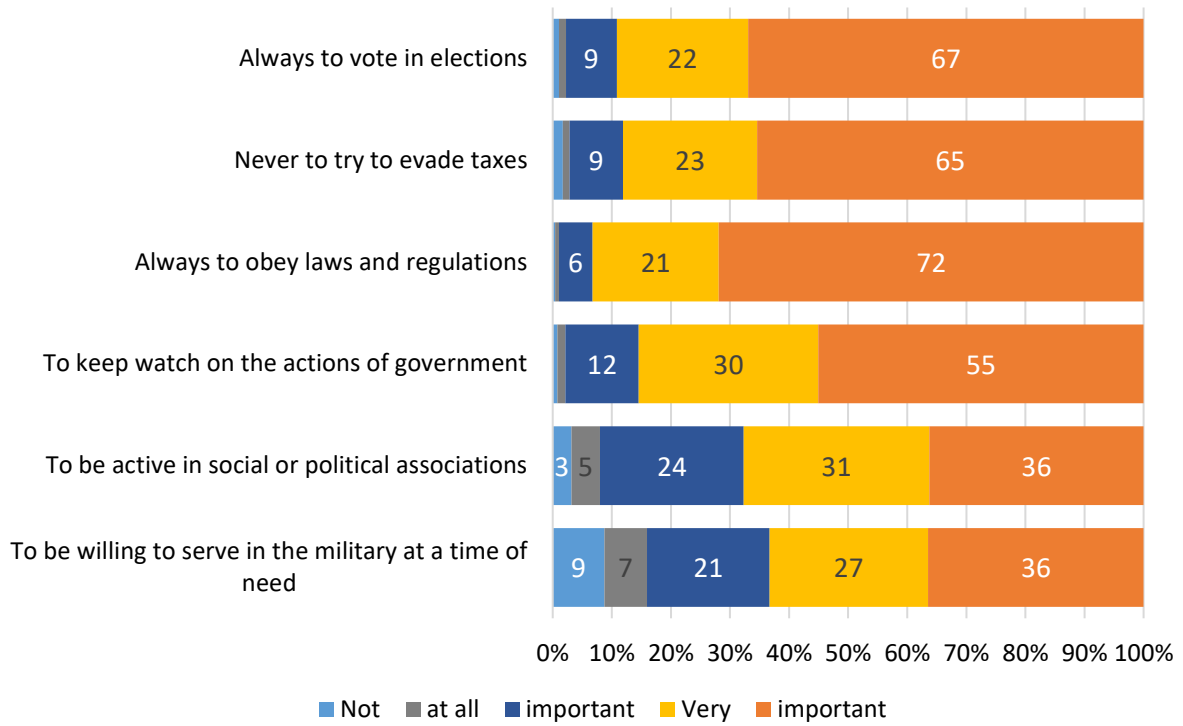
Source: Authors' computation.

Annex 5 Figure 6. During your time in college, was ... helpful?



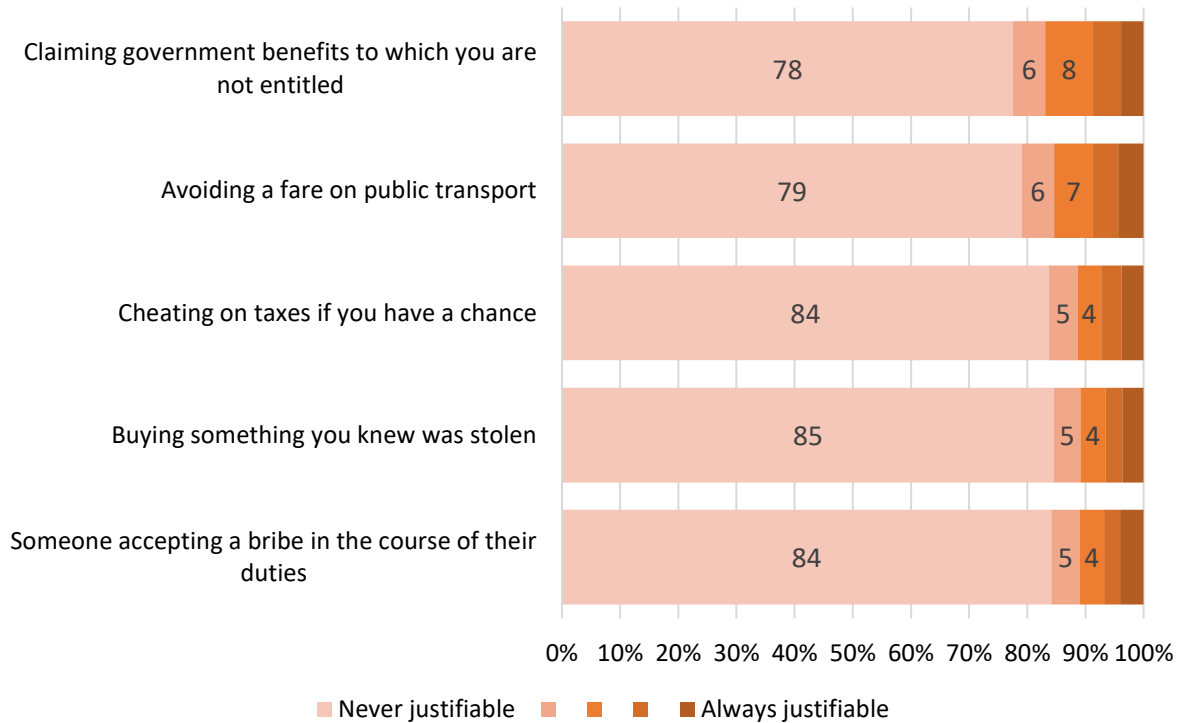
Source: Authors' computation.

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



Source: Authors' computation.

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



Source: Authors' computation.