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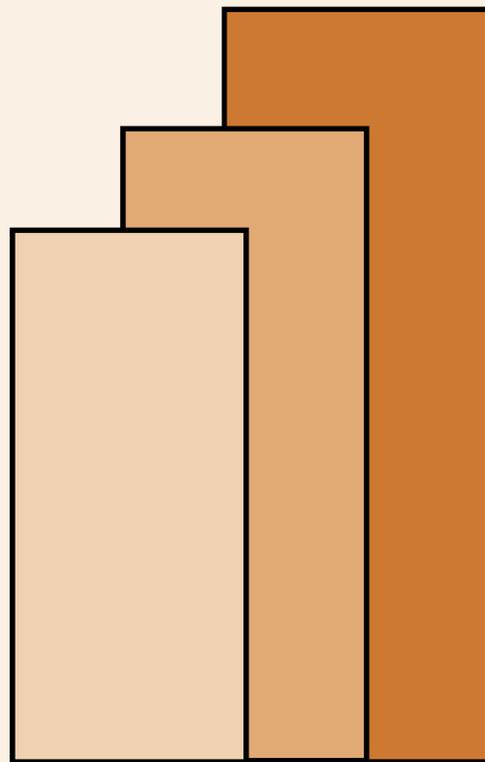
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Human Resource Aspect in the Medium-Term National Action Agenda for Productivity (MNAAP)

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Abstract

Berhman (1990) cited the Philippines as one of the few countries where the otherwise well accepted positive relationship between human capital investments and economic growth seems to fail. This reveals a lot about the link between productivity and skill production in this country. This paper reviews the issues and research gaps in the human resource dimension of the productivity puzzle. After reviewing the main issues in this area, the paper proceeded with augmenting the list of research issues and gaps identified in the human resource portion of the MNAAP strategy paper with other research issues and gaps.

Keywords: Human resources, Philippines

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*Aniceto C. Orbeta, Jr.*¹

A. Introduction

The contribution of human resources in the economic growth of a country is seldom put into question. However, Berhman (1990) pointed out that empirical evidence on this relationship seems not to hold very well in some countries such as the Philippines, Cuba, Sri Lanka, Kerala in India, Brazil and Togo. To be included among the outliers reveals a lot about the link between productivity and skill production in this country.

This paper reviews the issues and research gaps in the human resource dimension of the productivity puzzle. It attempts to augment the human resource portion of the document entitled “Human Resource and Labor Management Relations” in the MNAAP strategy paper with other research issues and gaps. The next section identifies the key issues in the human resource development in the country. This is followed by a review of the main proposals in the area of human resource development identified in the MNAAP paper. The final section lists additional research gaps in the productivity puzzle.

B. Issues in Human Resource Development

1. Professional Higher Education

Structure of Student Enrollment and Graduation. The bulk (at least 75%) of the tertiary students are enrolled in private schools (Table 1). Commerce or business management attracts the largest proportion of students. The other major concentrations of students are in the medical, engineering and teacher education fields. Considerable proportions are also in the arts and sciences, maritime

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education and more recently information technology (Table 2). The structure of graduates closely follows that of enrollment.

Institutional Orientation and Associated Characteristics. James (1991) identified three types of higher education institutions (HEIs) based on institutional orientations and associated characteristics. These are private non-profit, private for-profit and public institutions. Private non-profit institutions (mostly religious) are aiming at the prestige and high quality market. These institutions are associated with small classes, selective admissions, low enrollments and high tuition, receive considerable grant money. The private for-profit institutions are aiming at the mass market. These institutions are associated with large classes, nonselective admissions, high enrollment, low tuition and presumably high profits. The public institutions are characterized as low cost with selective enrollments. I believe the public institutions need to be broken down further into two groups to separate the nonselective and low cost types from the low cost selective enrollment types.

Faculty. The members of the faculty of most higher education institutions have inadequate academic preparations, are toiling with a heavy teaching load and have virtually no research activity. Tulao (1999) cited glaring indications of the relative inadequacy in academic preparations of the faculty in tertiary schools. Accordingly, in 1996-97 only a little over 7% hold doctorate degrees and 25% holds masters degrees. In addition, normal teaching load is more than 30 units per semester when international standards puts it at 12 units. It is therefore not surprising that research is virtually non-existent among the faculty of tertiary institutions. Arcelo (1998) also highlighted the lack of world-class academic credentials nor impressive track records in the conduct of research of faculty members of many graduate schools.

Research in HEIs. The only research activity done in tertiary schools are those related towards the fulfillment of the requirements for a graduate program. Tullao (1999) cites Bernardo (1998) which surveyed the researches in higher education between 1975-1996. He finds: (1) higher education research is conducted mostly by graduate students as a degree requirement; (2) many researches address three broad topics which could be considered highly

'researchable' but not always significant; (3) most other topic areas receive only moderate amount of research attention; (4) some very important problem areas are virtually ignored by higher education researchers; (6) very few researches attempt to develop, validate, or apply theories relating to higher education concerns; (7) most researchers address very narrow concerns and use very confined designs and restricted samples; and (8) recently, large research institutions and organizations have been conducting large scale, integrative research studies on many important issues facing higher education.

Arcelo (1998) cited the lack of awareness of the availability of research funds, lack of know how in preparing research proposals and lack of capability in managing research projects as reasons why there is virtually no research in graduate schools.

Tulao (1999) listed the constraints that inhibit the growth of research in graduate schools. These are: (1) Both faculty and students are in graduate schools on a part-time basis; (2) Graduate programs are concentrated in two fields: education and MBA programs; (3) Lack of funding owing to the the private character of many graduate schools; no immediate and tangible returns and cost are tremendous

Doubtful Quality of Graduates. The recorded average passing rate in licensure examinations is only around 40% (Table 3). If less than half of the graduates get to practice their chosen professions, then schools are not doing enough to prepare the students and lots of private and public money maybe wasted.

Small Number of Institutions have Programs that are Accredited. Tulao (1999) estimates that only 14% of HEIs have programs that have been accredited. He even admitted that this might even be an overestimate since his count considers one program per institution when in fact several accredited programs may belong to one higher education institution (HEI).

Trifocal Management Structure. The management of the education system was overhauled in 1994 with the Higher Education Act of 1994 (RA 7722)

which created the Commission on Higher Education (CHED) that is to be responsible for higher education. The Higher Education Modernization Act of 1997 further clarified the relationship of CHED with the state universities and colleges (SUCs). The Technical Education and Skills Development Act of 1994 (RA 7796) created the Technical Education and Skills Authority (TESDA) which is responsible for this particular sector of post secondary education. Prior to 1994, higher education used to be supervised by the Department of Education Culture and Sports (DECS) which is now responsible for basic education. It has been noted that while this management structure has its advantages, it also has its downside the primary of which is the problem of coordination for the whole system. It has even been proposed that a nation council for coordination be created to address this coordination problem.

Center of Development / Excellence. Under RA 772 the CHED is mandated to constitute technical panels for the different disciplines to assist it in setting up academic standards and the monitoring and evaluation of programs and higher education institutions. Technical panels in nine clusters² of discipline have already been constituted. One of the specific tasks of the panels is to assist the CHED in identifying Centers of Development / Excellence (COD/COE). Criteria for selection of COD/COE include: (1) accredited level 2 or 3; (2) highly educated, professionally qualified and experienced faculty to philosophy, mission, vision and goals of the institution and education; (3) well-selected students; (4) adequate library, research and facilities; (5) competent administrative and support staff; (6) well-planned and relevant instructional programs; (7) adequate student development programs; (8) relevant extension service and outreach programs; and (9) percentage of graduates who become teachers.

² (1) Science and Mathematics; (2) Business and Management Education; (3) Engineering and Architecture; (4) Humanities, Sociology and Communication; (5) Agricultural Education; (6) Health Profession Education; (7) Teacher Education; (8) Information Technology; and (9) Maritime Education.

2. Technical and Vocational Education and Training (TVET)

Structure of Provision. The primary provider of TVET is the private sector. As much as 77% of the schools offering post-secondary, non-degree courses are private. In terms of enrollment and graduation, the proportion of trainees enrolled in and who graduated from private institutions goes even higher (Table 4). This is corroborated by the distribution of the number of the working age population who have completed TVET taken from the 1994 FLEMMS which showed that about 55% got their training from private training institutions or schools (Table 5). This increases to 63% when considering only post-secondary courses. A large proportion of TVET is done by higher education institutions. The 1994 FLEMMS shows that as much as 38% of the working age population got their training from tertiary schools. It was noted by the World Bank (1999) Education Sector Study that more than half of public spending in TVET is absorbed by state universities and colleges.

Structure of TVET Graduates. From the 1994 FLEMMS survey, more than one-third of the working age population who have completed TVET have taken crafts and related courses (Table 5). The other popular courses are automotive and transport courses, office and clerical courses, and service and sales courses. Computer course is attracting a considerable proportion of trainees although this must be a recent phenomenon.

Absorption of Trainees. Table 6 shows that the unemployment rate of those who have completed training is considerably higher than the national average unemployment rate. In terms of the distribution by occupation group of those are employed, it is not surprising that compared to the general distribution of workers, there is over representation of those who have completed TVET in the production and related workers group (Table 7).

Using a smaller survey, public and private training graduates were also found to have higher unemployment rate than the national average of persons of similar age and educational attainment. Training, however, have positive impact on employment and private sector short-course training have the greatest impact

increasing the probability of paid employment by 22.5% (Hunting and Godfrey 1996).

Quality of Graduates. It appears that the quality of graduates from vocational and technical schools is low. Between 1989 to 1995, the proportion of those certified is under 50% (except for 1993) of those that were tested (Table 8).

3. Firm and Industry-Based Training

There is very little information on firm and industry based training. A very recent limited survey involving some 500 manufacturing firms, revealed that more than half (52%) have formal training. The proportion of firms having formal training is highest for the electrical machinery group (62%) and lowest for the textiles, wearing apparel and leather firms (44%) (Lamberte et al 1999). A similar estimate (60%) of the proportion of firms provides systematic training and invested significantly in the training of employees (Gray 1996). Most of these firms have employed more than 50 persons. Smaller firm also train but less often and in less formal manner.

C. On the Proposed MNAAP Strategies and Actions

Gaps. The human resource aspect of the MNAAP report listed the following gaps: (a) weak human resource base in S&T both in government and private sector; (b) citizenry's lack of appreciation of productivity and quality and its impact on improving their quality of life; (c) weak industry-academe linkages and mismatch of skills need by industry and graduates of academe; and (d) need to realign the national educational system to address the goal of global competitiveness.

The foregoing discussions indeed emphasized the weak S&T human resource base in the country. As earlier noted, tertiary graduates tend to concentrate on business and allied disciplines. In addition to the shallow S&T human resource base, the quality of tertiary graduates is low. Furthermore, there is not only a weak linkage between industry and academe but there appears to be a

virtual absence of research activities in tertiary institutions. The weak linkage between the academe and industry means skills mismatch can be addressed by retraining. Lack of research activities, on the other hand, means no production of knowledge that industry can use in the near future or total dependence on imported technology which may not be appropriate for the country's resource base.

Goals, Policies and Strategies. The human-resource-related goals mentioned in the MNAAP include: (a) establish world-class human resource pool that would sustain the country's economic gains and allow it to compete globally in the next millennium; and (b) instill the concepts of quality and productivity not only in the workplace but in the everyday life of Filipinos. In terms of policies and strategies, the following are listed: (a) strengthen linkages among DECS, CHED and TESDA and the private sector in matching the skills and education system with the needs of the industry; and (b) infusion of productivity and quality concepts in the educational system.

Globally competitive workforce is indeed desirable but these should be supportive of domestic industry requirements otherwise the country may become only a training ground for workers in foreign companies. Thus, one cannot overemphasize the importance of strengthening the industry-academe linkage. In addition to strengthening the industry-academe links we need to find ways to make this linkages sustainable and mutually beneficial.

Creating the productivity and quality consciousness from the demand side will go a long way in improving productivity. But making industries demand productivity and quality through competition is equally important.

D. Areas for further research

Strengthening the link between industry and the academe. One of the two main themes of the MNAAP document is strengthening the link between industry and the academe. It is therefore important to determine the modalities of implementing this by a review of what works and what doesn't work both here and in other countries. This research will document experiences of skill production and

skill utilization in different settings. In addition, there is a need to identify and gather benchmark data on measures of skills mismatch since this is the clearest indication of how loose is the link between industry and academe.

Increasing Productivity/Quality Awareness. Another theme in the MNAAP document is that increasing productivity and quality awareness will go a long way to boost productivity in the country. The strategy identified is by including productivity and quality consciousness in the school curricula. The research problem would be designing these interventions to the school curricula. In addition, it will be beneficial to compare the impact of this approach to the accepted approach of subjecting industry to competition as the trigger for productivity and quality enhancements.

In addition to the themes identified in the MNAAP document, following is the list of more focused research issues the resolution of which are deemed important to better understand the productivity puzzle.

Interaction of human resources and comparative advantage in particular sectors. The key issue here is to determine the role of human resources in the country's comparative advantage in particular sectors. In particular, there is the oft-mentioned comparative advantage of Filipinos in information technology. We need to determine which part of the business do we have comparative advantage in. Is it in component production, software engineering, or in back-office services. Obviously, each type need different skills, i.e., low level electronics technicians for the first, top-notch programmers for the second, and encoders and communicators for the third.

Interaction between human resources investments and R&D. Is R&D in this country based on the supply of professional skills? What's the specific role of human resources in R&D? In the MNAAP document the proposal was to enhance the linkages between the academe and industry. This research goes a little bit further by clarifying the relationship between human resource pool and R&D.

Wage and Productivity Link. How wages and productivity interact is very important issue to resolve. This study should include the impact of the structure of wages on skill acquisition and utilization. The legislative agenda of the MNAAP report identified as part of the legislative agenda the Amendatory Bill for RA 6971 which seeks to encourage business enterprises to establish productivity improvement programs and productivity gain sharing programs by providing incentives to both workers and employers. It is interesting to know how much of the proposals stipulated in this bill are backed up by solid research evidence.

Implications of Private-Public Sector Mix and the Role of Government in Professional Education. Tertiary education is known to have higher private than social returns. It is therefore efficient to maintain the dominance of private provision of higher education. The downside of this otherwise desirable structure, as is evident in the Philippines, is the oversupply of 'cheap' course offerings such as business and management education and the undersupply of 'expensive' courses such as science and high technology education. The government's role seems to be regulation on the first set of courses and provision and subsidy for the second set of courses to the extent that this are important for improving productivity. However, the stance of government in this area seems to be concentrated in enhancing access to tertiary education given the proliferation of SUCs. A detailed research on these issues will be important to clarify the appropriate role of government in this area if we desire to improve the link between skill production and productivity. This study will partly address the gap identified in the MNAAP document on the need to realign the national educational system to address the goal of global competitiveness.

Review of Private Sector Participation in TVET. Since TVET is much more skill-specific than professional education, the role of the private enterprise is key in improving the efficiency of this sector. This has been thrust of the TESDA law. There is therefore a need to review the extent of implementation and the impact of this thrust on efficiency and effectiveness of TVET. This is a more focused version of the general proposal enhance the link between the industry and the academe, in this case the technical and vocational education and training sector.

Benchmark Study on Firm and Industry Based Training. There is virtually absence of information on this important aspect of the skill production. The MNAAP document dismissed this aspect of the training infrastructure by stating that there is “reluctance of management to institute training programs for fear of losing workers, who may transfer to higher paying jobs, once trained.” Only research and data can refute or support his statement.

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Table 1
PRE-SCHOOL, ELEMENTARY AND SECONDARY ENROLMENT IN GOVERNMENT AND PRIVATE SCHOOLS
SY 1969-70 TO SY 1998-99

School Year	Elementary			Secondary			Tertiary		
	Total ('000)	Govt. (%)	Private (%)	Total ('000)	Govt. (%)	Private (%)	Total ('000)	Govt. (%)	Private (%)
1969-70	6,856	95.1	4.9	1,601	42.2	57.8	638	10.2	89.8
1974-75	7,429	94.8	5.2	2,112	46.2	53.8	712	13.8	86.2
1979-80	8,227	95.0	5.0	2,767	53.8	46.2	1,209	15.3	84.8
1984-85	8,794	94.0	6.0	3,323	58.9	41.1	1,545	16.7	83.3
1989-90	10,285	93.4	6.6	3,962	63.5	36.5	1,516	15.0	85.0
1994-95	10,904	92.5	7.5	4,763	68.4	31.6	1,872	21.4	78.6
1995-96	11,542	92.6	7.4	4,810	69.2	30.8	2,257	22.6	77.4
1996-97	11,903	92.5	7.5	4,888	70.5	29.5	2,632	22.2	77.8
1997-98	12,225	92.4	7.6	5,019	72.0	28.0			
1998-99	12,475	92.6	7.4	5,066	73.8	26.2			

Source: Department of Education, Culture and Sports

Table 2
TERTIARY ENROLMENT AND GRADUATION, BY FIELD OF STUDY
SY 1990-91 TO SY 1996-97

Field of Study	1991-92				1992-93				1993-94				1994-95				1995-96				1996-97			
	Enrolment		Graduation		Enrolment		Graduation		Enrolment		Graduation		Enrolment		Graduation		Enrolment		Graduates		Enrolment		Graduates	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Arts and Sciences	177,525	11.6	-	-	178,035	11.5	31,245	8.8	182,093	11.6	30,700	9.6	199,971	12.3	29,277	9.4	226,111	11.5	30,842	9.4	211,268	9.5		
Teacher Training and Education	232,978	15.3	-	-	211,060	13.7	47,335	13.3	204,655	13.1	49,591	15.5	211,615	13.1	42,591	13.6	276,046	14.0	45,545	13.9	301,148	13.6		
Engineering and Technology	205,566	13.5	-	-	194,608	12.6	70,551	19.8	194,406	12.4	33,426	10.5	227,620	14.0	31,525	10.1	275,695	14.0	41,306	12.6	339,306	15.3		
Medical and Health Related Program	278,026	18.2	-	-	267,291	17.3	58,160	16.4	253,096	16.2	45,057	14.1	233,567	14.4	63,811	20.4	238,988	12.1	47,483	14.5	200,122	9.0		
Commerce/Business Management	360,466	23.6	-	-	398,314	25.8	69,045	19.4	402,258	25.7	84,592	26.5	434,406	26.8	87,131	27.9	603,575	30.6	96,665	29.5	775,355	34.9		
Agriculture, Forestry, Fishery and Veterinary Medicine	50,534	3.3	-	-	52,818	3.4	11,016	3.1	56,806	3.6	10,923	3.4	56,445	3.5	11,956	3.8	72,656	3.7	15,633	4.8	71,228	3.2		
Law	14,578	1.0	-	-	14,279	0.9	4,620	1.3	14,338	0.9	2,834	0.9	16,882	1.0	2,080	0.7	13,983	0.7	2,206	0.7	15,912	0.7		
Religion/Theology	4,924	0.3	-	-	5,430	0.4	1,259	0.4	7,183	0.5	1,496	0.5	6,699	0.4	1,095	0.4	8,262	0.4	1,266	0.4	8,397	0.4		
Information Technology	59,680	3.9	-	-	67,834	4.4	8,225	2.3	79,067	5.1	11,882	3.7	88,616	5.5	11,904	3.8	117,799	6.0	19,494	5.9	153,505	6.9		
Maritime Education	114,887	7.5	-	-	126,014	8.2	51,210	14.4	143,524	9.2	45,310	14.2	144,647	8.9	26,778	8.6	137,584	7.0		0.0		0.0		
Criminology Education	26,269	1.7	-	-	26,733	1.7	2,803	0.8	27,337	1.7	3,561	1.1		0.0	4,519	1.4		0.0		0.0		0.0		
Other Disciplines																			27,680	8.4	144,617	6.5		
TOTAL	1,525,433	100.0	-	-	1,542,416	100.0	355,469	100.0	1,564,763	100.0	319,372	100.0	1,620,468	100.0	312,667	100.0	1,970,699	100.0	328,120	100.0	2,220,858	100.0		

Source : NSCB, 1996 Philippine Statistical Yearbook

Table 3
Number of Examinees and Qualifiers in Licensure Examinations by Calendar Year

Licensure Examination	1994			1995			1996			1997			1998		
	No. of Examinees	Qualifiers		No. of Examinees	Qualifiers		No. of Examinees	Qualifiers		No. of Examinees	Qualifiers		No. of Examinees	Qualifiers	
		Number	%		Number	%		Number	%		Number	%		Number	%
Accountancy	9,289	1,371	14.8	7,654	1,083	14.1	8,304	1,427	17.2	9,530	1,715	18.0	11,964	2,202	18.4
Aeronautical Engineering	110	36	32.7	118	22	18.6	106	22	20.8	85	15	17.6	88	22	25.0
Agricultural Engineering	228	101	44.3	261	62	23.8	331	191	57.7	393	208	52.9	442	221	50.0
Architecture	1,344	431	32.1	1,491	553	37.1	1,645	601	36.5	1,909	666	34.9	2,239	804	35.9
Interior Design							76	30	39.5	69	22	31.9	110	52	47.3
Landscape Arch.							9	6	66.7	9	6	66.7	14	8	57.1
Chemical Engineering	941	293	31.1	1,113	444	39.9	1,156	363	31.4	1,097	394	35.9	1,222	404	33.1
Chemistry	248	121	48.8	320	127	39.7	341	134	39.3	411	187	45.5	474	184	38.8
Civil Engineering	7,026	2,362	33.6	9,280	3,159	34.0	9,340	3,171	34.0	9,103	2,482	27.3	9,612	2,388	24.8
Criminology	812	409	50.4	1,273	767	60.3	1,689	814	48.2	2,112	1,082	51.2	2,504	1,026	41.0
Custom Broker	4,850	57	1.2	1,018	112	11.0	1,152	123	10.7	1,455	163	11.2	1,145	100	8.7
Dentistry	4,074	882	21.6	4,806	1,087	22.6	4,897	1,516	31.0	4,567	1,503	32.9	4,131	933	22.6
Electrical Engineering	2,453	1,668	68.0	4,859	1,793	36.9	4,507	1,329	29.5						
Electronics & Communication	401	1,237	308.5	3,692	1,935	52.4	3,667	1,693	46.2	3,619	1,810	50.0	4,227	2,097	49.6
Forestry	267	176	65.9	622	363	58.4	989	320	32.4	1,132	360	31.8	894	436	48.8
Geodetic Engineering	17	160	941.2	364	168	46.2	451	179	39.7	494	164	33.2	565	203	35.9
Geology		12		18	9	50.0	25	17	68.0	35	24	68.6	40	22	55.0
Library Science				263	136	51.7	419	186	44.4	451	245	54.3	431	217	50.3
Marine Deck (3rd Mate)	3,102	332	10.7	3,650	619	17.0	4,240	978	23.1	4,338	1,732	39.9	4,646	2,087	44.9
Marine Engine (4th Engineer)	4,033	994	24.6	4,509	1,080	24.0	4,992	1,715	34.4	4,372	1,645	37.6	3,785	1,679	44.4
Mechanical Engineering	3,383	1,429	42.2	4,501	1,526	33.9	4,791	1,602	33.4	4,733	1,452	30.7	4,437	1,691	38.1
Medical Technology	3,408	1,639	48.1	3,808	2,350	61.7	2,976	1,032	34.7	2,808	1,445	51.5	3,344	1,670	49.9
Medicine	2,867	2,481	86.5	2,802	2,106	75.2	2,969	2,225	74.9	2,624	1,864	71.0	2,794	1,814	64.9
Mettalurgical Engineering	20	11	55.0	31	20	64.5	40	21	52.5	36	20	55.6	44	25	56.8
Midwifery	17,081	9,238	54.1	12,631	7,502	59.4	8,725	4,515	51.7	6,037	3,134	51.9	4,777	2,279	47.7
Mining Engineering	42	19	45.2	40	4	10.0	39	12	30.8	29	10	34.5	46	31	67.4
Naval Architecture and Marine	21	14	66.7	17	5	29.4	14	5	35.7	18	7	38.9	17	7	41.2
Nursing	41,459	25,477	61.5	38,689	22,532	58.2	25,206	13,658	54.2	19,546	9,776	50.0	17,101	9,541	55.8
Nutrition and Dietetics	693	262	37.8	726	322	44.4	878	490	55.8	798	370	46.4	803	369	46.0
Optometry	582	389	66.8	604	306	50.7	536	293	54.7	448	254	56.7	442	118	26.7
Pharmacy	1,893	1,193	63.0	1,981	1,379	69.6	2,081	1,170	56.2	2,177	1,473	67.7	2,386	1,710	71.7
Physical Therapy	1,220	525	43.0	1,744	635	36.4	2,657	775	29.2	3,278	968	29.5	6,099	1,434	23.5
Occupation Therapy	47	31	66.0	67	33	49.3	145	38	26.2	247	124	50.2	459	168	36.6
Radiologic Technology	1,858	877	47.2	2,700	1,151	42.6	1,172	530	45.2	1,157	430	37.2	1,090	438	40.2
Sanitary Engineering	104	56	53.8	92	45	48.9	78	40	51.3	95	39	41.1	88	47	53.4
Social Work	660	344	52.1	801	467	58.3	1,000	568	56.8	1,292	642	49.7	1,249	600	48.0
Veterinary Medicine	337	125	37.1	323	103	31.9	385	173	44.9	395	178	45.1	401	203	50.6
Law (Bar Exam)**	3,337	1,030	30.9		967			1,217							
Teacher Exam (PBET)***	146,784	36,632	25.0	140,942	25,874	18.4	97,560	26,830	27.5						
Total	265,648	92,414	34.8	257,810	79,879	31.0	199,585	58,792	29.5	90,899	36,609	40.3	94,110	37,230	39.6

Sources:

Professional Regulation Commission, Manila
Philippine Statistical Yearbook , NSCB

** Supreme Court, Manila

*** Civil Service Commission, Quezon City

Table 4
Schools Offering, Enrolment and Graduates of Post-Secondary, Non-Degree Courses, 1987-1995

School Year	Number of Schools			Enrolment			Graduates		
	Total Number	Public %	Private %	Total Number	Public %	Private %	Total Number	Public %	Private %
1987-1988	824	29	71	256,545	15	85	86,271	11	89
1988-1989	865	29	71	271,938	12	88	104,528	7	93
1989-1990	945	35	65	291,000	14	86	150,609	7	93
1990-1991	1,262	27	73	361,736	14	86	165,653	9	91
1991-1992	1,261	27	73	398,307	14	86	167,234	10	90
1992-1993	1,118	30	70	330,901	29	71	*	*	*
1993-1994	1,235	27	73	464,736	24	76	232,854	10	90
1994-1995	1,276	23	77	467,896	23	77	274,789	10	90

* no data available

Source: TESDA Fact Book 1997, 1994 and 1992 (Table 8.10-12)

Table 5
Household Population 15 years old and over who have completed Voc/Tech Course by Course Completed and Types of Institution, 1994 (in hundreds)

Vocational/Technical Course	Total		Training Institutions				School				Training Institution / School				Others	
			Public		Private		Public		Private		Public		Private			
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		
Philippines	30,953	100.0	9,116	29.5	9,391	30.3	4,246	13.7	7,492	24.2	13,362	43.2	16,883.00	54.5	708	2.3
Non-Post Secondary Course	15,353	49.6	5,774	37.6	4,825	31.4	1,905	12.4	2,208	14.4	7,679	50.0	7,033.00	45.8	643	4.2
Technician Course	325	1.0	58	0.4	160	1.0	6	0.0	96	0.6	64	19.7	256.00	78.8	5	0.0
Clerical Course	826	2.7	105	0.7	350	2.3	75	0.5	297	1.9	180	21.8	647.00	78.3	-	-
Service & Sales Courses	2,168	7.0	756	4.9	650	4.2	375	2.4	318	2.1	1,131	52.2	968.00	44.6	69	0.4
Agriculture & Fishery Courses	185	0.6	106	0.7	12	0.1	64	0.4	-	-	170	91.9	12.00	6.5	3	0.0
Craft & Related Courses	10,670	34.5	4,346	28.3	3,258	21.2	1,275	8.3	1,333	8.7	5,621	52.7	4,591.00	43.0	458	3.0
Plant & Machine Operation & Assembly	951	3.1	318	2.1	321	2.1	97	0.6	131	0.9	415	43.6	452.00	47.5	84	0.5
Other Voc/Tech Courses, N.E.C.	228	0.7	84	0.5	74	0.5	14	0.1	33	0.2	98	43.0	107.00	46.9	23	0.1
Post Secondary Course	15,600	50.4	3,342	21.8	4,566	29.7	2,342	15.3	5,285	34.4	5,684	36.4	9,851.00	63.1	65	-
Computer Course	1,645	5.3	205	1.3	707	4.6	102	0.7	625	4.1	307	18.7	1,332.00	81.0	6	0.0
Office/Clerical Courses	2,767	8.9	376	2.4	739	4.8	294	1.9	1,358	8.8	670	24.2	2,097.00	75.8	-	-
Communication & related Trade	1,110	3.6	133	0.9	404	2.6	56	0.4	517	3.4	189	17.0	921.00	83.0	-	-
Electrical Trade	1,291	4.2	441	2.9	297	1.9	298	1.9	248	1.6	739	57.2	545.00	42.2	7	0.0
Electronic Trade	1,293	4.2	311	2.0	424	2.8	227	1.5	322	2.1	538	41.6	746.00	57.7	9	0.1
Refrigeration & Airconditioning Trade	394	1.3	83	0.5	156	1.0	37	0.2	117	0.8	120	30.5	273.00	69.3	-	-
Cosmetology/Beauty Culture	399	1.3	106	0.7	119	0.8	104	0.7	67	0.4	210	52.6	186.00	46.6	4	0.0
Medical & Related Courses	795	2.6	92	0.6	138	0.9	88	0.6	472	3.1	180	22.6	610.00	76.7	4	0.0
Agriculture & Fishery Courses	586	1.9	192	1.3	96	0.6	148	1.0	151	1.0	340	58.0	247.00	42.2	-	-
Automotive & Transport	2,895	9.4	671	4.4	869	5.7	475	3.1	868	5.7	1,146	39.6	1,737.00	60.0	12	0.1
Garment Trade	932	3.0	360	2.3	251	1.6	167	1.1	145	0.9	527	56.5	396.00	42.5	9	0.1
Other Technical Courses	1,492	4.8	373	2.4	365	3.9	346	2.3	394	2.6	719	48.2	759.00	50.9	15	0.1

Details may not add up to totals due to rounding.

Source: TESDA Factbook 1997 (Table 8.34); basic data 1994 FLEMMS

Table 6
Household Population 15 years old and over who have completed Voc/Tech Course by Course Completed and Employment Status during the Past Week, 1994 (in hundreds)

Vocational/Technical Course	Total	Employment Status			
		Employed	%	Not Employed	%
Philippines	30,953	21,220	68.56	9,732	31.44
Non-Post Secondary Course	15,353	10,436	67.97	4,917	32.03
Technician Course	325	169	52.00	156	48.00
Clerical Course	826	503	60.90	323	39.10
Service & Sales Courses	2,168	1,198	55.26	970	44.74
Agriculture & Fishery Courses	185	147	79.46	38	20.54
Craft & Related Courses	10,670	7,503	70.32	3,166	29.67
Plant & Machine Operation & Assembly	951	741	77.92	210	22.08
Other Voc/Tech Courses, N.E.C.	228	175	76.75	54	23.68
Post Secondary Course	15,600	10,784	69.13	4,815	30.87
Computer Course	1,645	943	57.33	701	42.61
Office/Clerical Courses	2,767	1,426	51.54	1,341	48.46
Communication & related Trade	1,110	827	74.50	284	25.59
Electrical Trade	1,291	1,041	80.64	250	19.36
Electronic Trade	1,293	1,044		250	19.33
Refrigeration & Airconditioning Trade	394	325		69	17.51
Cosmetology/Beauty Culture	399	259	64.91	141	35.34
Medical & Related Courses	795	449	56.48	345	43.40
Agriculture & Fishery Courses	586	388	66.21	198	33.79
Automotive & Transport	2,895	2,396	82.76	499	17.24
Garment Trade	932	581	62.34	350	37.55
Other Technical Courses	1,492	1,104	73.99	387	25.94
Memo:					
Total Labor Force, Philippines	274,830	251,660	91.57	23,170	8.43

Details may not add up to totals due to rounding.

Source: TESDA Factbook 1997 (Table 8.35); basic data 1994 FLEMMS

Table 7
Employed Persons 15 Years Old and Over who have completed Voc/Tech Education/Training by Course, Primary Occupation, 1994 (in hundreds)

Vocational/Technical Course	Total	Prof., Techn'l & Rel. Workes		Admn., Exec., & Mangrl Workers		Clerical & Rel. Workers		Sales Workers		Service Workers		Agri., Fish., Ani.Hus. Forestry Workers		Prod'n & Rel.Workers, Transport Eqpt.		Occupation NAD	
		Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Philippines	21,220	1,349	6.4	364	1.7	1,781	8.4	3,176	15.0	2,214	10.4	3,728	17.6	8,423	39.7	187	0.9
Non-Post Secondary Course	10,436	458	4.4	183	1.8	451	4.3	1,750	16.8	1,208	11.6	2,100	20.1	4,200	40.2	88	0.8
Technician Course	169	31	18.3	-	-	40	23.7	23	13.6	9	5.3	5	3.0	62	36.7	-	-
Clerical Course	503	66	13.1	10	2.0	78	15.5	177	35.2	25	5.0	83	16.5	55	10.9	10	2.0
Service & Sales Courses	1,198	31	2.6	5	0.4	44	3.7	298	24.9	581	48.5	109	9.1	129	10.8	-	-
Agriculture & Fishery Courses	147	11	7.5	-	-	-	-	13	8.8	8	5.4	87	59.2	28	19.0	-	-
Craft & Related Courses	7,503	261	3.5	156	2.1	240	3.2	1,098	14.6	538	7.2	1,599	21.3	3,545	47.2	65	0.9
Plant & Machine Operation & Assembly	741	43	5.8	11	1.5	37	5.0	80	10.8	34	4.6	177	23.9	350	47.2	9	1.2
Other Voc/Tech Courses, N.E.C.	175	15	8.6	-	-	12	6.9	60	34.3	12	6.9	40	22.9	32	18.3	4	2.3
Post Secondary Course	10,784	891	8.3	180	1.7	1,330	12.3	1,426	13.2	1,006	9.3	1,628	15.1	4,223	39.2	-	-
Computer Course	943	157	16.6	13	1.4	344	36.5	144	15.3	69	7.3	35	3.7	171	18.1	10	1.1
Office/Clerical Courses	1,426	164	11.5	56	3.9	473	33.2	394	27.6	73	5.1	70	4.9	194	13.6	-	-
Communication & related Trade	827	28	3.4	16	1.9	107	12.9	86	10.4	116	14.0	199	24.1	268	32.4	7	0.8
Electrical Trade	1,041	28	2.7	-	-	59	5.7	57	5.5	97	9.3	166	15.9	613	58.9	11	1.1
Electronic Trade	1,044	50	4.8	-	-	66	6.3	83	8.0	81	7.8	160	15.3	582	55.7	10	1.0
Refrigeration & Airconditioning Trade	325	5	1.5	-	-	11	3.4	20	6.2	34	10.5	49	15.1	200	61.5	6	1.8
Cosmetology/Beauty Culture	259	-	-	6	2.3	5	1.9	38	14.7	169	65.3	19	7.3	22	8.5	-	-
Medical & Related Courses	449	203	45.2	-	-	50	11.1	97	21.6	46	10.2	17	3.8	37	8.2	-	-
Agriculture & Fishery Courses	388	15	3.9	6	1.5	19	4.9	72	18.6	28	7.2	160	41.2	89	22.9	-	-
Automotive & Transport	2,396	43	1.8	39	1.6	90	3.8	131	5.5	160	6.7	570	23.8	1,615	67.4	49	2.0
Garment Trade	581	50	8.6	8	1.4	17	2.9	120	20.7	37	6.4	33	5.7	317	54.6	-	-
Other Technical Courses	1,104	147	13.3	16	1.4	91	8.2	184	16.7	97	8.8	150	13.6	414	37.5	7	0.6
Memo:																	
Total Labor Force, Philippines	251,660	13,660	5.4	3,580	1.4	10,330	4.1	34,460	13.7	23,290	9.3	111,120	44.2	54,930	21.8	290	0.1

Details may not add up to totals due to rounding.

Source: TESDA Factbook 1997 (Table 8.36); basic data 1994 FLEMMS

Table 8
Number of Persons Tested and Certified by Occupational Trades by TESDA:1989-1995

Occupational Trades	1989			1990			1991			1992			1993			1994			1995		
	Tested	Certified		Tested	Certified		Tested	Certified		Tested	Certified		Tested	Certified		Tested	Certified		Tested	Certified	
		Number	%																		
Total	43,465	18,354	42.2	52,138	22,259	42.7	59,015	28,918	49.0	54,392	27,433	50.4	81,840	54,226	66.3	41,658	20,418	49.0	49,686	24,414	49.1
Construction trade	2,663	1,208	45.4	9,170	4,101	44.7	9,408	4,219	44.8	2,341	1,161	49.6	2,611	1,431	54.8	3,976	1,799	45.2	3,213	1,597	49.7
Auto/transport trade	9,649	3,570	37.0	5,172	2,208	42.7	5,766	2,660	46.1	13,228	5,517	41.7	13,394	5,751	42.9	9,313	4,019	43.2	12,519	5,789	46.2
Electrical trade	11,107	5,122	46.1	10,551	5,331	50.5	12,199	5,399	44.3	11,731	5,118	43.6	10,348	5,203	50.3	7,099	3,825	53.9	9,353	4,788	51.2
Mechanical trade	2,505	1,179	47.1	2,014	669	33.2	4,536	1,656	36.5	2,644	1,307	49.4	1,813	1,004	55.4	1,818	801	44.1	1,584	804	50.8
Welding & Steel fabrication	1,647	540	32.8	2,409	843	35.0	2,653	1,054	39.7	1,003	401	40.0	3,067	1,452	47.3	2,884	1,317	45.7	3,042	1,398	46.0
Refrigeration & Air-conditioning	2,181	1,235	56.6	3,609	1,732	48.0	2,345	1,527	65.1	2,540	1,360	53.5	3,104	1,647	53.1	2,085	1,145	54.9	2,576	1,441	55.9
Electronics trade	3,546	958	27.0	7,033	2,177	31.0	6,329	3,598	56.8	6,962	3,860	55.4	5,543	2,024	36.5	4,520	1,996	44.2	4,969	1,999	40.2
Other trades	10,167	4,542	44.7	12,180	5,198	42.7	15,779	8,805	55.8	13,943	8,709	62.5	41,960	35,714	85.1	9,963	5,516	55.4	12,430	6,598	53.1

Source: TESDA Factbook 1997 (Table 8.20)