

# An Approximation of the Internal Rate of Return of Investment in Selected Undergraduate Degree Programs<sup>1</sup>

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The situation of a typical Filipino household, overseas employment, and the culture of migration are deemed as determinants for investing in higher education such as in the specialized fields of accountancy, education science and teacher training, engineering, and nursing. We examine both local and international labor demand for accountants, teachers, engineers, and nurses as well as its underlying implications on the exodus of professionals. As such, the determination of the internal rate of return to investment is of crucial importance to households to fully maximize educational opportunities and for the government and other institutions to confront this globally-changing situation. Using a combination of quantitative and qualitative analysis, we compute for the internal rates of return of investment of the mentioned degree programs. Results have shown that the relatively high rates of return are incentives to practice profession abroad despite various delays.

**JEL Classifications:** I23, I25, J24, J31, O15

**Keywords:** accountancy, education, engineering, nursing, higher education, internal rate of return, labor migration, degree program, professional labor migration

The Philippines is one of the world's largest supplier of services. From the Philippine Overseas Employment Administration (POEA, <http://www.poea.gov.ph>), there were approximately 1.5 million registered Overseas Filipino Workers (OFWs<sup>2</sup>) deployed in 2012. According to Tullao and Rivera (2009), what started as a temporary solution to the rising unemployment in the 1970s became a norm in the economy, affecting the social, economic, and cultural make-up of Filipinos. Moreover, the magnitude of OFWs' impact is not only in the socio-cultural and economic significance but also in the huge amount of remittances the economy regularly receives. The country's OFW remittances, as reported by the Bangko Sentral ng Pilipinas (BSP, <http://www.bsp.gov.ph>), reached USD 21,391,333 thousand in 2012. It is noteworthy to mention that as of May 2013, remittance inflow is at USD 1,866,939 thousand.

With a seeming opportunity to a better standard of living, Filipinos are eager to work abroad due to higher salaries, which is spawning a culture of migration. According to Tullao and Rivera (2009), households receiving remittances have higher income levels and educational spending relative to households without remittances. Furthermore, the employment success of household members abroad encourages other members, especially the younger ones, to seek external employment—culture of migration as termed by Tullao and Rivera (2009). The global labor market is inclined towards skilled workers; hence, households tend to invest in higher education as a means of increasing the probability of landing in a job position abroad. Consequently, there has been a change of mix of OFWs deployed from skilled and low-skilled workers to professionals. The probability of being hired is dependent on academic performance, performance in various and relevant licensure examination domestically and abroad, and occasionally gender and height. The persistence of such competition and qualifications lowers the probability of realizing the higher return expected from working abroad. Hence, it is important to know which degree program will yield higher

returns even if the probability of migration is discounted (Tullao, Rivera, Padama, Fernandez & Yu, 2011).

According to Martin (2005), the temporary migration of professionals has its benefits, although losing these professionals to developed countries lowers the Philippines' productivity and economic growth. For Cortez (2007), it leads to higher income inequality as those who can afford to pay for higher education will be the ones who will reap its benefits. The Philippines successfully provided the labor demand in the global market. The promise of higher income encouraged investment in higher education that is more likely to be hired abroad. Unfortunately, information asymmetry has worked to our disadvantage.

In line with this, the human capital theory, as proposed by Adam Smith, has always perceived education to be the chief driver of economic growth and development. That is, investment in education is as important as investment in physical capital (Todaro & Smith, 2006). It also has the facility to augment productivity and to uplift an individual's quality of life. According to a study done by Asian Development Bank [ADB] (2009), the amount invested in private higher education in the Philippines is significantly higher than its neighboring economies, implying the inclination of Filipinos to invest in higher education.

According to Bautista, Co, See and Sy (2011), despite the benefits of acquiring higher education, trends reveal that students enrol in an undergraduate course due to employment possibilities after graduation. Meanwhile Tullao and Rivera (2009) presented that overseas employment affected the demand for higher education. Hence, due to globalization, the labor markets around the world are more open to employment, thus creating a globalized philosophy consideration in terms of job opportunities.

Given the abovementioned, we are guided by the following research questions:

- What is the extent of the return to education across the degree programs of *Accountancy, Education Science*

*and Teacher Training, Engineering and Technology, and Nursing?*

- What is the rate of return of investment in higher education specifically for the selected undergraduate degree programs?
- What are the costs and benefits associated with acquiring the degree programs of interest?
- Is the difference among the rates of return for the degree programs of interest a sufficient reason why there are degree programs whose demand is excessively high and vice-versa?

We will focus on accountants, engineers, teachers, and nurses. These professions require licensure examinations that impose standard on the quality of higher education received. Without passing the licensure examination, one cannot practice fully the profession and take advantage of the corresponding salary. Also, the selected degree programs are in demand in the international labor market and linked to temporary labor migration. This drives tertiary educational institutions to provide quality educations since their enrolment rate are dependent on the passing rate of their graduates. However, it must be noted that passing licensure examination is just one of the requirements that students needs to hurdle. Hence, we focus on analyzing the effects of failing licensure examination on the rate of return. All other constraints and distortions that a typical graduate will face are held constant. That is, we are interested with the effects on the rate of return if deviations from the optimum condition are present.

Given the importance of higher education, the rate of return, and the temporary labor migration, the study aims to achieve the following research objectives:

- To approximate the internal rate of return of investment in accountancy, Education Science and Teacher Training, Engineering, and Nursing undergraduate degree programs.

- To design a policy framework in managing temporary professional labor migration, its adverse effects on the demand for education, and enhance its contributions on national development.

From 2000 to 2012, according to the data from the Commission on Higher Education (CHED, <http://www.ched.gov.ph>), *Business Administration and Related* has the highest number of enrollees at more than 600,000 except from 2003-2006. *Medical and Allied* significantly increased from more than 100,000 to more than 600,000 in 2006 then significantly dropped to almost 450,000 students in 2012. *Engineering and Technology* is steady at an average of 350,000. Graduates of *Business Administration and Related* are above 100,000, except from 2006 to 2008. Graduates of *Medical and Allied* grew rapidly from 30,000 to almost 130,000 in 2010 but significantly dropped to 70,755 in 2011 and started to pick up again at 7% growth. The average number of graduates of *Engineering and Technology* is around 47,000.

Aside from local demand, there is also high demand of accountants abroad. Apparently, the number of enrollees is decreasing over the past years, but is still at a high level. At present, there is a decline in the supply of accountants for local employment, as they prefer working abroad due to high remuneration package after passing the board exam (Tullao & Cortez, 2006a).

For *Education Science and Teacher Training* programs, graduates are filtered through Licensure Examination for Teachers (LET) facilitated by the Professional Regulation Commission (PRC). However, due to a more lucrative opportunity when you teach mathematics and English abroad, a great number of teachers leave the Philippines. Currently, there is a great “shortage” of teachers especially in public schools. On one hand, one may argue that there may be an oversupply of teachers who cannot find teaching positions because of the limited budget that the Department of Education (DepEd) can accommodate and only a proportion of its total requirements and

qualified applicants are rationed off from the available slots. On the other hand, the low level of salaries in private schools force teachers to accept jobs elsewhere (i.e. international labor market).

*Engineering and Technology* has a high demand and the global demand for licensed engineers varies, depending on type. According to Icamina (2010), because engineers are scarce, the economy is missing out on high-end outsourcing contracts. Based from the statistics from CHED, although information technology (IT)-related programs have bumped engineering programs from the 4<sup>th</sup> to the 5<sup>th</sup> degree program with the highest number of enrollees during AY 2009 to 2010—with IT having 348,462 and with Engineering having 344,662 enrollees—engineering programs have consistently been at the top 4 most preferred courses during the previous decade.

With *Nursing*, international demand hit a stop due to the visa retrogression in the USA and policy change in the United Kingdom (UK). Despite this, aspiring nurses are still hoping to work abroad which is reflected by the continuous high demand for nursing programs. Filipinos still abide by the mentality that taking up nursing can give them a direct opportunity to work abroad. Consequently, due to the high local demand for nursing programs accompanied by a high number of graduates, the Philippine market for nurses has become oversaturated. Majority of the Filipino nursing graduates are unable to be deployed abroad, which forces them to stay in the Philippines and as a result, leaves the country with an excess supply of qualified nurses. Furthermore, nursing graduates are required to take the licensure exam to ensure that the nurses produced by the higher educational institutions are highly qualified and can be deployed not only domestically but also in the international market. Nursing is closely linked with migration; the reason for this is that countries such as USA, UK, Japan, and Saudi Arabia's demand for health workers surged up in the early 2000s.

## THE STATE OF HIGHER EDUCATION IN THE PHILIPPINES

The Philippines is one of the largest suppliers of a variety of workers abroad. Macaraeg (2005) and Rivera and Reyes (2011) emphasized on these major reasons: limited domestic employment opportunities and rewarding compensation package. On the other hand, Filipinos are wanted abroad due to their adeptness in English, their training in Western standards of education, and their reputation as being hardworking, resourceful, and adaptable (Macaraeg, 2005).

The Organization for Economic Cooperation and Development [OECD] (2002) as cited in Bautista et al. (2011) defined skilled labor as an individual who has completed at least tertiary level education and/or is employed in an occupation requiring workers to possess the said educational level despite not being formally qualified. In line with the supply of skilled workers in the Philippines, there is a distorted incentive system that influences the choice of degree program made by students. According to CHED statistics, in the academic year (AY) 2009 to 2010, more than 30% of college graduates earned bachelor degrees under *Medical and Allied* while more than 20% earned a degree under *Business Administration and Related* courses. However, it is essential to note that based on the statistics of CHED, degree programs under *Natural Sciences, Fine and Applied Arts, and Humanities* accounted for 0.7%, 0.4%, and 0.9% of all graduates respectively.

The implications of the abovementioned distortions in the supply of college graduates has implications on the educational system and labor market of the economy—it timid the growth of other discipline and educational programs, it makes unpopular degree programs superseded, it increases the probability of labor market saturation, and it increase levels of unemployment in certain specialized fields. As such, a typical high school graduate will face a choice regarding which field of study will be taken that will yield higher levels of return. In the presence of asymmetric information,



answers to these questions may indeed be driven by subjectivities and speculation.

As far as the human capital theory is concerned as well as the study of Bautista et al. (2011), acquiring tertiary education still brings about positive rates of return. As such, this study is relevant since it will determine which specific degree program would provide a higher rate of return. Hence, it will provide information on how students will maximize their educational investments, provide recommendations on how the government will align its educational institutions to keep up with the pace of the labor market, and provide plausible reasons why despite labor market saturation, students still opt to take a specific degree program.

Based from the study penned by Friedman and Kuznets (1945), degree programs that require a greater level of skill and high levels of financial investments are more likely to result in higher rates of return because an individual equipped with the necessary and sufficient capabilities is likely to contribute more in enhancing firm value. Moreover, a higher level of educational spending on a specific degree shows that an individual incurred more costs in acquiring the degree. Hence, it contributes to employee's bargaining power in terms of negotiating the best wage the employee perceives. Friedman and Kuznets (1945) concluded that pursuing a degree in law possesses the highest rate of return followed by *Engineering* and *Medical and Allied* courses. Meanwhile, the empirical analysis of Psacharopoulos (1985) showed that *Economics* has the highest rate of return at 13% followed by *Law*, *Social Sciences*, *Medical and Allied*, and *Engineering and Technology* courses estimated around 11% to 12%. Likewise, according to Kelly, O'Connell, and Smyth (2010), the degrees with the highest rates of return are *Business Management* courses with a rate of return of 32% followed by *Arts and Humanities*, *Engineering and Technology*, and *IT*, all with a 12% rate of return. Meanwhile, *Education* and *Science* registered a 9% and 11% rate of return respectively (Kelly et al. 2010). Lastly, the degree programs of *Law*, *Veterinary*,

and *Social Sciences* posted the lowest rates of return around 4%.

## THE STATE OF SELECTED MAJOR DEGREE PROGRAMS IN THE PHILIPPINES

### *Accountancy Programs*

The Philippines, according to the Professional Regulatory Board, has been posting AN average of 105,000 graduates annually from *Finance*, *Accountancy*, and *Business Management*, which increases at an average rate of 3,000 per year (<http://www.prc.gov.ph>). Likewise, according to Cortez, Rivera, and Tullao (2008), with 400,000 college graduates a year, around 100,000 have degrees in *Accountancy*, *Business Management*, and *Economics*. Moreover, over 20% have *IT*, *Computer Science*, and *Mathematics* backgrounds. However, according to the Philippine Institute of Certified Public Accountants (PICPA), there is a decreasing number of Certified Public Accountants (CPAs) because the popularity of *Accountancy* is slowly declining. Nonetheless, according to Cortez et al. (2008), over 2,000 new CPAs enter the labor market each year. Furthermore, CHED statistics showed that for the academic year (AY) 1999 to 2000, the number of enrollees decreased from 126,811 to 119,364, but enrolment peaked during AY 2000 to 2001 with 134,535 students. However, there is a decreasing trend in the succeeding years in the enrolment of the Accountancy programs posting an enrolment of 106,669 students in AY 2001 to 2002; 100,306 students in AY 2002 to 2003; 93,465 in AY 2003 to 2004; and 71,755 in AY 2004 to 2005.

Based on the figures from the Far Eastern University (FEU) as reported by Bautista et al. (2011), *Accountancy* program costs, on the average in the National Capital Region (NCR), approximately PHP37,000 per semester. Meanwhile, the cost of tuition fee for *Accountancy* in the Northern University of the Philippines is registered at approximately PHP60,000 per semester as cited in Bautista et al. (2011). As such,

it can be regarded that *Accountancy* programs are not as expensive as other degree programs such as medical and allied courses that range from PHP55,000 to PHP85,000 per semester (Tullao, Conchada, & Rivera, 2010). It can be implied that *Accountancy* can be much more accessible to Filipinos because the tuition is relatively lower. Likewise, taking up *Accountancy* also involves other direct costs such as textbooks, supplies, transportation, review fees, and miscellaneous fees. Other relevant cost includes the PRC (<http://www.prc.gov.ph>) registration fee for licensure examination, which costs PHP600.

Opting to take *Accountancy* in college is considered to be a strategic move for undergraduate students because of the high probability of employment it offers even to fresh graduates. According to Academic Clinic (2010), one of the great things about an accounting degree is that small companies need accountants just as much as the largest multinationals in the world, so jobs are rarely scarce for people with accounting degrees. Moreover, accounting is predominant among small scale firms, indicating its availability as a profession. Given this job situation, the major deciding factor that comes into play is the amount of remuneration. According to Academic Clinic (2010), salary rates can vary widely depending on the size of the company, the location of the company and the tasks that one is required to handle. Hence, it is no surprise that small companies with equally small accounts would only pay a proportionately small sum to the ones handling their books.

According to Tullao, Nadurata, and Aquino (2001), the economy deployed abroad managers, bookkeepers and cashiers, bookkeeping and calculating machine operators, and accountants totalling 852 for the year 2000. Additionally, they stated that further growth in the Asia-Pacific region will increase the demand for these services abroad. Currently, local accounting firms in the Philippines exhibit continuous demand for accountants to be added to their workforce. Referring to *plantilla* positions posted by Philippine accounting firms such as

the *Alba Romeo & Co.* of Banco De Oro (BDO) International Limited, they are in need of external audit manager, computer IT audit manager, audit supervisor, and junior associates. Meanwhile, the *Manabat, San Agustin & Co.* who is affiliated with KPMG International (<http://www.kpmg.com/PH/en/JoinUs/Careers/Pages/default.aspx>) is demanding for audit manager, tax manager, tax supervisor, and advisory assistant manager. Furthermore, *SGV & Co.* who is affiliated with Ernst & Young is entertaining applications which range from students, experienced accountants, and accounting executives. In line with this, based on the Department of Labor and Employment's (DOLE) 2020 Vision, it identified accounting manager as one of the highly needed skills of local industries for the next 10 years. Meanwhile, according to a CHED-commissioned research done by the Mindanao Polytechnic State College (MPSC) Research Team (2000) showed that *Bachelor of Science in Accountancy* was one of the highly endorsed disciplines to take during tertiary level as far as Mindanao is concerned—consistent with its popularity in the NCR.

On the other hand, according to Montealegre (2011), the Philippines is losing its accountants to other countries amid a boom in the business process outsourcing (BPO) industry. Likewise, according to the Association of Certified Public Accountants (ACPA), the economy is currently experiencing a shortage of accountants even as the demand for accountants is increasing since multinational companies move their backroom services to the Philippines. This is even aggravated by the high demand for Filipino accountants abroad particularly in Singapore, Malaysia, and India. Based on a survey made by the Institute of Certified Public Accountants (ICPA) of Singapore (ICPAS, <http://www.icpas.org.sg>), it was reported that out of the 67% of the firms surveyed, 20% are sourcing audit staff from the Philippines. Moreover, Montealegre (2011) reported that there is an increasing demand for accountants in the Philippines because the backroom services of multinational companies are transferred in the country. However, the

Philippines is currently facing a shortage of accountants because of the rigidities in the accreditation with the Bureau of Internal Revenue (BIR), the Securities and Exchange Commission (SEC), the Board of Accountancy (BOA), and the Insurance Commission (IC).

Meanwhile, according to PICPA, the BOA has to continuously upgrade the skills and competencies of Filipino CPAs because of the significant demand abroad. According to Tullao and Cortez (2006a), there is a high demand for Filipino accountants in international firms because of their competitiveness and flexibility to work with multiple accounting standards. As international firms reduce their operating costs, business process outsourcing (BPO) has become a thriving industry in the Philippines wherein international firms allow an outside company to take over their back-office functions such as accounting and human resources administration to name a few (Cortez et al., 2008).

According to POEA, Filipino accountants have been working abroad specifically in Australia, US, and European Union (EU) economies, which offer higher salaries as compared to local employment. Further, according to World Salaries (2008), the net monthly income of an accountant in the Philippines is USD1,253, almost less than half of its counterparts abroad where they earn USD3,370 in the USA, USD2,626 in Australia, and USD3,333 in the UK. Moreover, Academic Clinic (2010) considered the salaries of accountants in the Philippines as spare change relative to wages they can get from developed nations. In 2008, the NCR offered the highest monthly salary of accountants at PHP13,150.00 on the average (Academic Clinic, 2010). On the other hand, accountants in the Philippines prefer to work on multi-national firms who are willing to pay beyond what is prevailing in the country. However, these opportunities are limited and will require increased competition, in terms of technical skills and work experience, among accountant applicants. Likewise, there is always an option of applying for jobs abroad that would require higher qualification standards (Tagalog,

2007). This underemployment of professionals, a form of distortion in the labor market, occurs if accountants cannot meet international standards such as the passing of licensure examinations and possession of the minimum required work experience (Tullao et al., 2010).

The labor migration of accountants is complemented by the implementation of the ASEAN Framework Agreement on Services (AFAS) particularly on the liberalization on the movement of professionals (Tullao & Cortez, 2006b). If the Philippines engages in free trade agreement (FTA) with the USA, the liberalization of movement of natural persons (MNP) will favor Filipino accountants given their competitiveness in an economy where the market for accounting and auditing services is large. In line with this, various Filipino negotiators and profession leaders are keen on determining whether the foreign labor markets of interest to local accountants are complying with the General Agreement on Trade in Services (GATS) Disciplines on Accountancy to ensure that their domestic regulations are flexible. Likewise, Tullao and Cortez (2006b) furthered that with the liberalization of MNP in Asia, USA, Canada, and Australia, the Philippines should push for the establishment of mutual recognition agreements (MRAs) that will govern rules on the equivalence of educational, licensing, experience, and other requirements in the practice of accounting profession to facilitate entry in markets where the competitiveness of Filipino accounts is very high. Lastly, Tullao and Cortez (2006a) emphasized that the government through the Department of Trade and Industry (DTI), the Department of Foreign Affairs (DFA), and key leaders of the profession have been launching promotional activities to market the competitiveness of Filipino accountants in economies where their competitiveness is high.

Consequently, the abovementioned strategies of the government have been taking effect. For instance, a survey done by Punongbayan & Araullo (P&A)—an accounting, tax, and business advisory company—in 2007 as reported by Ebias (2007) found that 43% of local businessmen

expressed their concern on the continuous exodus of highly skilled workers from the Philippines as opposed to 15% who showed concern the previous year. This implies that more local firms are now facing human resource problems as international firms continuously drain our local talent pool. Ebias (2007) also reported that many multinational firms see the Philippines as a good source of highly trained English-speaking accountants. Such is being supported by Macaraig (2010) wherein professionals who possess the English-speaking talent such as scientists, IT-personnel, doctors, and accountants among others are heading abroad, which leaves the state-owned firms and the private sector struggling to find replacements. This was confirmed by the Employer's Confederation of the Philippines (ECP) wherein they admitted that there is indeed skills haemorrhage and that the country is losing workers in the highly professional and skilled categories—a clear evidence of brain drain in the country (Tullao & Rivera, 2009). As such, to address the issue of brain drain, Gabieta (2010), the issue of brain may only be addressed if more students will take Accountancy programs.

### ***Education Science and Teacher Training Programs***

The enrolment rate for *Education Science and Teacher Training* has been consistently decreasing since 2000. According to statistics from CHED, compared to the previous years, the enrolment rate has decreased by 6.28% during AY 2001 to 2002; 4.99% during AY 2002 to 2003; 3.55% during AY 2003 to 2004; 8.9% during AY 2004 to 2005; and 2.83% during AY 2005 to 2006.

Like any other college degree, *Education Science and Teacher Training* requires expenditure for tuition, books, living expenses, and transportation. However, additional expenses will be incurred in the form of licensure exams. Republic Act (RA) 7836, also known as the *Philippine Teachers Professionalization Act*, passed in 1994 requires teachers to pass several licensure exams—two for primary teachers

and three for secondary teachers—prior to employment (Caluya, 2004). This has several implications with respect to costs: teachers will incur additional expenses not only for these exams' fees, which can range from PHP600 to PHP900 but also for review programs and books as per the PRC.

The booming educational systems, coupled with the rising populations in several countries open up very high demand for teachers. In the advent of globalization, Shannon Lederer of the American Federation of Teachers [AFT] (2009) stated that if teaching is a public service previously, it has become a business today. Indeed, the Philippines has become one of the sources of teacher exportation as well as one of the targets for international teacher recruitments. According to the Public Services Labor Independent Confederation (PSLINK), the USA and the Middle East will need a total of 2,450,000 teachers over the next decade—2,000,000 of which by the USA alone and the remainder by the Middle East (Tubeza, 2009). Filipino teachers, specifically, face great demand in international schools, mainly due to their proficiency with the English language. Filipino teachers are also more preferred due to their exposure to an Americanized education system. Another reason, however, is that Filipinos have smaller cultural gaps with students hailing from cultural minorities, something Western educators may fail to address (Esguerra, 2008). As working conditions abroad attract a huge amount of Filipino teachers to leave the country, the unreplenished positions of these teachers push local schools to have high demand for teachers as well (Ubalde, 2007, 2009).

A teacher working in the Philippines can earn an annual salary of around PHP168,000 (Ubalde, 2009). A recruitment agency shares that they promise a minimum annual salary of USD35,000 and as high as USD70,000 to be earned by Filipino teachers, should they choose to work abroad—up to 20 times what they would have earned in the Philippines. According to World Salaries (2008), the average net monthly income in the Philippines is USD237 for 40 hours of weekly



work requirement while it is at USD4,055 for 36.6 hours in the USA. On another note, Jobo (2009) stated that the living salary gap nearly doubled in a span of six years from PHP4,833.30 in 1998 to PHP8,130.30 in 2004, indicating financial pessimism for teaching in the domestic. As such, teacher salaries in the Philippines are not sufficient enough to pay for the increasing cost of living, resulting to further widening of their living salary gap. This attracts the Filipino teacher to work abroad instead (Esguerra, 2008; Ubalde, 2009).

According to Penson, Yonemura, Sesnan, Ochs, and Chanda (2011), although the macroeconomic force of demand drives teacher migration in the Philippines, other push and pull factors interact into pressuring teachers to work elsewhere. Many teachers also claim that working conditions and the opportunities for career advancement for teaching jobs in the Philippines are also poor (Ubalde, 2009). Federis (2006) illustrated that a typical public elementary school suffers from the pressing problems of the country's educational system. Among the aggravating factors stated by Jobo (2009) is the 1:45 teacher to pupil ratio for elementary and lower secondary levels, which ranked lowest among other Asian countries. Moreover, according to AFT (2009), public schools take two to four shifts per day and overcrowd 70 to 80 in a class to accommodate all the students. In addition, these public school teachers are assigned to instruct all subjects for the entire day to one class as opposed to a specialization of one to two subjects. Despite heavier workload and larger classes, teachers in the Philippines are subject to minimal to no salary increase, which is due to cost-cutting measures implemented by the schools (Salamat, 2006). Furthermore, according to Jobo (2009), these measures only magnify the increasing shortages of classrooms and seats at 57,930 and 3.48 million for 2005 to 2006, respectively while textbook shortages increased from 24.22 to 34.7 million. According to Levinson (1998) as cited by Gilpin (2011), teachers demand for higher wages to teach in poorer working conditions. Since the Philippines is incapable of implementing such, these teachers

optimistically seek such opportunities in foreign lands. All these factors entice Filipino teachers to work abroad, resulting in around 4,000 teachers leaving the country over the previous decade alone (Tubeza, 2009; Ubalde, 2009).

According to DepEd, the education sector has a shortage of up to 16,000 teachers (Ubalde, 2009). The Teachers Dignity Coalition (TDC) shares that this figure is already conservative. It claims that the Department of Education managed to hire around 10,000 teachers, when it needed 120,000 (GMANews.TV, 2010). Although PSLINK has looked into numerous programs to replenish the shortage of teachers, their effectiveness is still yet to be determined. One of their proposals is to have foreign employers train at least five teachers in the Philippines for every one it hire (Ubalde, 2009).

Based on the study penned by Tullao, et al. (2011), the shortage of teachers can be explained by the following. First, there is a decreasing trend in the graduates of *Education* while there is an increasing demand for teachers, which can be attributed to the low salary given to teachers in the Philippines but increasing demand for education for migration purposes. Oftentimes, teachers are underemployed by skill because they work under different jobs such as factory workers and domestic helpers, among others. This just shows that the Education degree programs are used as a back door approach because teachers are classified as skilled workers. Although they are migrating abroad and demand for teachers abroad is high, they do not work as teachers. Second, English teachers in South Korea, People's Republic of China (PRC), and other economies are not classified as teachers. They are hired as tutors online, which is classified under the GATS Mode 1 - Cross Border Transactions, which may not be accounted for by the government. Furthermore, there is an existence of underground employment where tutors acquire tourist visa instead of working visa.

Such circumstance makes it difficult for the country to achieve the Millennium Development Goal (MDG) on universal access to primary education by 2015. As such, the government

must look into the making the salaries of teachers competitive so that the deployment of teachers to various provinces across the economy in ominous need of education. Likewise, it would be effective if additional incentives will be provided for teachers who will be deployed in various locations such as moving allowance, subsistence allowance, board and lodging, and the like. This may make the *Education* programs more attractive to address the shortage of teachers.

### ***Engineering***

From 2001 to 2005, the University of the Philippines (UP) – Diliman, College of Engineering has seen a decline of around 6% in its enrolment rate every year (Pagsuyoin & Delias, 2005). This decline is also reflected in a study conducted by CHED. The enrolment rate, compared to the previous year, decreased by 5.98% during AY 2002 to 2003, went up by 0.75% during AY 2003 to 2004, plummeted back down by 10.03% during AY 2004 to 2005, but rose again by 1.58% during AY 2005 to 2006. Despite this eclectic pattern in demand, it is obvious that the enrolment rate for academic year 2005 to 2006 is much less than the enrolment rate from 2001-2002, the difference being a little over 50,000 students. The Department of Science and Technology (DOST) shared that to combat this decline the government is pushing for more science and technology scholarships. This aims to develop research and development as well as elevate industries in the country (Legaspi, 2008; Dimacali, 2011). Similarly, the UP – Diliman College of Engineering is offering 200 graduate scholarships to raise its enrolment rates (Pagsuyoin & Delias, 2005). On another note, there is generally a lesser preference for technical fields in the Philippines since such courses require laboratory-intensive training, hence it is capital-intensive and more costly (Cororaton, 2002).

A regular college degree will involve spending for tuition, books, and transportation and living expenses. Engineering students will have to incur several other costs depending on their specific

degree. These may include tools and instruments such as t-squares or drawing boards, or the use of special equipment, which can come in the form of lab usage fees. Several branches of engineering such as Aeronautical, Agricultural, Chemical, Civil, Electrical, Electronics and Communications, Geodetic, Mechanical, Metallurgical, Mining, Naval and Marine, and Sanitary Engineering also require licensure before individuals are allowed to work (Khulief, 2002), which also implies more costs in the form of exam fees, review programs, books, and the like. According to the PRC, this examination fee can range from PHP600 to PHP900.

As reported by Icamina (2010), engineers who have training in research and development (R&D), computer science, and information and communication technology (ICT), have the highest global resourcing potential; that is, 4.6 million engineers could be hired from anywhere in the globe with a forecasted growth rate of 22%. Meanwhile, according to Simpson (2004), engineering work is contemporaneously affected by the state of the economy, wherein a stronger and faster growth indicates massively developing construction projects; hence, there is a higher demand for engineers. However, due to the slowdown of the global economy in 2008, the demand for engineers at cheaper wages has become the better option. Relatedly, globalization has sparked a trend of western firms outsourcing cheaper labor from other economies such as the Philippines and India. This is especially true for Engineering graduates, as most of these outsourcing firms are manufacturing or industrial in nature (Engardio, Bernstein, & Kripalani, 2003). In 2003, a firm performing architectural work has also outsourced workers—200 engineers from the Philippines, to be exact. This immense reduction in costs is what is most attractive to international firms (Engardio et al., 2003). Although Indians present lower costs as compared to Filipino workers, it was found that multinational companies preferred Filipino workers—engineers included—versus their Indian counterparts (Beshour, Farrell & Umezawa, 2005).

As per the OFW Deployment Trend Outlook for 2010 and beyond report as cited by POEA (2010), Filipino workers will continue to be in demand in the Middle East. In relation to the study of Tullao and Rivera (2008), there is a great necessity for engineers in developmental and construction projects particularly in Saudi Arabia and United Arab Emirates (UAE). Particularly, Saudi Arabia is undergoing a socio-economic development plan that requires major infrastructure in numerous cities, indicating greater job opportunities for Filipino engineers. In addition, according to DOST, global competition has pushed firms to invest in competitive technology. This opens up jobs for science and technology personnel—engineers included. According to Legaspi (2008), engineers were also some of the Philippines top labor emigrants. While lower labor costs attract foreign firms to invest in the Philippines, the same goes for higher wages attracting local engineers. Engineers can earn up to five times more than what they would have earned in the Philippines, making working abroad attractive (Macaraig, 2010). For instance, World Salaries (2008) stated that the average net monthly income of a chemical engineer in the USA is USD4,710 while it is only USD1,827 in the Philippines. Furthermore, the number of science and technology workers that leave the country has ballooned by 148%—from 9,877 in 1998 to 24,502 in 2009 (Dimacali, 2011). Despite this, DOST claims that the brain drain occurring in this sector is not critical. Only 23.13% of all science and technology graduates—which includes engineers—have migrated to seek employment opportunities abroad (Legaspi, 2008).

On the other hand, in the *2011 Engineering Income and Salary Survey* with 11,000 respondents conducted by the American Society of Mechanical Engineers [ASME] (2011), the mean annual salary for an engineer in the USA is USD99,738, while the median income is USD93,600. However, it is important to note that most respondents have attained increased education in engineering. Since the average pay for an engineer can reach up to six digits, Filipino engineers planning to pursue

higher education and career advancement are given greater incentives and are pushed to work abroad. However, not all engineer migrants abroad are fully utilized to their maximum capabilities, for there are cases where they are merely downgraded and underutilized as technicians.

Of equal importance, as reported by Icamina (2010), the Philippines has scarcity of experts in electrical engineering, computer science, earthquake and structural engineering, materials science, energy engineering, nanotechnology, electronics engineering, solid state physics and quantum engineering. Hence, there is a need to produce more or the few that we have will also leave (Icamina, 2010).

### *Nursing*

The perceived high salary abroad attracts incoming college and university students to enroll in *Nursing*. According to the Association of Deans of Philippine Colleges of Nursing (ADPCN) as cited in Tullao et al. (2010), monthly salaries are estimated on the average at USD3,000 in the UK, USD4,000 to USD6,000 in the USA, USD1,100 in Singapore, and USD700 to USD1,500 in Saudi Arabia.

As a consequence of the increased demand in *Nursing* programs, nursing schools increased all over the Philippines. Nursing schools increased by 573% in 2005 from just 40 in 1970s. For the academic year 2008 to 2009, CHED identified 436 higher education institutions (HEIs) offering *Nursing* programs. At this period, CHED regulated and monitored these institutions in order to ensure the quality of education since there are minimum standards of nursing education, but this was not successful. There were still low-performing schools, which continued to operate thereby the quality of *Nursing* deteriorated. According to CHED, the highest number of *Nursing* enrollees was in 2004 with 263,387 students, while beyond this year, the number of enrollees continued to decline. However, the number of graduates keeps on increasing and the passing rate of nursing board exam keeps on declining.

Global events also affected the demand for Filipino nurses. The USA closed recruitment of nurses as they prioritize their citizens first for employment. A total of 145,081 Filipino nurses took the US licensure exam (NCLEX) from 1995 to 2011, but 938,552 USA nursing graduates took the same licensure exam from 2006 to 2011 showing that USA has now enough supply of local nurses. The global financial crisis hit most of the countries in EU affecting the demand for nursing services as well. With the increasing number of nursing graduates and the global economy shutting down and there has been no relative increase in the number of public and private hospitals in the Philippines, registered nurses continue to pile up and they ended up in call centers as agents. According to DOLE (2011), for the past decade, the global economy grew but the employment-to-population ratio did not improve significantly and was on a downward trend. The global unemployment rate was at 6.2% in 2010 and was almost unchanged for the last six years, therefore job opportunities is not growing in many countries all over the world.

The oversupply of nursing graduates was produced by 491 nursing schools, which made the unemployment situation worse. It was because of a number of factors: (1) There was no implementation of DOH Hospital Staff Standards of 1 nurse to 12 patients ratio in regular hospital wards or 1 nurse: 20,000 population in the community health setting; (2) There is a lack of political will to create *plantilla* positions for nurses in areas where essential health services are not accessible to many poor Filipinos; (3) There is an inequitable distribution of nursing personnel; (4) There is poor implementation of closure of nursing schools with below 30% passing rate in the NLEX and moratorium for operation of new nursing schools; and (5) There is no law to stop Nurse-Volunteerism for a Fee (NVF) (Philippine Nursing Association [PNA], 2011). Destination countries for Filipino nurses now require two to three years of “actual nursing work experiences” and do not credit “on-the-job

training” or volunteer experiences regardless of the length of time these are undertaken.

The PNA (2011) and the Philippine Board of Nursing (BON) have identified important issues within the nursing profession in the country. The NVF has been a constant problem in public and private hospitals that exploits thousands of Filipino nurses. In this case, the hospital does not hire regular staff nurses but hires nurse volunteers that would pay the hospital to gain experience to be used as evidence in application for a higher-paying job abroad. Nurses are willing to undergo two years ‘volunteerism’ for the certification. Hospitals have also used the term “on-the-job training” as a means to access NVF nurses. As a result, a greater number of nurses cannot find a job because the global demand for nurses declined as some countries prefer to hire local residents even though Filipino nurses are known for their highly skilled English-speaking talents and skills abroad. Article II, Section 2 – Declaration of Policy of the Philippine Nursing Act, RA 9173 mandated that “The State hereby guarantees the delivery of quality basic health services through an adequate nursing personnel system throughout the country;” and therefore, absence of employee-employer relationship under the NVF will endanger patient’s right to quality nursing care, but this is continues to be a practice in the health sector.

The PNA has put forward an initiative to adopt a legislation that will enact a law that will ban the exploitative and unethical practice of NVF in all hospitals, whether public or private hospitals and ensure adequate nurse-patient ratio to protect the Filipino people’s health concerns. Also, the PNA wishes to promote independent nurse practice, which will indirectly provide job opportunities for enterprising nurses. Finally, the PNA wishes to mandate that *PhilHealth* be able to reimburse home care nursing services provided by Independent Nurse Practitioners in rural communities.

Household income is a key determinant in selecting a discipline in college. The costs of degree programs are subjective to every course



and medical and allied courses in general are very expensive to take. Medical tuitions range from PHP55,000 to PHP85,000 per semester while Nursing and Physical Therapy courses are cost at least PHP25,000 (De Guzman, De Vera, & Layno, 2009). However, tuition fees is not the only expenditure of students with regards to education but other costs include textbooks, review fees, uniform and shoes, transportation, medical diagnostic sets, miscellaneous fees, and other expenditures contributing to the completion of their course (Marquez, 2005). It may be generalized that income and wealth is positively related to the demand of Nursing programs because taking up Nursing comes with a great price. This finding is similar and consistent with Tullao and Rivera (2008).

Evangelista and Alave (2008) reported that the Philippine market for nurses is over-saturated, which allow the employer to be highly selective when it comes to hiring. With a slowdown in overseas employment and a change in policy in destination-countries such as 2-year hospital experience, caused domestic nurses to seek for work in the domestic market. Unfortunately, due to the oversupply of Philippine nurses, local hospitals cannot accommodate all of them, which explain why many licensed nurses are unemployed or underemployed. During 2008, applying to major hospitals like St. Luke's Medical Center and Chinese General Hospital had a waiting time of 6 to 12 months; however, also during 2008, St. Luke's Medical Center receives 30 applications daily to be precise (Sunnex, 2010). Lastly, Mateo (2011) reported that major hospitals have a nurse pool—qualified nurses waiting to be employed to their respective hospitals—amounting to 1,500.

According to Samaco-Paquiz (2009), the supply of nurses was reported at 173,536 during 1998 to 2007. Local demand for nurses was at 58,000 during October 2007 and the international demand was at 111,766 from 1998 to 2007 with a total demand of 169,766. Based from the figures, it is estimated that there is an oversupply of 3,770 professional nurses as of 2007. However, with

27,765 board passers during June 2008 the total estimated oversupply of nurses is at 31,535.

In 2009, the DOLE launched the *Nurses Assigned in Rural Service* (NARS), which is a joint deployment project with the Department of Health (DOH) and the Professional Regulation Commission - Board of Nursing (PRC-BON) that aims to mobilize unemployed nurses to the 1,000 poorest municipalities across the economy to mend health care services. This is the solution to the persistent problem of oversupply of nurses and the issue of allowing nurses to pay in order for them to acquire hospital experience. As reported by Mateo (2011), the ideal nurse patient ratio is 1 for every 8 patients but this is hardly observed by local hospitals and private local hospitals are averse in disclosing their *plantilla* positions. Meanwhile, the nurse patient ratio in public hospitals is unfortunately at 1 for every 40 patients. This is due to the budget constraint which limits them in hiring more nurses. Moreover, public hospitals have found their way to increase revenue by accepting volunteer nurses who are willing to pay PHP3,000 as training fees to be given the opportunity to attend to patients for three months. According to the Alliance of Young Nurse Leaders and Advocates International (AYNLA), this scheme is rampantly practiced across the country. It is estimated that at around 160,000 to 200,000 registered nurses are unemployed and underemployed. These nurses work in call centers, spas, banks, department stores, and other non-nursing related facilities (Samaco-Paquiz, 2009).

However, authorities have repeatedly denied the existence of such volunteer nurses in certain hospitals. The DOH is highly encouraging volunteer nurses to report any complains to them if this practice persists. Surprisingly, volunteer nurses who pay training fees do not exactly get training because hospital ward training is only considered as basic training and not specific training. Basic training is expected to have been mastered by a typical student during his or her third to fourth year of stay in the Nursing program. As reported by Mateo (2011), the cause of this issue is due to the oversupply of Nursing graduates

in the Philippines and an undersupply of skilled nurses. It must be emphasized that the government must lead in hiring more nurses in public hospitals and health facilities. The occurrence of registered nurses paying to be volunteer nurses is caused by the lack of job opportunities not only abroad but also in the Philippines.

As per Tullao et al. (2010), due to the insufficiency of absorbing nurses in the local market, Filipino nurses drive themselves to find feasible alternative solutions in addressing employment issues by seeking overseas employment. The surge in international demand for nurses came about with developed countries in need of nurses due to their aging population. Foreign agencies took the opportunity in tapping into foreign markets such as the Philippines. However, only highly skilled and experienced nurses are being recruited overseas.

As reported by Sunnex (2010), 5,790 Filipino nurses were hired during the year 2000 but during 2007, only 779 nurses were hired to the USA and during 2009, only eight nurses are leaving the country every month to work in the USA. The downtrend in overseas employment is due to the global economic recession, changes in migration regulations, and competition from other nationalities. Specifically speaking, the retrogression of US VISA and UK's policy changes played a major role in the market of Filipino nurses; the USA and the UK started prioritizing in recruiting their own health workers which contributed to the decline in hiring overseas nurses like for example in the Philippine (Evangelista & Alave, 2008). Meanwhile, not all candidates who are recruited overseas are successfully deployed abroad. Unfortunately, some of them remain in the Philippines and faced with an oversaturated market, licensed nurses are left either unemployed or underemployed (Tullao et al., 2010).

The Philippines is considered as the largest exporter of nurses in the world due to the economy's job scarcity. Filipino nurses and nursing students are attracted to work abroad due to fewer job opportunities, lower compensation, and poor working conditions in the country. The main

destination of Filipino nurses are Canada, UK, New Zealand, Australia, Middle East, and other EU economies. Globalization and the economic and demographic asymmetry across countries are the two main pull factors that push people to render temporary service across countries (Tullao & Cortez, 2006b). The characteristic of the medical sector being recession proof serves as an incentive for Filipinos to venture internationally as medical personnel (Soriano, 2009). Likewise, the recent migration of health professionals contributes to the feminization trend of migration. The deployment of Science and Technology OFWs were dominated by nursing and midwifery professionals at 60% annual average deployment of which majority are females at 86.5% annual deployment from 1998 to 2009. The nursing deployment of new hires grew by 183% from 4,740 to 13,405 in 2009. The largest growth was 81% in 2001 from 2000 and then the number of nurses deployed declined to its lowest in 2005 to just 7,324 and then it started to pick up again until 2009.

Lorenzo, Galvez-Tan, Icamina, and Javier (2007) identified several push and pull factors of migration. The most common push factors are: (1) low professional salary; (2) job related issues such as work overload and stressful working environment, and (3) socio-political and economic environment such as public benefits and limited domestic employment. The pull factors include (1) higher remuneration abroad; (2) lower nurse to patient ratio; (3) opportunity for citizenship; and (4) economic stability.

According to Ang (2008), the WHO projects the global nursing shortage in the developed countries due to the rapid aging population. As the top source of foreign nurses in the world, the Philippines remains to be a wise source because of our ability to educate, train, and maintain a large number of highly qualified RNs. As such, there has been an exodus of Filipino nurses since the 1970s. According to the WHO, about 15,000 nurses leave the country annually and this may put the health system in a crisis if this trend continues.

Furthermore, Tullao (2007) explained that the absorption of highly skilled and experienced nurses by the international market has caused a dent in the health sector of the Philippines. The massive outflow of skilled and experienced medical nurses and doctors and doctors becoming nurses to the west caused an eminent problem in the supply of health personnel. The first wave of nurses that left the country in the 1980s, followed by the second wave of nurses in the 1990s significantly affected the *plantilla* positions in hospitals especially in the public. These nurses who left in the first wave and the second wave are nurses who were trained and highly skilled and had been in service for a period of time. The best and the brightest nurses were the ones who left first. As a result, local hospitals are left with inexperienced nurses. Moreover, medical doctors have shifted to nursing profession in order to grab an opportunity abroad and accompanied by a decline in medical school enrolment, it further reduces the number of physicians within local hospitals. It is not only nurses and physicians who are attracted to the international market but also nursing and clinical instructors. As a result, this imposes a threat on the ability of the country to produce quality medical graduates because the skills needed during the course which were taught by highly skilled and qualified instructors are not being relayed to aspiring medical graduates. To some, this is no longer a concern of brain drain but already a brain haemorrhage.

According to Samaco-Paquiz (2009), the deterioration of the health sector may be evident once the nursing brain drain continues. Hence, with the highly skilled and experienced nurses leaving the country and faced with a probable problematic health education, there is no doubt that the country's human resources may indeed be deteriorating rapidly.

The continuous phenomenon of migration from the health sector has its price. The cost of education of producing the best nurses is so high. The sad truth is, that nurse cannot find a job locally, therefore, it is impossible to get the required two to three years documentation of full

employment to work abroad. Despite the very low chance of finding a job locally and abroad, thousands of nurses are undergoing training and specialization on the operation of some facilities. Without clinical practice, they are not qualified as nurses and this is not a good status to land on a good job abroad. Not only that competition is so high in the local job market, but there also exists supply of nurses from other parts of the world willing to accept lesser salaries. Fortunately, other countries are opening up for nursing employment but requirements are sterner and competition is so high.

## **OPERATIONAL FRAMEWORK AND METHODOLOGY**

### *The Costs and Benefits of Higher Education*

The demand for higher education is significantly affected by the financial resource of the household (Tullao et al., 2010). Bulk of the cost includes the direct cost, which includes the tuition fees, costs of textbooks, miscellaneous fees, and other complementary materials required by a specific degree program that add up to educational expenditures (Todaro & Smith, 2006). It also includes the indirect cost of education comprised of the daily subsistence allowance such as food, board and lodging, transportation, and communication expenditures (Todaro & Smith, 2006). Likewise, the total cost is also inclusive of the psychic cost and opportunity cost of education. As such, there is a need to itemize and value the relevant costs that a typical college student of a specific degree program will have to shoulder. Note that a typical college student is an individual who has to shoulder all the necessary cost of acquiring a specific degree program. Clearly, with the presence of these costs, the household has to be financially capable to meet the requirements of the degree programs of interest. With these, family income and wealth is positively related to the probability of demanding medical courses. Such finding is

consistent with the results presented by Tullao and Rivera (2008).

The benefits of higher education will be reaped after acquiring the degree program because it will provide the graduate a higher probability of being employed in a certain firm paying decent wages. The factor of employability will translate into income, which will allow the individual to recover the costs of investing in higher education and at the same time make a living out of it. Since this study is accounting for the impact of temporary labor migration on the rate of return in acquiring a specific degree program, the expected salary of the labor migrant abroad is also a form of benefit in acquiring a specific degree program. However, an individual worker can only take one salary, either the prevailing salary in the Philippines or the expected salary to be earned abroad. Hence, either of the two is an opportunity cost. In line with the concept of opportunity cost in the literature of education economics, it is noteworthy to mention that another aspect of opportunity cost is the foregone wages for a high school graduate who decided to pursue college education instead of working.

It is important to note that the figure for the salary of OFWs must be valued according to the value of a dollar of income earned abroad with the dollar equivalent earned in the Philippines. Since the cost of living abroad, especially in developed countries, is substantially higher and for many Filipinos, there are negative cultural implications in being abroad rather than in the Philippines, foreign income must be adjusted in accordance with the concept of purchasing power parity (PPP<sup>3</sup>). According to the Organization for Economic Cooperation and Development (OECD) as cited by Tullao et al. (2010), PPPs are the rates of currency conversion that equalize the purchasing power of different currencies by eliminating the differences in price levels between economies. In its simplest form, PPPs are simply relative prices which show the ratio of the prices in domestic currencies of the same product in different economies. Meanwhile, according to the World Bank, PPP

is a form of exchange rate that takes into account the cost and affordability of common items in different countries, usually expressed in USD. It is a conversion factor that takes into account differences in the relative prices of goods and services, particularly non-tradable, and therefore provides a better overall measure of the real value of output produced by an economy compared to other economies.

### ***The Rate of Return of Investment in Higher Education***

The rate of return for investing in a specific degree program is the rate at which the expected present discounted value of all the cost incurred by a typical college student in order to acquire rights to be employed as a professional abroad will be equal to the expected present discounted value of all the benefits and earnings that this individual will receive as a professional abroad as seen in Equation 1:

$$\sum_{t=0}^T \frac{B_t}{(1+r)^t} = \sum_{t=0}^T \frac{C_t}{(1+r)^t} \quad (1)$$

where  $r$  is the rate of return;  $\frac{1}{(1+r)}$  is the present value interest factor;  $B_t$  is the benefits received by a typical professional at time  $t$ ;  $C_t$  is the relevant costs incurred by a typical student at time  $t$  (for our purposes, the concept of cost is simply direct cost like tuition fees, school materials and equipment, and textbooks; and indirect costs like transportation, lodging, and food costs); and  $T$  is the length of time until a typical professional reaches retirement. Generally, in the computation of the rate of return, the framework implemented by Tullao et al. (2010) will be followed. Meanwhile, the computation of the rate of return for the Nursing degree will be a replication of the procedures implemented by Tullao et al. (2010).

Given the abovementioned methodological approach, this study runs on the following assumptions:



- (1) It is important to note that inflation together with the intricate decision making process of individuals are held constant to simplify analysis (i.e. only cross country inflation differences were accounted for). As such, PPP-adjusted values will be used;
- (2) It is generally assumed that the typical student will follow a timely pacing of career development. The timeframe will start at the first year of the desired program, which has duration of 4 years; and
- (3) Without loss of generality, deviating away from the ideal situation of a timely pacing of career development, the rate of return has the tendency to decrease.

It must be emphasized that the only form of distortion introduced is the possibility of failure in licensure examination (once, twice, until thrice), which will delay employment either in the domestic labor market or the international labor market. Any other distortions such as the untimely completion of the degree program; difficulty of securing the minimum job experience required by the international labor market; difficulty of getting employment abroad despite having the necessary documents for employment; and other forms of delay are not explored. This is vital to note because, for instance, in the case of nursing, even if a typical nursing graduate passed the National Licensure Exam for Nurses (NLEX), if he or she cannot secure a two-year hospital

ward experience, then employment abroad is not possible. As such, there is a possibility that another typical nursing graduate who failed the NLEX would be at par with an individual who did not fail the NLEX. Likewise, this is on the consideration that Registered Nurses (RNs) independently look for their host hospital where they would render. Hence, there will be no difference at all.

## RESULTS AND DISCUSSION

### *Interpretation of Results*

Table 1 presents the rates of return of investing in *Accountancy* at nominal values. Results show that a Filipino accountant with no failure in the board exam will have a 48.4274% rate of return working abroad, as opposed to the 23.5578% return without failure but working in the Philippines. Also, the results indicate a decrease in the rate of return for each subsequent failure to pass the board exam in both working abroad and in the Philippines. The rate of return for failing once is 40.1690% and 18.0431%; failing twice is 34.2029% and 14.4400%; failing thrice is 29.7045% and 11.9245% for working abroad and working in the Philippines, for each case respectively. Moreover, the results clearly state that working abroad has a higher rate of return for investing in *Accountancy* compared to working in the Philippines, regardless of passing or failing the board exam even up to three times.

**Table 1**

*Rate of Return of Investing in Accountancy at Nominal Values (%)*

State of the World	Work Abroad (Inclusive of opportunity cost)	Work in the Philippines (Exclusive of opportunity cost)
No failure in board exam	48.4274	23.5578
Failed once	40.1690	18.0431
Failed twice	34.2029	14.4400
Failed thrice	29.7045	11.9245

**Table 2***Rate of Return of Investing in Accountancy at PPP-Adjusted Values (%)*

<b>State of the World</b>	<b>Work Abroad (Inclusive of opportunity cost)</b>	<b>Work in the Philippines (Exclusive of opportunity cost)</b>
No failure in board exam	36.0395	23.5578
Failed once	29.3741	18.0431
Failed twice	24.6725	14.4400
Failed thrice	21.1980	11.9245

**Table 3***Rate of Return of Investing in Nursing at Nominal Values (%)*

<b>State of the World</b>	<b>Work Abroad (Inclusive of opportunity cost)</b>	<b>Work in the Philippines (Exclusive of opportunity cost)</b>
No failure in board exam	20.6553	8.77224
Failed once	17.9429	7.93402
Failed twice	15.8688	7.23462
Failed thrice	14.2227	6.63559

**Table 4***Rate of Return of Investing in Nursing at PPP-Adjusted Values (%)*

<b>State of the World</b>	<b>Work Abroad (Inclusive of opportunity cost)</b>	<b>Work in the Philippines (Exclusive of opportunity cost)</b>
No failure in board exam	12.0391	8.77224
Failed once	10.3928	7.93402
Failed twice	9.11007	7.23462
Failed thrice	8.07032	6.63559

The same trend above is observed for the rates of return at PPP-adjusted values as shown in Table 2. For a Filipino Accountancy graduate, the rate of return for taking a job elsewhere immediately after passing the board exam is 36.0395%. However, for working abroad but failing once is 29.3741%; failing twice is 24.6725%; and failing thrice is 21.1980%. Note that the rates remain unchanged for working in the Philippines for all four conditions.

As shown in Table 3, the rates of return of investing in *Nursing* for working abroad and in the Philippines at nominal values decrease for

each additional delay to work due to board exam failure. Without failure, 20.6553% is the rate of return to a nurse who works abroad while it is 8.77224% for working in the domestic. Further, for nurses with board exam failures even up to three times, pursuing the job abroad exhibits higher rates of return than choosing to stay in the Philippines. A nurse who fails once will have a rate of return of 17.9429% abroad against a 7.93402% in the domestic; fails twice at 15.8688% abroad over 7.23462% in the domestic; and fails thrice at 14.2227% abroad over 6.63559% in the domestic.

**Table 5***Rate of Return of Investing in Education at Nominal Values (%)*

State of the World	Work Abroad (Inclusive of opportunity cost)	Work in the Philippines (Exclusive of opportunity cost)
No failure in board exam	38.5872	18.4672
Failed once	33.2441	16.3548
Failed twice	29.3180	14.7359
Failed thrice	26.2982	13.4434

**Table 6***Rate of Return of Investing in Education at PPP-Adjusted Values (%)*

State of the World	Work Abroad (Inclusive of opportunity cost)	Work in the Philippines (Exclusive of opportunity cost)
No failure in board exam	24.537	18.4672
Failed once	21.5632	16.3548
Failed twice	19.3138	14.7359
Failed thrice	17.5404	13.4434

Table 4 shows at PPP-adjusted values the rates of return to investment in *Nursing*. Under PPP-adjusted values, the rate of return to a Filipino nurse working abroad with no board exam failure is 12.0391%. For each failure to pass the board exam, the rate of return decreases at a decreasing rate working elsewhere. Without failure, a nurse has the additional rate of return of 3.2668% working abroad over working in the domestic. As presented, the additional rate of return a nurse will receive for work abroad as against in the Philippines declines each time a failure is incurred. Failure to pass the board once has a differential rate of return of 2.45878%; 1.8745% for two failures; and 1.43473% for three failures.

The rates of return for Filipino teachers at nominal values decrease for each successive board exam failure for both working elsewhere and in the Philippines, as shown in Table 5. For no failure, the return to investment in Education working abroad is 38.5872% while working locally is 18.4672%. Further, for the teacher who considers pursuing work in foreign land, each subsequent failure decreases the returns at a decreasing rate at 33.2441% for one failure; 29.3180% for two

failures; and 26.2982% for three failures. The same decreasing trend is observed if work is pursued in the domestic at 16.3548%, 14.7359% and 13.4434% for one, two and three board exam failures, respectively.

Correspondingly, Table 6 shows the rates of return for Filipino teachers at PPP-Adjusted values. As such, the values for the rates of return for working in the Philippines are as presented in Table 5. A Filipino teacher who works abroad with no board exam failure will have a rate of return of 24.537%. Considering the possibility of board exam failure, an additional delay will decrease the rate to 21.5632% if failed once; 19.3138% if failed twice; and 17.5404% if failed thrice.

Table 7 presents the rates of return for investing in Engineering at nominal values. The highest rate of return for investing is recorded at 55.3734% for Filipino engineers who passed the board exam immediately and decided to work abroad. For the same engineer, working in the Philippines yields a rate of 25.8919%, which is less than half of the rate it could earn work was pursued elsewhere. Moreover, failure to pass the board exam once has a rate of return of 47.5426% for work abroad

**Table 7***Rate of Return of Investing in Engineering at Nominal Values (%)*

<b>State of the World</b>	<b>Work Abroad (Inclusive of opportunity cost)</b>	<b>Work in the Philippines (Exclusive of opportunity cost)</b>
No failure in board exam	55.3734	25.8919
Failed once	47.5426	22.6530
Failed twice	41.7356	20.2089
Failed thrice	37.2538	18.2880

**Table 8***Rate of Return of Investing in Engineering at PPP-Adjusted Values (%)*

<b>State of the World</b>	<b>Work Abroad (Inclusive of opportunity cost)</b>	<b>Work in the Philippines (Exclusive of opportunity cost)</b>
No failure in board exam	55.5413	25.8919
Failed once	47.6613	22.653
Failed twice	41.8238	20.2089
Failed thrice	37.3220	18.2880

while it is 22.653% for work in the domestic. Likewise, an additional delay to pass decreases the return for the engineer to 41.7356% working abroad and 20.2089% working locally for failure twice; 37.2538% abroad and 18.288% locally for failure thrice.

Finally, the same trend is exhibited by Table 8 but at recorded at PPP-Adjusted values. For work outside the Philippines, investing in Engineering will yield a rate of return of 55.5413% for only one trial of the board exam. Additional delays due to unsuccessful board exams will give a rate of return of 47.6613%, 41.8238% and 37.322% for one, two, and three failures, respectively.

Results indicate positive differential rates of return for any of situations, showing that investment in any of the four undergraduate degree programs will yield a higher return if the laborer chooses to work abroad as opposed to domestic. Further arranging the programs based on their rate of return, the Engineering program has the highest, followed by Accountancy, Education, and Nursing respectively. To ensure that our findings are consistent, we utilize the PPP-Adjusted values.

Extreme values are recorded with the highest rate of return at 55.5413% is for Filipino engineers without failure who will work outside the country. On the other hand, 6.63559% is the lowest rate of return which is for nurses with three failures who will work in the Philippines.

The highest rates of return for each undergraduate degree program occur at the state of the world where there is no failure in the board exam and work is pursued abroad. Specifically, it is 55.5413% for Engineering; 36.0395% for Accountancy; 24.537% for Education; and 12.0391% for Nursing. As expected, the lowest rates are exhibited for three board exam failures and work continued in the domestic. The rates are 18.288%, 13.4434%, 11.9245% and 6.63559% for engineers, teachers, accountants and nurses, respectively.

Overall, the Engineering degree program is the most rewarding in terms of higher rates of return as compared to the other three, under all possible combinations of failure for work outside the Philippines. There is clearly an incentive for graduates, regardless of multiple failures, to



migrate for jobs outside the country. However, an immediate passer of the Accounting board exam (at 23.5578%) or the Education board exam (at 18.4672%) will have a rate higher than someone who failed the Engineering board exam thrice (at 18.288%), if the graduate opts to work in the country. Additional delays in passing the exams translate to additional costs, which add to the opportunity foregone to earn income. Remarkably, the rate of return for graduates of *Engineering* remains relatively high and its variation is negligible.

It is also important to note that failure to pass the board exams have different implications on the rate of return of the degree programs. For example, more opportunity is foregone in terms of a greater rate of loss is suffered by engineers who fail to pass the board exam. Using the differential rates of return, the difference between passing immediately and failing thrice is 10.6154% for engineers; 3.2082% for accountants; 1.9728% for teachers; and 1.83213 for nurses. The higher benefits made available to the engineers are then qualified because of the degree of difficulty of the said course, as explained also by the greater losses due to exam failure.

### ***Further Extensions of Early Results***

The abovementioned findings can be subjected to another rounds of calibration, which this study did not yet capture. For further expansion of this research agenda, future studies can treat Equation 1 as a net present value (NPV) equated with the discounted value of benefits minus the discounted value of costs. This can be implemented by taking the value of NPV as zero and then solving for  $r$ , which is the private rate of return. This is tantamount to segregating the private rate of return from the social rate of return. If the professionals considered obtained their degrees from state universities and colleges (SUCs) such as the UP, Polytechnic University of the Philippines (PUP), and Philippine Normal University (PUP), then the benefits and cost figures can be adjusted to market cost instead

of actual costs. That is, the cost of studying one of the selected degree program (i.e. accountancy) in UP can be adjusted to market cost if UP is not receiving subsidy from the government. One disadvantage of valuing educational cost at local cost levels and valuing benefits at foreign salary levels provides an upward chauvinism of having those working abroad receiving a higher rate of return than those working domestically. To address this, further studies can estimate the rate of return of a nurse educated in the UK nurse or a US educated nurse compared to a Philippine educated nurse. This will provide a picture of how sensitive the rates of return was due to domestic cost and/or subsidy level in a specific profession. That is, both costs and benefits can be adjusted for distortions such as subsidies, price controls, and taxes.

Likewise, as an alternative, studies can also explore on using the mean private school tuition as the market rate for tuition for students enrolled in SUCs. By differentiating the rate of return between private and social rate of return, the social rate of return can provide information on how much the rate of return for specialized degrees and profession would have been different from the private rate of return if the educational expenditures were measured at market rates and wages were valued at market rates instead of government-regulated rates.

## **CONCLUSIONS AND POLICY RECOMMENDATIONS**

Choosing a degree program is one of the mind-boggling tasks students have to undertake. They have to weigh the costs and benefits of their degree course of preference over one that will provide them livelihood even if it is not what they initially intend to pursue. In addition, there are also individuals who meticulously select their degree program with the objective of migrating. They purposively choose highly specialized degrees, those with licensure examination, such as Accountancy, Education, Engineering, and

Nursing. These degrees are known to be programs that will allow its graduates to qualify in the international labor market, where salaries and wages are relatively higher than in the Philippines. Hence, this serves as an incentive for choosing these degrees and eventually being subject to temporary labor migration.

To provide reasons for the occurrence of the abovementioned scenario, we identified the extent of the returns to education across the degree programs of interest. We computed the rate of return of investment in higher education by enumerating the costs and benefits associated with the acquisition of the degree. As a result, we are able to provide a quantitative explanation as to why students take a degree program and why certain degree programs experience extremely high or low enrolment.

Computations of the rate of return for accountancy revealed that under favorable circumstances, a professional accountant will have a rate of return of 48.4274% if this individual intends to work abroad and a rate of return of 23.5578% if this individual intends to work in the Philippines. Meanwhile, for education, engineering, and nursing, the rate of return under favorable conditions will have a rate of return of 38.5872%, 55.3734%, and 20.6553% respectively if the individual will work abroad. If this individual will stay in the home country, the rate of return of the latter degrees is reported at 18.4672%, 25.8919%, and 8.7722% respectively. Note that these rates of return are based on nominal values. Results have shown that the most lucrative degree program is engineering while nursing has the lowest rate of return among all the degree programs considered. It is essential to emphasize that under unfavorable conditions such as the incidence of failure in licensure examination, it is without loss of generality that the rate of return will decline. With that, engineering will still have the highest rate of return and Nursing will still have the lowest rate of return computed at 37.2538% and 14.2227% respectively given three consecutive failures in the licensure exam and the individual will work

abroad. On the other hand, the individual who will work in the Philippines and fail the licensure exam thrice will have a rate of return of 18.2880% for Engineering and 6.6356% for Nursing. Hence, as far as Engineering is concerned, it is vital to note the claim reported by Icamina (2019) that unless the country capitalize on education and on R&D, in strategic areas such as engineering and information technology at a scale that would advance a critical mass, that would allow within fighting chance in the intense knowledge-based field in the coming years, then we will find ourselves viewing by the side lines.

The abovementioned rates of return show that there is a huge disparity between working in the Philippines and working abroad implying how underpaid professionals are here in the Philippines. With this, we cannot blame professionals especially accountants and engineers from leaving the country and choosing to work abroad. Even though working abroad will cause an individual to incur psychic costs of leaving the comfort zone of living and working in the Philippines, the benefits of pursuing work in another country far exceed these costs. Monetary remuneration is sufficient for these professionals to leave their families in the Philippines and suffer from homesickness. Anyway, there are networks of Filipinos located abroad to ease some feelings of missing home. These inconveniences do not matter since these professionals need to earn a living not only for providing for themselves but also to acquire money in support of their families and deeper concerns back in the Philippines. Moreover, these rates of return are indicative of impending temporary brain drain because professionals are assumed to be rational economic agents that have monotonic preferences, where they will always prefer a labor market that would offer higher compensation packages holding all other factors constant. In addition, failure in licensure exams will not significantly reduce the rate of return—that relative to other degree programs the rate is still higher. Thus, failure is not a huge disincentive for an individual to stop pursuing the career. These results are consistent with the

findings of Psacharopoulos (1985) that highly specialized degree programs have significantly higher rate of return. In addition, examining the rates of return in detail, Nursing has the lowest value computed among the courses included in the study yet there are a lot of individuals who choose to pursue this field. Furthermore, there are a small number of individuals who choose to take up education even if this program has a high rate of return, and the country is in deeply in need of more education professionals.

The findings suggest that there is an oversupply of nurses in the Philippines. The USA being the local nurses' biggest foreign employer, still has an appetite for hiring foreign nurses but it is shifting its policies by improving their own capabilities in producing nurses themselves and away from relying on hiring abroad (Aiken, Clarke, Sloane, Sochalski, & Silber, 2002). It is therefore not recommended for graduating high-school students, and their parents whom the educational investment decision depends on, to pursue the nursing profession if the intention is purely market-driven than having a sense of moral and social obligation to provide patient care.

Given the significantly wide difference between the rates of return from working in the Philippines and abroad, an important policy consideration is the need for legislation to improve the compensation package of professionals in the Philippines. Although it is flagrant that working abroad will always give a higher rate of return than working domestically because the salary levels abroad are higher, cost estimates may vary due to varying pre-departure expenses, degree of opportunity costs depending on a migrant's present circumstances (i.e. working locally or working abroad).

It has been repeatedly emphasized that professionals should be offered competitive compensation packages and not rely on nationalism alone since individuals have deeper concerns that stimulate their decisions to seek higher monetary pay offs. Thus, in order to keep professionals from leaving the country, they should see working in the Philippines as the best opportunity to earn

a living. Also, we want to maintain a roster of highly skilled Filipino laborers that will aid in contemporary national and economic development since the Philippines is known to be a labor exporting country. Moreover, the large number of individuals pursuing nursing indicates a need for policy action to regulate the nursing curriculum by controlling academic institutions that offer the nursing program, wherein only those who are qualified and have the specialized machinery should be given the permit to offer the program.

Furthermore, the need for more education professionals implies policy making that would change the mentality of the public about the salary grade of teachers. Teaching should not be seen as only a vocation that transforms minds and touches hearts but also a profession that will give an individual a decent living. Teachers also need to live and survive, therefore the government should set the salary of teachers at par with the international sector and through this motivate students to take education. However, this may seem to be impossible due to the possibility of the country losing its investors. Instead, the government can require service years in the country for people who studied in public schools, state universities, and colleges. The increase in government budget on facilities and curriculum are not enough as compensation for teachers because they are complementary resources in need of monetary compensation. Teaching should be one of the professions that are highly paid because they invest on education of the children who are the future of the country. That way, government expenditure on education which is intended to subsidize education in order to yield productive skilled Filipinos will not go to waste.

## ENDNOTES

- <sup>1</sup> This was inspired by the study of Tullao, Conchada and Rivera (2010) entitled *The labor migration industry for health and educational services, its regulatory and governance structures, and its implications for national development* commissioned by The World Bank. The authors of this study extended their study

to other degree programs linked to temporary labor migration. Meanwhile, this study was funded by the Commission on Higher Education (CHED) under the research project entitled *The implications of temporary labor migration on the rate of return of investment in accountancy, education, engineering, and nursing undergraduate degree programs*. The authors would like to acknowledge the contributions of **Paolo O. Reyes** and **Jin Nathaniel U. Ong** in the completion of this study. The authors would also like to acknowledge the valuable comments provided by **Mitzie Irene P. Conchada**, **Christopher James R. Cabuay**, and **Rommel Pelayo**, who served as panel of reactors, during the *University Research Sharing 2012: Pushing the Frontiers of Knowledge through Research* held last 03 August 2012 in Arellano University, Legarda, Manila, Philippines. **Disclaimer:** The findings, interpretations, and conclusions expressed in this work do not reflect the views of the author's institutional affiliation and its Board of Executive Directors. The other usual disclaimer applies.

- <sup>2</sup> According to Tullao, Cortez, and See (2007), migrant worker refers to a person who is to be engaged, is engaged or has been engaged in a remunerated activity in a state of which he or she is not a legal resident; to be used interchangeably with Overseas Filipino Worker per Republic Act (RA) 8042 also known as the *Migrant Workers and Overseas Filipinos Act of 1995*.
- <sup>3</sup> The International Comparison Program (ICP) project emanates from the University of Pennsylvania project undertaken by Irving B. Kravis, Robert Summers, and Alan W. Heston. This is the reason why their PPP estimates are sometimes referred to as the *Penn World Tables*.

## ACKNOWLEDGEMENT

The authors express their gratitude to the Commission on Higher Education (CHED), for providing the grant-in-aid for the conduct of this study.

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