

# Policy Notes



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## Dual Training System (DTS) in the Philippines: Challenges and Opportunities

*Dr. Dennis S. Mapa, Dr. Josefina V. Almeda and Prof. Manuel Leonard F. Albis<sup>1</sup>*  
*School of Statistics, University of the Philippines Diliman*

### I. Job-Skills Mismatch, Youth Unemployment and the Dual Training System

Reducing youth unemployment in the country is a major policy challenge that confronts our leaders today. The most recent labor unemployment data from the Philippines Statistics Authority (PSA) shows unemployment rate at 5.4 percent, which is actually lower than the July 2015 data. The data also revealed that almost half of the unemployed belongs to the 15 – 24 age group. This high youth unemployment is deplorable given the high expectations of the youth of better economic opportunities as they transition from school to the labor force. One often cited reason for this high youth unemployment is the job-skills mismatch. The competencies of the graduates do not meet the requirements of the industries. The concern on the job-skills mismatch can be addressed by the Dual Training System (DTS).

The DTS is a training modality combining theoretical and practical training. The phrase “Dual Training” suggests that training occurs in two venues: the academic institution and the firm. The vital component of the DTS is the school-industry partnership. The school

(training institution) and the firm (industry partner) work together in designing the training plan and finding ways to determine the best and most efficient way of training the trainee-student so he or she can learn the knowledge and practical skills during the training period. The strong partnership between the academic institution and the firm will guarantee that student-trainees will have the skills, knowledge, and attitude needed for future employment. Under this system, the student-trainee learning process can be generally described as 40 percent in-school, learning theories, developing basic skills and values formation while the remaining 60 percent will be in-establishment to actualize the learning earned in school.

The Technical Education and Skill Development Authority (TESDA) and the Philippine Chamber of Commerce and Industry (PCCI) – Human Resources Development Foundation (HRDF), with the technical support of the Federal Institute for Vocational Education and Training (BIBB), commissioned a study on the Cost and

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<sup>1</sup> The authors are Dean, College Secretary and Assistant Professor at the UP School of Statistics, respectively. This policy brief is taken from the Cost Benefit Study of the Dual Training System (DTS) in the Philippines. The authors are grateful to the K to 12 Plus Project for funding support, most especially to Andreas Meyn and Tarek Abulzahab, the officials and members of the technical staff of TESDA, experts of the Federal Institute for Vocational Education and Training (BIBB), Germany, and the officers and staff of the Philippine Chamber of Commerce and Industry (PCCI) and the its foundation, the Human Resources and Development Foundation (HRDF).

Benefit Analysis of the Dual Training System in the Philippines, with the objectives of determining the desirability of the program given the incurred costs and benefits realized by the firms. If the realized benefits by the firm from the DTS program outweigh the incurred costs of training the student-trainee, then there is a high probability that the firm will continue investing and participating in the DTS program.

Currently, there are 108 Technical Vocational Institutions (TVIs) offering DTS and 706 DTS partner companies offering training for various sectors such as Agriculture and Fishery, Automotive and Land Transportation, Construction, Electronics, among others. While studies have shown that enterprise-based training, such as the DTS, is the way to go in the practice of Technical Vocational Education

and Training (TVET) in the country and should be given greater emphasis by the government, the number of trainees under this program is small. Orbeta and Esguerra (2016) identified some potential constraints to the practice of enterprise-based programs, including the DTS. These constraints include the incompatibilities of underlying incentives and possible sources of financing and the problem of monitoring the in-firm wage-training contracts. The authors argued that difficulty in monitoring the in-firm wage-training contract means that it is difficult to enforce this particular provision of the DTS law and therefore can be used by the firms to avoid paying the appropriate benefits. One of the main objectives of the study is to determine and analyze the types and amounts of benefits which enterprises receive in relation to their costs in implementing Dual Training System (DTS).

## **II. Methodology in the Cost Benefit Study of the DTS**

The costs and benefits study of the DTS program aims to collect information from the firms and TVIs that are practicing the DTS in the country. As of December 2015, data from TESDA show 706 firm-partners and 106 TVIs practicing DTS. The data collection for this study covered only four (4) regions, namely: the National Capital Region (NCR), Region 3 (Central Luzon), Region 4A (CALARBAZON) and Region 10 (Northern Mindanao). The choice of the firms and TVIs included in the study mainly depended on location (NCR and

adjacent areas – Regions 3 and 4A) and representation from areas outside Luzon (Region 10 in Mindanao). The four regions have a total of 451 firm-partners and 82 TVIs. The selection of the firms and TVIs were not done randomly. Notwithstanding that the firms and TVIS covered are not nationally representative sample, information collected and results from the analysis of the empirical data can provide the necessary policy recommendations for the enhancement and improvement of the DTS program in the country.



Table 1. Number of TVIs and Firm-Partners in the DTS by Region Covered in the Survey

Region	No. of TVI	No. of Partner Firms
III	56	114
IV-A	20	75
X	2	116
NCR	4	146
TOTAL	82	451

A total of 201 firms participated in the Cost and Benefit Study (CBS) equivalent to a response rate of about 45 percent of the total number of firms covered. Most of the firms that participated in the survey are from Region 10 (Northern Mindanao), with 38 percent, followed by Region 3 (Central Luzon) with 26 percent; Region 4A (CALABARZON) with 22 percent and the

National Capital Region (NCR) with 13 percent. Classifying by industry type, the firms came mostly from the Manufacturing Sector with 40 percent, Wholesale and Retail Trade Sector (particularly, repair of motor vehicles) with 15 percent, Hospitality Sector with 11 percent and the Construction Sector with about 8 percent of the firms.

### III. Cost and Benefit of the DTS

The Cost and Benefit Study of the DTS in the Philippines benefited a lot from the technical assistance from the Federal Institute for Vocational Education and Training (BIBB). The study is based on the concept of the German Cost-Benefit-Surveys which are conducted by the BIBB since the early 1980s. A short overview of the general methodology and results of the most recent German survey is provided by Jansen, et. al. (2015). This framework was also used in the Cost and Benefit Analysis of TVET Internship Programs in Enterprises in Vietnam (Quang Viet, et. al.; 2015). Applying the concept in Philippine setting, the gross costs of training are divided into three cost categories: (a) Personal costs for the trainees; (b) Costs for the Trainers; and (c) Physical Costs. The personal costs for the trainees consist of the monthly training allowance and other additional voluntary or obligatory social benefits such as health insurance, clothing allowance, lodging allowance, transportation allowance and

meal allowance. The total personal costs for the trainees in computed monthly and expressed in pesos.

The costs for the trainers cover basically the wages of the trainers when providing orientation and training to the trainees. These include full time and part time trainers as well as external trainers, as the case may be. The time spent with the trainees is only included in the cost calculation as far as the productivity of trainers, respective to the companies output, is reduced. The total cost for the trainers is expressed in pesos per month per trainee. The physical costs include costs for tools and equipment for trainees, plus the costs of any training workshops or in-company teaching, including the costs of consumable materials that are required for teaching purposes. Also part of the physical costs is the teaching and learning materials and external courses and fees and the costs of the training administration in the firm.

The total physical cost is expressed in pesos per month per trainee

The benefits derived from the DTS are to be divided into short-term benefits, which include the productive contributions of the student-trainees while undergoing training and long-term benefits that may arise if the student-trainee is employed by the firm after completion of the training. Short-term benefits include the productivity and seasonal benefits derived by the firms from the student-trainees. In addition to the short-term benefits, companies can also gain from the long-term benefits associated with the DTS if the students-trainees are eventually employed and stay with the firm after the training. These long-term benefits include the savings of the company in terms of the search process for new employees. The savings can be in terms of (a) recruitment costs (e.g. cost in advertising); (b) cost in hiring manpower that will process the application of the new employees (e.g. human resources personnel), both internal and external; (c) costs in the orientation of the new employees covering both manpower used in the orientation and materials (e.g. DTS trainees need minimum,

if not zero, orientation); and (d) the benefit the firms gains because of productivity differences between the DTS-trained workers and externally recruited workers (externally recruited workers will experience adjustment period in the early months with the firm and they may not be able to achieve the productivity level of DTS-trained workers who have already spent time with the firm).

Using the data from the survey, the average overall monthly cost per trainee of the firm running the DTS program was computed. The results show that overall monthly cost of training per trainee is about Php 12,800.00 (or about US\$ 272.00), but the figure varies across region and type of industry<sup>2</sup>. The figures in Table 2 show the composition of the cost per trainee in the firm. A substantial percentage of the cost is attributed to the allowances and other benefits given to the trainees (cost of trainees), representing about 44 percent of the aggregate average cost. This is followed by physical cost (e.g. materials and equipment used by the trainees) and the cost for the trainers.

Table 2. Average Cost per Trainee per Month in Running the DTS for the Firm

Cost Category	Mean (in Php) <sup>3</sup>	Std. Error	95% Confidence Interval	
			Lower Limit	Upper Limit
Cost of Trainees (e.g. allowance)	5,588.00	316.00	4,964.00	6,212.00
Cost for Trainers	2,365.00	383.00	1,609.00	3,121.00
Physical Costs	3,828.00	674.00	2,497.00	5,159.00
Total Costs	12,801.00	873.00	11,077.00	14,524.00

<sup>2</sup> The assumed exchange rate is US\$ 1 = Php 47.00.

<sup>3</sup> The trimmed mean is used to compute for the average to minimize the effects of extreme values.

The trimmed mean is the average (mean) after taking out the lowest and highest 5 percent of the data.



With the aforementioned benefits, it is imperative to show computation to completely provide numerical comparison with the cost. For the short-term benefits, both the productive contribution (productivity) and seasonal benefit contribution are computed. The seasonal benefit contributions of the DTS student-trainees is realized when the firm experiences peak demand for goods and services in months within the year (e.g. resorts experience high demand for services by tourists during summer season). In this case, firms hire seasonal employees to augment the workforce during periods with peak demand. The timing of the training for the

DTS student-trainees is sometimes scheduled during periods of peak demand, thereby creating the additional seasonal productivity benefits. The numbers are presented in Table 3 below. The results show that overall short terms benefits for firms derived from the DTS program is about Php 5,487.00 or US\$ 117 per trainee per month, representing about 43 percent of the average cost of training. This number also varies across regional location and type of industry. It should be noted that the average short term benefits is almost equal (at the sample) to the direct costs for trainees (Php 5,588.00 or US\$ 119).

Table 3. Average Short Term Benefits per Trainee per Month in the DTS

Short Term Benefits	Mean (in Php)	Standard Error	95% Confidence Interval	
			Lower Limit	Upper Limit
Productivity	5,105.00	209.00	4,694.00	5,517.00
Seasonal Benefits	382.00	58.00	268.00	497.00
Total Benefits	5,487.00	220.00	5,053.00	5,920.00

The long-term benefits per trainee are provided in Table 4 below. One interesting item in the list is the long-run productivity difference between DTS trained

worker and an externally-hired (non-DTS) worker, which is quite substantial at about 16 percent (about Php 2,032.00) of the average overall cost per person.

Table 4. Long Term Benefits per Trainee for the Firm

Long Term Benefits	Mean (in Php)	Standard Error
Cost of Ads	997.00	324.00
Cost of Manpower (Internal) in Hiring	11,488.00	1,930.00
Cost of Manpower (External) Services	822.00	138.00
Cost of Orientation Materials	16.50	28.00
Cost of Manpower in Orientation	3,169.00	702.00
Productivity Difference	2,032.00	135.00

In addition to the short-term and long-term benefits derived by the firms from the DTS training program, there is also a substantial spill over benefit to the trainees undergoing

the program. The figures in Table 4 show that about one-third (33 percent) of the trainees are hired by the firms hosting the training.

Moreover, discussion with human resources personnel during the survey revealed that majority of the DTS students-trainees not

absorbed by the company are being recruited by other firms in the same line of business locally and abroad.<sup>4</sup>

Table 5. Percentage of Trainees Hired (Retained) by the Firms after the Training

	Total	Std. Err.	Lower Limit	Upper Limit
Total Trainees	5,625	1,073	3,508	7,742
Total Hired	1,834	416	1,014	2,654
Percentage of Trainees Hired	32.6%	5.9%	21.0%	44.2%

#### IV. Simulation Combining the Short and Long-Term Benefits vis-à-vis Total Cost

To determine the full benefits of the DTS program for the firms, the study performed simulation exercises to calculate both the short-term and long-term benefits

of the DTS program under the assumption that a trainee stays in the firm for at least three (3) months. The computations are provided in Table 6 below.

Table 6. Cost and Benefit in Doing DTS per Trainee for Firms

Type of Firm	Overall Cost	Short Term Benefit	Long Term Benefit	Productivity Difference	Net Benefit
Large Firms (more than 200 employees)	29,982.00	17,376.00	9,000.00	7,092.00	3,486.00
Firms in Manufacturing Sector	29,925.00	16,413.00	17,273.00	6,498.00	10,259.00
Firms in Hospitality Sector	29,700.00	16,065.00	19,398.00	5,589.00	11,352.00
NCR Firms	35,487.00	17,673.00	40,479.00	10,854.00	33,519.00
Region 3 Firms	27,018.00	17,577.00	12,110.00	5,025.00	7,694.00
Region 4A Firms	28,332.00	17,265.00	16,360.00	7,539.00	12,832.00
Region 10 Firms	46,650.00	14,973.00	22,446.00	5,067.00	(4,164.00)

The simulation exercise shows that, on the assumption the trainees stay with the firm for at least three (3) months, the combined short and long-term benefits is bigger than the overall costs by about Php 3,500.00 per trainee for large firms, thereby providing an incentive to engage in the DTS program. For firms in the Manufacturing and Hospitality sectors, the net benefits are estimated at Php 10,259.00 and Php

11,352.00, respectively. The same exercise shows that it is beneficial for firms in the NCR, Region 3 and Region 4A to undertake the DTS, considering the overall benefits clearly outweigh the costs of the training.

Only firms in Region 10 (Northern Mindanao) show a negative net benefit of Php 4,164.00 per trainee for a three-month program, primarily due to relatively high cost

<sup>4</sup> The information was shared by the Human Resources personnel of Subic Drydock Corporation (SDC) a company engaged in ship

repair services and Honeywell Casea (Subic Bay) Company Inc., a company engaged in aircraft wheels and brakes repair.



of production materials in the area. In terms of the number of employee, firms in Region 10 are composed mostly of micro-enterprise and small companies. During the regional validation in Region 10, firms confirmed that Physical Costs are relatively higher in Northern Mindanao compared to other regions included in the study. The firm representatives from this region also pointed out the high shipping cost from Manila to Mindanao as one of the major contributors to the high cost of materials used in the DTS training, particularly in the automobile repair sector. The results highlight the need for government intervention to make the DTS program in Northern Mindanao attractive to firm partners, similar to the case in the NCR, Region 3 and Region 4A.

## **V. Policy Recommendations**

The study reveals interesting results that are noteworthy in strengthening the DTS program in the country. For one, contrary to popular belief, the study revealed that the combined short-term and long-term benefits derived by the firms from the DTS program clearly outweigh the overall costs. The simulations made for firms in the Manufacturing and Hospitality sectors on the combined short and long term benefits of the DTS program showed such could be higher than overall costs by at least 30 percent. Likewise, the results are similar for large and medium size firms. Moreover, across geographical areas, calculations made showed that combined benefits can be higher than average costs (for firms in the NCR, Region 3 and Region 4A) and thus, it will be worthwhile for the firms to participate in the DTS program. While there are firms reporting higher average costs in running the DTS program (such as those in Region 10, consisting mostly of micro-enterprises),

empirical evidence leads us to conclude that the DTS program is generally beneficial for the firms.

Moreover, the DTS program produces substantial positive spillover effects on the DTS trained workers – they become more productive, as shown by the substantial long-run productivity difference between a DTS-trained and Non DTS-trained workers. In addition, one-in-three DTS student-trainee is employed by the firm that trained them. Higher probability of being employed is the trademark of the enterprise-based program such as the DTS, over other modes of training.

While there is a clear advantage for firms to participate in the DTS program, the success of the program will depend on the individual actions and cooperation among the three key players in running the DTS: TESDA, TVIs, and the Firms. The Technical Vocational Institutions (TVIs) have important roles to play to make sure the practice of the DTS is successful. One common problem experienced by firms taking in DTS student-trainees is that TVIs have difficulty in catching up with the latest technology and new skill sets expected by the firms from the DTS student-trainees. There seems to be a gap between the skills learned by the trainees in school (TVIs) and the practice at the workplace (firms). A recommendation for the TVI is for:

The TVIs should be flexible enough to catch up with the changes in the technology through capacity building of the TVI trainers. Partnering with the firms where the firms' training personnel to actually train the instructors of the TVIs on the use of the latest technology may be an area that TVIs should look into.

There is a need to attract more firms to participate and expand the involvement of the firms that are already in the DTS program. TESDA as the country's regulator of the DTS, needs to intensify its monitoring and engagement efforts with the participating firms, and those firms in the pipeline so it can propose appropriate policy handles to polish and sharpen the DTS program. Some of the recommendations for TESDA are the following:

The need to have an updated database of TVIs in order to identify which TVIs are offering DTS, and determine how many students are doing DTS and which firms are TVI partners. The list of TVIs and firms under the TESDA's monitoring office should be evaluated regularly.

To properly monitor the employment rate of DTS student-trainees in TESDA and to validate if the employment is in the formal sector or informal sector (type of industry or services).

For TESDA to help the firms, particularly firms classified as micro-enterprise, where the average cost of doing DTS is relatively high, on how to avail of the government incentives, such as tax incentives, related to the DTS program. The procedures on how to apply for the incentives for the firms should be clarified and simplified.

For TESDA to engage the companies in these sectors (Construction and Motor Vehicle Repair) to find out how the costs of running the DTS program can be reduced. At the current state, given the high overall costs per trainee, this may create a disincentive for other firms in the same sector to participate in the DTS program.

For TESDA to find ways on how the MSMEs be provided training assistance for the DTS student-trainees through the Training for Work and Scholarship Program TWSP.

Review the DTS Law for possible amendments in Congress. The DTS Law was approved more than 20 years ago and the structure of the economy, as well as how the firms operate have changed substantially. For one, Business Processing Outsourcing (BPO) Industry, which operates round-the-clock, contributes a large percentage to economic output. Firms in the BPO Industry and other similar activities require employees to report during midnight shift, and these firms are also requesting if DTS student-trainees can follow the same schedule for their training.

To review the current DTS training duration. Empirical evidence suggests that average combined short-term and long-term benefits are higher when firms have training duration between 3 to 12 months and more than 12 months. Likewise, it showed that average benefits, as a percentage of costs, is lowest for firms with training duration of less than 3 months. Most of the firms that participated in the study favor longer training duration: at least 6 to 9 months.

For TESDA to communicate the results of the study to firms as major part of its advocacy.

For TESDA to continue its cooperation agreement with the BIBB of Germany to enhance the capability of the technical staff of TESDA through the transfer of knowledge from the experts of the BIBB. The Philippine Chamber of Commerce and Industry (PCCI), being the leading organization of enterprises, local chambers



and industry association representing various sectors of business has an important role to play in encouraging firms to participate in the DTS program, as well as in the promotion of the DTS. Some of the recommendations for the PCCI are the following:

The Cost and Benefit Study shows higher benefits for firms in the Manufacturing and Hospitality sectors, as well as large and medium-sized firms. The PCCI should strongly encourage its members, at the national and local levels, to participate in the DTS program. Empirical evidence shows that DTS program will be beneficial for the PCCI members. Hence, the

PCCI should promote the DTS program to its members through one of its standing committees.

To track accomplishment, the PCCI can set its own performance indicators related to the DTS, such as targeting a number of new PCCI members who will join the DTS program on a yearly basis.

For TESDA and PCCI to work together and review the Apprenticeship Bill (HB 1594) and the DTS Law (RA7686), harmonize the features of the two legislative initiatives and come up with a common proposal on the needed amendments to the DTS Law.

### References

- Jansen, Anika, Harald Pfeifer, Gudrun Schonfeld and Felix Wenzelmann (2015), "Apprenticeship Training in Germany remains investment-focused: results of BIBB Cost-Benefit Survey 2012/13." Federal Institute for Vocational Education and Training (BIBB) Report 2015-01.
- Nguyen Quang Viet, Nguyen Hoang Nguyen and Dang Thi Huyen (2015), "Report on Cost and Benefit Analysis of TVET Internship Programmes in Enterprises (Vietnam)." Vietnamese-German Development Cooperation Programme Reform of Technical and Vocational Education and Training in Viet Nam (TVET).
- Orbeta, Aniceto, Jr. and Emmanuel Esguerra (2016), "The National System of Technical Vocational Education and Training in the Philippines: Review and Reform Ideas." Discussion Paper 2016-07, Philippine Institute for Development Studies.

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#### CONTACT INFORMATION

UP School of Statistics, Magsaysay Avenue  
University of the Philippines, Diliman, Quezon City  
928 – 0881/ 981 – 8500 loc. 3505  
office@stat.upd.edu