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**The Impact of Temporary Labor Migration on the
Demand for Education:
Implications on the Human Resource Development in
the Philippines**

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I. Introduction

Migration and overseas employment have been part of the lives of thousands of Filipino households. It is estimated that there are close to eight million Filipinos overseas either as permanent residents, temporary workers, or irregular migrants while 3,000 Filipinos are leaving daily. Many of these Filipinos are temporary workers known as Overseas Filipino Workers (OFWs). However, there are also a large number of them who leave the country for tourism and other purposes but they eventually overstay, seek employment and become irregular workers.

The contributions of overseas employment cannot be underestimated. For over three decades, what started as a temporary alternative for growing unemployment domestically, overseas employment has become a part of the culture of Filipino families. The remittance income received by households has improved their standards of living and social status in the community. At the macro level, the remittance inflows of over USD 13 billion in 2006 represented more than 20 percent of the country's exports receipts and had contributed in the stability of the peso and more recently in the appreciation of the currency.

Because this phenomenon has affected many Filipino households, its numerous effects have altered the social, cultural, and economic structure of Filipino society. For example, the migration of nurses is threatening the health sector of the country. The exodus of many skilled workers has likewise changed the community make-up and the structure of production. Temporary migration has also reshaped the Filipino family as children of OFWs are growing up with grandparents or other members of the extended family.

One interesting social impact of temporary labor migration is the effects on the demand for education. It is interesting to investigate this topic on many grounds. First, the phenomenon of temporary external migration in the country is pervasive. Second, the private sector is very prominent in the provision of educational services in the Philippines and thus, very responsive to the changes in the factors that may affect demand for education. Third, enhanced expenditure on education at the household level may have positive effects on improving the human capital of household members. Fourth, the effect of temporary migration on education may have positive as well as negative implications on the overall human resource development in the country.

Thus, it is interesting to inquire on **the extent of the effects of temporary migration on the demand for education and evaluate its impact on the country's human resource development.**

II. Overseas Employment of Filipinos

In tracing the magnitude and direction of overseas employment of Filipinos, the data on the flows of OFWs that have been deployed over the years was utilized. The data was sourced from the Philippine Overseas Employment Administration (POEA). From the data, the growth of deployed workers overtime, the direction and changes in major geographical destinations can be traced. Using the same data source, the various occupational, educational and other characteristics of OFWs can be identified. What are interesting to note from the data are changes in the occupational and educational characteristics of OFWs. Are OFWs moving towards more skilled or less skilled workers? Are the workers getting more educated or less educated?

2.1. Magnitude and Direction of Overseas Employment of Filipinos

Since the 1970s, OFWs have made significant contributions in the maintenance, stability, and growth of the Philippine economy as they continuously search for various markets around the globe. The total volume of documented OFWs with processed contracts has been continuously rising through the years (Philippine Overseas Employment Administration [POEA], 2006).

Shown in Table 2A is the deployment of newly hired and rehired land based OFWs. Countries in the Middle East absorbed more than 58 percent of OFWs deployed in 2006 accounting for the biggest share of OFWs destination relative to other major world groupings. Of the total 788 thousand OFWs deployed in 2006, 463 thousand were deployed in the Middle East, while a total of 223 thousand were sent to various parts of Asia, 59 thousand in Europe and 22 thousand in America.

Among the countries in the Middle East, OFWs are concentrated in Saudi Arabia as shown in Table 2B and in Appendix 1A with around 50 percent of OFWs deployed in the region going to Saudi Arabia. The Middle East, specifically Saudi Arabia, together with United Arab Emirates, Kuwait, and Qatar, has always been the top destination of OFWs because the region has been embarking on massive development projects since the 1970s. As a consequence, there has been a continuous increase in the inflow of OFWs in these countries (Department of Labor and Employment [DOLE], 2006).

Aside from the Middle East region, the other major destinations of OFW deployment as shown in Table 2B and Appendix 1A are the following: Asia with Hong Kong, Taiwan, and Singapore as top destinations; Europe with Italy and United Kingdom as chief destinations; and Americas with the United States of America and Canada as prime OFW destinations.

Similarly, shown in Table 2C are the top ten countries that hired OFWs for the years 2005 and 2006 are Saudi Arabia, United Arab Emirates, Hong Kong, Kuwait, Qatar, Taiwan, Singapore, Italy, United Kingdom, and Korea.

Table 2A: Deployed Land Based Overseas Filipino Workers by Major World Groupings from 1991 to 2006 (New Hires and Rehires)

Year	Total*	Africa	Asia	Europe	Middle East	Oceania	The Americas	Trust Territories	Unspecified
1991	489,260	1,964	132,592	13,156	302,825	1,374	13,373	11,409	-
1992	549,655	2,510	134,776	14,590	340,604	1,669	12,319	11,164	-
1993	550,872	2,425	168,205	13,423	302,975	1,507	12,228	8,890	-
1994	564,031	3,255	194,120	11,513	286,387	1,295	12,603	8,489	-
1995	488,173	3,615	166,774	10,279	234,310	1,398	13,469	7,039	-
1996	484,653	2,494	174,308	11,409	221,224	1,577	8,378	4,869	-
1997	559,227	3,517	235,129	12,626	221,047	1,970	7,058	5,280	-
1998	638,343	5,538	307,261	26,422	279,767	2,524	9,152	7,677	-
1999	640,331	4,936	299,521	30,707	287,076	2,424	9,045	6,622	-
2000	643,304	4,298	292,067	39,296	283,291	2,386	7,624	7,421	6,921
2001	662,648	4,943	285,051	43,019	297,533	2,061	10,679	6,823	11,530
2002	682,315	6,919	288,481	45,363	306,939	1,917	11,532	6,075	10,882
2003	651,938	8,750	255,287	37,981	285,564	1,698	11,049	5,023	46,279
2004	704,586	8,485	266,609	55,116	352,314	3,023	11,692	7,177	1
2005	740,632	9,103	259,209	52,146	394,419	2,866	14,886	7,596	135
2006	788,921	9,450	222,940	59,313	462,545	5,216	21,976	6,481	1,000

* Based on the report of POEA's Labor Assistance Center on the actual departure of OFWs at the international airports, NAIA Cabin Crews and POEA Regional Extension Units.

Source: Philippine Overseas Employment Administration

Table 2B: Deployed Land Based OFWs by Top Continental Destination from 1999 to 2006 (New Hires and Rehires)

Year	1999	2000	2001	2002	2003	2004	2005	2006
Middle East								
Saudi Arabia	198,556	184,724	190,732	193,157	169,011	188,107	194,350	223,459
UAE	39,633	43,045	44,631	50,796	49,164	68,386	82,039	99,212
Kuwait	17,628	21,490	21,956	25,894	26,225	36,591	40,306	47,917
Qatar	7,950	8,679	10,769	11,516	14,344	21,360	31,421	45,795
Asia								
Hong Kong	114,779	121,762	113,583	105,036	84,633	87,254	96,693	96,929
Taiwan	84,188	51,145	38,311	46,371	45,186	45,059	46,737	39,025
Singapore	21,812	22,873	26,305	27,648	24,737	22,198	28,152	28,369
Europe								
Italy	21,673	26,386	21,641	20,034	12,175	23,329	21,267	25,413
UK	1,918	4,867	10,720	13,655	13,598	18,347	16,930	16,926
Americas								
Canada	2,020	1,915	3,132	3,535	4,006	4,453	3,629	6,468
USA	3,405	3,529	4,689	4,058	3,666	3,831	7,752	11,443

* Based on the report of POEA's Labor Assistance Center on the actual departure of OFWs at the international airports, NAIA Cabin Crews and POEA Regional Extension Units.

Source: Philippine Overseas Employment Administration

Table 2C: Deployed Land Based Overseas Filipino Workers (OFWs) by Top 10 Destination Country for 2005 and 2006 (New Hires and Rehires)

Destination Country		OFW Deployment			Percentage Share to Total	
		2005	2006	% Change	2005	2006
1	Saudi Arabia	194,350	223,459	15.0	26.2	28.4
2	United Arab Emirates	82,039	99,212	20.9	11.1	12.6
3	Hong Kong	98,693	96,929	-1.8	13.3	12.3
4	Kuwait	40,306	47,917	18.9	5.4	6.1
5	Qatar	31,421	45,795	45.7	4.2	5.8
6	Taiwan	46,737	39,025	-16.5	6.3	5.0
7	Singapore	28,152	28,369	0.8	3.8	3.6
8	Italy	21,267	25,413	19.5	2.9	3.2
9	United Kingdom	16,930	16,926	0.0	2.3	2.1
10	Korea	9,975	13,984	40.2	1.3	1.8
11	Other Destinations	170,762	151,892	-11.5	23.1	19.2
	Land-based Total	740,632	788,921	6.4	100.0	100.0

Source: Philippine Overseas Employment Administration

Meanwhile, the total number of sea based workers deployed in 2006 reached 274 thousand up from 248 thousand deployed in 2005 as shown in Table 2D. Although the number of sea based workers deployed overseas has been increasing over the years, its share to the total OFW deployed has remained at 25 percent. The top 10 flag registry of deployed seafarers were Panama, Bahamas, Liberia, Marshall Island, Singapore, United Kingdom, Malta, Norway, Cyprus, and the Netherlands as seen in Table 2E.

Table 2D: Deployed Overseas Filipino Workers for 2005 and 2006

Category	OFW Deployment			Percentage Share to Total	
	2005	2006	% Change	2005	2006
Land Based	740,632	788,921	6.52	74.92	74.19
New Hires	284,285	302,672	6.47	38.38	38.37
Rehires	456,347	486,249	6.55	61.62	61.63
Sea Based	247,983	274,497	10.69	25.08	25.81
Total Deployed	988,615	1,063,418	7.57	100.00	100.00
<i>Daily Deployment Average</i>	<i>2,709</i>	<i>2,914</i>	<i>7.57</i>		

Source: Philippine Overseas Employment Administration

Table 2E: Deployed Seafarers by Flag of Registry for the Year 2006

Flag of Registry	Number of Seafarers	% Share
Panama	55,016	23.92
Bahamas	29,457	12.81
Liberia	22,210	9.66
Marshall Island	9,993	4.34
Singapore	9,362	4.07
United Kingdom	7,824	3.40
Malta	7,803	3.39
Norway	7,260	3.16
Cyprus	7,255	3.15
Netherlands	6,653	2.89
Others	67,189	29.21
TOTAL	230,022	100.00

Based on the profile of 230,022 deployed seafarers

Source: Philippine Overseas Employment Administration

In most cases, Filipino workers are in demand abroad because of their proficiency in the English language, their training in Western standards of education, their reputation as being hardworking, resourceful, adaptable, and patient employees with a willingness to accept a lower compensation, and as a value added to some employers, their adherence to some Christian values (Macaraeg, 2005).

2.2. Occupational, Educational and Other Characteristics of Overseas Filipino Workers (OFWs)

The Philippines is one of the largest suppliers of a variety of workers deployed overseas such as doctors, engineers, nurses, teachers, technicians, production workers, caregivers, entertainers, domestic workers, and many others. Limited domestic employment opportunities as well as the high compensation package attract many of educated workers to seek overseas employment (Macaraeg 2005).

Shown in Table 2F are the major skills groupings of OFWs from 1993 to 2006. Over these years, the top three occupational groups invariably have been production workers, service workers and professional workers. In 2006, production workers accounted for 34 percent of the total while service workers and professional workers constituted 48 percent and 12 percent respectively.

**Table 2F: Deployed Land Based Overseas Filipino Workers (OFWs)
By Skill Category from 1993 to 2006 (New Hires)**

Major Occupational Groups (By Skill)	1993	1994	1995	1996	1997	1998	1999
Administrative and Managerial Workers	325	335	339	345	576	397	333
Agricultural, Animal Husbandry and Forestry Workers, Fishermen, and Hunters	1,753	1,270	981	833	547	395	454
Clerical and Related Workers	4,180	3,748	3,441	3,314	3,619	3,072	2,554
Production and Related Workers, Transport Equipment Operators and Laborers	92,929	86,672	82,508	77,918	85,702	76,288	79,559
Professional, Medical, Technical and Related Workers	65,277	74,066	43,901	36,848	51,656	55,823	62,367
Sales Workers	2,541	2,207	1,990	1,965	2,641	2,596	2,244
Service Workers	89,222	90,713	81,028	84,824	76,661	80,696	84,415
Others Not Elsewhere Classified	0	0	0	0	1	457	5,488
Total Deployed	256,227	259,011	214,188	206,047	221,403	219,724	237,414

Major Occupational Groups (By Skill)	2000	2001	2002	2003	2004	2005	2006
Administrative and Managerial Workers	284	385	374	387	490	490	817
Agricultural, Animal Husbandry and Forestry Workers, Fishermen, and Hunters	526	551	612	413	665	351	807
Clerical and Related Workers	2,367	3,356	4,012	3,965	6,816	6,534	11,818
Production and Related Workers, Transport Equipment Operators and Laborers	57,807	56,744	69,513	61,352	62,712	71,797	103,584
Professional, Medical, Technical and Related Workers	78,685	97,453	99,688	75,272	93,006	63,940	35,807
Sales Workers	2,083	3,188	3,043	2,451	3,903	4,251	5,514
Service Workers	91,206	92,362	97,374	79,522	112,840	133,878	144,319
Others Not Elsewhere Classified	7,662	1,562	86	60	43	3,044	6
Total Deployed	240,620	255,601	274,702	223,422	280,475	284,285	302,672

Source: Philippine Overseas Employment Administration

In relation to Table 2F, shown in Appendix 1B is a cross tabulation of the major occupational groups by skill, by major world groupings, and by country of destination for the years 2004 to 2006. It shows that OFWs are widely dispersed across the globe with concentrations on developed countries such as the United States of America, Australia, Canada, Japan, Kuwait, Saudi Arabia, Taiwan, and Singapore.

The share of administrative and managerial workers to the total deployed OFWs is rather miniscule. In 2004 and 2005, this worker category comprised approximately 0.17 percent of the total deployed OFWs. However, in 2006 the share went up to 0.27 percent but still small relative to the total deployed workers. The bulk of administrative and managerial workers went to the Middle East where about 30 percent of those deployed in the region in 2005 and 2006 were in the United Arab Emirates. Other major destinations of administrative and managerial workers in the Middle East are Saudi Arabia and Kuwait. On the other hand, Asia is the second major regional destination of administrative and managerial workers and many of them are concentrated in Malaysia and Singapore which absorbed approximately 60 percent of all those deployed in Asia.

Similarly, the share of agricultural, animal husbandry and forestry workers, fisherman and hunters to the total deployed OFWs is rather small. This category constitute only 0.24 percent and 0.27 percent of the total deployed OFWs in 2004 and 2006 respectively. Again, a large proportion of OFWs under this worker category was absorbed by the Middle East where approximately 87 percent of those in the region were deployed in Saudi Arabia across years. The United Arab Emirates and Qatar are likewise major destination countries of this worker category. Additionally, the American region is the second major regional destination of agricultural, animal husbandry and forestry workers, fisherman and hunters. The workers are concentrated in the United States of America and Canada which account for approximately 73 percent of all those deployed in the American region in 2006.

More significant in number compared with the administrative and related workers and a host of agricultural workers are those in the category of clerical and related workers. However, this worker category is still small since it constitutes only 2 percent and 4 percent of the total deployed OFWs in 2004 and 2006 respectively. Across years, approximately 88 percent of those deployed under this category were placed in the Middle East where the United Arab Emirates, Saudi Arabia, Qatar, and Kuwait absorbed most of the OFWs under this category. After the Middle East the Asian, European, and American regions come as the next top destinations of OFWs under this category. In 2006, Singapore (Asia), United Kingdom (Europe), and Canada (Americas) hired the most number of OFWs under clerical and related workers per region.

A more significant number of workers deployed are under the category of production and related workers, transport equipment operators and laborers. This worker category account for 22 percent and 34 percent of the total deployed OFWs in 2004 and in 2006 respectively. Of the 62,712 workers deployed in 2004 and 103,584 workers deployed in 2006 under this category approximately 60 percent were in the Middle East. Saudi Arabia, in turn, absorbed 60 percent of the total OFWs deployed in

the Middle East while Qatar and United Arab Emirates are considered major destinations of OFWs under this category hiring 12,106 and 8,988 OFWs respectively in 2006. On the other hand, the Asian region is the next leading regional destination of production and related workers, transport equipment operators and laborers accounting for approximately 30 percent of deployed OFWs under this worker category. Taiwan and South Korea are the most favoured Asian destinations of OFWs under this category absorbing 19,367 and 9,921 OFWs in 2006 respectively.

Another major worker category in terms of number consists of professional, technical, and related workers. However, there has been a significant decline in the share of this category to the total deployed OFWs from 33 percent in 2004 to 22 percent in 2005 and to 12 percent in 2006. The decline is due to the reduced deployment of professional workers in Asia, Europe, and the Americas with the large bulk of decrease coming from Asia. Although there is an increase in OFW deployment under this category in the Middle East, it is largely offset by the massive decline in Asia. In 2004, of the 93,006 deployed professional, technical and related workers, 73,116 are deployed in Asia alone with 97 percent deployed in Japan. In 2005 and 2006, total deployment of OFWs under this category in Japan decreased to 38,674 and 6,933 respectively. This trend is not only observed under this skill category but can also be seen in the production workers category. Lachica (2004) deemed that this condition is prevailing because Japan's immigration problem is becoming more serious since the country entered into a prolonged depression in the early 1990s. Consequently, the labor shortage became less severe and the employer demand for more foreign workers decreased.

Over the years, the labor shortage has persisted among smaller, delegating companies; the foreign-born population in Japan has continued to grow; and long-term residence or permanent settlement among immigrants has become more common (Tsuda, 1999 and Hirano, et. al., 2000 as cited in Lachica, 2004). To limit the immigration of foreign workers, the Japanese government imposed penalties for overstaying through the revised Immigration Control and Refugee Recognition Law. The presence of overstaying and illegal migrants from other countries was deemed by Japan's Immigration Bureau as among the reasons for the Japanese's sense of apprehension over public safety because these illegal migrants can be a breeding ground of foreign crime. Aside from public safety, Japan's failure to accept foreign workers for manual labor even though certain sectors of the economy, including construction and agriculture, need them is another reason for the decline of foreign migrant workers, especially OFWs, in Japan (Lachica, 2004).

Additionally, it should be noted that the bulk of Filipino professional and technical workers deployed to Japan are entertainment workers. Since the Japanese government has imposed strict measures on the entry of entertainment workers; these measures have also significantly affected the flow of Filipino professionals into Japan.

Sales workers comprise 1.4 percent and 1.8 percent of the total OFW deployment for 2004 and 2006 respectively. Approximately 95 percent of OFWs

deployed as sales workers were in the Middle East with United Arab Emirates as the top destination that absorbed almost 50 percent of all sales workers deployed in the region. Saudi Arabia, Qatar, and Kuwait are the next top destinations of sales workers in the Middle East. The remaining 5 percent of sales workers are deployed across other regions with Asia, specifically Brunei, as the next favoured destination of OFWs.

Lastly but significantly, approximately 40 percent in 2004 and 48 percent in 2006 of the total deployed OFWs are service workers. Of the total service workers deployed in 2004 and 2006, the Middle East absorbed 63 percent and 72 percent respectively where Saudi Arabia hired most of them. Kuwait and United Arab Emirates are the next favoured destinations with an OFW deployment of 21,144 and 20,549 respectively in 2006. Lebanon, Jordan, Oman, Israel, and Bahrain also attracted a significant number of OFWs as service workers. Asia is the second most favoured regional destination of service workers, particularly the domestic helpers, whose share of the total service workers in the region fluctuates from 23 percent to 31 percent between 2004 and 2006. The bulk of service workers in the Asian region are in Hong Kong where some 16,428 in 2004 and 19,535 in 2006 were deployed. Taiwan also absorbed a significant number of OFWs as service workers reaching up to 15,189 in 2004 and 9,099 in 2006. Singapore, Malaysia, and Brunei also have their respective fair share of OFWs as service workers. Across other regional destinations, the United Kingdom and Canada absorbed 1,349 and 2,330 OFWs as service workers respectively in 2006.

It can be seen that bulk of the OFWs, across all worker categories, are deployed in the Middle East, which is a consequence of the region's booming construction industry and the extraordinary economic expansion brought about by oil prices in an environment of a very limited local workers. This is most apparent in Saudi Arabia and United Arab Emirates. As a response, Filipinos pursued aggressively the numerous opportunities available in the Middle East regardless of work category. Moreover, according to the report of the International Monetary Fund (IMF), apart from the continued increase in the number of blue-collared and white-collared jobs as well as clerical, sales, and service workers, there is also a sustained increase in the number of OFWs who are taking highly skilled jobs since there is now a huge demand for professional and technical workers in the Middle East.

Aside from the Middle East, the neighboring Asian countries are the second favoured regional destinations of OFWs across categories where Hong Kong, Malaysia, and Taiwan are the leading Asian destinations of OFWs particularly service workers and domestic helpers. Moreover, since a Hong Kong work visa requires some amount of higher education, Filipinos with college degrees and English proficiency are very willing to work even as production and domestic helpers. On the other hand, in Taiwan, OFWs are deployed in manufacturing industries and social or personal services, while in Malaysia, OFWs come to work in construction industries, fisheries, and other labor intensive sectors.

In the American region, across all skill categories, Filipinos are mostly concentrated in the United States of America and Canada especially in the professional

and technical workers, and service workers categories. These countries in the Americas are the favored destinations of OFWs because of the use of the English language and also the possibility of changing their immigration status towards permanent residency.

2.2.1. Deployed Workers by Major Occupational Groups

As seen in Table 2G, the household and related workers category constitute the biggest major occupational group in 2006 accounting for more than 30 percent of the total deployed land based newly hires. Domestic helper is among the job categories, which was recorded to be among the massively deployed Filipino overseas workers with a volume of 91,451. Factory and related workers, construction workers, building caretakers and related workers, hotel and restaurant related workers, caregivers and caretakers, medical related workers, engineers and related workers, dressmakers, tailors, and related workers, and overseas performing artists followed next. From the data, it can be seen that the country deploys workers from all types of occupational groups.

In terms of sea-based workers, based on the POEA profile of 230,022 deployed seafarers in 2006, majority or 136,579 of them were in rating category, while 52,757 and 38,508 were deployed as officers and passenger ship/liner personnel, respectively. Furthermore, the top 10 positions of deployed seafarers were as follows: able seaman (14.12%), oiler (8.78%), ordinary seaman (7.57%), bosun (3.43%), second mate (3.42%), chief cook (3.38%), messman (3.37%), second engineer officer (3.15%), third engineer officer (3.14%), and third mate (3.01%).

**Table 2G: Deployment of New Hires Overseas Filipino Workers (OFWs)
Major Occupational Groups by Gender (New Hires)
For the year 2006**

Occupational Group	Male	Female	Total	% Share to Total
Household and Related Workers	1,590	89,861	91,451	30.21
Factory and Related Workers	30,544	12,690	43,234	14.28
Construction Workers	40,178	2,862	43,040	14.22
Medical Related Workers	2,650	15,081	17,731	5.86
Hotel and Restaurant Related Workers	6,210	9,483	15,693	5.18
Caregivers and Caretakers	842	13,570	14,412	4.76
Building Caretakers and Related Workers	2,103	10,191	12,294	4.06
Engineers and Related Workers	10,754	415	11,169	3.69
Dressmakers, Tailors and Related Workers	375	7,456	7,831	2.59
Overseas Performing Artists	709	6,722	7,431	2.46
Others (Not Elsewhere Classified)	13,582	24,804	38,386	12.68
Total Deployment of New Hires	109,537	193,135	302,672	100

Source: Philippine Overseas Employment Administration

2.2.2. Deployed Workers by Highest Educational Attainment

In recent times, there has been a declining tendency of high school graduates being deployed for overseas employment and there has been an increasing trend of college graduates being deployed abroad as OFWs. This has been the case during the early years of the 21st century because the current international labor market demands

significant educational achievement among its recruits particularly a college degree. Even production jobs in the world-leading manufacturers demand workers with advanced education and skills.

Consequently, many Filipino degree holders as seen in Table 2H are enticed to go abroad because they could reap higher salaries and benefits there resulting to brain drain. To acquire quality education from reputable colleges and universities in the Philippines is very expensive for an ordinary Filipino that by the time an individual enters the Philippine labor force, the compensation received is insufficient to recover the investment in education. Thus, most Filipino skilled workers get jobs abroad where salary commensurate education, skills, and experience. There are also instances wherein an OFW, who is a degree-holder, can earn more in a blue-collar job than they could make in the Philippines in professions. Nonetheless, college undergraduate as well as those with lower educational attainment still manages to go and find jobs abroad as domestic helpers, factory workers, construction workers, entertainers and other work, which does not require any specific technical background as seen in Table 2G.

2.2.3. Deployed Workers by Major Educational Degree Program

Table 2H shows the annual flows of deployed OFWs who have completed college degrees. Notice from the figures in Table 2H that the bulk of OFWs have business related courses. However, this has shortcomings because business courses are subdivided into numerous courses and degree programs. Consequently, it is expected that its volume will be the largest relative to other degree programs due to its wide range of program offerings. Nonetheless, it could be deemed that a lot of students take business courses to be employed in various industries.

On the other hand, the figures for nursing and engineering are close relative to each other. These figures are reasonable in such as way that both have fair share of demand across the globe. Nursing professionals are highly demanded in developed countries with ageing population such as Japan as well as those with insufficient labor supply to sustain their economic activities. In the United States alone, an advertisement was posted through the Philippine health department's Exchange Visitors Program (EVP) for 500 thousand nurses needed for the succeeding five years. Many doctors are undergoing a one-year special course for registered nurses so that they could qualify under the program (Manalansan, 2003). Likewise, engineers are highly demanded in developing and developed countries embarking on massive developmental projects specifically construction and reclamation such as that of Saudi Arabia and United Arab Emirates.

In line with the exodus of Filipino teachers, aside from the data shown in Table 2H, POEA claimed that an average of 73 teachers per year have gone to teach in schools in the United States. Recently, the numbers have tripled to 221 teachers per year. They now comprise some of the more than 10,000 foreign teachers being recruited annually to fill the US' demand for teachers especially in crucial subjects such as special education, mathematics and science. Consequently, recruiting Filipino

teachers have become a brisk business for some recruiting agencies that it can sponsor (The Manila Mail, 2007). According to POEA, higher pay is the lure that attracts teachers to the US. Teachers in the Philippines receive an average of \$300 per month while in the US they can get from \$3,000 to \$4,000 per month (The Manila Mail, 2007).

According to The Manila Mail (2007), “most of the Filipino teachers who teach abroad have at least 10 years of teaching experience and units or degrees in graduate studies. Furthermore, they were also required to take an exam to see if they were qualified to teach American students. Typical of OFWs’ resilience and with the teachers’ experience, they usually pass the American qualification test.”

Table 2H: Annual Deployment of OFWs by Major/Highly Demanded Educational Degree Programs from 1992 to 2006 (New Hires and Rehires)

Year	Education Science and Teacher Training	Accountancy	Business Administration And Related	Information Technology	Nursing	Engineering and Technology
1992	112	648	11,276	513	6,078	9,449
1993	130	502	9,461	646	7,308	8,846
1994	166	553	8,283	569	7,171	7,575
1995	119	465	7,501	681	7,954	6,668
1996	114	468	7,744	704	5,477	6,964
1997	166	422	9,001	955	5,245	8,446
1998	132	325	8,260	1,073	5,399	8,363
1999	128	291	6,757	808	5,972	7,269
2000	241	271	5,562	470	8,341	5,951
2001	147	330	5,342	533	7,602	6,918
2002	623	318	8,895	340	12,290	6,566
2003	463	274	8,410	225	8,288	5,677
2004	517	429	10,833	203	8,879	6,536
2005	789	317	10,289	204	11,392	6,400
2006	890	586	14,246	325	8,528	10,685

* Figures were computed by the authors from the figures from POEA datasets

Source: Philippine Overseas Employment Administration

The increased migration of teachers from the Philippines and other impoverished English-speaking countries help the US government fill up its lack of teachers without addressing its underlying cause, which is low pay.

The volume of migration of skilled professionals has an increasing trend over the years and Philippine top government officials see nothing wrong with this as claimed by Manalansan (2003). “The labor and health departments are even instituting mechanisms to enhance the country’s capability to send “globally-competitive” professionals abroad” (Manalansan, 2003). Moreover, the Philippine government expressed powerlessness over the overwhelming number of professionals leaving the country to work abroad. However, the Commission on Higher Education (CHED) should make sure that local nursing graduates must be at par with international standards.

In order for professionals to be competitive especially nurses and caregivers, the government, through the Technical Education Skills Development Authority (TESDA), is at the forefront of training and exporting caregivers, among others, abroad. TESDA is the government institution mandated to accredit and monitor technical and vocational schools in the country. To make sure that the country meets the standards of foreign employers, TESDA has forged partnership with developed countries such as Canada that seek to raise the quality of education of Filipino professionals. This could be deemed as a facilitating and motivational factor for OFWs to migrate to other countries because they could now possess skills that will enable them to compete in the global labor market. Furthermore, the Philippine government is accommodating to actively facilitate the departure of skilled workers such as nurses (Esguerra, 2008).

The out-migration of Filipino professionals is exacting a toll on the country's already sub-standard service sector (Manalansan, 2003). For instance, the shortage of nurses is threatening to paralyze the operations of public and private hospitals because many of their nursing staffs are applying in hordes, unmindful of the work they will leave behind. A report by the Alliance of Health Workers (AHW) reveals that over the last two years, 17% of nurses in 11 hospitals went abroad implying that there will come a point where "operating rooms are staffed with novice nurses, and experienced ones often work double shifts" (Manalansan, 2003). Moreover, Filipino nurses have already established a reputation of excellent work, which could be attributed to quality nursing education in the Philippines. This is the reason why the Philippines remains as the most important source-country for developed countries specifically the United States of America, which according to the study of *AcademyHealth* will have a demand of around 800,000 nurses by year 2010 (Esguerra, 2008).

It has been established that there has been an increasing trend of Filipino professional and skilled workers particularly nurses migrating to developed countries due to high compensation. Although this is the case, problems and challenges have been arising. First, due to the high demand for nurses abroad, nursing schools in the country has been emerging continuously. The problem, according to Ronda (2008) is the proliferation of nursing "diploma mills" or schools offering poor quality nursing education. Consequently, this will ruin the reputation of the Philippines as the leading producer of high-quality nurses in the global labor market. This will further result in an unsatisfactory passing rate in the licensure examination for nurses. The Commission on Audit (COA) reported that from 2001 to 2005, only 42.2 percent of the nursing schools across the Philippines managed to have at least 50 percent of their graduates pass the Professional Regulation Commission (PRC) licensure exams, with 7.22 percent of these schools failing to have even a single passer. As the number of examinees in the PRC nursing board exam massively increase annually since 2003 due to the abundance of nursing schools in the country, it is imperative that CHED should not be deficient in imposing regulatory power over such "diploma mills" because they will definitely affect the quality of nursing education as well as its global competitiveness (Ronda, 2008).

Second, the large demand for Filipino nurses abroad entices illegal recruiters. The same is true for other workers possessing college degrees mentioned in Table 2H.

Moreover, the study by *AcademyHealth* zeroes in on unethical practices of recruitment of Filipino educated nurses which may result to Filipino nurses ending up at a much lower salary besides substandard living conditions. Furthermore, some unfortunate Filipino nurses hired under unethical practices of recruitment receive a lower compensation relative to American nurses. Also, Filipino nurses are treated as “second-class citizens” and are assumed to have no social life in which there will be instances wherein they will be plucked out of precious day off for another round of hard work considering that they are underpaid in the first place (Esguerra, 2008).

Aside from these problems, there also exists illegal fee extorted by the recruiters which is unethical according to Esguerra (2008) because these recruiters have already received payments from the employers. Selling of contracts is also prevalent as well as the breach of contract by the employer wherein skilled Filipino laborers abroad were strained into working under staffing agencies or doing a job entirely different from the one stipulated in the contract (Esguerra, 2008).

Esguerra (2008) recommended that the government of countries absorbing Filipino professionals and skilled workers such as the United States should have a broad national policy against illegal and unethical recruiters as well as abuses on foreign immigrant workers.

III. Overseas Employment and the Demand for Education

3.1. Demand for Education

3.1.1. Internal Factors Affecting the Demand for Education

Because of the importance of higher education on individual and national welfare, many studies have identified factors that may influence the demand for education. Since education is an investment in human capital, factors that may increase the return to education will have an impact on the demand for education. In the past, estimation on demand for education has been influenced by domestic factors including employability, domestic economic progress, rate of return, and availability of credits. Additionally, income and relative prices are deemed to be important determinants in the estimated demand equations.

There are several factors and circumstances that affect education demand. Trivial factors include but are not limited to the following: long distances between homes and schools, educational attainment of parents, difficulty and/or failure to pass entrance examinations, and difficulty and/or failure to meet specified grade requirements.

Family characteristics are also deemed to be factors affecting demand for education meaning an individual’s family has the capacity to significantly determine the eventual educational attainment of their children (Borromeo, Castillo, and Lopez, 2007). The study of Biblarz & Raftery (1999) covered how family structures are considered to

be determinants of education. Results of their study revealed that parent's education is positively associated with their children's educational attainment. Moreover, the studies of Lillard and Willis (1994) and Binder and Woodruff (1999) arrived at a result wherein there exists a significant positive relationship between the education of parents and the education attained by their children. Likewise, students whose heads of the family do not belong to the labor force report reduced their educational attainment. These results imply that students will demand education depending on their parents' achievements; status in the society as well as family size.

To further the discussion on family size as a determinant of education demand, the study of Blake (1981) implemented a basic Wisconsin model specifying the influence of parental background on children's education. Results revealed that on the average, the more children a family has, the lower is the quality of each child's education regardless of whether the household is located in a socially, economically, and politically advantageous area. Therefore, students who have more siblings achieve lower levels of education. Educational expenditures decrease because they are devoted to other expenditures such as food, clothing, and shelter for that additional member of the household.

Similarly, the study of Eijck and de Graaf (1995) that utilized a logistic regression with educational attainment as the endogenous variable and the family characteristics as exogenous variables found out that family size has a significant negative effect on schooling. Moreover, they also found out that parental resources play an important role in their children's educational career.

On the other hand, the study of Hauser and Daymont (1977) looked at the financial capability of households as a determinant of education demand. Their study focused on the effect of parental income on educational attainment. Results showed that each dollar of parental income averaged over 1957 to 1960 is positively significant. Moreover, one standard deviation increase in parental income leads to a 2 percent rise in the years of schooling while the elasticity with respect to parental income is 3 percent.

Plug and Vijverberg (2001) confirmed the results of Hauser and Daymont (1977) by utilizing the data from the Wisconsin Longitudinal Study and employing censored regression methodology. Their study associated household income with children's educational attainment. Moreover, the environment in wealthy families is favorable to a child's success in schooling, which will enable him or her to demand higher education. Furthermore, their study also revealed that an extra income would definitely help promote higher educational attainment.

3.1.2. External Factors Affecting the Demand for Education

The analysis on the demand for education has centered on the major internal factors. However, with the process of globalization, enhanced trade in services and the massive migration of workers across boundaries external factors are playing key roles in the determination of the demand for education.

There are two major drivers that enhance the movement of people across boundaries to render temporary service. One is the process of globalization and the second is the economic and demographic asymmetries across countries (Tullao & Cortez, 2006a).

One of the main drawbacks of external migration is the phenomenon of brain drain, which occurs when a country loses talented and skilled labor force and its ability to replenish those who leave the country. In the midst of globalization, as the economy prepares local professionals for global competition, investments in human capital entail some social costs. The increase in the human capital value of professionals from these training and educational expenditures may push many of them to work overseas which may lead to the problem of brain drain (Tullao & Cortez, 2006b).

When the more productive human talents are employed abroad, the less qualified and inexperienced are left domestically. Inefficiencies of these young and inexperienced service providers contribute to increases in labor costs. Albuero & Abella (2002) presented two sides of the social costs of retraining replacement in the Philippines. Their study showed that "if the larger bulk of migrant workers are temporary and has historically been in the lower skill category, it can be argued that social losses arising from their placement abroad are likewise temporary since cyclically these workers eventually return home".

Aside from increasing the labor costs, another implication of brain drain is the increase demand for education. The study of Tullao (1982) traced the impact of international migration on the demand for nursing education in the Philippines. Because of high-expected income differentials between the Philippines and the United States, the possibility of migration increases the expected internal rate return to nursing education, which in turn has enhanced the demand for nursing education in the 1970s and 1980s.

Brain drain can also be considered as a result of an over-expanded educational sector. Brain drain occurs when domestic university graduates seek and find employment abroad where job opportunities can augment further their private returns on higher education. The acquired skills in higher education, which are supposedly be utilized in the domestic economy, are transferred abroad where their returns are reaped. As a consequence of this reverse transfer of technology, the huge investments of government in higher education yield low social returns (Tullao, 1982).

Although possibility of overseas employment can lead towards an over-expansion of higher education, the methods of financing higher education can also influence the excess demand for higher education. Tuition fees are often minimal and the resulting public subsidies per student enrolled in higher education have become sufficiently large that there is little for the private sector to undertake their own complementary higher educational services. The obvious economic solution is to reduce the size of the public subsidy and allow student fees to cover a larger share of the costs

of higher education. Scholarships and educational loans awarded on the basis of family means can still achieve redistributive objectives (Psacharopoulos and Woodhall, 1985).

A number of economists have attempted to deal with the international “brain drain” problem. Scott (1976), Bhagwati and Partington (1976) have proposed a variety of tax-transfer schemes but the welfare implications of labor mobility between nations are unclear because the individual and state objectives may conflict. However, a coordinated international response to address this issue never materialized (Schultz, 1961).

The effects of migration prospects on human capital formation have been the focus of several studies (see Vidal, 1998; Beine et al., 2001; Docquier and Rapoport, 2004), suggesting that such prospects may in fact foster human capital formation and growth in “sending” countries. If the return to education is higher abroad than at home, the possibility of migration increases the expected return to human capital, thereby enhancing domestic enrolment in education. More people, therefore, invest in human capital as a result of increased migration opportunities. This acquisition can contribute dynamism in the educational sector leading to growth and economic performance.

3.2. Impact of Overseas Employment on the Family Expenditures on Education

3.2.1. External Remittance and Expenditures on Education

In tracing the impact of overseas employment on the family expenditures on education, the data on household educational expenditures was used. The data was sourced from the most recent Family Income and Expenditure Survey (FIES) from the National Statistics Office. To observe the family expenditures on education, the data was divided into households with external remittance as a source of income and those households without external remittance income. It is interesting to examine whether there is a significant difference in the educational expenditures of those receiving external remittance income and those without remittance income. Furthermore, it is also interesting to test if the elasticity of education expenditures increases with the amount of external remittance. We will assume in this study that families receiving external income are households with members working overseas.

The functional relationship of the variables influencing the family expenditure share in education is shown in Equation 1

$$EDUC_i = f(DHI_i, REMIT_i, HSIZE_i, SCHL_i, EDUHH_i, AGEHH_i) \quad (1)$$

Where:

$EDUC_i$ is the educational expenditure of household i . This will be measured by the amount of expenditure devoted to education by each household.

DHI_i is domestic household income that consists of earned family income, internal remittance and other internal sources of income. The a-priori expectation is that higher level of family income will encourage families to devote a higher proportion of their income to education since education is both a consumption and investment good. As a form of consumption, education can be treated as a consumer durable whose demand increases with income. As an investment good, families with higher income can finance the cost of education that will enhance the productivity of their members in the long run. Given that private financing of education is prevalent in the country particularly in post-basic education, we expect that families with higher income will devote a significant proportion of their expenditures to education to enhance the family income in the future.

$REMIT_i$ is the remittance income households received from abroad. This has the same a priori expectation as that of DHI_i since both of them are measures of income. They just differ in source.

$HSIZE_i$ is the household size. The size of the family will have a negative impact on the share of education to total family expenditures. Other things being equal, we expect that a smaller family will devote a greater share of their expenditures on education. Larger families tend to spend more on basic necessities like food, clothing, and shelter while education may take a second priority.

$SCHL_i$ is a control variable that captures the number of household members who demand education specifically those members whose age ranges from 7 to 24 years old. Other things being equal, we expect that as the number of family members within this age cohort increases, the family will increase its expenditures on education.

$EDUHH_i$ is highest educational attainment of household head. Various literature have established that the educational attainment of parents do have an influence on the educational attainment of their children. Thus, we expect that family headed by highly educated individual will devote more expenditure on education.

$AGEHH_i$ is the age of household head. There is a positive relationship between the age of the household head and family educational expenditure. As the head of the family matures, we expect that more children in the household will be attending schools. As the head of the family further matures not only will there be more children attending school but they will be advancing in school levels. Since cost of education increases with the level of schooling, we expect that a family would spend more on educational services as the age of the household head increases.

The data utilized was from the 2003 Philippine Family Income and Expenditure Survey (FIES). We will treat the cross-sectional data with Ordinary Least Squares (OLS) regression to analyze the statistical significance of the variables on the household education expenditure. The general model specification is shown in Equation 2

$$EDUC_i = \beta_1 + \beta_2 DHI_i + \beta_3 REMIT_i + \beta_4 HSIZE_i + \beta_5 SCHL_i + \beta_6 EDUHH_i + \beta_7 AGEHH_i + u_i \quad (2)$$

Given the model specification above, we have assumed that the relationship between the exogenous and endogenous variables is linear. However, we suspected otherwise. Therefore, it is appropriate to consider an exponential regression model wherein the model may be nonlinear in the variables but are linear in the parameters by suitably transforming the variables and the functional form of the model into Equation 3

$$\ln EDUC_i = \alpha + \beta_2 \ln DHI_i + \beta_3 \ln REMIT_i + \beta_4 \ln HSIZE_i + \beta_5 \ln SCHL_i + \beta_6 \ln EDUHH_i + \beta_7 \ln AGEHH_i + u_i \quad (3)$$

where $\alpha = \ln \beta_1$ and this model is now linear in the parameters α and β_s , linear in the logarithms of the dependent and independent variables, and can be estimated by OLS regression assuming that the assumptions of the classical linear regression model are fulfilled. As a result, the obtained OLS estimates of the coefficients, which now measures elasticity of $EDUC_i$ with respect to DHI_i , $REMIT_i$, $HSIZE_i$, $SCHL_i$, $EDUHH_i$, and $AGEHH_i$ are best, linear, and unbiased.

The results of the OLS regression are shown in Table 3A below. For the rudiments of arriving at the final model shown in Table 3A, please refer to Appendix 2A.

Table 3A: Ordinary Least Squares Regression Results

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	1.0528	0.0064	0.0000	Number of observations	110,837
$\ln REMIT_i$	0.0285	0.0011	0.0000		
$\ln HSIZE_i$	-0.8770	0.0155	0.0000		
$\ln SCHL_i$	0.7878	0.0091	0.0000	F (5, 27,258)	15,752.31
$\ln EDUHH_i$	0.2066	0.0043	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.3927	0.0166	0.0000	R-squared	0.4613
Constant	-6.5931	0.0865	0.0000	Root MSE	1.2117

Based from the results, domestic household income has a positive impact on educational expenditures. A percentage increase in household income will result to a 1.0528 percent increase in educational expenditures. Notice that the variable representing domestically sourced income is highly statistically significant implying that income is indeed a determinant of educational expenditures. The more income a household receives, there is a higher probability of them sending their children to school, thus increasing educational expenditures. This relationship is further enhanced when the household receives external remittances. If households receive external remittances, the remittance income elasticity of educational expenditures is 0.0285 percent. This implies that as remittance income increases demand for education will likewise increase but the coefficient of elasticity is inelastic. Note that the coefficient of domestic income elasticity of educational expenditures is more elastic than the estimated coefficient of external income elasticity of education expenditures. These results are consistent with the findings of Hauser and Daymont (1977) and Plug and Vijverberg (2001).

To reinforce the results of the regression, the descriptive statistics of the educational expenditures on the national level as well as those who receive and who do not receive external remittance is shown in Table 3B. It can be seen that the average educational expenditures of households who receive external remittance is almost three times higher than those who only receive income from domestic sources. Furthermore, it could also be observed that the share of income devoted to education is also higher in households who receive external remittance than those who do not. Truly, the more income a household receives especially when they receive external income, there is a tendency for them to invest more in the education of their members resulting in higher educational expenditures.

Table 3B: Educational Expenditures and Household Income

Type of Household	Mean Educational Expenditures	Standard Deviation	Mean Share of Educational Expenditures to Household Income	Standard Deviation
All Households	5496.884	16749.96	0.01217	0.0221
Households with External Remittances	10811.11	22631.77	0.0181	0.0280
Households without External Remittances	3992.952	14309.36	0.0105	0.0198

Household size is negatively significant in affecting educational expenditures. For every percentage increase in the size of the family, educational expenditures will decrease by 0.8770 percent, *ceteris paribus*. This result is consistent with that of Blake (1981) and Eijick and de Graaf (1995). According to them, the decrease in the allocation of budget for education as the size of the household expands is due to an increase in the share of non-education expenditures such as food, clothing, and shelter. On the other hand, the control variable for the number of household members who are in school age specifically those with age ranges from 7 to 24 years old is positive and statistically significant. Thus, with a percentage increase in the number of household members in this age cohort, educational expenditures will increase by 0.7878 percent, which is consistent with our *a-priori* expectation.

Shown in Table 3C is the age structure of Philippine households. From the table, we can infer that the country has a young population and that the number belonging to the age 7 to 24 years old, age cohort that demand education, is quite substantial. However, the presence of other age groups in the household such as the infants and the elderly has an offsetting effect on the level of educational expenditures due to their different needs. Therefore, the negative and significant sign of household size as well as the positive and significant sign of the number of household members who demand education is justified.

In terms of the educational attainment of the household head, the regression result shows a positive and statistically significant coefficient. This result is consistent

with the studies of Lillard and Willis (1994) and Binder and Woodruff (1999) that shows significant positive relationship between the education of parents and the education attained by their children. Thus, the higher the educational attainments of parents the more likely will parents want their children to get at least the level of education they have achieved. With higher levels of education being targeted for their children more educational expenditures will be incurred by families headed by someone with higher level of educational attainment.

Table 3C: Philippine Household Age Structure

Age Group	Number of households in the dataset containing members from the age group	Mean number of household members in the age group	Standard Deviation	Number of individuals across the dataset who belongs to the age group
Less than 1 year old	20,199	1.0239	0.1528	20,682
1 to 6 years old	81,639	1.6391	0.7966	133,813
7 to 14 years old	96,206	2.0824	1.0628	200,337
15 to 24 years old	87,054	1.9637	1.0683	170,950
25 years old and above	148,941	2.3677	1.0104	352,648

The impact of the age of household head on educational expenditure is also positive and statistically significant as shown by the regression coefficient. As mentioned earlier, as the head of the family matures, we will expect that more children in the household attending schools. As the head of the family further matures, not only will there be more children attending school, but they will be advancing in school levels. Since cost of education increases with the level of schooling, we will expect that a family would spend more on educational services as the age of the household head increases.

3.2.2. External Remittance and Education Expenditures

3.2.2.1. By Region

We have seen in the previous section the effects of the variables of interest on educational expenditures on the national level. Implementing the OLS regression per region revealed the same direction for all the variables but they just differ in magnitude. For the complete details of each regional regression, please see Appendix 3.

The positive and significant domestic income elasticity of education expenditures is further revealed across all regions of the country as shown in Table 3D. Notice that high coefficients of domestic income elasticity of education expenditure were registered in the National Capital Region (NCR) with 1.44 and Western Visayas with 1.28, which have the most populous urban areas in the country namely Metro Manila and Metro

Cebu. On the other hand, the lowest coefficient, 0.87, was estimated in Central Mindanao.

Positive and significant coefficients of external remittances elasticity of education expenditures at the 1 percent significance level were likewise revealed across all regions of the country as shown in Table 3D. Notice that the regions with high domestic income elasticity of educational expenditure were registered in Southern Mindanao with 0.042 and Central Luzon with 0.040 coefficients. On the other hand, the lowest was estimated in Central Mindanao with 0.015 and 0.010 for the Ilocos region.

As regards the impact of household size on education expenditure, we have previously estimated a negative coefficient of household size elasticity of education expenditure for the entire country. This direction has also been exhibited by all regions of the country with Central Visayas and NCR registering the highest responsiveness of household size on education expenditures with -1.15 and -1.11 coefficients respectively; while Central Mindanao has the lowest elasticity coefficients with -0.64 as shown in Table 3D. All the regional coefficients on the impact of household size on educational expenditures have reinforced the studies of Blake (1981) and Eijick and de Graaf (1995).

Therefore, it can be concluded that the positive and highly significant regional regression coefficients on the effects of the two income variables on the demand for education are consistent with the findings of Hauser and Daymont (1977) and Plug and Vijverberg (2001). Moreover, there are significant differences in the income elasticity of education across the regions as shown by the differences in their magnitude.

Table 3D: Regional Coefficients of Elasticity of Educational Expenditures

Region	Coefficients of Elasticity					
	<i>DHI_i</i>	<i>REMIT_i</i>	<i>HSIZE_i</i>	<i>SCHL_i</i>	<i>EDUHH_i</i>	<i>AGEHH_i</i>
Ilocos	1.0920	0.0104	-0.7275	0.7293	0.1844	0.4513
Cagayan	1.0971	0.0164	-1.1416	0.9433	0.1357	0.6251
Central Luzon	1.2621	0.0401	-0.9688	0.6122	0.2095	0.2348
Bicol	1.0768	0.0217	-0.8456	0.8798	0.1258	0.2312
Western Visayas	1.2805	0.0176	-0.9001	0.7887	0.1204	0.3770
Central Visayas	1.0711	0.0342	-1.1511	0.8639	0.2706	0.3382
Eastern Visayas	1.0312	0.0168	-0.6883	0.8421	0.2471	0.6337
Western Mindanao	0.9551	0.0220	-0.8051	0.8096	0.1901	0.7211
Northern Mindanao	1.1344	0.0254	-0.7789	0.7906	0.1705	0.2905
Southern Mindanao	1.0534	0.0419	-0.6533	0.5992	0.1839	0.2326
Central Mindanao	0.8698	0.0148	-0.6400	0.7386	0.2046	0.4879
NCR	1.4355	0.0366	-1.1127	0.7552	0.2325	0.1258

Note: All coefficients of elasticity are significant at the 1% significance level

The regional coefficients of the age cohort that demand education follow the same positive and significant effect on educational expenditures. Note that Cagayan and Bicol registered the highest elasticity coefficients of 0.94 and 0.88 respectively

while Southern Mindanao registered the lowest elasticity coefficients of 0.60. These results are consistent with that of Blake (1981) and Eijick and de Graaf (1995). Moreover, there are significant differences in the household size elasticity of education across regions as shown by the differences in their magnitude.

The impact of the educational attainment of the household head on education expenditure per region is also shown in Table 3D. Regional coefficients of household head's educational attainment on education expenditures are consistent with the positive coefficient of national household head educational attainment elasticity of education expenditure. Thus, at the national and regional levels the more educated the household head the more the household allocates resources for education expenditure.

As for the age of the household head, we have estimated positive coefficients for the age of household head elasticity of education expenditure at regional levels as shown in Table 3D. Therefore, whether at the national or regional level, as the head of the family matures, the more children in the household will be attending schools. As the head of the family further matures, children attending school will also be advancing in their respective school levels thus increasing the expenditures on education.

3.2.2.2. By Income

We have seen in the previous section the effects of the variables of interest on educational expenditures at the national and regional levels. Implementing the OLS regression per income decile also revealed the same direction for all the variables but the difference came in terms of the magnitude of the coefficients. For the complete details of each income decile regression, please see Appendix 4.

The various coefficients of the elasticity of domestic as well as external household income on education expenditure have been generally positive at the national and regional levels. This positive impact surfaces as well in all income groups as shown in Table 3E. For domestically sourced income, the estimated coefficients are elastic except for deciles 7 and 8. For remittance income, except for deciles 1 and 3, the coefficients are positive but show inelastic remittance income elasticity of education expenditures. However, at higher income brackets the coefficients are higher but they remain inelastic.

Also shown in Table 3E, all the income group coefficients of household size are consistent with the national negative coefficient. On the other hand, the control variable accounting for the household members demanding for education is also positive.

The positive impact of the educational level of the household head on the household education expenditure has been shown in the national level and regional level. This is again reinforced at various income groups as shown in Table 3E. This implies that if we want to enhance the level of household education expenditure, we have to increase the educational level of the household head.

The income groups generally exhibit positive coefficients for the elasticity of household head age on household education expenditure as seen in Table 3E. The overall direction of the coefficients is consistent with coefficient estimated for households nationwide and majority coefficients at the regional level.

Table 3E: Coefficients of Elasticity of Educational Elasticity by Income Decile

National Income Decile	Coefficients of Elasticity					
	<i>DHI_i</i>	<i>REMIT_i</i>	<i>HSIZE_i</i>	<i>SCHL_i</i>	<i>EDUHH_i</i>	<i>AGEHH_i</i>
1	1.3322	-0.0077*	-0.4633	0.6488	0.1839	0.1693
2	1.0202	0.0196	-0.5750	0.6710	0.1865	0.3419
3	1.1107	0.0061*	-0.7696	0.8157	0.2226	0.0653*
4	1.0596	0.0103	-0.7560	0.7065	0.1711	0.2991
5	1.2619	0.0298	-0.8195	0.7560	0.2124	0.6571
6	1.0477	0.0117	-0.7783	0.7842	0.1971	0.4958
7	0.9138	0.0218	-0.9628	0.7793	0.1678	0.8352
8	1.0299	0.0366	-1.0170	0.9001	0.1909	0.4313
9	1.2587	0.0461	-1.3431	0.8235	0.1788	0.4821
10	0.8719	0.0231	-1.1038	0.9161	0.2144	0.3465

* Coefficients of elasticity are not significant at the 1%, 5%, and 10% significance level

Appendix 2B presents the national regression results showing the impact of the variables of interest on food expenditures. Comparing its results with the national regression results presented in Table 3A and Appendix 2A specifically the impacts of the income variables to food and educational expenditures respectively, it can be seen that the coefficient of income elasticity with respect to educational expenditures are higher compared with the income elasticity of food expenditures which are generally lower than 1 or inelastic. Thus, an increase in income will have a greater impact on the demand for education than on the demand for food. This implies that education is a normal good.

3.3. Impact of Overseas Employment on Various Programs in Higher Education

In the previous section, we have presented the coefficients of the remittance income elasticity of education expenditures using an overall demand for education. The impact of remittance income on educational expenditure is positive as shown by the coefficients in the national, regional, and income group regressions. Although these coefficients are positive and statistically significant they remain consistently inelastic. Thus, a percentage increase in remittance income nationally, regionally and at various income deciles will have less than a percent increase in educational expenditures.

These estimated coefficients also show the impact of remittance income on the overall demand for education at the household level. What we want to probe further is whether remittance income or overseas employment has a bearing on the demand for specific educational programs. Since external migration can be seen as income-enhancing activity through overseas employment, people may want to prepare for this

by pursuing educational programs that will enhance their employability and productivity in the global market.

In this light we have devised another set of regression equations to estimate the impact of remittance income on demand for specific programs in higher education.

3.3.1. General Equation

In tracing the impact of overseas employment on the demand for higher education, a general demand function for higher education is shown in Equation 4.

$$DHE_t = f(PCR GDP_t, ARREMITP_t, CPISERV_t, EM_t) \quad (4)$$

Where:

DHE_t is the demand for higher education for all degree programs at year t . This is measured as the absolute number of enrollment in the college level. Enrollment is a good approximation of educational demand since there is no supply constraint in the provision of higher education in the country given that almost 80 percent of higher education institutions in the country is run by the private sector.

$PCR GDP_t$ is the per capita gross domestic product of the Philippines measured in real terms at year t . In this analysis of time series data, our best approximation of income is the per capita real gross domestic product for a particular year. Since education is deemed to be a normal good, it is expected that the relationship between income and demand for higher education will be positive.

$ARREMITP_t$ is the average real remittances at year t expressed in Philippine Peso.

$CPISERV_t$ is the consumer price index for services at year t . Since the education sector is under the services sector, the CPI for services could measure the relative price of education. A negative relationship between the price of education and demand for education is expected. Although a price index for each degree program is the most appropriate measure for prices, there is very little data availability. Therefore, it is imperative to use the national price index for services. As a consequence, it is now assumed that Filipinos consider college education as a homogenous good regardless of degree program as far as prices are concerned.

EM_t is the volume of employed workers who possess college degrees at year t . Since employment can be considered as part of the internal factors affecting demand for education, positive a-priori relationship between employment opportunities and demand for education.

The annual time series data utilized was sourced from the Commission on Higher Education (CHED) and National Statistics Office (NSO). With this data, an Ordinary Least Squares (OLS) regression is appropriate to use in order to analyze the relative impact of the various independent variables on the demand for education. However,

there is a constraint because the available data provided by the institutions mentioned were only from years 1992 to 2005 comprising only of 14 data points. Consequently, analysis will be limited due to the insufficiency of observations.

Since OLS will not anymore be applicable due to data constraint as well as the fact that the dataset needed to trace the impact of overseas employment on the demand for higher education is not available in the latest FIES dataset, a new methodology will be utilized.

3.3.2. Equations per Degree Programs (Panel Data Econometrics)

In order to resolve the problem of observation insufficiency, a panel data econometrics will be implemented wherein the following degree programs will be considered namely (1) Accountancy, (2) Business and Related, (3) Education Science and Teacher Training, (4) Engineering and Technology, and (5) Nursing. Also, the residual of the degrees considered will be included as (6) Other Degrees. The utilization of panel data will be advantageous because the unobserved heterogeneity and aggregate bias of each degree program will be accounted for (Gujarati, 2003).

The Least Squares Dummy Variables (LSDV) Fixed Effects Linear Panel Model with intercept varying across degree program will be estimated with the model specification shown below. Note that an exponential regression model was considered as shown in Equation 5. Shown in Appendix 5 are the rudiments of the panel data regression.

$$\ln DHE_{it} = \alpha + \sum_{i=1}^5 \gamma_i D_{it} + \beta_1 \ln PCR GDP_{it} + \beta_2 \ln PCRREMIT_{it} + \beta_3 \ln CPISERV_{it} + \beta_4 \ln EM_{it} + u_{it} \quad (5)$$

Where:

$D_{it} = 1$ if the college degree program is an element i for all $t = 1992, 1993, \dots, 2005$ and $D_{it} = 0$ if otherwise. Note that in order to avoid the dummy variable trap, a base degree must be chosen and it is Accountancy.

DHE_{it} is the demand for higher education for the i^{th} degree programs at year t . This is measured as the absolute number of enrollment in the college level degree.

$PCR GDP_{it}$ is the per capita gross domestic product of the Philippines measured in real terms at year t . It is expected that the relationship between income and demand for higher education will be positive because as income increases, individuals can afford education, specifically college education. Note that all of the degree programs will assume the values of this variable at year t .

$ARREMITP_{it}$ is the average real remittances expressed in Philippine Peso. It is expected that the relationship between average real remittances and the demand for higher education will be positive because this is a source of income from abroad, which

could be devoted for education, specifically at the college level. Note that all of the degree programs will assume the values of this variable at year t .

$CPISERV_{it}$ is the consumer price index for services. A negative relationship between the price of education and demand for education is expected because as the Law of Demand states, the more expensive education is; there will be lesser the demand for it. Note that all of the degree programs will assume the values of this variable at year t .

EM_{it} is the volume of employed workers who possess college degree i at year t . Since employment can be considered as part of the internal factors affecting demand for education because as the labor market demands graduates from such college degree program, prospective enrollees will enter a program demanded by the labor market, positive a-priori relationship between employment opportunities and demand for education.

Shown in Table 3F are the results for the panel data regression. Note that the Cross-sectional time series Feasible Generalized Least Squares (FGLS) regression methodology was used in estimating the panel model in order to eliminate heteroscedasticity and autocorrelation present in the model.

From the regression results, it can be seen that the income variable as measured by per capita real gross domestic product of the Philippines has a positive and significant effect on enrollment. Holding all other factors constant, for every percentage increase in the $PCRGDP$, there will be 3.5 percent increase in the demand for higher education across all degrees taken into consideration. The economic performance of the country has an elastic impact on the demand for higher education. This result is consistent with the regression shown in Table 3A with the variable household income as well as with the study of Hauser and Daymont (1977) and Plug and Vijverberg (2001) that the higher the income is, the higher the demand for higher education is.

Average remittances, on the other hand, have also a positive and significant effect on enrollment. However, it is inelastic with respect to enrollment. Holding all other factors constant, for every percentage increase in $ARREMITP$, there will be 0.12 percent increase in demand for higher education across all degrees taken into consideration. Remittances are form of income. Thus, this result is consistent with the regression shown in Table 3A with the variable remittances as well as the study of Hauser and Daymont (1977) and Plug and Vijverberg (2001) that shows that higher the income has an effect on the demand for higher education.

Price, represented by the consumer price index for services, has a negative and significant effect on enrollment. Holding other factors constant, this result is consistent with the law of demand wherein the higher the price of higher education is, the lower is the purchasing power of individuals; therefore, the lower the demand for higher education is. Price is inelastic with respect to demand for higher education.

Employment has a negative and significant impact on the demand for higher education, which is inconsistent with the a-priori expectations. Although the result is significant, it is not logical. A rational individual will choose and demand a degree program which will enable that individual to recover the cost of education in the future through the job opportunities waiting after finishing the college degree program.

Table 3F: LSDV Fixed Effects Linear Panel Regression Results

Cross-sectional time-series FGLS regression					
Variables ($\ln Y_{it} = \ln DHE_{it}$)	Estimated Coefficient	Standard Error	$P > t$		
$\ln PCR GDP_{it}$	3.5052	0.1998	0.000	Number of observations	84
$\ln ARREMITP_{it}$	0.1156	0.0252	0.000		
$\ln CPISERV_{it}$	-0.4424	0.0443	0.000	Number of Groups	6
$\ln EM_{it}$	-0.0636	0.0299	0.033	Time Periods	14
Business and Related Dummy	1.4621	0.0550	0.000	Wald chi2(9)	14,368.37
Education Science and Teacher Training Dummy	1.2285	0.1043	0.000	Prob > chi2	0.0000
Engineering and Technology Dummy	1.0647	0.0858	0.000	Estimated Covariances	21
Nursing Dummy	-0.3376	0.2276	0.138	Estimated autocorrelations	0
Other Degrees Dummy	2.2034	0.1293	0.000	Estimated coefficients	10
constant	5.2298	0.3818	0.000	Log likelihood	78.24818

The interpretations of result mentioned above hold true for all degree programs since the model is a fixed effects model with intercept varying across degrees. Notice that the nursing dummy is insignificant. This implies that nursing has the same regression function with that of accountancy while all other degrees have regression functions with varying intercept.

Note that only the problem of heteroscedasticity and autocorrelation were resolved in the regression method used. Testing for the prevalence of severe serial correlation of the model using the Variance Inflation Factor (VIF), it revealed that the employment variable has the highest VIF implying that it is the main culprit of the existence of severe serial correlation. In order to remedy the problem, Gujarati (2003) suggested the elimination of variables. Removing the multicollinear variable from the general model will yield the result shown in Table 3G. However, the effect of the employment variable could not just be excluded, so another regression was done to account for and determine the relation of employment on the demand for higher education. The results of the tests for violation of the assumptions of the classical linear regression model are shown in Appendix 5.

The estimated coefficients of *PCR GDP*, *ARREMITP*, and *CPISERV* are consistent with the initial panel regression. Moreover, the nursing dummy is now

significant at the 10% which implies that nursing has a different regression function with accountancy. This is more acceptable because it is deemed that all degrees have their respective inherent characteristics such as program cost and program duration, which greatly affects the demand for higher education. Furthermore, the regression of the employment variable reveals that employment is now positively and significantly related with demand for education. Therefore, an individual will choose and demand a degree program which will enable him or her to recover the cost of education in the future through the job opportunities waiting. For instance, since there is still a high demand for nursing graduates for the next years to come, it could be deemed that the demand for nursing degree will increase because there is an assertion that the nursing graduates will be absorbed by the labor market.

Table 3G: LSDV Fixed Effects Linear Panel Regression Results

Cross-sectional time-series FGLS regression (Without Employment)

Variables ($\ln Y_{it} = \ln DHE_{it}$)	Estimated Coefficient	Standard Error	$P > t$	Number of observations	84
$\ln PCR GDP_{it}$	3.3381	0.2029	0.000	Number of Groups	6
$\ln ARREMITP_{it}$	0.0901	0.0248	0.000		
$\ln CPISERV_{it}$	-0.4082	0.0456	0.000	Time Periods	14
Business and Related Dummy	1.3705	0.0320	0.000	Wald chi2(8)	12994.20
Education Science and Teacher Training Dummy	1.0477	0.0611	0.000	Prob > chi2	0.0000
Engineering and Technology Dummy	0.9277	0.0515	0.000	Estimated Covariances	21
Nursing Dummy	-0.3895	0.2232	0.081	Estimated autocorrelations	0
Other Degrees Dummy	1.9824	0.0789	0.000	Estimated coefficients	9
constant	4.8401	0.3479	0.000	Log likelihood	77.59885

Cross-sectional time-series FGLS regression (Employment alone)

Variables ($\ln Y_{it} = \ln DHE_{it}$)	Estimated Coefficient	Standard Error	$P > t$	Number of observations	84
$\ln EM_{it}$	0.3913	0.0287	0.000	Number of Groups	6
				Time Periods	14
				Wald chi2(8)	10935.33
Business and Related Dummy	0.8072	0.0472	0.000	Prob > chi2	0.0000
Education Science and Teacher Training Dummy	-0.0642	0.1064	0.546	Estimated Covariances	21
Engineering and Technology Dummy	0.0857	0.0678	0.206	Estimated autocorrelations	0
Nursing Dummy	-0.7089	0.2082	0.001	Estimated coefficients	7
Other Degrees Dummy	0.6234	0.1369	0.000	Log likelihood	57.21127
constant	7.3331	0.3159	0.000		

In line with the differential intercepts per degree program namely accountancy, business and related, education science and teacher training, engineering and technology, and nursing, it could be noticed across all regressions that business and related courses has the highest intercept while nursing has the lowest intercept. This implies that for a given level of exogenous variable, business and related courses have the highest demand.

IV. Implications on the Impact of Overseas Employment on Education

4.1. Human Resource Development

From the perspective of human resources development there are different levels of training towards the formation of human capital. Basic education is geared to provide the students with the necessary formative skills in communication, numeracy and literacy. Tertiary education, on the other hand, is meant for the provision of skills for livelihood and continuing learning. While vocational and technical education is intended for skills training institutions of higher education are geared towards professional training, higher levels of inquiry and provision of socially beneficial outcomes (Tullao, MTDPE, 2005). The triad of human resource formation becomes more complicated as workers are not only meant for domestic employment but for overseas employment. The question of orientation, financing, relevance, and equity becomes more intricate.

The impact of overseas employment on the demand for education has implication on the human resource development of the country in terms of the readiness of higher education institutions (HEIs) as well as the readiness of graduates of these educational institutions.

A number of studies have been commissioned to assess higher education in the Philippines. These studies have focused on issues regarding efficiency, quality and effectiveness, and equity in access in higher education institutions. Bernardo (2003) summarized the efficiency issues as: (1) the lack of a rational system for establishing HEIs, (2) poor efficiencies of size, (3) poor student flows, (4) the lack of articulation between performance and budgets, and (5) the low external efficiency of the HE system (Clemena and Tullao, 2005).

Weaknesses have been identified in terms of inadequate faculty credentials, impractical and outdated curricular offerings, weak accreditation system, poor graduates' performance in licensure examinations and inadequate financing.

Given these weaknesses of HEIs in the Philippines, the ability of the country to continue supplying manpower in various parts of the world is at risk. Unless these major problems on the quality of academic programs as well as academic inputs are addressed the Philippines may not be able to supply the world with the qualified manpower coming from HEIs with inadequate human and physical resources to

produce graduates that are competitive in the global market that is increasing leaning towards knowledge-based industries.

Readiness for global labor market can also be interpreted to mean the ability of Filipinos to work abroad and compete with others who have comparable skills and competence (Tullao, 1999). To determine such readiness, a number of areas have to be examined including the quality of curricular programs and the licensing requirements of selected professions, continuing professional education, and the absorption of professionals.

On the absorption of professionals, according to Professional Regulation Commission (PRC), there are about 1.85 million registered professionals in the country as of 1998. Moreover, for the years 2004 and 2005, an additional of 76,200 and 94,830 professionals were added to the stock of Filipino professionals. Furthermore, from 1992 to 1998, an average of 57,208 professional, technical, and related workers was reportedly deployed for overseas employment. In addition, from 1992 to 2004, there had been an increasing trend in the deployment of professionals abroad as seen in Table 4A that in 2002, almost 37 percent of the deployed OFWs was professionals and technical workers (POEA, 2006). However, in recent years, the percentage of professional and technical workers has declined from 22.5 in 2005 down to 11.8 in 2006.

The inadequacies of higher education in the Philippines notwithstanding, it will appear that the comparability of our curricular offerings with international standards, the licensing examinations, as well as the continuing professional education programs allow us to select the best among our graduates. Moreover, the fact that almost a third of the deployed overseas workers are professionals speaks well of the academic training they have received in their country (Tullao, 1999). We can safely say then, in general, that the graduates of our educational sector can compete with foreign professionals here and abroad. There is still, however, much room for improvement.

**Table 4A: Deployment of Newly Hired Professional and Technical OFWs
1992 to 2002**

Year	1992	1993	1994	1995	1996	1997	1998
Professional and Technical Workers	72,881	65,277	74,066	43,901	36,848	51,656	55,823
Total Deployed Workers	260,592	256,227	259,011	214,188	206,047	221,403	219,724
% of Total	27.97	25.48	28.60	20.50	17.88	23.33	25.41

Year	1999	2000	2001	2002	2003	2004	2005	2006
Professional and Technical Workers	62,367	78,685	97,453	99,688	75,272	93,006	63,940	35,807
Total Deployed Workers	237,414	240,620	255,601	274,702	223,422	280,475	284,285	302,672
% of Total	26.27	32.70	38.13	36.29	33.69	33.16	22.49	11.83

Source: Philippine Overseas Employment Administration

4.2. Globalization of Trade in Educational Services

Given the popularity and acceptance of our professionals and graduates in the global labor market as shown in the increasing trend of outflows of skilled and

professional workers, one of the implications of overseas employment is the possibility of liberalization of trade in educational services in the country.

We can exploit the potentials of the Philippines as a regional base for the provision of educational services. There are two implications for this. One is the willingness of various stakeholders in the education sector to open the country to more liberal trading environment in educational services under the four modes of supply. The second implication is the requirements of such liberalization and the limitations of the country in addressing the liberalization of trade in educational services at various modes of supply.

The competitiveness of higher education sector can be analyzed using the GATS four modes of supply namely: (1) cross border transactions; (2) consumption abroad; (3) commercial presence; (4) movement of natural persons.

Cross border transactions involve businesses that are conducted across territorial boundaries. In education, this is possible through distance education and e-learning schemes. Educational materials could be downloaded and examinations could be conducted on-line while the student stays in the home country.

If the country will exploit opportunities under cross border transactions in higher education it should minimize the restrictions under this mode of supply including distance learning and e-learning because it can address the issue of access and cost of education in higher education as well as technical education. In addition, there is a need to develop the information communication technology (ICT) infrastructure and lower the cost of telecommunication to enhance the use of cross border transactions in education. However, there is a need to strengthen the standards in the provision of educational services. The role of domestic regulation is to make sure that quality education services is rendered by service providers for the protection of students and public interest.

Under consumption abroad the supply of service involves the movement of persons to consume the educational services in the territory of another country. Examples include Filipinos studying in foreign universities and foreigners studying in the Philippine HEIs.

The Philippines can be promoted as a hub for learning English as a second language in the Asia-Pacific region. The country has available English teachers operating in an environment where English is extensively utilized, and the country has a competitive price for this educational service. The country could also be promoted with an educational tourism program. The country can also be promoted as a center for training health professionals particularly nurses and caregivers. For these to become successful programs, there is a need to minimize restrictions and requirements in granting student VISAs for short-term courses in the Philippines.

Commercial presence as a mode of supply happens through the establishment of a business in the territory of another country through various forms. In the educational services sector, considering that there is a constitutional limitation, commercial presence is possible through twinning, franchising, establishment of branches, and other forms of conducting the service.

If ever foreign educational institutions are allowed to establish commercial presence in the country, they should be subjected to the same rules governing the provision of private educational services done by the private sector. Moreover, to protect the consuming public of educational services, the Philippines should have a well-developed domestic regulatory framework on foreign service-providers to ensure the standards and quality of service.

The movement of natural persons involves the movement of professionals and highly skilled workers from one territory to another country to conduct service to another. This is possible through visiting professors, academic researchers, scientists, and experts.

Although the egress of Filipino professionals cannot be controlled, the country should not, as a matter of policy, encourage this mode of supply in the educational sector. In fact it should be discouraged because professionals who are leaving are very much needed. The sustainability of the country to supply the necessary manpower globally will depend on the quality of highly trained professors and teachers in the educational sector (Tullao & Cortez, 2006b).

With close to 1,500 higher educational institutions (HEIs) in the country, there is a wide-ranging spectrum of colleges and universities in terms of size, program offerings, and more importantly in the level of quality of their educational inputs, processes, and outputs. High quality educational inputs, both human and physical, are needed to produce excellent instruction, outstanding research, and relevant service in higher education. For the country to reap the benefits of liberalization in educational services it has to improve the quality of teachers and invest heavily in educational infrastructure including ICT.

Moreover, the need for a regulatory framework becomes more paramount as international trade in education services increases. Among others, the framework deals on policy options involving licensing, regulation and monitoring of education and training providers. Such framework must be crafted to ensure that national interests are met and interests of the different stakeholders especially the students are amply protected.

With ever increasing cross border education brought about by legal rules and agreements that bind contracting parties, urgent attention must be given to the question of quality assurance and accreditation of educational service providers. In order to establish uniformity and maintain quality in higher education provision, there will be a need to set accreditation criteria and quality assurance mechanisms that are mutually acceptable to other countries.

4.3. Redirection of Academic Thrusts in Higher Education

As shown from the coefficients of our regression equations, households with OFWs tend to spend more in education than families without receiving external remittances at the same level of income. This means from the perspective of the culture of migration that families tend to invest in education as a way of preparing their family members to migrate subsequently.

Given the politics of education in the country, this has implication on financing education. With close to 1500 institutions of higher learning, there will be a pressure to establish and expand programs that will cater to the needs of the labor market. The private sector in the field of education has been very responsive to the changes in the external labor market. Notice the increase in the nursing programs and computer related programs, the stress on the English language, proliferation of skills program on care giving, legal and medical transcription.

Related to this, the mission of HEI is further altered towards the external demand and not for domestic employment. Although call centers are domestically employed they are meant for the foreign market. This has impact of globalization of services that may not involve actual movement of human resources outside the country,

An interesting implication is on financing higher education. It can be argued that since the returns to tertiary education from external employment accrue to the individual, the individuals should shoulder financing the cost of education. This is being followed in more than 1,400 institutions. However, in the spirit of equity and political expediency, the politics of higher education will put an increasing pressure for the expansion of programs in state universities and colleges (SUCs) particularly geared towards external employment. This has implications on the basic education and the roles of SUCs. As more funds are reallocated towards public higher education, funds for basic education may be substantially reduced. And given an increasing school age population, the quality and access to basic education is imperiled with such reallocation.

This will also have a long-term bearing on the state of higher education in the Philippines. If basic education is weak because of low quality, it will produce ill prepared graduates for vocational training and higher education. The ability of these educational institutions to maintain the competitive edge of Filipino workers is thus threatened in the future since the necessary ingredients for quality graduates and quality employees are not present.

Moreover, the disorientation of the HEIs towards instruction for employment rather than research and graduate education and socially relevant programs may further undermine the future productivity of Filipino workers in the global market. For example, future teachers in basic education, vocational education and higher education may not be available and qualified to provide services in these institutions because of limitations in graduate programs.

Under a globalized environment, the relevance of programs in higher education institutions should not only answer the human resource requirements of the various sectors of the economy but also the requirements of the external environment. In this light, instructional programs must be flexible and responsive to the expanding and changing needs of the internal and external labor markets. However, specific skills training aimed for employability should be reviewed in the context of the dynamic changes in knowledge on the one hand, and the manpower requirements within and outside the country, on the other hand. What is needed is the provision of an educational experience that will make graduates trainable in the workplace and adjust to the rapid changes in the labor market (Tullao and Cortez, 2005).

From the human capital perspective, the possibility of overseas employment as well as the high compensation to such employment opportunities may increase the rate of return to higher education. However, such enhanced returns may not reflect the human resource requirements of the country. Thus, greater demand for education may not be consistent with the human resource needs of a developing economy like the Philippines. Worse, even if enhanced demand for higher education programs does reflect the manpower requirements of the domestic economy, graduates from these expanded academic programs may not be attracted to work in the domestic economy and local employment but may seek the overseas market.

For example, the huge demand for nursing education in the Philippines is meant to answer the growing needs for nursing services in developed countries instead of responding to the needs of nurses in the rural areas in the country. From the human resource development perspective, the enhanced demand for education in the country given the high probability of migration may be counter productive since it may not respond to the human resource needs of the country.

4.4. Threat to Sectors Experiencing Heavy Migration of Manpower

Under a globalized setting and increasing liberalization of trade in services, the highly trained individuals from developing countries may easily move to sectors where there are manpower deficiencies in developed countries, while the inexperienced and unskilled ones are left behind in the sending countries. Because of the huge demand for nursing globally, many of qualified and well-trained nurses from developing countries have migrated to developed countries. Aside from increasing the training costs of inexperienced nurses, this massive outflow of nurses can threaten the viability and productivity of the health care sector.

For example, the health care sector in the Philippines may face an impending crisis in the near future as a consequence of heavy migration of health professionals particularly nurses. The massive outflow of nurses has also created a resource reallocation effect by attracting doctors and other non-nursing health professionals to go back to school to study nursing and explore the opportunities of working abroad. The following factors may contribute to the realization of the crisis: (1) loss of better and

qualified nurses to hospitals abroad; (2) local hospitals are left with inexperienced nurses; (3) local hospitals are losing medical doctors because of shifting profession and the decline in medical enrollment (Tullao, 2007a).

Because of the intensity of the demand, even nursing instructors and qualified teachers are attracted to migrate. This may even have severe implications on the quality of health service in the country. As the better nurses migrate, the quality of health services in the country may suffer. In addition, the ability of the country to produce competent nurses is likewise threatened because even clinical instructors are moving out and more and more medical practitioners are transferring to the nursing profession. Although the educational sector may be responsive to the needs of the external market, it may not be relevant to the domestic needs as the health care sector is threatened.

On the other hand, there are social costs in the exodus of graduates of HEIs to seek employment overseas. The social costs of educating the manpower needs of the rest of the world have to be quantified. These are enormous considering that public funds were used to educate the brightest students and their exit may entail a drain on the country's human resources.

In the light of the massive outflows of educated manpower, these flows have implications on the higher education sector as well on other sectors. For example, the migration of nurses is threatening not only nursing education in the country but also the health services. Since nurses could not be prevented from seeking employment overseas, the sectors that carry the burden should be compensated adequately to arrest the deterioration of nursing education as well as health services in the country.

4.5. Long Run Loss as the Country Losses its Competitive Edge

One of the main drawbacks of external migration is the phenomenon of brain drain. Brain drain occurs when a country loses its talented and skilled labor force and its ability to replenish those who leave the country is threatened. In a globalized setting, as the economy prepares local professionals for global competition, investments in human capital entail some social costs. The increase in the human capital value of professionals from these training and educational expenditures may push many of them to work overseas which may lead to the problem of brain drain (Tullao & Cortez 2006).

As more employment opportunities abroad open up, many local academics will opt to migrate. The "brain drain" will certainly be harmful to the economy as *other countries will reap the benefits* of the education and training provided by the Philippine education system. Training their replacements will entail additional expenses, with *no assurance* that these *replacements will remain* in the country.

Aside from the real loss of manpower due to brain drain, the loss of the country's comparative advantage can be viewed from a financial perspective. In a paper (Tullao, 2007b) the remittances sent by workers overseas may cause the appreciation of the real exchange rate by increasing the price of non-tradable goods relative to tradable

goods. This appreciation of the real exchange has resource allocation effect by attracting resources to the non-tradable sector away from the tradable or export and import-competing industries.

One way of addressing this loss in comparative advantage is to channel the remittance income towards the production of non-tradable goods, which can stabilize the relative prices. This price stability will not have a huge resource allocation effect.

V. Conclusion

The overall objective of this paper is to explore the extent to which temporary labor migration affect the demand for education. As a consequence of this relationship, there is a need to evaluate its impact on the human resource development of the country.

The paper has documented the extent and magnitude of temporary labor migration in the Philippines. It is not only significant but it is increasing over time. The Overseas Filipino Workers (OFWs) are in different places around the globe taking a variety of work in various sectors and industries. It was also observed that there is an increasing trend towards the deployment of professionals and highly skilled workers seeking external employment. As a result the average level of educational attainment of OFWs is likewise increasing.

Based on household data, we have empirically verified that families receiving external remittances, an index used in this study for families with members working abroad, have higher levels of income, and have higher levels of education expenditures compared with households without external remittance income. On the positive side, it can be inferred that overseas employment has increased family expenditures that enhanced human capital. There are two main reasons for this trend. The first reason is the income effect that increases the consumption possibilities of a family. As the income of families with remittances income increases, they will also increase their expenditures on normal and superior goods and services including education. The second reason can be attributed to the effect of the culture of migration. Because of the success of their family members in global employment, the other members of the family particularly the young ones may also want to seek external employment. Since in the global labor market, the preferred and highly paid workers are the more educated than the less educated ones, there is a tendency for families to invest in education as a means of increasing the chances of their family members to seek overseas employment.

Based on the results of the study, family income has a positive impact on educational expenditures. As the income of the household increases, there is a greater percentage increase in educational expenditures. What is interesting is that those families receiving external remittances have shown greater elasticity of demand for education compared with families without remittance income. Thus, if the income elasticity of educational expenditures is elastic it becomes more elastic for families receiving external remittance.

We have also shown the regional coefficients of remittance income elasticity of education expenditure. Again these regional coefficients are consistent with the positive remittance income elasticity of education expenditure estimated for all households nationwide.

The coefficients of remittance income elasticity of education expenditure estimated for various income groups are consistent with the national positive coefficient except for income decile1. This is possible because at a very low level of income households tend to devote more on expenditures for basic necessities. Thus, at the national, regional and income group levels, remittance income has a positive impact on household education expenditure.

In tracing the impact of overseas employment on the demand for higher education, a demand function for higher education programs was estimated. The estimated regression revealed that per capita real gross domestic product, consumer price index for services, and the level of average real remittances have significant effects on the enrollment of various degree programs including accountancy, business and related, education science and teacher training, engineering and technology, and other degrees. Indeed, the possibility of external migration as specified in this equation by the level of average real remittances has a positive and statistically significant impact on the enrollment of the leading academic programs.

The strong relationship between overseas employment and the demand for education has major implications on the human resource development of the country, globalization of trade in educational services, redirection of the thrust in higher education, threat to sectors with heavy migration of manpower, and long term loss to the economy.

In terms of human resource development, the key issue is the readiness of our HEIs and graduates to respond to global demand. Given the weaknesses of the system of higher education in the Philippines, HEIs may not have the capacity to prepare an increasing number of students seeking enrollment and thus dampen their chances of getting high paying jobs in the overseas labor market. Thus, the ability of the country to continue supplying manpower in various parts of the world is at risk unless the major problems on the quality of academic programs as well as academic inputs are addressed.

The move towards the liberalization of educational services stems from the preference of our professionals and graduates in the global labor market. The liberalization of trade in educational services can make the Philippines a regional base for the provision of some educational services. However, any move towards opening the education sector to foreign players will depend on the willingness of existing players, the requirements for liberalization and the limitations of the educational sector.

With the attractiveness of overseas employment, the redirection of the thrust of higher education may lead to the proliferation of training programs by private and public institutions that cater to external market, giving less importance to socially relevant academic courses and activities, neglect of basic education and a long run threat to the entire educational sector. The realignment in the thrusts of HEIs towards instruction for external employment rather than research and graduate education and socially relevant programs may further undermine the future productivity of Filipino workers in the global market.

Massive outflows of workers can undermine the viability of sectors experiencing a hemorrhage of manpower. As the highly trained individuals seek overseas employment, the ones left behind are the inexperienced and unskilled ones. Because of the huge demand for nursing globally, many of qualified and well-trained nurses from developing countries have migrated to developed countries. Aside from increasing the training costs of inexperienced nurses, this massive outflow of nurses can threaten the viability and productivity of the health care sector.

As more employment opportunities abroad open up, many local and highly educated professionals may opt to migrate. The “brain drain” will certainly be harmful to the economy as *other countries* will *reap the benefits* of the education and training provided by the Philippine education system. Training their replacements will entail additional expenses, with *no assurance* that these *replacements* will *remain* in the country.

Aside from the real loss of manpower due to brain drain, the loss of the country's comparative advantage can be viewed from a financial perspective. In a paper by Tullao (2007b), the remittances sent by workers overseas may cause the appreciation of the real exchange rate by increasing the price of non-tradable goods relative to tradable goods. This appreciation of the real exchange has resource allocation effect by attracting resources to the non-tradable sector away from the tradable or export and import-competing industries.

What can be done?

- 1) There is a need to further improve the management of temporary migration. Although the Philippines has some of the best practices in the management of labor migration in terms of deployment and protection of workers, what is lacking is the mechanisms of addressing the potential impact of temporary labor migration on education and other sectors in the long-run.
- 2) There is a need to address the negative consequences of labor migration on the impact on human resource development. There is a need to study the feasibility, efficiency and equity of taxing migration flows particularly on individuals that are highly skilled and highly educated. This revenue can be redirected to fund the negative externalities and negative impacts of temporary labor migration.

Specifically, it can be directed towards the improvement of education and the industries that were displaced as a result of temporary worker emigration

- 3) A challenge to the management of temporary labor migration is the redirection of remittance income towards income and employment generation so it will not encourage external migration and arrest the negative consequence attached to it.
- 4) If the government cannot control migration flows and the propensity of people to seek external employment, there should be more investments in education and health and other human capital enhancing expenditures to increase the competitiveness of our workers in the global labor market.

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**Appendix 1A: Deployment of Land Based OFWs by Specific Country Destination
from 1998 to 2006 (New Hires and Rehires)**

MIDDLE EAST	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total*	279,767	287,076	283,291	297,533	306,939	285,564	352,314	394,419	462,545
Saudi Arabia	193,698	198,556	184,724	190,732	193,157	169,011	188,107	194,350	223,459
United Arab Emirates	35,485	39,633	43,045	44,631	50,796	49,164	68,386	82,039	99,212
Kuwait	17,372	17,628	21,490	21,956	25,894	26,225	36,591	40,306	47,917
Qatar	10,734	7,950	8,679	10,769	11,516	14,344	21,360	31,421	45,795
Bahrain	5,180	5,592	5,498	5,861	6,034	6,406	8,257	9,968	11,736
Israel	2,022	3,488	4,429	5,562	5,049	5,094	5,639	5,121	5,053
Libya	7,084	5,937	5,962	5,489	6,114	5,083	5,728	5,328	5,165
Oman	5,199	5,089	4,739	4,512	3,303	3,652	4,279	5,308	7,071
Lebanon	1,342	1,674	2,783	3,350	3,046	2,786	7,795	14,970	9,596
Iraq	10	23	42	86	50	1,490	3,252	-	-
Jordan	551	456	541	560	701	812	1,166	3,844	5,720
Yemen	591	582	589	1,140	553	629	651	681	792
Egypt	358	334	487	539	421	490	385	257	302
Iran	18	24	132	641	112	240	3,252	-	-
Syria	99	109	151	1,705	193	138	142	139	108
Unspecified	24	1	-	-	-	-	-	-	-

ASIA	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total*	307,261	299,521	292,067	285,051	292,077	255,287	266,609	259,209	222,940
Afghanistan	-	16	1	-	2	19	148	498	887
Bangladesh	501	220	190	230	182	416	286	350	413
Bhutan	-	5	1	-	1	-	3	3	2
Brunei	16,284	12,978	13,649	13,068	11,564	9,829	10,313	9,083	9,461
Cambodia	179	224	355	524	629	719	605	691	571
China	1,280	1,858	2,348	1,979	2,046	2,168	2,942	4,608	5,654
East Timor	-	-	-	24	812	439	553	735	283
Hong Kong	122,337	114,779	121,762	113,583	105,036	84,633	87,254	96,693	96,929
India	191	165	185	454	249	408	316	394	332
Indonesia	2,471	1,706	1,507	1,411	1,492	1,534	1,744	2,186	2,102
Japan	38,930	46,851	63,041	74,093	77,870	62,539	74,480	42,633	10,615
Kazakhstan	3	4	32	311	548	1,580	314	558	787
Kyrgyzstan	-	2	1	2	-	-	2	-	2
Korea	2,337	4,302	4,743	2,555	3,594	7,136	8,392	9,975	13,984
Laos	63	82	118	174	71	181	54	164	153
Macau	2,021	1,983	2,208	1,860	1,963	2,335	2,361	2,684	2,802
Malaysia	7,132	5,978	5,450	6,228	9,317	7,891	6,319	6,599	5,749
Maldives	82	147	117	123	105	186	142	180	365
Mongolia	72	31	47	28	15	9	32	48	45
Myanmar	153	96	153	215	187	221	139	152	92
Nepal	3	7	7	13	4	5	6	6	3
Pakistan	186	136	107	180	65	58	84	170	206
Singapore	23,175	21,812	22,873	26,305	27,648	24,737	22,198	28,152	28,369
Sri Lanka	230	290	396	629	502	309	293	362	231
Tajikistan	3	3	-	3	3	4	3	-	3
Taiwan	87,360	84,188	51,145	38,311	46,371	45,186	45,059	46,737	39,025
Thailand	1,384	1,014	1,015	2,058	1,162	2,139	1,750	2,401	2,497
Turkmenistan	98	35	94	126	33	2	29	41	26
Uzbekistan	4	80	28	17	18	8	5	3	4
Vietnam	802	531	494	549	588	596	783	1,103	1,348

EUROPE	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total*	26,422	30,707	39,296	43,019	45,363	37,981	55,116	52,146	59,313
Albania	-	1	-	-	-	-	5	2	2
Andorra	48	64	49	92	68	180	83	83	28
Austria	468	363	334	206	165	152	132	94	64
Azerbaijan	53	88	76	87	113	190	696	790	627
Belgium	183	168	160	159	148	189	119	121	98
Belorussia	1	2	-	-	-	-	1	1	11
Bosnia and Herzegovina	2	2	-	-	-	-	1	-	-
Bulgaria	1	1	1	1	2	8	27	2	2
Channel Islands	-	-	1	-	-	-	-	-	-
Croatia	2	1	2	-	-	-	2	1	18
Cyprus	941	1,168	1,500	1,548	1,836	1,637	2,134	1,890	2,055
Czech Republic	3	10	9	3	8	13	11	11	7
Denmark	78	55	28	27	25	30	30	31	39
Faeroe Islands	-	-	-	-	-	-	-	-	-
Finland	16	16	12	13	8	15	20	13	23
France	122	130	297	149	129	92	143	121	94
Georgia	-	-	-	-	-	14	106	74	21
Germany	156	131	120	134	89	75	69	78	52
Gibraltar	1	-	2	42	1	-	-	13	6
Greece	593	2,145	1,618	1,402	1,819	1,880	991	1,656	2,977
Hungary	6	5	2	4	11	-	2	2	5
Iceland	1	3	4	17	25	35	59	56	25
Ireland	18	126	793	3,734	4,507	5,642	5,439	5,710	5,439
Isle of Man	-	-	10	13	-	7	187	4	5
Italy	20,233	21,673	26,386	21,641	20,034	12,175	23,329	21,267	25,413
Luxembourg	7	6	2	-	1	-	4	5	5
Macedonia	-	1	1	-	-	-	-	-	-
Malta	11	9	15	30	13	15	96	34	133
Moldova	1	-	-	-	-	1	2	-	1
Monaco	6	14	7	-	-	-	13	8	8
Netherlands	473	326	292	432	213	228	355	329	217
Norway	108	252	180	139	125	126	422	171	246
Poland	7	10	7	23	12	6	27	17	108
Portugal	12	26	40	44	55	38	84	67	55
Romania	8	2	-	-	3	1	12	12	11
Russia	31	56	112	77	57	67	317	1,247	2,571
Slovenia	-	1	-	-	-	1	2	2	3
Spain	1,940	1,557	1,913	1,783	1,751	1,258	1,452	907	1,720
Sweden	35	26	29	59	29	21	23	16	16
Switzerland	312	312	298	239	324	238	307	287	205
Turkey	41	39	129	201	137	49	66	64	60
United Kingdom	502	1,918	4,867	10,720	13,655	13,598	18,347	16,930	16,926
Yugoslavia	2	-	-	-	-	-	1	3	17

AMERICAS	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total*	9,152	9,045	7,624	10,679	11,532	11,049	11,692	14,886	21,976
Antigua	9	-	-	2	17	16	2	4	8
Argentina	23	41	40	34	6	18	16	13	12
Armenia	-	1	-	-	-	1	8	4	4
Aruba	792	1,428	168	119	121	230	132	134	51
Bahamas	22	32	41	128	219	161	240	242	216
Barbados	-	-	50	36	-	-	86	16	30
Belize	-	56	-	-	-	9	-	-	-
Bermuda	177	128	239	196	272	118	319	367	552
Brazil	19	35	61	41	32	69	82	49	48
Canada	1,957	2,020	1,915	3,132	3,535	4,006	4,453	3,629	6,468
Caribbean	-	-	2	19	-	-	-	1	-
Cayman Is.	200	278	352	645	798	613	532	637	728
Chile	34	5	1	1	41	11	2	8	13
Colombia	3	1	7	1	83	90	6	4	6
Costa Rica	2	11	1	26	4	3	4	6	2
Cuba	314	299	319	216	652	495	427	428	291
Diego Garcia	1,444	673	306	726	1,281	1,042	643	505	371
Dominica	1	-	-	-	3	-	-	-	-
Dominican Republic	7	4	1	7	12	11	7	5	17
Ecuador	-	4	1	-	2	2	1	-	7
El Salvador	1	-	4	4	4	2	5	6	2
Grenada	8	9	-	-	6	4	12	1	9
Guam	812	370	209	195	100	269	322	351	512
Guatemala	1	11	1	28	11	11	4	2	6
Guyana	4	5	-	-	2	14	8	6	46
Haiti	11	20	24	37	48	43	23	64	64
Hawaii	-	-	1	41	1	-	-	-	1
Honduras	11	12	4	7	7	4	2	3	-
Jamaica	27	26	13	8	34	14	20	21	47
Mexico	33	90	241	242	78	50	245	168	185
Midway Is.	23	21	25	27	7	-	-	-	-
Netherlands Antilles	-	1	15	20	32	4	8	1	10
Nicaragua	-	2	4	-	4	1	4	4	4
Panama	2	3	3	13	26	4	2	32	1
Peru	2	3	2	1	-	-	3	-	3
St. Nevis - Anguilla	-	1	-	-	-	-	-	20	28
St. Kitts Nevis	1	-	-	1	3	-	-	2	3
St. Vincent	1	2	-	-	-	1	1	4	34
South America (unsp.)	3	1	-	-	-	5	187	190	517
Surinam	2	8	2	-	-	-	2	4	7
Trinidad and Tobago	-	11	7	1	10	6	18	181	182
United States of America	3,173	3,405	3,529	4,689	4,058	3,666	3,831	7,752	11,443
Uruguay	17	5	3	-	-	14	3	-	1
Venezuela	14	15	13	21	12	23	11	6	15
Virgin Islands	2	3	14	13	18	12	17	14	21
West Indies (unsp.)	-	5	6	2	3	7	4	2	11

AFRICA	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total*	5,538	4,936	4,298	4,943	6,919	8,750	8,485	9,103	9,450
Afars and Issas	-	-	-	12	-	1	3	-	-
Algeria	1,258	705	280	393	742	1,076	763	768	608
Angola	681	772	788	1,119	950	922	1,369	1,721	1,818
Botswana	26	24	27	50	72	21	27	51	32
Burundi	-	1	-	-	-	-	-	1	-
Cameroon	12	19	4	30	77	102	126	75	91
Cape Verde	-	15	7	1	2	2	1	1	-
Central African Republic	1	1	2	6	11	92	34	3	4
Chad	1	-	-	77	2,010	1,895	835	450	234
Congo	66	35	43	69	181	105	138	125	146
Djibouti	11	-	2	2	3	2	18	20	216
East Africa (unsp.)	4	-	-	-	-	3	10	6	6
Equatorial Guinea	40	732	865	773	544	961	1,240	1,032	1,244
Eritrea	44	8	2	9	19	14	33	20	10
Ethiopia	15	9	19	10	12	12	14	64	40
Gabon	53	66	63	81	74	138	212	200	217
Ghana	18	42	70	37	44	64	39	91	93
Guinea	125	121	-	-	-	1	6	3	26
Ivory Coast	7	4	22	25	35	7	7	27	17
Kenya	37	57	47	48	48	41	158	69	51
Lesotho	-	3	6	29	29	10	28	53	30
Liberia	-	5	1	1	1	1	5	7	10
Madagascar	1	1	6	9	5	5	31	42	23
Malawi	4	22	17	19	16	12	6	23	17
Mali	61	50	52	27	10	11	8	29	40
Mauritania	-	3	19	2	5	2	3	-	14
Mauritius	2	1	-	1	2	1	13	30	2
Morocco	42	37	38	37	48	51	84	156	102
Mozambique	9	3	7	7	9	7	18	47	29
Namibia	14	5	4	14	42	586	67	25	137
Rwanda	2	2	-	-	-	2	1	-	-
Sao Tome and Principe	14	7	1	-	2	3	6	6	2
Senegal	-	5	-	3	-	6	2	1	13
Seychelles	547	191	125	242	238	112	155	195	197
South Africa	123	182	106	112	76	42	109	98	43
Sudan	317	420	236	329	308	362	430	1,156	923
Swaziland	3	1	8	4	4	11	12	44	31
Tanzania	30	30	37	59	57	42	70	120	87
Togo	-	1	2	1	-	-	-	-	1
Transkei	1	-	-	-	-	1	-	-	-
Tunisia	14	21	13	8	4	3	23	35	7
Upper Volta	-	1	-	1	-	9	2	-	-
Uganda	34	27	26	24	16	13	22	24	43
West Africa (unsp.)	357	149	366	98	60	42	84	55	23
Zambia	16	24	33	20	15	15	21	17	116
Zimbabwe	4	5	14	4	5	1	4	2	5
Africa (unsp.)	48	19	107	112	82	469	173	251	378

TRUST TERRITORIES	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total*	7,677	6,622	7,421	6,823	6,075	5,023	7,177	7,596	6,481
Commonwealth of Northern Mariana Islands	5,982	4,837	5,215	4,681	4,163	3,562	5,156	5,622	4,686
Federated States of Micronesia	429	554	494	431	451	358	439	393	356
Republic of Marshall Is.	65	71	109	107	86	86	94	118	99
Republic of Belau	1,084	1,010	1,480	1,420	1,233	923	1,337	1,291	1,129
Melanesia	111	127	111	162	117	77	134	143	169
Polynesia	6	23	11	7	25	17	16	29	40
Trust Territories (unsp.)	-	-	1	15	-	-	1	-	2

OCEANIA	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total*	2,524	2,424	2,386	2,061	1,917	1,698	3,023	2,866	5,101
Australia	182	184	234	148	138	156	250	586	2,318
Nauru	38	37	47	20	42	7	2	10	7
New Caledonia	3	4	8	-	10	8	3	2	429
New Zealand	75	102	110	150	185	64	152	196	420
Papua New Guinea	2,226	2,097	1,987	1,743	1,542	1,463	2,616	2,072	1,952

UNSPECIFIED	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total*	2	-	6,921	11,530	10,882	46,279	1	135	8

* Based on the report of POEA's Labor Assistance Center on the actual departure of OFWs at the international airports, NAIA Cabin Crews and POEA Regional Extension Units.

Source: Philippine Overseas Employment Administration

Appendix 1B: Overseas Filipino Workers Deployment per Skill per Major World Grouping and per Country for the years 2004, 2005 and 2006 (New Hires)

		2004	2005	2006
Administrative and Managerial Workers		490	490	817
Asia		116	65	174
	<i>Afghanistan</i>	0	2	6
	<i>Azerbaijan</i>	1	0	0
	<i>Bangladesh</i>	10	0	7
	<i>Brunei</i>	5	2	8
	<i>China</i>	8	3	19
	<i>Hong Kong</i>	2	1	1
	<i>India</i>	3	0	2
	<i>Indonesia</i>	8	2	3
	<i>Japan</i>	2	4	3
	<i>Kazakhstan</i>	1	0	0
	<i>Macau</i>	22	0	0
	<i>Malaysia</i>	28	22	19
	<i>Maldives</i>	1	1	0
	<i>Mongolia</i>	0	0	1
	<i>Pakistan</i>	1	0	4
	<i>Singapore</i>	9	24	91
	<i>South Korea</i>	5	1	0
	<i>Sri Lanka</i>	2	1	1
	<i>Taiwan</i>	0	1	1
	<i>Tajikistan</i>	0	0	1
	<i>Thailand</i>	3	0	5
	<i>Turkmenistan</i>	1	0	0
	<i>Vietnam</i>	4	1	2
Middle East		166	297	363
	<i>United Arab Emirates</i>	31	101	111
	<i>Bahrain</i>	12	5	20
	<i>Iraq</i>	7	0	0
	<i>Jordan</i>	2	0	0
	<i>Kuwait</i>	47	50	58
	<i>Lebanon</i>	0	1	0
	<i>Libya</i>	3	6	0
	<i>Oman</i>	3	12	0
	<i>Qatar</i>	13	35	52
	<i>Saudi Arabia</i>	48	85	112
	<i>Yemen</i>	0	2	10
Europe		15	12	38
	<i>Bulgaria</i>	0	0	1
	<i>Czech Republic</i>	1	0	0
	<i>Denmark</i>	3	0	1
	<i>Germany</i>	0	0	1
	<i>Ireland</i>	2	0	0
	<i>Isle of Man</i>	0	1	0
	<i>Netherlands</i>	0	1	1
	<i>Oman</i>	0	0	5
	<i>Portugal</i>	1	0	0
	<i>Russia</i>	1	3	1
	<i>Spain</i>	2	1	0
	<i>United Kingdom</i>	5	6	28
Americas		41	15	44
	<i>Barbados</i>	1	0	1

	<i>Bermuda</i>	1	3	7
	<i>British West Indies</i>	0	0	1
	<i>Canada</i>	4	2	2
	<i>Cayman Island</i>	2	0	1
	<i>Chile</i>	0	1	0
	<i>Costa Rica</i>	1	0	0
	<i>Cuba</i>	0	1	0
	<i>Diego Garcia</i>	3	1	0
	<i>Dominican Republic</i>	0	0	1
	<i>Haiti</i>	1	0	0
	<i>Jamaica</i>	0	0	5
	<i>Trinidad and Tobago</i>	0	0	2
	<i>Turks and Caicos Island</i>	0	1	5
	<i>United States of America</i>	28	6	19
	Africa	28	30	70
	<i>Algeria</i>	3	2	1
	<i>Angola</i>	4	6	0
	<i>Congo</i>	0	0	1
	<i>Djibouti</i>	1	0	0
	<i>East Africa</i>	1	0	0
	<i>Egypt</i>	2	0	0
	<i>Equatorial Guinea</i>	1	13	2
	<i>Ethiopia</i>	3	0	1
	<i>Gabon</i>	0	0	1
	<i>Ghana</i>	2	0	0
	<i>Guinea</i>	0	0	2
	<i>Kenya</i>	0	1	0
	<i>Lesotho</i>	0	0	3
	<i>Libya</i>	0	0	6
	<i>Malawi</i>	1	0	0
	<i>Mali</i>	1	0	1
	<i>Mauritania</i>	0	0	1
	<i>Mauritius</i>	0	0	1
	<i>Nigeria</i>	4	4	15
	<i>Seychelles</i>	0	2	1
	<i>Somalia</i>	1	0	0
	<i>South Africa</i>	1	0	1
	<i>Sudan</i>	3	2	26
	<i>Tanzania</i>	0	0	3
	<i>Tonga</i>	0	0	1
	<i>Zambia</i>	0	0	3
	Trust Territories	28	19	19
	<i>Commonwealth of Northern Mariana Islands</i>	12	4	5
	<i>Cook Island</i>	1	0	1
	<i>Fiji</i>	1	1	0
	<i>Marshall Island</i>	1	1	2
	<i>Micronesia</i>	5	1	2
	<i>Palau</i>	3	7	1
	<i>Saipan</i>	4	4	7
	<i>Solomon Islands</i>	1	1	1
	Oceania	96	52	109
	<i>Australia</i>	2	1	7
	<i>New Caledonia</i>	0	0	3
	<i>New Zealand</i>	2	10	37
	<i>Papua New Guinea</i>	92	41	62
	Agricultural, Animal Husbandry and Forestry Workers, Fishermen, & Hunters	665	351	807
	Asia	11	9	14

	<i>Brunei</i>	3	0	4
	<i>Hong Kong</i>	0	1	2
	<i>Japan</i>	4	4	4
	<i>Malaysia</i>	3	3	2
	<i>Singapore</i>	0	0	1
	<i>Taiwan</i>	1	1	1
	Middle East	520	289	548
	<i>Bahrain</i>	2	0	6
	<i>Iraq</i>	78	0	0
	<i>Jordan</i>	0	0	2
	<i>Kuwait</i>	4	4	6
	<i>Lebanon</i>	1	0	0
	<i>Oman</i>	0	4	1
	<i>Qatar</i>	14	2	21
	<i>Saudi Arabia</i>	387	250	479
	<i>United Arab Emirates</i>	33	29	33
	<i>Yemen</i>	1	0	0
	Europe	12	7	57
	<i>Cyprus</i>	2	0	0
	<i>Holland</i>	0	2	0
	<i>Ireland</i>	1	0	0
	<i>Italy</i>	0	0	1
	<i>Netherlands</i>	0	2	0
	<i>Norway</i>	3	0	7
	<i>Portugal</i>	1	0	6
	<i>Spain</i>	4	3	5
	<i>United Kingdom</i>	1	0	38
	Americas	32	10	90
	<i>Bermuda</i>	5	2	3
	<i>Canada</i>	9	0	37
	<i>Cayman Island</i>	9	1	9
	<i>Cuba</i>	0	2	4
	<i>Diego Garcia</i>	2	1	0
	<i>Guyana</i>	0	0	3
	<i>Turks and Caicos Island</i>	0	4	5
	<i>United States of America</i>	7	0	29
	Africa	9	4	2
	<i>Equatorial Guinea</i>	0	0	1
	<i>Madagascar</i>	0	3	1
	<i>Mozambique</i>	1	0	0
	<i>Nigeria</i>	1	1	0
	<i>Seychelles</i>	6	0	0
	<i>West Africa</i>	1	0	0
	Trust Territories	73	29	50
	<i>Commonwealth of Northern Mariana Islands</i>	41	12	12
	<i>Cook Island</i>	1	0	1
	<i>Palau</i>	0	4	1
	<i>Saipan</i>	31	13	36
	Oceania	8	3	46
	<i>Australia</i>	0	1	34
	<i>New Zealand</i>	7	1	11
	<i>Papua New Guinea</i>	1	1	1
	Clerical and Related Workers	6,816	6,534	11,818
	Asia	379	411	357
	<i>Afghanistan</i>	2	2	12
	<i>Bangladesh</i>	0	0	2
	<i>Bhutan</i>	0	0	1

	<i>Brunei</i>	54	40	71
	<i>Cambodia</i>	0	4	6
	<i>China</i>	15	7	17
	<i>East Timor</i>	5	6	0
	<i>Hong Kong</i>	0	2	0
	<i>India</i>	1	2	6
	<i>Indonesia</i>	0	2	2
	<i>Japan</i>	38	23	31
	<i>Kazakhstan</i>	17	4	9
	<i>South Korea</i>	0	6	1
	<i>Macau</i>	0	0	12
	<i>Malaysia</i>	8	4	23
	<i>Maldives</i>	2	8	16
	<i>Pakistan</i>	0	0	1
	<i>Singapore</i>	31	23	111
	<i>Sri Lanka</i>	1	0	0
	<i>Taiwan</i>	201	269	28
	<i>Thailand</i>	3	0	4
	<i>Vietnam</i>	1	9	4
	Middle East	5,965	5,633	10,432
	<i>Bahrain</i>	263	460	519
	<i>Iran</i>	14	17	3
	<i>Iraq</i>	149	0	0
	<i>Jordan</i>	1	0	6
	<i>Kuwait</i>	575	361	861
	<i>Oman</i>	25	64	150
	<i>Qatar</i>	614	506	1,781
	<i>Saudi Arabia</i>	1,480	1,171	3,150
	<i>United Arab Emirates</i>	2,843	3,048	3,947
	<i>Yemen</i>	1	6	15
	Europe	70	135	214
	<i>Azerbaijan</i>	0	0	1
	<i>Cyprus</i>	0	1	0
	<i>European Economic Community</i>	1	0	0
	<i>Georgia</i>	1	0	0
	<i>Greece</i>	5	1	3
	<i>Ireland</i>	2	1	4
	<i>Italy</i>	0	0	1
	<i>Malta</i>	0	0	19
	<i>Netherlands</i>	0	2	0
	<i>Russia</i>	12	61	78
	<i>Norway</i>	0	0	1
	<i>Spain</i>	10	3	9
	<i>Turkey</i>	0	0	1
	<i>United Kingdom</i>	39	66	97
	Americas	126	95	366
	<i>Anguilla</i>	0	0	1
	<i>Bahamas</i>	1	0	0
	<i>Barbados</i>	16	0	0
	<i>Bermuda</i>	1	0	1
	<i>Canada</i>	4	39	113
	<i>Cayman Island</i>	16	0	56
	<i>Cuba</i>	19	22	33
	<i>Diego Garcia</i>	9	3	12
	<i>Dominican Republic</i>	0	0	1
	<i>Guam</i>	0	1	6
	<i>Guyana</i>	0	0	3
	<i>Haiti</i>	0	0	1

	<i>Jamaica</i>	0	0	4
	<i>Mexico</i>	2	0	2
	<i>Trinidad and Tobago</i>	0	0	9
	<i>Turks and Caicos Island</i>	0	1	63
	<i>United States of America</i>	58	28	60
	<i>Virgin Islands</i>	0	1	1
Africa		171	99	256
	<i>Algeria</i>	16	3	0
	<i>Angola</i>	16	7	19
	<i>Cameroon</i>	1	1	5
	<i>Chad</i>	1	0	3
	<i>Congo</i>	0	0	2
	<i>Djibouti</i>	0	2	40
	<i>Egypt</i>	3	0	11
	<i>Equatorial Guinea</i>	11	23	46
	<i>Gabon</i>	8	0	2
	<i>Ghana</i>	2	0	2
	<i>Guinea</i>	0	0	5
	<i>Ivory Coast</i>	0	1	0
	<i>Libya</i>	58	40	36
	<i>Morocco</i>	1	0	3
	<i>Mozambique</i>	0	0	1
	<i>Namibia</i>	4	0	0
	<i>Nigeria</i>	42	9	25
	<i>Seychelles</i>	0	0	15
	<i>South Africa</i>	2	0	0
	<i>Sudan</i>	2	13	37
	<i>Tanzania</i>	0	0	1
	<i>Tonga</i>	0	0	3
	<i>Uganda</i>	4	0	0
Trust Territories		83	60	50
	<i>Commonwealth of Northern Mariana Islands</i>	40	17	17
	<i>Cook Island</i>	0	1	3
	<i>Fiji</i>	0	0	1
	<i>Marshal Island</i>	1	0	0
	<i>Micronesia</i>	2	1	0
	<i>Palau</i>	24	34	9
	<i>Saipan</i>	16	5	19
	<i>Samoa</i>	0	1	0
	<i>Solomon Islands</i>	0	1	1
Oceania		22	101	143
	<i>Australia</i>	0	87	87
	<i>New Caledonia</i>	0	0	28
	<i>New Zealand</i>	0	3	9
	<i>Papua New Guinea</i>	22	11	19
Production and Related Workers, Transport Equipment Operators & Laborers		62,712	71,797	103,584
Asia		23,698	25,097	30,889
	<i>Afghanistan</i>	17	95	13
	<i>Bangladesh</i>	14	23	33
	<i>Bhutan</i>	0	0	1
	<i>Brunei</i>	1,789	607	754
	<i>Cambodia</i>	0	1	3
	<i>China</i>	20	8	56
	<i>East Timor</i>	55	215	13
	<i>Hong Kong</i>	0	2	0
	<i>India</i>	11	8	7
	<i>Indonesia</i>	35	4	11

	<i>Japan</i>	198	30	33
	<i>Kazakhstan</i>	51	49	55
	<i>North Korea</i>	0	0	2
	<i>South Korea</i>	2,869	1,172	9,921
	<i>Laos</i>	0	0	2
	<i>Macau</i>	2	0	4
	<i>Malaysia</i>	216	247	207
	<i>Maldives</i>	6	7	107
	<i>Mongolia</i>	6	1	3
	<i>Pakistan</i>	2	3	0
	<i>Singapore</i>	176	296	236
	<i>Sri Lanka</i>	6	3	2
	<i>Taiwan</i>	18,208	22,249	19,367
	<i>Thailand</i>	13	63	10
	<i>Turkmenistan</i>	0	14	4
	<i>Vietnam</i>	4	0	45
	Middle East	35,343	42,385	64,139
	<i>Bahrain</i>	797	832	1,061
	<i>Iran</i>	192	300	138
	<i>Iraq</i>	1,862	0	1
	<i>Israel</i>	7	0	3
	<i>Jordan</i>	103	36	31
	<i>Kuwait</i>	1,252	1,924	2,789
	<i>Lebanon</i>	2	0	0
	<i>Oman</i>	85	209	208
	<i>Qatar</i>	3,401	6,981	12,106
	<i>Saudi Arabia</i>	21,863	25,020	38,752
	<i>United Arab Emirates</i>	5,750	7,057	8,988
	<i>Yemen</i>	29	26	62
	Europe	246	797	1,703
	<i>Azerbaijan</i>	35	55	32
	<i>Belgium</i>	0	0	1
	<i>Bulgaria</i>	1	0	0
	<i>Cyprus</i>	13	4	2
	<i>Finland</i>	0	0	2
	<i>Georgia</i>	3	0	0
	<i>Greece</i>	0	0	25
	<i>Iceland</i>	7	0	1
	<i>Ireland</i>	10	3	1
	<i>Isle of Man</i>	2	0	0
	<i>Italy</i>	8	0	30
	<i>Malta</i>	1	0	63
	<i>Netherlands</i>	4	17	35
	<i>Norway</i>	3	0	0
	<i>Poland</i>	0	0	72
	<i>Russia</i>	49	664	1,305
	<i>Scotland</i>	12	0	0
	<i>Spain</i>	52	17	32
	<i>Sweden</i>	4	0	0
	<i>Switzerland</i>	0	0	1
	<i>Turkey</i>	4	0	0
	<i>United Kingdom</i>	38	37	101
	Americas	751	789	2,558
	<i>Anguilla</i>	0	0	10
	<i>Antigua</i>	0	0	1
	<i>Aruba</i>	8	0	0
	<i>Bahamas</i>	34	25	18
	<i>Barbados</i>	33	0	3

	<i>Bermuda</i>	14	9	16
	<i>Brazil</i>	2	0	0
	<i>Canada</i>	28	73	484
	<i>Cayman Island</i>	110	67	137
	<i>Cuba</i>	108	89	122
	<i>Diego Garcia</i>	159	62	57
	<i>Dominican Republic</i>	0	0	9
	<i>Greenland</i>	0	0	1
	<i>Grenada</i>	1	0	2
	<i>Guam</i>	146	153	318
	<i>Guyana</i>	1	0	30
	<i>Haiti</i>	0	0	13
	<i>Jamaica</i>	1	1	2
	<i>Mexico</i>	11	42	8
	<i>St. Lucia</i>	0	0	19
	<i>St. Vincent</i>	0	0	2
	<i>Surinam</i>	1	0	0
	<i>Trinidad and Tobago</i>	0	0	21
	<i>Turks and Caicos Island</i>	2	53	207
	<i>United States of America</i>	92	215	1,077
	<i>Virgin Islands</i>	0	0	1
	Africa	2,167	2,139	2,424
	<i>Algeria</i>	128	313	20
	<i>Angola</i>	356	355	215
	<i>Bophuthatswana</i>	2	0	0
	<i>Cameroon</i>	0	0	5
	<i>Central African Republic</i>	0	2	1
	<i>Chad</i>	8	100	88
	<i>Congo</i>	3	4	6
	<i>Djibouti</i>	2	7	136
	<i>East Africa</i>	0	0	1
	<i>Egypt</i>	22	1	13
	<i>Equatorial Guinea</i>	447	45	303
	<i>Ethiopia</i>	0	1	2
	<i>Eritrea</i>	14	0	0
	<i>Gabon</i>	12	2	2
	<i>Ghana</i>	1	6	35
	<i>Guinea</i>	0	0	7
	<i>Ivory Coast</i>	4	0	0
	<i>Kenya</i>	0	9	10
	<i>Lesotho</i>	0	1	6
	<i>Libya</i>	694	348	613
	<i>Malawi</i>	0	0	1
	<i>Mali</i>	2	1	1
	<i>Mauritania</i>	0	0	2
	<i>Morocco</i>	0	43	10
	<i>Mozambique</i>	2	6	4
	<i>Namibia</i>	48	1	0
	<i>Nigeria</i>	284	283	463
	<i>Senegal</i>	0	0	1
	<i>Seychelles</i>	27	3	96
	<i>Sierra Leone</i>	1	1	1
	<i>South Africa</i>	6	3	3
	<i>Sudan</i>	88	586	273
	<i>Swaziland</i>	1	3	6
	<i>Tanzania</i>	1	4	0
	<i>Tonga</i>	2	2	0
	<i>Tunisia</i>	1	0	0

	Uganda	0	0	6
	West Africa	10	9	2
	Zambia	1	0	91
	Zimbabwe	0	0	1
	Trust Territories	431	254	224
	Commonwealth of Northern Mariana Islands	129	77	45
	Cook Island	1	0	3
	Fiji	0	0	25
	Micronesia	46	12	24
	Marshall Island	6	14	4
	Palau	153	96	37
	Saipan	88	48	62
	Samoa	3	2	2
	Solomon Islands	2	3	20
	Tinian	3	2	0
	Tuvalu	0	0	2
	Oceania	76	336	1,647
	Australia	17	199	1,131
	New Caledonia	0	0	343
	New Zealand	11	27	89
	Papua New Guinea	48	110	84
	Professional, Technical, and Related Workers	93,006	63,940	35,807
	Asia	73,116	41,101	9,799
	Afghanistan	14	25	15
	Bangladesh	3	11	13
	Brunei	91	67	128
	Cambodia	4	5	9
	China	136	233	173
	East Timor	13	13	3
	Hong Kong	28	79	59
	India	14	10	9
	Indonesia	40	23	44
	Japan	70,824	38,674	6,933
	Kazakhstan	31	26	27
	South Korea	624	714	595
	Laos	0	0	1
	Macau	0	1	1
	Malaysia	189	137	197
	Maldives	11	4	30
	Mongolia	1	0	3
	Myanmar	0	2	0
	Pakistan	5	8	11
	Singapore	638	532	655
	Sri Lanka	0	4	4
	Taiwan	419	512	826
	Thailand	12	10	35
	Turkmenistan	0	2	1
	Vietnam	19	9	27
	Middle East	16,177	16,200	22,037
	Bahrain	355	412	593
	Iran	47	73	18
	Iraq	197	0	0
	Israel	38	3	0
	Jordan	122	2	39
	Kuwait	724	589	915
	Lebanon	2	0	0
	Oman	90	66	115

	<i>Qatar</i>	1,187	1,382	2,085
	<i>Saudi Arabia</i>	12,071	11,561	15,481
	<i>United Arab Emirates</i>	1,295	2,060	2,675
	<i>Yemen</i>	49	52	116
	Europe	1,369	1,061	735
	<i>Austria</i>	1	0	1
	<i>Azerbaijan</i>	85	35	8
	<i>Belgium</i>	0	0	3
	<i>Bulgaria</i>	1	0	0
	<i>Croatia</i>	0	0	15
	<i>Cyprus</i>	1	1	8
	<i>Finland</i>	1	0	0
	<i>France</i>	0	0	1
	<i>Germany</i>	2	1	0
	<i>Gibraltar</i>	0	0	2
	<i>Greece</i>	4	0	7
	<i>Hungary</i>	0	0	1
	<i>Iceland</i>	1	0	2
	<i>Ireland</i>	211	316	278
	<i>Italy</i>	1	3	4
	<i>Malta</i>	1	0	1
	<i>Moscow</i>	8	0	1
	<i>Netherlands</i>	24	1	1
	<i>Norway</i>	1	2	19
	<i>Montenegro Republic</i>	0	0	5
	<i>Poland</i>	0	0	20
	<i>Romania</i>	1	0	0
	<i>Russia</i>	13	38	82
	<i>Scotland</i>	1	0	0
	<i>Spain</i>	27	0	11
	<i>Sweden</i>	1	0	0
	<i>Switzerland</i>	1	0	1
	<i>Turkey</i>	1	0	1
	<i>United Kingdom</i>	982	664	263
	Americas	1,365	4,924	1,754
	<i>Anguilla</i>	0	2	5
	<i>Antigua</i>	0	0	3
	<i>Argentina</i>	1	0	0
	<i>Bahamas</i>	8	5	9
	<i>Barbados</i>	36	16	19
	<i>Bermuda</i>	12	3	37
	<i>Brazil</i>	3	0	1
	<i>British West Indies</i>	1	0	0
	<i>Canada</i>	42	34	53
	<i>Cayman Island</i>	14	5	41
	<i>Chile</i>	0	1	0
	<i>Cuba</i>	22	9	30
	<i>Diego Garcia</i>	28	11	18
	<i>French Guiana</i>	0	0	2
	<i>Greenland</i>	0	0	3
	<i>Grenada</i>	1	0	5
	<i>Guam</i>	19	6	10
	<i>Guyana</i>	0	0	3
	<i>Haiti</i>	2	9	16
	<i>Jamaica</i>	1	1	4
	<i>Mexico</i>	7	5	2
	<i>Netherlands Antilles</i>	2	0	0
	<i>St. Vincent</i>	0	0	3

	<i>Trinidad and Tobago</i>	0	152	91
	<i>Turks and Caicos Islands</i>	6	23	54
	<i>United States of America</i>	1,158	4,641	1,334
	<i>Venezuela</i>	0	0	1
	<i>Virgin Islands</i>	2	1	10
	Africa	569	466	1,020
	<i>Algeria</i>	38	22	21
	<i>Angola</i>	47	57	38
	<i>Cameroon</i>	0	2	0
	<i>Chad</i>	2	9	22
	<i>Congo</i>	0	1	1
	<i>Djibouti</i>	4	3	20
	<i>Egypt</i>	47	4	57
	<i>Equatorial Guinea</i>	13	27	39
	<i>Eritrea</i>	6	1	1
	<i>Ethiopia</i>	0	33	6
	<i>Gabon</i>	2	2	4
	<i>Ghana</i>	5	6	3
	<i>Guinea</i>	0	0	3
	<i>Ivory Coast</i>	0	1	5
	<i>Kenya</i>	0	4	2
	<i>Libya</i>	235	164	540
	<i>Madagascar</i>	0	2	2
	<i>Malawi</i>	0	0	4
	<i>Mauritania</i>	0	0	2
	<i>Morocco</i>	1	0	6
	<i>Mozambique</i>	1	4	2
	<i>Nigeria</i>	127	81	203
	<i>Sao Tome and Principe</i>	0	1	0
	<i>Seychelles</i>	2	1	1
	<i>South Africa</i>	6	0	3
	<i>Sudan</i>	30	40	21
	<i>Tanzania</i>	0	0	1
	<i>Tonga</i>	1	0	4
	<i>Uganda</i>	0	0	3
	<i>West Africa</i>	1	1	1
	<i>Zambia</i>	1	0	5
	Trust Territories	282	123	157
	<i>American Samoa</i>	1	0	0
	<i>Commonwealth of Northern Mariana Islands</i>	83	43	40
	<i>Cook Island</i>	5	0	5
	<i>Micronesia</i>	32	10	12
	<i>Fiji</i>	1	0	2
	<i>Kiribati</i>	0	0	2
	<i>Marshall Island</i>	11	5	5
	<i>Palau</i>	39	13	10
	<i>Pohnpei</i>	1	8	3
	<i>Saipan</i>	102	39	70
	<i>Samoa</i>	1	2	0
	<i>Solomon Islands</i>	4	1	6
	<i>Tinian</i>	1	0	1
	<i>Vanuatu Island</i>	1	2	1
	Oceania	128	65	305
	<i>Australia</i>	26	27	202
	<i>New Caledonia</i>	0	0	27
	<i>New Zealand</i>	16	6	46
	<i>Papua New Guinea</i>	86	32	30

Sales Workers		3,903	4,251	5,514
Asia		131	132	253
	<i>Afghanistan</i>	0	2	2
	<i>Bangladesh</i>	3	0	9
	<i>Brunei</i>	91	96	130
	<i>Cambodia</i>	0	3	0
	<i>China</i>	0	2	2
	<i>Hong Kong</i>	0	0	1
	<i>India</i>	5	0	1
	<i>Indonesia</i>	3	1	0
	<i>Japan</i>	4	1	6
	<i>South Korea</i>	6	0	0
	<i>Malaysia</i>	11	3	14
	<i>Pakistan</i>	2	1	0
	<i>Singapore</i>	4	23	84
	<i>Taiwan</i>	1	0	1
	<i>Thailand</i>	0	0	1
	<i>Vietnam</i>	1	0	2
Middle East		3,667	4,040	5,136
	<i>Bahrain</i>	219	364	288
	<i>Iraq</i>	3	0	0
	<i>Israel</i>	1	0	0
	<i>Kuwait</i>	620	627	549
	<i>Lebanon</i>	0	0	1
	<i>Oman</i>	75	55	100
	<i>Qatar</i>	396	478	626
	<i>Saudi Arabia</i>	392	378	1,349
	<i>United Arab Emirates</i>	1,960	2,138	2,220
	<i>Yemen</i>	1	0	3
Europe		14	34	22
	<i>Belgium</i>	0	0	1
	<i>Ireland</i>	2	0	1
	<i>Italy</i>	1	0	3
	<i>Portugal</i>	1	0	0
	<i>Russia</i>	0	0	8
	<i>Spain</i>	5	2	5
	<i>United Kingdom</i>	5	32	4
Americas		19	6	50
	<i>Aruba</i>	1	0	0
	<i>Bermuda</i>	0	0	5
	<i>Canada</i>	0	0	5
	<i>Cayman Island</i>	8	2	22
	<i>Cuba</i>	1	1	0
	<i>Jamaica</i>	0	0	3
	<i>Turks and Caicos Island</i>	0	0	10
	<i>United States of America</i>	9	3	5
Africa		7	10	13
	<i>Angola</i>	3	3	6
	<i>Egypt</i>	0	0	2
	<i>Libya</i>	2	0	2
	<i>Morocco</i>	1	0	0
	<i>Nigeria</i>	0	2	1
	<i>Tanzania</i>	0	0	1
	<i>Sudan</i>	1	5	1
Trust Territories		45	15	20
	<i>Commonwealth of Northern Mariana Islands</i>	24	0	0
	<i>Cook Island</i>	1	0	0
	<i>Marshall Island</i>	1	1	0

		<i>Micronesia</i>	4	2	4
		<i>Palau</i>	1	3	5
		<i>Saipan</i>	13	9	11
		<i>Solomon Islands</i>	1	0	0
	Oceania		20	14	20
		<i>Australia</i>	0	3	10
		<i>New Zealand</i>	3	1	1
		<i>Papua New Guinea</i>	17	10	9
Service Workers			112,840	133,878	144,319
	Asia		34,921	33,701	33,260
		<i>Afghanistan</i>	27	20	32
		<i>Bangladesh</i>	0	0	2
		<i>Brunei</i>	379	240	547
		<i>Cambodia</i>	2	0	1
		<i>China</i>	13	45	33
		<i>East Timor</i>	1	0	0
		<i>Hong Kong</i>	16,428	17,514	19,535
		<i>India</i>	8	3	2
		<i>Indonesia</i>	1	2	1
		<i>Japan</i>	85	36	73
		<i>Kazakhstan</i>	5	0	2
		<i>North Korea</i>	1	0	0
		<i>South Korea</i>	10	7	16
		<i>Macau</i>	144	5	39
		<i>Malaysia</i>	1,157	932	592
		<i>Maldives</i>	14	9	15
		<i>Mongolia</i>	0	0	1
		<i>Pakistan</i>	16	13	46
		<i>Singapore</i>	1,438	2,540	3,220
		<i>Taiwan</i>	15,189	12,335	9,099
		<i>Tajikistan</i>	1	0	0
		<i>Thailand</i>	0	0	3
		<i>Turkmenistan</i>	1	0	0
		<i>Vietnam</i>	1	0	1
	Middle East		71,240	96,227	103,219
		<i>Bahrain</i>	1,999	2,576	2,664
		<i>Iran</i>	3	5	2
		<i>Iraq</i>	910	0	0
		<i>Israel</i>	3,269	2,575	2,542
		<i>Jordan</i>	268	2,862	4,395
		<i>Kuwait</i>	18,961	21,199	21,144
		<i>Lebanon</i>	6,067	11,764	7,718
		<i>Oman</i>	729	1,633	2,551
		<i>Qatar</i>	5,139	8,099	11,143
		<i>Saudi Arabia</i>	20,045	27,209	30,460
		<i>Syria</i>	32	7	29
		<i>United Arab Emirates</i>	13,809	18,295	20,549
		<i>Yemen</i>	9	3	22
	Europe		3,202	2,353	4,090
		<i>Albania</i>	3	0	0
		<i>Austria</i>	12	4	3
		<i>Azerbaijan</i>	2	1	1
		<i>Belgium</i>	16	3	15
		<i>Cyprus</i>	1,148	994	1,255
		<i>Czech Republic</i>	4	0	2
		<i>Denmark</i>	0	0	1
		<i>Finland</i>	2	1	9

	<i>France</i>	11	3	4
	<i>Georgia</i>	1	0	0
	<i>Germany</i>	4	3	5
	<i>Greece</i>	2	3	2
	<i>Hungary</i>	0	1	0
	<i>Iceland</i>	6	1	2
	<i>Ireland</i>	67	7	7
	<i>Isle of Man</i>	0	1	0
	<i>Italy</i>	293	76	582
	<i>Luxembourg</i>	1	0	0
	<i>Republic of Montenegro</i>	0	9	3
	<i>Netherlands</i>	5	0	4
	<i>Norway</i>	4	1	0
	<i>Poland</i>	0	0	3
	<i>Portugal</i>	20	2	4
	<i>Romania</i>	6	1	4
	<i>Russia</i>	12	10	37
	<i>Spain</i>	639	138	783
	<i>Sweden</i>	0	1	2
	<i>Switzerland</i>	18	4	5
	<i>Turkey</i>	2	1	8
	<i>United Kingdom</i>	923	1,088	1,349
	<i>Yugoslavia</i>	1	0	0
	Americas	2,842	1,116	3,240
	<i>Anguilla</i>	0	16	0
	<i>Antigua</i>	1	0	1
	<i>Aruba</i>	3	0	1
	<i>Bahamas</i>	17	4	11
	<i>Bermuda</i>	36	15	36
	<i>Canada</i>	2,542	784	2,330
	<i>Cayman Island</i>	73	38	85
	<i>Chile</i>	1	0	2
	<i>Costa Rica</i>	0	2	0
	<i>Cuba</i>	31	3	9
	<i>Diego Garcia</i>	24	19	22
	<i>Falkland Islands</i>	0	0	1
	<i>Greenland</i>	0	0	1
	<i>Guam</i>	0	1	4
	<i>Guyana</i>	0	0	3
	<i>Haiti</i>	0	1	1
	<i>Jamaica</i>	1	4	1
	<i>Mexico</i>	2	1	1
	<i>St. Lucia</i>	0	0	1
	<i>Trinidad and Tobago</i>	0	0	17
	<i>Turks and Caicos Island</i>	34	85	112
	<i>United States of America</i>	76	143	598
	<i>Virgin Islands</i>	1	0	3
	Africa	169	95	125
	<i>Algeria</i>	4	4	0
	<i>Angola</i>	12	10	7
	<i>Chad</i>	0	0	5
	<i>Congo</i>	1	0	2
	<i>Djibouti</i>	0	0	2
	<i>Egypt</i>	31	7	17
	<i>Equatorial Guinea</i>	9	7	11
	<i>Gambia</i>	1	0	0
	<i>Guinea</i>	0	0	7
	<i>Liberia</i>	0	0	2

	<i>Libya</i>	79	28	48
	<i>Malawi</i>	0	0	1
	<i>Morocco</i>	0	1	2
	<i>Nigeria</i>	10	17	12
	<i>Seychelles</i>	9	0	0
	<i>South Africa</i>	3	2	1
	<i>Spanish North Africa</i>	1	0	0
	<i>Sudan</i>	4	19	5
	<i>Tonga</i>	0	0	1
	<i>Tunisia</i>	1	0	0
	<i>West Africa</i>	1	0	0
	<i>Zambia</i>	3	0	2
	Trust Territories	449	362	288
	<i>Commonwealth of Northern Mariana Islands</i>	135	81	53
	<i>Cook Island</i>	2	2	9
	<i>Fiji</i>	0	0	1
	<i>Micronesia</i>	14	2	3
	<i>Marshall Island</i>	1	0	0
	<i>Palau</i>	10	59	15
	<i>Pohnpei</i>	0	0	1
	<i>Saipan</i>	286	217	204
	<i>Solomon Islands</i>	0	1	2
	<i>Tinian</i>	1	0	0
	Oceania	17	24	97
	<i>Australia</i>	8	14	77
	<i>New Caledonia</i>	0	0	9
	<i>New Zealand</i>	3	5	4
	<i>Papua New Guinea</i>	6	5	7
	Unspecified Occupational Group and Unspecified Country of Destination	43	3,044	6
	GRAND TOTAL	280,475	284,285	302,672

Source: Philippine Overseas Employment Administration (POEA)

**Appendix 2A: Ordinary Least Squares Regression
Impact of Overseas Employment on the Family Expenditures on Education**

Initial Ordinary Least Squares Regression

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Standard Error	$P > t $		
$\ln DHI_i$	1.0528	0.0060	0.0000	Number of observations	110,837
$\ln REMIT_i$	0.0285	0.0009	0.0000		
$\ln HSIZE_i$	-0.8770	0.0146	0.0000	F (5, 110,830)	15,817.13
$\ln SCHL_i$	0.7878	0.0088	0.0000		
$\ln EDUHH_i$	0.2066	0.0040	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.3927	0.0156	0.0000	R-squared	0.4613
constant	-6.5931	0.0807	0.0000	Root MSE	1.2117

Variance Inflation Factor (VIF) Test for Multicollinearity

Variable	VIF	Tolerance (1/VIF)
$\ln DHI_i$	1.77	0.563667
$\ln REMIT_i$	1.20	0.833117
$\ln HSIZE_i$	1.96	0.509010
$\ln SCHL_i$	1.92	0.521520
$\ln EDUHH_i$	1.56	0.642273
$\ln AGEHH_i$	1.09	0.917992
Mean	1.58	0.664597

Breusch-Pagan / Cook-Weisberg Test for Heteroscedasticity

H_0 : Homoscedastic
H_1 : Heteroscedastic
Variables: fitted values of $\ln EDUC_i$
Critical Region: $\chi^2 = 5189.64$
Prob > $\chi^2 = 0.0000$
Reject H_0 : The model is heteroscedastic

Robust Standard Errors Corrective Measure

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	1.0528	0.0064	0.0000	Number of observations	110,837
$\ln REMIT_i$	0.0285	0.0011	0.0000		
$\ln HSIZE_i$	-0.8770	0.0155	0.0000	F (5, 110,830)	15,752.31
$\ln SCHL_i$	0.7878	0.0091	0.0000		
$\ln EDUHH_i$	0.2066	0.0043	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.3927	0.0166	0.0000	R-squared	0.4613
constant	-6.5931	0.0865	0.0000	Root MSE	1.2117

**Appendix 2B: Ordinary Least Squares Regression
Impact of Overseas Employment on the Family Expenditures on Food**

Initial Ordinary Least Squares Regression

Variables ($\ln Y_i = \ln FOOD_i$)	Estimated Coefficient	Standard Error	$P > t $		
$\ln DHI_i$	0.5842	0.0011	0.0000	Number of observations	125,586
$\ln REMIT_i$	0.0019	0.0002	0.0000		
$\ln HSIZE_i$	0.2459	0.0027	0.0000	F (6, 125,579)	80107.50
$\ln SCHL_i$	0.0161	0.0017	0.0000		
$\ln EDUHH_i$	-0.0056	0.0008	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	-0.0730	0.0028	0.0000	R-squared	0.7929
constant	3.4380	0.0150	0.0000	Root MSE	0.2522

Variance Inflation Factor (VIF) Test for Multicollinearity

Variable	VIF	Tolerance (1/VIF)
$\ln DHI_i$	1.79	0.559718
$\ln REMIT_i$	1.19	0.837081
$\ln HSIZE_i$	1.99	0.503561
$\ln SCHL_i$	1.91	0.523349
$\ln EDUHH_i$	1.54	0.650200
$\ln AGEHH_i$	1.11	0.900807
Mean	1.59	0.662453

Breusch-Pagan / Cook-Weisberg Test for Heteroscedasticity

H_0 : Homoscedastic
H_1 : Heteroscedastic
Variables: fitted values of $\ln FOOD_i$
Critical Region: $\chi^2 = 9126.10$
Prob > $\chi^2 = 0.0000$
Reject H_0 : The model is heteroscedastic

Robust Standard Errors Corrective Measure

Variables ($\ln Y_i = \ln FOOD_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	0.5842	0.0015	0.0000	Number of observations	125,586
$\ln REMIT_i$	0.0019	0.0002	0.0000		
$\ln HSIZE_i$	0.2459	0.0029	0.0000	F (6, 125,579)	54520.29
$\ln SCHL_i$	0.0161	0.0017	0.0000		
$\ln EDUHH_i$	-0.0056	0.0009	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	-0.0730	0.0028	0.0000	R-squared	0.7929
constant	3.4380	0.0180	0.0000	Root MSE	0.2522

Appendix 3: Regional Regression

Ordinary Least Squares Regression Results for Ilocos

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	1.0920	0.0281	0.0000	Number of observations	8,598
$\ln REMIT_i$	0.0104	0.0031	0.0001		
$\ln HSIZE_i$	-0.7275	0.0594	0.0000	F (6, 8,591)	784.60
$\ln SCHL_i$	0.7293	0.0327	0.0000		
$\ln EDUHH_i$	0.1844	0.0169	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.4513	0.0582	0.0000	R-squared	0.3440
constant	-7.4521	0.3293	0.0000	Root MSE	1.227

Ordinary Least Squares Regression Results for Cagayan

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	1.0971	0.0298	0.0000	Number of observations	7,052
$\ln REMIT_i$	0.0164	0.0041	0.0000		
$\ln HSIZE_i$	-1.1416	0.0670	0.0000	F (6, 7,045)	668.90
$\ln SCHL_i$	0.9433	0.0393	0.0000		
$\ln EDUHH_i$	0.1357	0.0167	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.6251	0.0668	0.0000	R-squared	0.4046
constant	-7.3401	0.3673	0.0000	Root MSE	1.2192

Ordinary Least Squares Regression Results for Central Luzon

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	1.2621	0.0232	0.0000	Number of observations	12,093
$\ln REMIT_i$	0.0401	0.0024	0.0000		
$\ln HSIZE_i$	-0.9688	0.0431	0.0000	F (6, 12,086)	1,432.61
$\ln SCHL_i$	0.6122	0.0252	0.0000		
$\ln EDUHH_i$	0.2095	0.0133	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.2348	0.0490	0.0000	R-squared	0.4152
constant	-8.3123	0.2945	0.0000	Root MSE	1.1892

Ordinary Least Squares Regression Results for Bicol

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	1.0768	0.0211	0.0000	Number of observations	10,131
$\ln REMIT_i$	0.0217	0.0043	0.0000		
$\ln HSIZE_i$	-0.8456	0.0456	0.0000	F (6, 10,124)	1,350.48
$\ln SCHL_i$	0.8798	0.0285	0.0000		
$\ln EDUHH_i$	0.1258	0.0156	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.2312	0.0485	0.0000	R-squared	0.4770
constant	-6.1388	0.2773	0.0000	Root MSE	1.081

Ordinary Least Squares Regression Results for Western Visayas

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	1.2805	0.0231	0.0000	Number of observations	10,965
$\ln REMIT_i$	0.0176	0.0035	0.0000		
$\ln HSIZE_i$	-0.9001	0.0510	0.0000		
$\ln SCHL_i$	0.7887	0.0299	0.0000	F (6, 10,958)	1,404.15
$\ln EDUHH_i$	0.1204	0.0140	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.3770	0.0528	0.0000	R-squared	0.4534
constant	-9.1396	0.3016	0.0000	Root MSE	1.1856

Least Squares Regression Results for Central Visayas

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	1.0711	0.0222	0.0000	Number of observations	10,173
$\ln REMIT_i$	0.0342	0.0036	0.0000		
$\ln HSIZE_i$	-1.1511	0.0509	0.0000		
$\ln SCHL_i$	0.8639	0.0306	0.0000	F (6, 10,166)	1,785.35
$\ln EDUHH_i$	0.2706	0.0141	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.3382	0.0519	0.0000	R-squared	0.5165
constant	-6.4091	0.3015	0.0000	Root MSE	1.2242

Ordinary Least Squares Regression Results for Eastern Visayas

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	1.0312	0.0244	0.0000	Number of observations	8,747
$\ln REMIT_i$	0.0168	0.0040	0.0000		
$\ln HSIZE_i$	-0.6883	0.0521	0.0000		
$\ln SCHL_i$	0.8421	0.0307	0.0000	F (6, 8,740)	1,147.62
$\ln EDUHH_i$	0.2471	0.0139	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.6337	0.0540	0.0000	R-squared	0.4646
constant	-7.6548	0.3071	0.0000	Root MSE	1.1194

Ordinary Least Squares Regression Results for Western Mindanao

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	0.9551	0.0234	0.0000	Number of observations	6,438
$\ln REMIT_i$	0.0220	0.0049	0.0000		
$\ln HSIZE_i$	-0.8051	0.0679	0.0000		
$\ln SCHL_i$	0.8096	0.0394	0.0000	F (6, 6,431)	1,048.88
$\ln EDUHH_i$	0.1901	0.0167	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.7211	0.0658	0.0000	R-squared	0.4978
constant	-6.8955	0.3148	0.0000	Root MSE	1.1026

Ordinary Least Squares Regression Results for Northern Mindanao

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	1.1344	0.0239	0.0000	Number of observations	7,792
$\ln REMIT_i$	0.0254	0.0049	0.0000		
$\ln HSIZE_i$	-0.7789	0.0566	0.0000		
$\ln SCHL_i$	0.7906	0.0364	0.0000	F (6, 7,785)	1,275.25
$\ln EDUHH_i$	0.1705	0.0157	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.2905	0.0565	0.0000	R-squared	0.4898
constant	-7.3606	0.3185	0.0000	Root MSE	1.2067

Ordinary Least Squares Regression Results for Southern Mindanao

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	1.0534	0.0244	0.0000	Number of observations	7,618
$\ln REMIT_i$	0.0419	0.0042	0.0000		
$\ln HSIZE_i$	-0.6533	0.0541	0.0000		
$\ln SCHL_i$	0.5992	0.0301	0.0000	F (6, 7,611)	1,090.68
$\ln EDUHH_i$	0.1839	0.0165	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.2326	0.0635	0.0000	R-squared	0.4677
constant	-6.1615	0.3306	0.0000	Root MSE	1.1379

Ordinary Least Squares Regression Results for Central Mindanao

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	0.8698	0.0269	0.0000	Number of observations	7,549
$\ln REMIT_i$	0.0148	0.0047	0.0002		
$\ln HSIZE_i$	-0.6400	0.0702	0.0000		
$\ln SCHL_i$	0.7386	0.0390	0.0000	F (6, 7,542)	549.77
$\ln EDUHH_i$	0.2046	0.0163	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.4879	0.0721	0.0000	R-squared	0.3581
constant	-4.9066	0.3710	0.0000	Root MSE	1.1412

Ordinary Least Squares Regression Results for Metro Manila

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	1.4355	0.0204	0.0000	Number of observations	13,681
$\ln REMIT_i$	0.0366	0.0024	0.0002		
$\ln HSIZE_i$	-1.1127	0.0443	0.0000		
$\ln SCHL_i$	0.7552	0.0257	0.0000	F (6, 13,674)	2,812.03
$\ln EDUHH_i$	0.2325	0.0119	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.1258	0.0538	0.0019	R-squared	0.4765
constant	-10.5283	0.2737	0.0000	Root MSE	1.3433

Appendix 4: Income Decile Regression

Ordinary Least Squares Regression Results for Income Decile 1

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	1.3322	0.0531	0.0000	Number of observations	6,491
$\ln REMIT_i$	-0.0077	0.0075	0.3090		
$\ln HSIZE_i$	-0.4633	0.0503	0.0000	F (6, 6,484)	239.06
$\ln SCHL_i$	0.6488	0.0311	0.0000		
$\ln EDUHH_i$	0.1839	0.0211	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.1693	0.0505	0.0001	R-squared	0.2065
constant	-9.3057	0.6197	0.0000	Root MSE	0.93808

Ordinary Least Squares Regression Results for Income Decile 2

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	1.0202	0.0694	0.0000	Number of observations	10,409
$\ln REMIT_i$	0.0196	0.0052	0.0000		
$\ln HSIZE_i$	-0.5750	0.0485	0.0000	F (6, 10,402)	240.71
$\ln SCHL_i$	0.6710	0.0273	0.0000		
$\ln EDUHH_i$	0.1865	0.0159	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.3419	0.0490	0.0000	R-squared	0.1273
constant	-6.4072	0.8089	0.0000	Root MSE	0.98311

Ordinary Least Squares Regression Results for Income Decile 3

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	1.1107	0.0782	0.0000	Number of observations	11,920
$\ln REMIT_i$	0.0061	0.0042	0.1490		
$\ln HSIZE_i$	-0.7696	0.0451	0.0000	F (6, 11,913)	268.26
$\ln SCHL_i$	0.8157	0.0255	0.0000		
$\ln EDUHH_i$	0.2226	0.0158	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.0653	0.0441	0.1390	R-squared	0.1440
constant	-6.2388	0.9297	0.0000	Root MSE	0.98622

Ordinary Least Squares Regression Results for Income Decile 4

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	1.0596	0.0733	0.0000	Number of observations	12,250
$\ln REMIT_i$	0.0103	0.0039	0.0080		
$\ln HSIZE_i$	-0.7560	0.0418	0.0000	F (6, 12,243)	260.28
$\ln SCHL_i$	0.7065	0.0237	0.0000		
$\ln EDUHH_i$	0.1711	0.0143	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.2991	0.0458	0.0000	R-squared	0.1116
constant	-6.4310	0.8956	0.0000	Root MSE	1.0199

Ordinary Least Squares Regression Results for Income Decile 5

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	1.2619	0.0981	0.0000	Number of observations	11,597
$\ln REMIT_i$	0.0298	0.0033	0.0000		
$\ln HSIZE_i$	-0.8195	0.0520	0.0000		
$\ln SCHL_i$	0.7560	0.0310	0.0000	F (6, 11,590)	220.54
$\ln EDUHH_i$	0.2124	0.0160	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.6571	0.0543	0.0000	R-squared	0.1165
constant	-10.2127	1.2110	0.0000	Root MSE	1.1768

Ordinary Least Squares Regression Results for Income Decile 6

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	1.0477	0.0778	0.0000	Number of observations	11,624
$\ln REMIT_i$	0.0117	0.0030	0.0000		
$\ln HSIZE_i$	-0.7783	0.0484	0.0000		
$\ln SCHL_i$	0.7842	0.0258	0.0000	F (6, 11,617)	256.85
$\ln EDUHH_i$	0.1971	0.0151	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.4958	0.0522	0.0000	R-squared	0.1018
constant	-7.1115	0.9842	0.0000	Root MSE	1.1868

Ordinary Least Squares Regression Results for Income Decile 7

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	0.9138	0.0898	0.0000	Number of observations	11,124
$\ln REMIT_i$	0.0218	0.0028	0.0000		
$\ln HSIZE_i$	-0.9628	0.0540	0.0000		
$\ln SCHL_i$	0.7793	0.0297	0.0000	F (6, 11,117)	228.18
$\ln EDUHH_i$	0.1678	0.0139	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.8352	0.0555	0.0000	R-squared	0.1121
constant	-6.4025	1.1252	0.0000	Root MSE	1.2702

Ordinary Least Squares Regression Results for Income Decile 8

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	1.0299	0.1036	0.0000	Number of observations	11,261
$\ln REMIT_i$	0.0366	0.0027	0.0000		
$\ln HSIZE_i$	-1.0170	0.0547	0.0000		
$\ln SCHL_i$	0.9001	0.0334	0.0000	F (6, 11,254)	239.47
$\ln EDUHH_i$	0.1909	0.0127	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.4313	0.0573	0.0000	R-squared	0.1119
constant	-6.3481	1.3238	0.0000	Root MSE	1.3654

Ordinary Least Squares Regression Results for Income Decile 9

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	1.2587	0.0832	0.0000	Number of observations	11,458
$\ln REMIT_i$	0.0461	0.0025	0.0000		
$\ln HSIZE_i$	-1.3431	0.0515	0.0000		
$\ln SCHL_i$	0.8235	0.0316	0.0000	F (6, 11,451)	331.57
$\ln EDUHH_i$	0.1788	0.0112	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.4821	0.0599	0.0000	R-squared	0.1383
constant	-8.9094	1.1189	0.0000	Root MSE	1.4453

Ordinary Least Squares Regression Results for Income Decile 10

Variables ($\ln Y_i = \ln EDUC_i$)	Estimated Coefficient	Robust Standard Error	$P > t $		
$\ln DHI_i$	0.8719	0.0283	0.0000	Number of observations	12,703
$\ln REMIT_i$	0.0231	0.0022	0.0000		
$\ln HSIZE_i$	-1.1038	0.0440	0.0000		
$\ln SCHL_i$	0.9161	0.0273	0.0000	F (6, 12,696)	612.56
$\ln EDUHH_i$	0.2144	0.0094	0.0000	Prob > F	0.0000
$\ln AGEHH_i$	0.3465	0.0585	0.0000	R-squared	0.2154
constant	-3.4709	0.4199	0.0000	Root MSE	1.4178

Appendix 5: Panel Data Regression

Since the dataset includes major degree programs (cross-sectional entities) across years (time periods), a panel data regression is deemed to be appropriate. Although the Ordinary Least Squares (OLS) Regression method could directly be implemented via the Pooled Model (also known as Naïve Panel Data Model), it has shortcomings such as the non-guarantee of equal marginal effects across college degrees and/or years. Moreover, intercepts across college degree programs are not reasonable to be equal. Autonomous values are not necessarily and are not always expected to be equal across degree programs. Furthermore, the estimates of the pooled model are not best, linear, and unbiased due to the existence of the inherent unobserved heterogeneity or unique behavior of the college degree programs being considered.

Therefore, a panel data model must be undertaken. Aside from the need to capture the individual differences across college degree programs, a panel data model increases the number of observations available; consequently, there would be more degrees of freedom which would result to high efficiency in inferences.

There are a number of available panel data models that could be utilized to model the factors that affect the demand for higher education. There is the Least Squares Dummy Variable (LSDV) Fixed Effects Linear Panel Model and Random Effects Model. Under the LSDV Fixed Effects Linear Panel Model, it uses dummy variables that would represent each college degree program and would capture effects of changes in categories. It could have an intercept that varies across college degree programs but whose slope coefficients are invariant across years and college degree programs. It could also have an intercept that varies across years but whose slope coefficients are invariant across years and college degree programs. It could also have an intercept that varies across college degree programs and years but whose slope coefficients are invariant across years and college degree programs. Specific tests are done in order to determine which among the abovementioned panel data models is appropriate for the dataset and which could represent the scenario being modeled.

To determine which among the LSDV Fixed Effects Linear Panel Model is the most appropriate, separate regressions of each must be done in order to test the overall significance of the dummies. The regression in which the overall significance of the dummies is highly and statistically significant is the most appropriate LSDV Fixed Effects Linear Panel Model for the dataset.

From the results below of the test of overall significance of dummies, it could be seen that the LSDV Fixed Effects Linear Panel Model with Intercept varying across college degree programs is the most appropriate fixed effects model because it has a 0.0000 probability value and has the farther F-critical region meaning it has the greatest probability that the dummies are not equal to zero. Moreover, it is the only model wherein no variables, whether major variables or dummy variables were dropped.

**LSDV Fixed Effects Linear Panel Model with Intercept varying across years
(Test of Overall Significance of Time Dummies)**

H ₀ : 1993 Dummy Coefficient = 1994 Dummy Coefficient = ... = 2005 Dummy Coefficient = 0
H ₁ : 1993 Dummy Coefficient ≠ 1994 Dummy Coefficient ≠ ... ≠ 2005 Dummy Coefficient ≠ 0
Critical Region: F(12, 69) = 0.07
Prob > F = 1.0000
Reject H ₁ : All time dummy coefficients are equal to 0

Note: The variables $\ln PCRGDP_{it}$, $\ln ARREMTP_{it}$, and the 2005 time dummy were dropped in the regression

**LSDV Fixed Effects Linear Panel Model
With Intercept varying across college degree programs
(Test of Overall Significance of Degree Dummy Coefficients)**

H ₀ : Business and Related Dummy Coefficient = ... = Other Degrees Dummy Coefficient = 0
H ₁ : Business and Related Dummy Coefficient ≠ ... ≠ Other Degrees Dummy Coefficient ≠ 0
Critical Region: F(5, 74) = 34.33
Prob > F = 0.0000
Reject H ₀ : All degree dummy coefficients are not equal to 0

**LSDV Fixed Effects Linear Panel Model
With Intercept varying across college degree programs and years
(Test of Overall Significance of Time and Degree Dummy Coefficients)**

H ₀ : All time and degree dummy coefficients = 0
H ₁ : All time and degree dummy coefficients ≠ 0
Critical Region: F(17, 64) = 8.95
Prob > F = 0.0000
Reject H ₀ : All time and degree dummy coefficients are not equal to 0

Note: The variables $\ln PCRGDP_{it}$, $\ln ARREMTP_{it}$, and the 2005 time dummy were dropped in the regression

After determining which appropriate LSDV Fixed Effects Linear Panel Model would be used, the Wald's Test must be implemented to verify whether this model is better than the pooled model. In this test, the restricted model is the pooled OLS regression while the unrestricted model is the Fixed Effects Model. The F-statistic is given by:

$$F = \frac{(RSS_R - RSS_{UR}) / m}{RSS_{UR} / df_{UR}}$$

Where:

RSS_R is the Residual Sum of Squares for the Restricted Model

RSS_{UR} is the Residual Sum of Squares for the Unrestricted Model

m is the number of restrictions

df_{UR} is the degrees of freedom of the unrestricted model

The null hypothesis is that the Naïve or Pooled Model is better and the alternative hypothesis is that the Fixed Effects Model is the better one. In the regression, the F test statistic is equal to 34.790149, which exceeds the critical value of 2.3365757. Since the F-statistic is highly significant, the null hypothesis that the Naïve

or Pooled Model should be used is rejected; therefore, the better model in this case is the Fixed Effects Model.

Having determined that the Fixed Effects Model is better than the Pooled Model, it is also a necessary requirement to determine which between the Random Effects Model and Pooled Model is better. In order to this, the Breusch and Pagan Lagrangian multiplier test for random effects must be implemented. The null hypothesis for this test would be that the Pooled Model is better than the Random Effects Model. The results of the test revealed that the Random Effects Model is better than the Pooled Model as seen in the test result shown below.

Breusch and Pagan Lagrangian Multiplier Test for Random Effects

$$\ln DHE_{it} = Xb + u[\text{degree}] + e[\text{degree},t]$$

Estimated Results:

Variable	Variance	Standard Error
$\ln DHE_{it}$	0.7605	0.8721
Cross Section Specific Error Component (e)	0.1031	0.3211
Panel Specific Error (u)	0.2976	0.5455
Test: Variance (u) = 0		
Critical Region: $\chi^2 = 230.92$		
Prob > $\chi^2 = 0.0000$		

Having determined that the Random Effects Model is better than the Pooled Model, it is also a necessary requirement to determine which between the Fixed Effects Model and Random Effects Model is better. In order to this, the Hausman test must be implemented. The null hypothesis for this test will be that the Random Effects Model is better than the Fixed Effects Model. The results of the test revealed that the Fixed Effects Model with intercept varying across college degree programs is better than the Random Effects Model because the dataset utilized failed to meet the asymptotic assumptions of the Hausman Test for random effects as reflected by the negative χ^2 test statistic of -2.53.

Since it was deemed that the Fixed Effects Model with intercept varying across college degree programs was the most appropriate model, it is also a requirement to test whether the model violates the assumption of classical linear regression model such as heteroscedasticity, autocorrelation, and multicollinearity.

To test for the presence of heteroscedasticity, the Breusch-Pagan / Cook-Weisberg test for heteroscedasticity must be implemented wherein the null hypothesis is that there is constant variance or the model is homoscedastic and the alternative hypothesis is otherwise. The result of the test revealed that the model is heteroscedastic.

Breusch-Pagan / Cook-Weisberg Test for Heteroscedasticity

H ₀ : Homoscedastic
H ₁ : Heteroscedastic
Variables: fitted values of $\ln DHE_{it}$
Critical Region: $\chi^2 = 36.37$
Prob > $\chi^2 = 0.0000$
Reject H ₀ : The model is heteroscedastic

To test for the presence of autocorrelation, the Wooldridge Test for Autocorrelation in Panel Data must be implemented wherein the null hypothesis is that there is no first order autocorrelation and the alternative hypothesis is otherwise. The result of the test revealed that the model is autocorrelated.

Wooldridge Test for Autocorrelation in Panel Data

H ₀ : No Autocorrelation
H ₁ : With Autocorrelation
Critical Region: $F(1, 5) = 22.932$
Prob > F = 0.0049
Reject H ₀ : The model is autocorrelated

To test for the presence of severe multicollinearity in the model, the Variance Inflation Factor (VIF) test must be implemented. There exists severe multicollinearity when VIF exceeds 10. In the VIF criterion, it could be observed from the result of the test below that the exogenous variable employment possesses serial correlation.

Variance Inflation Factor Test for Multicollinearity

Variable	VIF	Tolerance (1/VIF)
$\ln PCR GDP_{it}$	13.60	0.073530
$\ln ARREMITP_{it}$	3.24	0.308769
$\ln CPISERV_{it}$	13.67	0.073152
$\ln EM_{it}$	29.60	0.033782
Business and Related Dummy	7.31	0.136888
Education Science and Teacher Training Dummy	23.64	0.042310
Engineering and Technology Dummy	14.26	0.070106
Nursing Dummy	3.48	0.287386
Other Degrees Dummy	34.48	0.028998
Mean	15.92	0.1172134

Corrective measures must be implemented to achieve the best, linear, and unbiased estimates for the variables of interest. First, to remedy the existence of heteroscedasticity and autocorrelation, the Cross Sectional Time Series Feasible Generalized Least Squares (FGLS) Regression must be implemented. This is a regression technique that is similar to the Generalized Least Squares (GLS) except that it uses an estimated variance-covariance matrix since the true matrix is not directly known (Gujarati, 2003). On the other hand, in order to remedy the prevalence of severe multicollinearity, Gujarati (2003) suggested dropping of variables. Removing the multicollinear variable from the general model will yield the result shown below. However, the effect of the employment variable could not just be dropped so another

regression was undertaken to account for and determine the relation of employment on the demand for higher education.

Implementing the FGLS Regression technique to remedy presence of heteroscedasticity and autocorrelation will yield the result shown below.

Cross-sectional time-series FGLS regression (Without Employment)

Variables ($\ln Y_{it} = \ln DHE_{it}$)	Estimated Coefficient	Standard Error	$P > t $		
$\ln PCR GDP_{it}$	3.5052	0.1998	0.000	Number of observations	84
$\ln ARREMITP_{it}$	0.1156	0.0252	0.000		
$\ln CPISERV_{it}$	-0.4424	0.0443	0.000	Number of Groups	6
$\ln EM_{it}$	-0.0636	0.0299	0.033	Time Periods	14
Business and Related Dummy	1.4621	0.0550	0.000	Wald chi2(9)	14,368.37
Education Science and Teacher Training Dummy	1.2285	0.1043	0.000	Prob > chi2	0.0000
Engineering and Technology Dummy	1.0647	0.0858	0.000	Estimated Covariances	21
Nursing Dummy	-0.3376	0.2276	0.138	Estimated autocorrelations	0
Other Degrees Dummy	2.2034	0.1293	0.000	Estimated coefficients	10
constant	5.2298	0.3818	0.000	Log likelihood	78.24818

Given the results of the corrective measure, it could be noticed that the employment variable is counterintuitive but significant. This is suspected to be the consequence of the presence of a serially correlated variable. Rerunning the model without the multicollinear variable will yield the result shown below.

Cross-sectional time-series FGLS regression (Without Employment)

Variables ($\ln Y_{it} = \ln DHE_{it}$)	Estimated Coefficient	Standard Error	$P > t $		
$\ln PCR GDP_{it}$	3.3381	0.2029	0.000	Number of observations	84
$\ln ARREMITP_{it}$	0.0901	0.0248	0.000		
$\ln CPISERV_{it}$	-0.4082	0.0456	0.000	Number of Groups	6
Business and Related Dummy	1.3705	0.0320	0.000	Time Periods	14
Education Science and Teacher Training Dummy	1.0477	0.0611	0.000	Wald chi2(8)	12994.20
Engineering and Technology Dummy	0.9277	0.0515	0.000	Prob > chi2	0.0000
Nursing Dummy	-0.3895	0.2232	0.081	Estimated Covariances	21
Other Degrees Dummy	1.9824	0.0789	0.000	Estimated autocorrelations	0
constant	4.8401	0.3479	0.000	Estimated coefficients	9
				Log likelihood	77.59885

Dropping the multicollinear variable improved the individual significance of all variables at the same time maintaining the impacts of all exogenous variables to the endogenous variable, demand for higher education. However, the impact of employment on demand for higher education could not just be ignored. Shown below is the result of the individual panel FGLS regression that estimates the impact of enrollment on the demand for higher education.

Cross-sectional time-series FGLS regression (Employment alone)

Variables ($\ln Y_{it} = \ln DHE_{it}$)	Estimated Coefficient	Standard Error	$P > t$	Number of observations	84
$\ln EM_{it}$	0.3913	0.0287	0.000	Number of Groups	6
				Time Periods	14
Business and Related Dummy	0.8072	0.0472	0.000	Wald chi2(8)	10935.33
Education Science and Teacher Training Dummy	-0.0642	0.1064	0.546	Prob > chi2	0.0000
Engineering and Technology Dummy	0.0857	0.0678	0.206	Estimated Covariances	21
Nursing Dummy	-0.7089	0.2082	0.001	Estimated autocorrelations	0
Other Degrees Dummy	0.6234	0.1369	0.000	Estimated coefficients	7
constant	7.3331	0.3159	0.000	Log likelihood	57.21127