

ALMP Studies – Training and Retraining in the Philippines

(Draft)

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1. Introduction

1. The paper describes and analyzes the structure and functioning of the market for middle level skilled labor or technical/vocational labor and the role of the government in this market. This labor category will be referred to as TV labor in contrast to the high skilled or professional and scientific labor. The paper uses a labor market framework for analyzing labor supply-demand adjustments. It looks at the interaction between four parties in the labor market - the individuals who decide to acquire skills and supply their skilled labor for productive employment, the educational/training institutions that provide instructional/training facilities to the labor force, the firms that employ TV labor, and the government. Firms include both formal employers of labor that hire workers and informal small family enterprises which act both as supplier and employer of their own labor. The government influences the functioning of this market in three ways, first through its labor policies and regulations, second through its direct participation in the provision of education/training facilities, and third as an employer of labor. The government has adopted a number of labor laws including minimum wages, labor relations, social security, workmen's compensation, working hours and working conditions. Macro policies aimed at economic growth and stability impact labor demand and wage rates. These policies and regulations affect all categories of labor, albeit unevenly. Apparently the labor laws have a greater impact on TV workers in the formal sector whose wage rates are below the minimum wage and who work under less than ideal conditions. The professionals need less protection and the informal sector workers are beyond the reach of the laws. In this paper we focus on the role and policies of the Technical Education and Skills Development Authority, TESDA, the government agency that is responsible for developing policies and plans for TV labor. It exercises supervisory powers over all technical/vocational education and training (TVET) providers and directly operates the government TVET institutions.

2. The country has developed a fairly large market-determined tertiary or post-secondary educational/training system that consists of colleges and universities and technical/vocational education training (TVET) institutions. Colleges and universities offer mainly but not exclusively degree programs. Some of them also offer non-degree TV programs. The TVET institutions offer only non-degree TV programs. There exist about

1,300 colleges and universities and some 1,400 TVET institutes/centers. Both the higher educational system and the TVET system are dominated by the private sector. There are only about 120 state universities and colleges in higher education and about 200 state-run TVET institutions. The private sector's share in total enrollment is about 75% in higher education and 80% in TVET. The students in both public higher education and TVET system are heavily subsidized with the national government financing close to 90% of their operating costs. The TVET institutions offer programs of varying duration from short-term lasting a few weeks to technician certificate programs of one to three year duration. (TESDA classifies the short-term as non-formal and the longer term, formal) Some government agencies such as the Department of Trade and Industry, DTI, the Department of Science and Technology, DOST, the Department of Labor and Employment, DOLE and the Department of Agriculture, DA also offer short-term training programs. TESDA operates the bulk of public TVET institutes and centers.

3. The paper is a review of the structure and performance of the TV labor market and the policies relating to its development. It begins in Section 2 with a discussion of some unique features of TV skills, especially their more complex and varied education/training processes. Section 3 analyzes the trend of employment and TV labor supply from 1986 to 1999. Section 4 discusses the structure of the TVET institutions, their program offerings and enrollment. The next section (6) tries to put together scattered data on retraining. Section 6 presents some quality indicators. The paper concludes in section 7 with a review of the activities and plans of TESDA. We find that TESDA does not take a labor market view so that its policies and plans are not well coordinated and do not address market-related problems. The market suffers from information and capital market imperfections as well as market failure due to externalities. There are segments of the market that function efficiently and segments that do not because of these problems. The paper directs TESDA's attention to these problems and evaluates its plans and key activities. We make a distinction between promoting the efficient functioning of the TV labor market and promoting the development of selected TV skills. TESDA has so far been mainly concerned with the development of selected skills rather than with improving the functioning of the TV labor market. A market approach encompasses all sources of supply –the public and private TVET institutes/centers, the informal sources, the demand side, employment and unemployment. As a relatively young agency, TESDA is engaged in badly needed research and documentation. There is as yet no systematic information system on TVET institutes/centers, their offerings, enrollment, graduates and cost/fees; labor market data such as employment, unemployment and wage rates. TESDA just produced its first medium term plan entitled National Technical Education and Skills Development Plan 2000-2004.

2. Features of the Technical/Vocational Educational Training System

4. VT skills are numerous and are acquired in various sources. There are formal or what TESDA categorizes as school-based education/training programs organized along explicit curriculum, implemented in regular classroom schedules, and taught by teachers/trainors. The formal TVET institutions are palpable and can be monitored like other schools. They fall under TESDA authority. They are not, however, the main source of TVET, for much training takes place on the job. On-the-job training or OJT takes two forms - one is the more automatic and/or passive learning-by-doing and learning from simply living in a social

environment, the other is programmed or directed training provided by firms. There are, in addition, short-term programs given outside schools by government agencies and other organizations. Both formal and non-formal TVET varies greatly in duration depending on the complexity of the skill to be mastered.

5. OJT is undertaken by all workers from the lowest skills to the highest skills but its relative importance as a source of training is possibly higher for the sub-professional categories. Many TVET skills are acquired from this source alone. Compare TV skills to professional skills. Formal schooling and certification is required for entry into all the professions and the scientific occupations, e.g., law, medicine engineering, physics, genetics, etc. TV skilled jobs have more flexible entry requirements since specific skills can be acquired more readily on the job. A good basic or general education, good health and right attitude are sufficient entry qualification for many TV jobs. One reason is that many TV skills can be learned in a fairly short period of time, a few weeks to a few months. Another reason is because of a built-in apprenticeship system. An unskilled worker may be assigned to simple tasks assisting the more skilled or a master. This is often observed in construction where the unskilled worker is employed to do loading, mixing cement, or holding materials. Through time, he learns to saw, plane wood, or do masonry. A clerk may start as a typist but move on to be a bookkeeper, an accountant, or a secretary.

6. TV skills are numerous, comprising all sub-professional skill categories. Only a few of the skills have been clearly categorized except at the rather broad groupings such as the skills in construction, metal works, machine operations, electrical, electronics, garment, mining and factory. Statistics on finer skill classification such as carpentry, masonry and tinsmith in construction are not collected. The skill in machinery operations varies depending on the level of technology and capital intensity used, e.g., heavy equipment in construction, or modern transport. The more simple the technology, and the less the capital intensity of production, the simpler the skill to be mastered, and the shorter the duration of training.

7. Some inherent characteristics of TV skills make for easy market adjustments, but some inhibit the production of information. The features that facilitate supply-demand adjustments are reliance on OJT as a source of TV training and the generally short duration of required training, whether on the job, or formally in schools and other centers. OJT produces an automatic adjustment of supply to demand of any skill within a firm and therefore for the whole labor market. A firm decides to provide specific training that it clearly demands. On the other hand, imperfect market conditions inhibit supply-demand adjustments of formally sourced TVET skills. Information on school-based TVET has to be relayed from the employer to the students and schools before supply can respond. There is, moreover the problem of imperfect capital market that could prevent supply responses. Generally, the greater the reliance on OJT whether of the passive (learning by doing) or programmed form, the more efficient the market adjustment. The shorter the duration of training, the easier and faster the supply adjustment since more can afford to pursue training and the cost of training time is smaller.

8. Retraining is defined here as upgrading of existing skill or acquiring a new one. A worker can upgrade his skill by accelerating his learning-by-doing, joining programmed firm training if it is available, or enrolling in some TVET institute or center. A job change that entails acquisition of a new skill through OJT is also a form of retraining. Firms that

undertake major innovations and modernization will likely require training for some of their workers and so decide to offer it to them. The cost of such training will be shared between the firm and the employers according to some optimizing rules based on the degree of specificity of the skill, tenure incentives and other internal labor market conventions. Retraining is an important adjustment process and the ease of adjustment depends on the complexity of the skill; the simpler the skill, the shorter the upgrading period, and the less costly the upgrading. Adjustment will also be easier for firm specific skills since the employers will be more willing to provide and invest in the training.

9. Generally TV skills are viewed to be socially inferior to professional and scientific skills. The elite of many societies tend to avoid entering TV occupations; they are pursued mainly by poorer families. Two obvious reasons are offered. Class barriers such as caste system and ethnic discrimination would lead to biased occupational choice. A mild though still prevalent form is the tendency for intergenerational career orientation. Blue collar workers whose success in their job is partly based on docility and obedience will tend to inculcate these traits in their offsprings. Consequently, the trait propagates through generations. Those in leadership position like management appreciate the value of independent thinking and risk-taking and imbue their children with the same. A more mundane reason is capital market imperfection. TV skills are generally cheaper to acquire as the schooling/training is generally shorter and the out-of-pocket cost for tuition and other costs are lower. Poor families are, therefore, less constrained to finance TV skills. On the whole, the more rigid the class structure and the more serious the capital market imperfections, the more polarized the class choices of skills and occupations.

10. There is a debate on whether to produce specific skills in formal TVET institutions or to simply direct schools, particularly high schools to create trainable graduates. A good general education with an introduction to the world of work through introductory courses in key industrial skills such as electrical work, electronics, measurement for construction works, machinery, and such has been suggested in lieu of specialized TVET. A consensus is forming favoring this view. The writer (1995) argued that while this may be true for most skills, there may be some skills which formal TV institutions can produce more efficiently. These are skills which require a more rigorous knowledge of basic principles or theory like electronics, electrical, medical technicians, machinery and automotive. In fact many TVET certificate programs are offered in these fields.

11. The greater complexity of the TV skill market might have inhibited the development of a more homogeneous curriculum for each of the more popularly offered programs. Information on most aspects of the TV market excepting for firm training is much poorer than for the higher skilled occupations. Firms appear to have rather specific skill requirements so that a uniform curriculum may not be appropriate. In comparison, the professions and the scientific fields have developed generally-accepted degree programs and instituted, in addition, professional examination certification system within and across state boundaries. No comparable structured academic curricula and certification system have developed for TVET skills. In the absence of certificates, employers appear to use more varied hiring criteria. Since OJT is expected to take place, a worker's trainability rather than specific skills may be desired. Work experience rather than a school certificate may be preferred. Work experience reflects not just the skill acquired through OJT but also of the work ethics and discipline. This is perhaps the reason why the unemployment rate among

experienced workers is much lower than for new entrants to the labor force. Unemployment in the country is concentrated in this group.

12. The preceding discussion focuses on the supply side of TV labor. Skilled labor is an important input in production. Economic development entails expansion of output as well as changes in its composition. Growth is fired by technological change that generally entails rising capital intensity. Growth is usually accompanied by institutional and organization changes such as the growth of financial market, expansion of corporate organization, institutionalization of insurance and health care, formalization of labor-management relations and wage compensation. All these changes generate demand for a new set of skills, especially professional/scientific specialization and industrial TV skills. Opportunities for OJT are created by new technologies and innovations undertaken by a firm. Without such changes, skill creation would stop. A worker would have nothing more to master after he/she has fully learned his/her tasks.

13. There is a sense that positive externalities exist in some TV skills and for high level or high quality skills. Highly skilled workers tend to bring up the skill level of their fellow workers through the latter's OJT. A good worker is emulated. The availability of skilled labor may encourage innovations and the entry of firms with higher technology. The government is called upon to provide an optimal supply of skilled workers that produce positive externalities. On the other hand, there are glaring market imperfections in the labor market that the government must also solve. Currently the financial market does not cater to human capital investment. Individuals' choice of skill and occupation is strongly constrained by what they can afford and not by what would maximize the returns on their investment. At the same time, their decision-making is impaired by lack of information on employment opportunities, wage rates and education/training options for the various occupations. The government has yet to establish an information system that is useful to students and the labor force. The published statistics related to education/training and the labor market are useful mainly to macro policy-makers and researchers.

3. Performance of the Market for TV Skilled Labor

14. The performance of the labor market is assessed in terms of the employment that the economy has generated and the adjustment of supply to demand changes. We have no estimate of demand and use employment as a demand indicator. The efficiency of market functioning is assessed in terms of the growth of the TV labor force and the output of TVET schools/centers. The analysis is constrained by data availability. The categories of demand or employment deviate from the categories used by TVET schools/institutes' output of trainees. We use different approaches to infer TV labor market adjustments. The review covers post-Marcos years from 1986 to 1999.

15. The rate of growth of the economy and its industrial transformation determine the growth of employment on the whole and across sectors and occupations. (Table 1) Economic growth has been quite modest with the annual growth of GNP averaging 5.6% in 1986-89 and 3.1% in 1990-1999; GDP correspondingly grew at 5.1% and 2.5%. Industry failed to be a driving force of the economy as it grew slowly and created little new employment. Industry's average growth rates for the two periods were 5.6% and 2.5%. The

Service sector, which includes a large informal segment (small family enterprises), grew faster than industry at 5.9% and 3.5%. Agriculture's growth was also modest at 3.3% and 1.4%. The slack industrialization rate led to a minimal transformation of the economy. The share of Industry in GDP remained virtually constant at about 35% through the whole 1986-1999 period. Manufacturing, the core industrial sector, had a fairly constant share at about 25%. The sector's share in employment also showed little change from 9.2% in 1985 to 9.6% in 1999. The absolute level of employment in Agriculture continued to increase though at decelerating level. Its shares declined from 50% to 40% from 1986 to 1999. The Service sector and Construction absorbed the bulk of the increment in the labor force. They experienced rising employment share, the Service sector from 30% in 1986 to 35.9% in 1999 and Construction from 3.5% to almost 6%. Note that Sales jobs and domestic service formed the major part of the Services' workers. (Table 2)

16. The slow economic growth and the less than unitary employment elasticity of output resulted in slow rate of job creation. Employment grew at 2.6% over the 1986-1999 period. Population growth, on the other hand, had been high at about 3% in the 1960s and 2.3-2.5% from the 1970s to the 1990s. Labor force participation rate rose slightly during the period as an increasing proportion of women joined the workforce. Enrollment rate among those of working age (15 and above) rose but failed to fully offset the increasing participation rate of women. Consequently the labor force rapidly grew, averaging 2.9% per year. This rate exceeded the growth rate of employment, hence unemployment. The labor force survey give data on open unemployment and underemployment by work hours, i.e., those employed and wanting additional work. The openly unemployed are those not working and looking for work. Unemployment was high through the period averaging 8.7% with the rate fluctuating as national income fluctuated. It started at 11.1% in 1986 following the economic crisis of 1983-85 when GNP dropped by about - 8% in each of these years. As the economy recovered, unemployment slowly fell, reaching 7.1% in 1996. But the effects of the Asian financial crisis and the political uncertainty in the present administration raised it back to the two-digit level of more than 11% in 1998-1999. Unemployment was lower in the 1960s to the early 1980s when growth was higher.(Table 3)

17. The whole labor force, irrespective of educational attainment, experienced unemployment but at different rates. (Table 3) Unemployment was much higher among those with high school and college education than those with elementary and zero education. Those with 1-3 years of high school education had average unemployment rate of 9.4%, the high school graduates, 12.0%, those with incomplete college, 15.0%, and the college graduates, 12.3%. The unemployment rate experienced by those with only elementary education averaged less than 5.5%. The large unemployment differential persisted throughout the 1986-1999 period. The pattern is reflective of the manner in which the labor market is adjusting to unemployment. It appears that wage rate does not fall to a level that would clear the market at full employment. Instead, wage level and unemployment rate equilibrate to equate the rates of return to various categories and forms of human capital and skills. For instance, clerical occupations pay less than construction workers, but underemployment among the former is lower and conditions of work better.

18. The production sector is still dominated by the informal sector consisting of small family enterprises that employ their own family members on a non-wage basis and flexible workhours. SME establishment with less than 10 workers compose 90% of total

establishments and wage workers form only 45% of the employed (1998). Agriculture and Service sectors are largely informal in organization. They employ the less educated workers, i.e., those with only elementary education. They have no set working hours, and the cost of working is relatively small since the workplace is their home ground. Consequently, the less educated labor in the informal sector could more easily be counted as employed since they could work any number of hours at any day of the week. The high school educated labor force possibly forms the bulk of TV industrial workers. Most of them would seek wage employment in the formal sector, some in large enterprises. Formal sector employment has set and regular workhours and working days. Generally the larger firms hire workers on a regular full time basis. Employment is therefore concentrated among the regularly employed working full time. One is either working full time or not at all. Hence higher open unemployment is observed among the high school and the college educated. The 1998 data for large establishments (employing 50 or more workers) give from 45-50 average workhours per week in non-agricultural industries. (Bureau of Labor and Employment 1997 Yearbook of Labor Statistics). The average workhours for the agricultural sector and for the non-formal service sectors were less than 30 hours for the same years. Carnaje (1993) found college graduates had the lowest underemployment rate in terms.

19. An individual is assumed to choose education/training in a particular skill when it promises positive rate of return (as compared to other education/training alternatives). The estimate of rate of return is based on cost, expected earnings attributed to the skill and probability of employment (1 - expected unemployment rate). A skill may be found attractive even if it is in excess supply or there is unemployment so long as its wage and employment duration are high enough to compensate for expected open unemployment. Possibly the persistence of high unemployment among the high school and college educated is due to the compensating differentials in wage rate, workhours and job stability. Additionally, the formal sector usually provides social security and health and accident insurance.

20. As seen above, high unemployment of more than 10% has persisted among the high school educated which we consider to comprise the TV labor force. Unemployment possibly varies across the many categories of skilled labor. The quality of TVET and field of specialization likely determine employability. The graduates of Don Bosco and Meralco Foundation, the most respected TVET institutions, reported 100% employment rate (Tan 1995). AMA, a relatively new electronics school advertises 100% employment for its graduates. Tracer studies of college graduates show that the duration of job search was lower among the graduates of the most prestigious schools. (HELMS 1997). The problem of quality is discussed in Section 6.

4. The Technical Vocational Education Training (TVET) System

21. Here we look at the structure and output of the TVET system. TESDA classifies all TV schools and training institutions into formal and informal institutions that provide education/training for middle-level skills. TESDA defines formal " as post secondary education of 6 months to 3 years duration leading to a technician certificate in a specialized field. Graduates of the system normally occupy middle level occupations. The non-formal system is composed of a variety of short-term programs (usually up to 6 months). The

formal system is composed of private and public schools/centers. The informal includes the various training programs provided by TESDA and other government line agencies such as DTI, DA, DOLE, and DOST. It also includes short-term training programs offered by some private TVET schools/institutes. TESDA includes in the informal definition training provided by firms. TESDA recognizes programmed training but not passive OJT. Data are available for the formal system but little on the informal system.

22. The 1997 UNIDO TVET Sector Study reported 811 private and 322 public institutions in 1992-93 and enrollment of 419,686 students. As in higher education the private sector dominates the system. Private TVET institutions' enrollment share was 87.3% in 1992-93 and 80% in 1997. No breakdown by field was given in 1992-93. In 1997, TESDA had subcontracted a survey of TVET institutions which this paper tabulated and analyzed. A survey of the 1,417 TVET institutions was taken but only 1033 responded. Individual school information on fields offered, duration, enrollment, teaching staff and budget was collected. However the financial data appear not to be very reliable.

23. The TVET formal system does not use standard program titles similar to what degree programs have adopted. The program offerings are very specialized. The electronics field, for instance, come in as many as 20 different program titles such as Computer System Design and Programming, Computer Systems Technician, 2-Year Computer Secretarial, Computer Based Accounting/bookkeeping, Electronics Technician, Computer Technology, Computer Secretarial, Electronics Technology, etc. Appendix A.1 lists the offerings in Metro Manila or NCR, the National Capital Region. We grouped the finely titled offerings into 18 categories such as Computer Technology and Applications, Electrical Technology, Automotive Mechanics, Dressmaking/Tailoring, and so on. Table 4 gives the number of schools offering each field and Table 5, enrollment by field. Computer Technology and Applications have become the most popular field in terms of number of schools offering it and enrollment. The spread of computer usage and media reports on its promises created exaggerated expectations of employment opportunities in the electronics industry. Note that the popularization of the TVET in electronic occurred in the absence of employment data on the sector. In 1999, 714 institutions out of the 1033 sampled offered Electronics Technology and Applications. The next popular fields were Automotive Mechanics, Secretarial/Bookkeeping and Electrical Technology which were provided by 111 schools, 91 and 88 schools, respectively. Much fewer schools offered the other fields. Of note is the unpopularity of industrial skills such as welding and industrial technology. Expectedly, enrollment was positively related to the number of schools offering each field. (Table 5).

5. Training and Re-training

24. It was argued in the introduction that it is not easy to trace retraining, defined here as upgrading of skills or changing skills considering that most of it must be taking place in non-formal training programs, such as OJT and short-term programs. It is likely that majority of the individuals who enroll in the formal TVET for technician certificate programs are pursuing a skill for the first time and not for retraining. . The schools usually enroll new high school graduates. There is reason to believe that short-term programs are mainly for retraining. The experience of the DTI-TLRC short-term program supports this contention. Table 6 gives the background of its participants and shows that 56.5% of them were

employed and 19% unemployed when they were on training. Moreover, 59.8% were of prime working ages from 30 years and older. Students formed only 1.9% of the trainees, and the youth, aged 19 years and younger, only 1.4%. Programmed training provided by firms could be for retraining of already skilled workers as well as initial training of new hires. The UNIDO study found that proportionately more electronics firms in their survey conducted programmed training. This is to be expected since the electronics industry undertakes more innovations. Every change in technology leading to the introduction of new processes, design, or product lines tends to require retraining. Retraining would be superfluous if there is no innovation.

25. TESDA defines informal training to be short-term (less than six months) training provided in any training center, and all forms of OJT. The apprenticeship program under DOLE is included in the non-formal TVET activities. TESDA's regional and provincial training centers give only short-term programs. DOLE, DTI and DOST also offer short-term programs. Data availability is uneven for the different forms of non-formal training. Time series data is available only for TESDA and DOLE's programs. Table 7 shows that TESDA centers are the most important providers of short-term programs. In 1998 TESDA centers enrolled 311,766 trainees. DOLE's entrepreneurship training enrolled only 5,983, DTI about 2,300, and DOST 3,332. The training program of DTI is carried out by its Technology Livelihood and Resource Center and caters to the training, credit and other needs of small and medium scale (SME) firms. The list of its training program offerings is reflective of the SMC needs. It includes food processing, candle making, candy making, tourism service. DOST operates the Metals Industry Research and Development Center, MIRDC. It is closely linked with the metals and machinery industry which it services with R&D services as well as skilled labor. Both DTI-TLRC and MIRDC charge fees to their trainees which in a way prove the programs' marketability. The MIRDC program appears to be popular since their enrollment exceeds the target.

26. TVET institutes offer both short-term and long-term programs. One example is the short-term programs in computer applications and industrial skills given by Meralco Foundation Institute, a leading TVET institute. Don Bosco College started as a TVET institute but now provides degree, technician certificate, and short-term programs. A Meralco short-term program director said that his center enrolled engineering degree graduates who wanted upgrading in practical applications which their college curriculum failed to provide. Their engineering school had too few equipment for the students' practicum. The students could only watch machinery and equipment parts and how they operated (Tan 1995). Table 8 gives the distribution of TV programs by field and duration of training. Of the sampled program offerings, 504 or 14.0% were short-term or of less than one year duration. More programs were of one-year duration, 19.2%, with the large majority or 52.0% of two-year duration. Expectedly, training duration varies across fields. Some skills are simple and easily learned and so are offered mainly in short-term programs, e.g. Dressmaking/Tailoring and Cosmetology/Hair Science. The Secretarial/Office Management/Bookkeeping occupation employs workers of more varied educational/training background ranging from TV certificates to college degree. Electronics programs are largely given in three-year programs or 61.3%, and only 10.8% in short-term programs.

27. It appears that the technician certificate programs were not very popular as compared to short-term TVET and degree programs. In 1992-93 UNIDO reported 232,575 graduated from TVET institutions and 624,572 from non-formal or short-term training centers. The 1998-99 TESDA survey of schools found 798,571 graduated from all programs but only 219,456 graduated from technician certificate programs, the rest from short-term programs. The head of Meralco Foundation Institute stated that its graduates complained that a bias in promotion against TVET graduates relative to engineering graduates even if the TVET graduates have better schooling preparation than the college graduate competitors. Note that the quality of college education is generally poor and the TVET offered in a well endowed and well equipped institute like Meralco Foundation Institute might have better quality instruction than the average engineering school.

28. The UNIDO Study undertook a survey of the training background of workers and the training programs provided by major industries – garment, non-electrical machinery electronics and automotive. Panel A of Table 9 gives a breakdown of the employed by source and nature of training. The workers are classified into where they obtained their skills, whether from outside or from within the enterprise of their present employment. Of those trained outside, 43.9% pursued basic TVET but 26.3% were craftsmen and had upgrading and 12.3% technician level TVET. The corresponding figures for those trained within the firm are 58.6%, 11.1% and 14.1%. Virtually all the in-firm trainees were for retraining. Panel B gives the distribution of firms that provided training. Majority of the surveyed firms provided training but the frequency and nature of training depended on firm size. Systematic training was provided by 76.9% of small firms with 50 or less employees, 60.7% by medium size firms with 50 to 500 employees and 73.7% by large firms with more than 500 employees. The frequency of in-house HRD and employment of full-time trainer(s) rises substantially as firm size increases. About one-third of medium size and large firms maintained a training center. All provide OJT to TVET students though only small firms reported working with schools on matters related to TVET.

29. The data though spotty seem to show prevalence of retraining. It is expected to intensify as the economy picks up from the 1997-2000 downturn due to the Asian financial crisis and the more recent political upheavals.

6. Quantitative and Qualitative Adjustments of TVET System to Market Demand

30. The TVET system follows the lead of the higher educational system where the supply of skilled labor is elastic for the more affordable programs but not for the expensive programs. Students (and trainees) appear to be sensitive to wage and employment signals and enroll in affordable programs that promise positive returns. Note that the great majority of students are poor and can pay for low-cost education/training mainly. On the other hand, schools can readily establish themselves and open programs as demand warrants. The Philippines has followed a policy of easy entry to private education/training institutions. A permit is required for opening a school but this can be fairly easily obtained since the quality standards for facilities and teaching staff is low and not effectively enforced. Private tertiary institutions depend fully on student fees with many established as a private business. This market condition led to the development of a large but poor quality tertiary educational system. As discussed in Section 3, the whole tertiary education/training system produced an

over-supply of graduates, hence their unemployment. Pressure of demand led politicians to establish more and more schools, thus exacerbating the unemployment problem. There is no indication that the government or public TVET schools are superior in quality to the private TVET institutions. The education/training policy has continued despite the dissatisfaction with the system and the recommendations from the many reviews that have been undertaken. The national government undertakes regular national planning for each sector but the plans for tertiary education mainly contained statements of broad objectives and strategies. They did not prioritize the issues/problems to be addressed and failed to set operational targets and strategies.

31. We review the performance of the TVET system under this environment of relatively easy entry in a market with imperfect capital and information conditions and weak policy guidance and supervision. As stated earlier, TESDA is a relatively new agency (1994) that has just begun to establish an information system and develop a medium term plan. It was also argued earlier that the TVET system is more complex than higher education because of the more varied sources and categories of skills which students can choose from. TESDA just came out with a listing of existing TVET schools/centers and their program offerings. The labor force survey, (LFS), does not provide TVET background of non-professional labor force but does for the college educated labor force. In the absence of official and other information, would-be TVET students must rely on personal sources of information obtained from known employed, local market signals and mass media advertisements. With limited information, decisions are made under great uncertainty. Nevertheless hundreds of thousands of students have taken the high risk of investing in TVET.

32. The statistics are sparse but what are available provide insights into supply adjustments of TV skills as reflected in changes in enrollment as a whole and its distribution across fields or skills. These changes reflect optimization attempts by students as they decide to enroll in TVET in a particular program and institution. The number of TVET institutions increased from 1992-93 to 1999 but enrollment fell slightly. There were significant changes in the distribution of enrollment across TVET fields. The UNIDO study reported 811 formal or school-based institutions in 1992-93. TESDA's 1999 survey stated it had a population of 1,418 TVET schools of which 1,033 responded. Of the 1033 institutes, 973 were school-based or formal institutes. Blowing the 973 sampled schools by the population-sample ratio of 1,418/1033 would give an estimate of 1,336 TVET schools or an increase of about 65% between 1992-93 to 1998-1999. Yet the reported enrollment in the 973 schools was only 219,456 or the equivalent of 301,247 when blown up by the population/sample ratio. The total number graduating from all TVET institutions, formal and non-formal, was 857,147 in 1992-1993, and 798,571 in 1998-99. Note enrollment and graduates fell even if the number of providers actually increased. The trend could be partly explained by the loss of enrollment in some fields with the gain in other fields not compensating for the losses.

33. The relative attractiveness of each field or skill category relative to other fields changed over time. The change is reflected in the changing distribution of school offerings and enrollment by field/skill category. In Table 4 we find that Computer technology and applications is offered by the largest number of TVET schools, 714. Its share in total program offerings of the schools was 29.6%. Its enrollment share was even larger at 56.0%. Automotive technology was the next popular field with 232 schools offering it and

enrollment share of 9.0%. The next four most available fields were Electrical technology with 186 schools, Secretarial/office management/bookkeeping, 181 schools, Tourism/hotel and restaurant service, 110, and Midwifery/health service, 115 schools. Note that even if many schools provide these four programs, their enrollment shares were relatively small – 4.8%, 2.3%, 4.3% and 1.7%. As a result, enrollment in each of these four fields averaged only 36, 20, 55, and 21. Compare the average enrollment to that in Computer technology and applications of 139. Even Automotive had only average enrollment of 54. All the rest of the fields have small average enrollment. Classes would be smaller than the estimated average enrollment since the students have to be divided across year levels for programs that last more than one year. The scale of operation appears to be inefficiently low with just about 20 per class.

34. Table 10 shows the scale of operation of TVET schools. The public schools were slightly larger than the private schools. A smaller proportion of the public schools or 25.4% had enrollment of less than 100 as compared to 34.8% in the private sector. Relatively more public schools or 18.7% were large or had enrollment of more than 400; only 15.0% of the private had this enrollment size. Usually each school operates several programs. Some schools opened too many programs, in some cases in unrelated fields. In Region I, Northern Christian College has programs in “Computer Secretarial”, Tourism and Hotel and Restaurant and Midwifery. Ilocos Norte College of Arts and Trade offers Technology training in Automotive, Civil, Electrical, Electronics and Mechanical, Refrigeration and air condition, Hair Science, Apparel, and Baking. Enrollment in each of these fields was generally small, ranging from 4 to 30. This would allow some economies of scale. The unrelated programs in midwifery, hair science, apparel and baking had too small an enrollment to be efficient. Their enrollment in 1998-1999 was less than 10. (Raw file) On the other hand highly specialized computer institutes such as Systems Technology Institute and AMA have emerged in recent years. TVET technology programs could be a joint product of engineering degree programs.

35. Over the 1992-93 to 1999 period, the relative attractiveness of the TVET fields or programs changed. Table 11 allows a rough comparison of the distribution of fields or programs by the number of schools offering them and enrollment for fields by the number of schools offering them in 1992-93 in Calabarzon and in 1999 in Region IV. Calabarzon is a new industrial area close to Metro Manila that comprises most of Region IV. In 1992-93, Computer technology and applications program was offered by only 18 schools and enrolled only 10.3% of students. In 1999, 59 schools provided this program and enrolled 35.5% of the students. Automotive skills which was the most important program in 1992-93 experienced drops in the number of schools from 23 to 14 and enrollment share from 18.4% to 6.0%. All other fields excepting Food processing and services also lost ground - Industrial technology, Engineering and architecture technician, Secretarial/office management/bookkeeping and Agriculture and Fishery. Some fields that attracted few students were offered only in public schools which the government heavily subsidized. No private school was into Agriculture and fishery, Construction skills, and some industrial technologies. The public TVET institutes which have lost enrollment could continue operation only because of the continuous budgetary support of the government.

36. New TVET institutions were established to accommodate the increasing enrollment in the field of Electronics technology and applications. The TESDA survey reported 714

schools that offer this TVET field of which two have acquired good reputation and became very popular – AMA Computer College and Systems Technology Institute or STI. They offer both short-term and two to three-year TVET in Computer Technology, Computer Programming and software applications. AMA has 50 Computer Learning Centers that are franchised to operators nationwide. It has forged “strategic alliance” with Microsoft Philippines and uses the Microsoft Office Use Specialist training and certification program in its curricula. AMA students are reportedly adequately equipped with PCs at one to one ratio. Its curricula include basic courses in Math, English and Technical Writing courses. The STI is a close competitor of AMA. It advertises Guaranteed Hire Program with the slogan “First we’ll teach you then we’ll hire you.” TESDA cites two other respected new Computer institutions – the Institute of Advanced Computer Technology, IACT, and Dual Tech Institute. IACT is a highly specialized institute run by the reputable SGV-Andersen Consulting firm and caters to the computer upgrading needs of business executives. Dual Tech is a smaller version of AMA and STI. These new institutes vastly augment the capacity of Don Bosco College and Meralco Foundation Institute which pioneered in providing high quality electronics and industrial skills training.

37. Electronics and industrial TVET is expensive to operate since it requires the use of expensive laboratory equipment. At the same time there is a shortage of qualified teachers. The 714 TVET institutions that have been permitted to open electronics programs could not all have the resources to provide high quality programs. Don Bosco College and Meralco Foundation Institute are heavily subsidized, the former by religious philanthropy, the latter by Manila Electric Company, the Metro Manila electricity monopoly. Their per student operating costs are comparable to those of the respected engineering schools. The quality of TVET programs is reflected in the passing rate obtained in certification tests administered by TESDA. Certification tests have been administered for major industrial skills. (Table 12) The number taking the tests was small relative to the number enrolling in the various TVET programs, or relative to the young labor force. In 1998 42,225 took the tests but more than 798,571 graduated from TVET institutions. Of the examinees, 34,882 or 82.6% passed and were certified as skilled workers. The passing rate for this year was much higher than the rate in the past, 1986-1997, which averaged only 47.5%. Separate data was obtained for the graduates of TESDA’s Regional Technical Education Skills Development Centers, RTESDC, and of the Provincial Technical Education and Skills Development Center, PTESDC. The test takers comprised a small percentage of TESDA’s graduates. Their passing or certification rates were very much lower than the national passing rate - for the regional centers, the average was 35.0% and for the provincial centers, 41.8% in 1998.

38. TESDA has initiated an accreditation system aimed at encouraging schools to improve the quality of their programs. TVET school are classified into three groups – permit only, registered, and accredited under UTPRAS or the Unified TVET Program Registration and Accreditation. Registration status is given to institutions that have met minimum standard and accreditation to institutions with quality above the minimum standard. A large proportion of schools did not indicate the status of their programs and are grouped here with those having permit only. Table 13 shows that 50.6% of all programs had permit status, 36.0% recognition status and only 13.3% had accredited status. The quality status differed between fields. Electronics technology and applications had the highest proportion of accredited status or 17.5% and the lowest proportion of permit status. Permit status was

highest in Industrial technology, Welding and Food preparation and services, respectively 70.1%, 78.9% and 66.7%. This means that the large majority of schools which offered these programs did not meet the minimum standards set by TESDA. Only 13.3% of all the programs were accredited and excepting for Electronics only about 10% of the other fields were accredited.

7. TVET Policy and TESDA Plans

39. Since its establishment by law in 1994 TESDA has organized itself to be more effective in planning and supervising the TVET system. From a relatively small National Manpower and Youth Council (NMYC) it has evolved into a fairly large agency with more financial support and apparently more effective organization. Its organization chart contains six important offices: Planning, Skills Standards and Certification, National Institute for TVET, Formal TVET, Non-formal TVET, and Apprentices. (Appendix A.2) TESDA has assumed responsibility over apprentices from the Department of Labor and Employment (DOLE) and the TVET programs that were formerly under the Department of Education. The training programs in other government agencies are coordinated with TESDA. The first three offices have responsibility for research, information and program development and standards. The organizational chart reflects an appreciation of the important tasks that TESDA needs to fulfill. The National Technical Education and Skills Development Plan 2000-2004, however, does not identify critical issues in the TV market. The plan failed to develop a coherent and internally consistent set of activities that will solve critical problems. There are no explicit targets and priorities set. The weakness of the Plan might have arisen from a poor understanding of how the market for TV labor works and the market imperfections and failures that exist. The failure to use a market approach has perhaps led TESDA to choose popular jargons such as globalization, rural development and social integration as its vision. (Appendix B) TESDA aims to supply middle level skills to 12 so-called leading industries. No quantitative estimates of projected demand for the 12 industries were given. The Plan then describes the activities TESDA would undertake but these are not linked to the vision statement. These activities fall under the caption TVET reforms and consist of 1) quality assurance through setting competency standards in curriculum, accreditation and skills certification, 2) upgrading the quality of TVET institutions especially TESDA's centers and 3) maximizing the contribution of industry in planning and delivery of TVET. There are no strategies for implementing these reforms. There are no estimates of cost for raising quality.

40. The features of the TV labor market and TVET system are summarized below in order to identify policies that would improve the efficiency of their functioning. The market for TV skilled labor is supplied from many sources, formal and non-formal. The formal consists of about 1,417 TVET schools and training centers. The non-formal sources consist of OJT and short-term programs in training centers. The private sector dominates the public. About 80% of students/trainees in TVET schools are private and 100% of OJT is private. OJT in the form of learning-by-doing form is inherently private and the programmed training activities undertaken at the firms' initiative and financing. By nature, OJT is difficult to tract since most of it is unobservable learning-by-doing. Much of the formal TVET activities are undertaken under imperfect market conditions. There is very little information on the market for formal TVET, especially the employment particulars,

and wage rate TVET could command. Little information is available on the content and quality of the programs offered by TVET schools and training centers. Only OJT operates on full information. Also pointed out is the financial constraints faced by the great majority of the youth who decide to pursue school-based TVET especially because those who pursue TVET generally come from the lower income classes. These market imperfections have led to the development of a poor quality TVET system that exhibits serious internal inefficiency. Half of the programs offered have not met minimum standards set by TESDA and only 52 of the 1,033 programs surveyed have been accredited. Many schools are too small and do not take advantage of economies of scale, they have poor library and laboratory equipment and unqualified teaching staff. Poor information inhibits competition among schools thus allowing students to invest in overcrowded fields and in poor quality programs. Dual training and other industry-based training is limited by the supply of good TVET schools. Firms tend to cooperate mainly with the better quality schools.

41. Policy must be addressed to the causes of market inefficiency and/or failure. We focus on three problems that arise from poor information and financial constraints: 1) Poor quality, 2) internal inefficiency of TVET schools, 3) unemployment and possible mismatches of TVET graduates. Good information on employment opportunities for various skills and their TVET providers would help improve decision-making by students/trainees. Information would foster competition among the providers and pressure them to offer the best program (curriculum, teachers and laboratory) for a given fee. The poor have to be provided financial support to effect their TVET choice. Financial support need not be in the form of tuition subsidy. Loans and scholarship are more efficient and equitable forms of financial assistance. Described below are strategies for collecting and disseminating information and financial assistance.

42. Information System - Two sets of information are essential for permitting good TVET choices- one set on the labor market, the other set on the TVET programs. The quarterly labor force survey (LFS) should be asked to give the TV background of sub-professional workers, whether from TVET school or OJT. This would permit a rate of return analysis to alternative TVET program. The LFS is conducted quarterly. TESDA may put riders for TV information. The LFS has not changed the industry and occupational classification of the labor force. The electronics industry is not mentioned in any of the labor force or national income accounts. It only appears in the BOP accounts. We have the anomalous situation where the most important export industry is not covered in the basic national statistics.

43. A second set of information is on TVET providers. TESDA has started collecting information on the program offerings classified by field or skill in private and public institutions, duration of training and quality as indicated by status – merely having a permit, having met minimum standard and being accredited. Fees are also gathered. This survey must become a regular one, perhaps every two years. Currently there is no published information on TVET except for the short-term training given by TESDA, DTI-TLRC and DOLE. The raw data of the 1997 survey is on the internet which is accessible to the more affluent students who are not interested in TVET.

44. In addition to these sets of basic information, TESDA needs to gather information on the skills demanded by leading and sunrise industries if it is to meet its avowed objective of developing skills that will enhance the country's global competitiveness. The electronics

industry which has become the most important export industry and contributing about 60% of total export earnings has naturally attracted much attention. Supply of skilled labor has been seen as the source of the country's comparative advantage in the electronics industry. Yet there is little information on what kind of education/training the various sub-sectors of the industry currently employ and expect to employ in the future. The debate on the relative importance of good general education and specific TVET requires empirical answer. This can be answered by looking at the education and training background of the workers in different jobs. A recent study by TESDA gives broad education/training background of the technical workers in a small number of surveyed firms. The information cannot be linked to the TVET output or programs. While most of the firms provide training and state a preference for labor with technical training, no details are provided for the technical training required. Do they hire from the more reputable schools, what engineering field do they prefer? Little generalization can be made from the survey since the data are for selected firms.

45. Non-formal or short-term training programs are more popular than the technician school-based programs of one to three-year-duration. The short-term programs have several advantages. They are flexible and can respond to local demand more readily. Cost to the provider and the trainee is relatively small. The government training centers particularly TESDA's regional and provincial training centers work closely with the local government and business leaders permitting them to meet the local demand for skills. This local orientation however limits the employment horizon of the centers and the trainees. Quality problems assail most TESDA and other centers. The case studies conducted of the regional and provincial centers show quality to be a general problem. Especially common is the observed inadequacy of laboratory equipment. (UNIDO, 1995) Moreover, many other TVET providers exist in each region and province where a TESDA center operates. What is the TESDA centers' role in the regional or provincial TVET system? Do they crowd out the private sector, fill supply gaps or provide a better quality program? Why do some public TVET providers have very small enrollment?

46. The financial constraints on student/trainee choices could be relieved by subsidy or loans. Subsidy for TVET is coursed through the financing the operation of TESDA training centers and the public TVET institutes. All who enroll in the public TVET programs are automatically subsidized irrespective of field, qualification and social background. The subsidy scheme preempts other financing schemes and disallows TESDA to prioritize its budget. It also permits public TVET institutes to continue offering programs that have lost students, e.g., fishery and agriculture programs. On the other hand, TESDA's budget, like that for higher education, is too small to make a difference in quality. The current subsidy practice digs TESDA into a gridlock of vested interest and inefficiency. Loans and scholarship are the more rational schemes, scholarship for the deserving and loans for all other students. Scholarships could be directed to priority TVET programs.

47. TESDA has taken some important steps for improving quality of formal TVET through accreditation and certification. These activities are not coordinated with market oriented reforms. Quality ratings should be used as a criteria for granting subsidy and should be disseminated to students and firms to help improve their decision making. There is no program for assisting schools to raise quality.

48. One of TESDA's visions is to develop TV skills that would enhance the countries global competitiveness. A serious study needs to be conducted in order to identify the education and skills that have to be developed. TESDA identified leading industries. With the exception of electronics, the industries chosen are traditional industries and do not belong to any knowledge-based or high-tech industries. TESDA has been consulting local industrialists which produce low-tech traditional products. The electronics industry is largely assembly type. The consultations with the existing industrialists are not likely to elicit information on the industries of the future. A reading of modern industrial history and lessons of new technologies and their applications would be more helpful than consultations with firms using primitive technologies.