

# Human Development through Technical-Vocational Education and Training



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経済成長を通じた国民の生活向上には技能訓練・職業教育(TVET)が欠かせない。本稿ではフィリピンにおけるTVETの現状を紹介しつつ、それが卒業生の就職率や生産性の向上につながっているか否かを検証した。

## Abstract

A strong economic rationale exists for investing in technical and vocational education and training (TVET), that is, the recognition of TVET as a source of the skills, knowledge and technology needed to drive productivity in the knowledge-based and transition societies of the twenty-first century. This research focuses on how TVET is able to improve labor productivity through the followings: (a) providing industry relevant training; (b) ensuring institution-based training quality; and (c) improving the TVET image. The potential contribution of TVET to education and employability shall be estimated using a socio-economic welfare index. This will be achieved through a regression estimation procedure explaining the human development index with the contribution of TVET to average years of schooling. The potential contribution of greater TVET graduates entering the labor force significantly improves the 2017 HDI of the Philippines of 0.699 to an estimated 2018 HDI of 0.7088, thereby outgrowing the 2015-2017 HDI growth rate. A case in point is the 2-year program offered by the Foundation for Professional Training, Inc. (FPTI). Schools answer these needs by consistently providing 100% employment to its graduates in the hotel and restaurant industry.

**Keywords** technical and vocational education and training, labor productivity, human development index

## Background

Currently, the Philippines is fortunate enough to be at its demographic gift spot; a high population of a young labour force. A large labour force may contribute more consumption and production to the economy, which leads to higher economic growth. However, the quality of human capital is more important than the quantity; raising the quality of education must be at the center of human capital policies to utilize the population<sup>1</sup>. One of the ways to prepare the labour force at a broad range and at different levels of the education and training system is

through technical and vocational education and training or TVET. TVET is one of the three education subsectors in the Philippines, alongside basic education and higher education<sup>2</sup>. TVET is especially crucial for the Philippines, because of the country's high poverty rates; it typically caters to secondary school graduates or dropouts, or college graduates looking for skills training.

At the center of pro-poor strategies is skills development within the informal sector (Johanson and Adams 2004; King and Palmer 2006), as it promotes sustainable livelihoods in fragile environments. In addition,

<sup>1</sup> Descy, P. and Tessaring, M., 2005. *The value of learning: evaluation and impact of education and training: third report on vocational training research in Europe: synthesis report*. Luxembourg: Office for official publications of the European Communities.

<sup>2</sup> Philippines. Congressional Commission on Education, 1991. *Making Education Work: An Agenda for Reform*.

many of the disadvantaged youth are unable to complete the 10-year education cycle, are limited by basic education and/or unequipped with skills necessary for employment<sup>3</sup>. Furthermore, TVET helps achieve the following economic objectives: filling skills shortages, enhancing productivity on the job productivity, achieving competitiveness in the global economy, attracting foreign direct investment, and raising productivity of the informal sector.<sup>4</sup>

In the Philippines, the government agency tasked to manage and supervise technical education and skills development is the Technical Education and Skills Development Authority (TESDA). TESDA was established in 1994 by merging together certain offices under the Department of Labour and Employment (DOLE) and the Department of Education, Culture and Sports (DECS). By integrating offices from DOLE and DECS, there was a reduction in overlap amongst skills development activities initiated by various public and private agencies. In addition, it provided clearer direction for the nation's technical- vocational education and training goals. TESDA was established under the Republic Act No. 7796. This act, otherwise known as the Technical Education and Skills Development Act of 1994, was enacted by President Fidel V. Ramos. The act was passed due to the Philippine's need to improve its educational system's quality, accessibility, and responsiveness to the nation's development challenges.<sup>5</sup> Its aim is to encourage mobilization and full participation of labour within the Philippines' industries and local government units. Moreover, the law aims to develop the skills of the country's human resources.

Since 1994 TESDA has been mandated to “integrate, coordinate and monitor skills development programs; restructure efforts to promote and develop middle-level manpower; approve skills standards and tests; develop

an accreditation system for institutions involved in middle-level manpower development; fund programs and projects for technical education and skills development; and assist trainers training programs.” Concurrently, TESDA is expected to “devolve training functions to local governments; reform the apprenticeship program; involve industry/employers in skills training; formulate a skills development plan; develop and administer training incentives; organize skills competitions; and manage skills development funds.”<sup>6</sup>

Today, TESDA has four training program modalities: school-based, center-based, community-based, and enterprise-based. These programs are executed through the 57 TESDA administered schools, 60 training centers, and multiple enterprise-based training programs.<sup>7</sup> According to TESDA's 2017 Annual Report, there are 2.2 million enrollees and 2 million graduates of skills development services.<sup>8</sup>

This brings us to this study's research problem: *Do TVET graduates have a significant contribution to labor productivity in the Philippines?* Given all these contributions and efforts to promote technical-vocational education in the Philippines, is there a present contribution to labor productivity in the country? As established, there is a need to develop human capital in the country so that economic growth and social development can be achieved hand in hand. The objectives of the study are as follows. First, to understand the significance of technical-vocational training on labor productivity. Second, to promote technical-vocational education in key sectors that are concerned with stimulating growth in the Philippine economy. Third, to estimate the contribution of technical-vocational education and training to the human development index.

3 Yao, Xianbin. “Education and Skills: Strategies for Accelerated Development in Asia and Pacific.” *Asian Development Bank, OECD* (2008).

4 Yao (2008)

5 Philippines. Congressional Commission on Education, 1991. *Making Education Work: An Agenda for Reform*.

6 Brief History of TESDA - TESDA. (2019). Retrieved from <https://www.tesda.gov.ph/About/TESDA/10> (Accessed May 2019)

7 TVET Programs. (2019). Retrieved from <https://www.tesda.gov.ph/About/TESDA/24> (Accessed may 2019)

8 Philippines. Technical Education and Skills Development Authority (TESDA). “TESDA 2017 annual report.” (2017)

## Significance of the Study

Although there is a large amount of research on TVET internationally, little research exists on TVET graduates in the Philippines. Furthermore, Philippine research on TVET graduates' labor productivity has yet to be done. This paper will serve as an important addition to the body of research, by providing an empirical analysis of the significance of TVET on the Philippine's labour productivity. Similar to most countries implementing TVET, the Philippines faces the challenge of coordination between implementers, industries, and stakeholders<sup>9</sup>. Additionally, there tends to be a lack of alignment between the qualifications earned from vocational schools and the needs of industries<sup>10</sup>. Through the results of this study, relevant parties will have a deeper understanding on the labor productivity of TVET graduates and will be able to construct more efficient strategies for TVET. Furthermore, as regards economic growth, the study provides information on the key sectors to promote TVET. Lastly, the study will continue to promote and improve awareness of TVET in the Philippines.

## Scope and Limitations

This study will focus on technical-vocational education and training in the Philippines. The study will pay particular attention on the sectors with a high employment of TVET, namely: Tourism, Construction, and Information Technology. The study will examine the relationship between the country's technical- vocational training and labour productivity within key sectors. To achieve this objective, annual data on TESDA graduates will be obtained from the Philippine Statistics Authority and TESDA from 2011 to 2014.

9 Budhrani, K.S., D'Amico, M.M. and Espiritu, J.L.D., 2018. Developing a Skilled Workforce through Technical and Vocational Education and Training in the Philippines. *Handbook of Comparative Studies on Community Colleges and Global Counterparts*, pp.693-718.

10 Kuczera, M., Kis, V., & Wurzburg, G. (2009). Learning for jobs OECD reviews of vocational education and training: Korea. Organisation for Economic Co-Operation and Development. Retrieved March 25, 2019 from <http://www.oecd.org/dataoecd/53/49/42689417.pdf> (Accessed May 2019)

## Benefits of TVET

Technical and vocational education and training (TVET) is the systematic and orderly transmission of knowledge, skills and values to develop a workforce that is able to enhance productivity and sustain competitiveness in the global economy. It encompasses the ability to accelerate economic growth, provide marketable labor supply, minimize unemployment and underemployment, infuse technical knowledge, and reduce poverty (Bhurtel, 2017)<sup>11</sup>. According to Yao (2008)<sup>12</sup>, skills formation is not only vital, it is also complex. It crosses institutional boundaries, takes place in varied settings (including on the job and in non-formal ways), engages a highly diverse clientele, involves multiple delivery methods, and addresses occupational requirements that change constantly. The challenge is to unravel these complexities and meet the growing economic demand for skills. TVET serves a wide variety of objectives--political, social, and economic--some of which place unrealistic demand on training potential. The political objectives for TVET include keeping potentially disruptive youths off the streets--i.e., that providing TVET to jobless youths and adults will automatically reduce unemployment.

The social objectives of TVET are numerous, and, may include catering to different student abilities and interests and improving retention--e. g., keeping youths in secondary school by providing practical skills to those with low interest in academic studies or lesser academic abilities. TVET provides youths with skills on specific occupations which is vital for employability and holds more significance for the youths without higher level of education. It is taken as the tool for human resource development through skill empowerment and for restoration of economic stability during times of financial misfortune which may lead to an overwhelming rise in unemployment (Bhurtel, 2017).

TVET here is seen as something that is not a

11 Bhurtel, A., 2015. Technical and Vocational Education and Training in Workforce Development. *Journal of Training and Development*, 1, pp.77-84.

12 Yao (2008)

stand-alone tool for labor productivity. Because of its direct interaction with both general and academic education and work, vocational education particularly needs to collaborate and coordinate with other sectors. In the notion of policy implementation, TVET calls for the development of the quality of the education sector, its teachers and its materials to properly give out positive effects.

### ***Effects of TVET to Socio-Economic Welfare***

Beyond the benefits of TVET for the individuals and key sectors, this training is seen as an important strategy to achieve sustainable economies and societies through its contribution to social equitability and inclusivity (Schueler, Stanwick and Loveder, 2017)<sup>13</sup>. Moreover, it is aligned with the one of the Sustainable Development Goals of the United Nations, SDG 10: Reduced Inequalities as it is an efficient provision of opportunity for all. With that, the United Nations Educational, Scientific and Cultural Organization (UNESCO) highlighted the need for TVET in order to gain productivity, bring financial and non-financial benefits to the society, and greater social equity to alleviate poverty. Below is a discussion of the economic and social welfare contributions of TVET.

**Social Welfare.** According to UNESCO (2012), which was cited in Orbeta Jr. & Esguerra (2017) of Philippine Institute for Development Studies (PIDS), they underscored that demands on TVET are not solely confined to provide work, rather, it provides a lifelong learning that can teach ways to be adaptive in the fast-changing world. With this in mind, this type of educational training is sought to solve social issues, specifically social exclusion. With the income gap between the poor and non-poor, a large number of the poor are hindered from entering universities and colleges. Moreover, there are also situations where the transfer of technology in the Philippines requires more skilled

workers in the labor force. Given these, Orbeta & Esguerra (2017) argued that TVET must be accessible to all types of clients, namely, (1) the unemployed, (2) the currently employed who want to increase their income, and (3) the employed who want to re-tool. More so, they also cited that TVET should not discriminate against those who cannot afford to pay as to not impede any human development. It should also be accessible to small and medium enterprises to properly orient their industry to expand their capacity.

The accessibility of TVET proves social inclusion in the Philippines because it encourages equality among the workers. As a result, it increases the well-being of Filipinos. The design of TVET has improved social outcomes because students gained participation in the society. Schueler, Stanwick & Loveder (2017) stated that social interactions such as membership in organizations, social network groups, civic participation and the like have positive effects on the TVET graduate because it contributes to life and work satisfaction. In addition to that, this enhanced sense of well-being contributed to an improved self-esteem, improved confidence, and also satisfaction with financial situation. Schueler, Stanwick & Loveder (2017) further emphasized that the foundation skill gains elevate their literacy and numeracy skills that would be essential inside and outside work. To a greater extent, one of the notable effects of inclusion from TVET is that it also developed and promoted human rights of women. There have been gender issues as to what are the boundaries between the role of men and women. The educational trainings are not limited to male individuals but is open to both genders. Bhatta (2016) identified that women are then represented in different spheres of social activities.

On a larger scale, Bhatta (2016)<sup>14</sup> explained that alleviating gender inequality and social exclusion closes possibilities of encountering problems in accessing public services and development opportunities. The society is able to realize the capacity of the people and

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13 Schueler, J., Stanwick, J. and Loveder, P., 2017. *A Framework to Better Measure the Return on Investment from TVET. Occasional Paper*. National Centre for Vocational Education Research Ltd. PO Box 8288, Stational Arcade, Adelaide, SA 5000, Australia.

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14 Bhatta, K., 2016. Gender Equality and Social Inclusion in Vocational Education and Training. *Journal of Advanced Academic Research*, 3(2), pp.29-39.

enrich human capital that would be beneficial for the economy. This decreases cases of low security, low pay, low conditions for work, and low bargaining power (Bhatta, 2016). With that, the TVET graduates are encouraged to heighten employee engagement because of the assurance and certainty that the labor service they will offer will be appreciated and be useful for the company.

**Economic Welfare.** The workforce of a nation is the main driver for development and economic growth (Adams, 2007 cited in Bhurtel, 2015). From this standpoint, the productive labor force has a significant impact on the welfare of the economy. UNESCO-UNEVOC (2013) argued that with the demands of industries, it created greater importance for TVET programs to strengthen the potential of the population. Moreover, it is one of the most efficient ways of alleviating unemployment due to insufficient skills. Bhurtel (2017) stated that it opens an avenue for economic acceleration for both developed and developing countries. The program is formed to train students to be fit in the labor market. With the developed skills gained from TVET, it creates possibilities for employment that would result to a better labor force. It is drawn that as the number of TVET graduates increase, there is a higher possibility of increasing the employment rate.

King & Palmer (2008) cited in Bhurtel (2017) mentioned that they conducted a study and found that there is a positive relationship between skill development and accessibility to decent jobs which can remarkably lead to economic growth because of the increase in productivity. The increased capacity of laborers would result to better quality work. In the workplace, Shreeve, Gibb and Riberio (2013) cited in Bhurtel (2017) expressed this instance as manner to boost the competitiveness of the graduate because the training gives them a specialization. This serves as a bridge to the success of the company and economy because TVET aligned their skills to match the job requirements. It becomes vital especially for entering new growing industries. On a larger scale, it can be derived that through the demands of globalization, these specialized labor markets contribute to efficiency.

There has been significant differences in the income between college graduates and non-college graduates because of skill differentials. The discretion is determined by the relationship of qualification levels with employment and wages (Karmel & Nguyen 2006; Leigh 2008; Noonan et al., 2010 cited in Schueler, Stanwick and Loveder, 2017). After the trainings, graduates are more likely to have full-time income. This secured opportunity becomes a benefit to the laborer through higher disposable income for a greater spending and saving capacity. This also benefits the employer through higher labor productivity and improved labor supply and quality (ADB, n.d.)<sup>15</sup>. Nonetheless, the wage enhancements that may be attained by TVET programs may aid in uplifting the economic status of the worker in time. As a developing country that promotes social inclusion, it would be highly beneficial since many individuals who are below the poverty threshold may be pushed upwards, out of the poverty line.

### **Theoretical Framework: Labor Productivity and Vocational Training**

This study is based on an article from a discussion paper series of the Institute of the Study of the Labor entitled “Labor Productivity and Vocational Training: Evidence from Europe” by Hector Salva and Jose I. Silva. The paper acknowledged that human capital is necessary for economic and productivity growth and analyzed cases in select sectors and countries in the European Union. It recognized the need to develop human capital so that they may be trained and prepared to improve their quality of output and their ability to utilize new capital, technologies, and processes. It intended to provide a “quantitative assessment of the impact of vocational training using a large dataset with information by country and sector, controlling the standard determinants in the literature such as capital deepening, the level of education, and expenditures in research & development activities.” The paper

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<sup>15</sup> Asian Development Bank 2019 “Bhutan: Skills training and education pathways upgradation project” (<https://www.adb.org/projects/50296-002/main#project-documents>) (Accessed May 2019)

conducted a cross-sectional panel data of 16 sectors of 21 European economies for years 1999 and 2005. It considered variables such as capital deepening, vocational training, intensity in research, and education to analyze the effect of technical-vocational training to labor productivity. The results of the paper found that an extra hour of training per employee contributed to accelerate the growth rate of labor productivity by 0.55 percentage points. Given this discussion paper based on European context, this study decided to follow this paper as a theoretical framework for similar objectives in the case of the Philippines.

An extra hour of training would refer to hours spent on mentoring and coaching technical-vocational students. This practice is conducted within the institutions providing the skills and competencies training, as well as from the industry partners where the students undergo on-the-job training. This capital deepening process enables students to be more competent and effective professionals once they join the industry.

### Empirical Methodology

Based on the cross-sectional panel regression of the IZA discussion paper by Salva and Silva, this paper will conduct a cross-sectional panel regression of the tourism, construction, and information communication technology (ICT) sectors of the Philippine economy for years with available data. The equation below will be used for the regression:

Where:

$$Y_{ij} = \text{Labor productivity} = \frac{\text{real value added}}{\text{total employment}}$$

$$k_{ij} = \text{Capital deepening} = \frac{\text{real net capital stock}}{\text{total employment}}$$

$$\xi_{ij} = \text{Vocational training} = \frac{\text{hours in TVET courses}}{\text{total employment}}$$

w = Wage

Based on the methodology of the IZA discussion paper, utilizing the logarithm forms on certain variables is necessary the percent change and its impact, or its

elasticity. Analyzing the percent change of capital deepening on a percent change of labor productivity is needed because when concerned with growth and productivity, it is normally indicated in terms of growth or incremental/marginal changes. Meanwhile, capital deepening is necessary to understand how capital is utilized by the workers in each sector. In this model, vocational training will be measured by the average hours of a TVET graduate in a course related to the concerned sector of tourism, construction, or information communication technology (ICT) multiplied to the number of TVET graduates in those sectors over total employment per sector. Wage will also be considered in this model as efficiency wage theory states that higher wages leads to higher labor productivity in firms and sector which will be determined from the average wage of each sector.

The results of the regression (See Table 1) illustrated a positive correlation between all variables and labor productivity. Amongst the variables, wages, with a p-value of 0.4498, has the least impact on labor productivity. This is possibly due to wages being relatively low and increases are not significant enough to incentivize workers to increase productivity.

**Table 1. Regression Results on Labor Productivity and TVET**

Model 1: Fixed-Effects, using 12 observations  
 Included 3 cross-sectional units  
 Time-series length = 4  
 Dependent variable: Labor Productivity

	Coefficient	Standard Error	T-Ratio	P-Value
Constant	1.01815	1.81164	0.562	0.5945
Capital Deepening	1.83591	1.9752	0.9295	0.3885
Wage	0.000129009	0.000159624	0.8082	0.4498
Hours of Vocational Training	1.21983	0.361532	3.374	0.015 **
Mean Dependent Var	6.682022	S.D. Dependent Var		3.34893
Sum Squared Resid	9.941614	S.E. of Regression		0.39615
LSDV R-Squared	0.992367	Within R-Squared		0.90228
LSDV F (5, 6)	156.0223	P-Value (F)		2.89E-06
Log-Likelihood	-1.756862	Akaike Criterion		15.5137
Schwarz Criterion	18.42316	Hamman-Quinn		14.4366
Rho	0.318826	Durbin-Watson		0.32927

Source: Philippine Statistics Authority (PSA)

Capital deepening showed that a lower significance to labor productivity, with a p-value of 0.3885. Although capital deepening is a less significant variable, its

positive relationship with productivity still illustrates the need for investments into real net capital stock. Capital deepening is widely considered an important component for a business's productivity. According to the regression results, every 1% increase in capital deepening leads to an estimated 1.83% increase in labor productivity. Through capital deepening, workers are allotted more access to inputs, such as machinery and technology. With a greater availability of resources per worker, workers are allowed to produce more output. Therefore, productivity may be increased through greater investments into real net capital stock. However, because the p-value is considered not significant, it is clear that the returns from investments in human capital itself is more valuable.

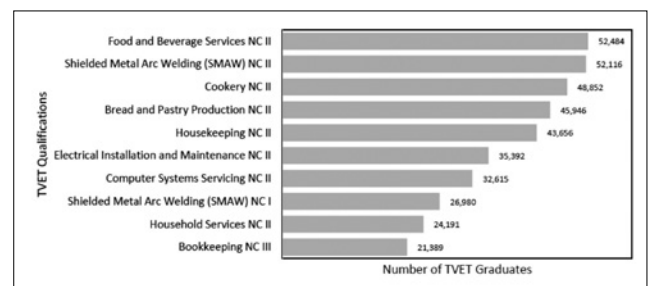
With a positive and significant coefficient for TVET, this result reinforces what is proven by literature that technical and vocational education and training positively contributes to the labor productivity of a sector. In this study, specific sectors were analyzed as these were found to have many graduates from TVET in the Philippines. In construction, the most recent TESDA Survey on Employability of Graduates (2014) found that 92,640 graduates were employed by the construction industry, easily accounting for 7.5 percent of the graduates. It is even more fortunate that with the infrastructure boom that has come with the Build Build Build program of the President Duterte, there is more demand for skilled labor in the construction sector. In a report released by the Philippine Information Agency, Department of Labor and Employment – Region XI Asst. Regional Director Jason Balais<sup>16</sup> said “[b]ecause of the build, build, build, we have so many vacancies in the construction industry ... Our available construction-related vacancies are about 2,200 jobs, mostly carpenters and masons.” With this demand and the clamor within the construction industry for skilled labor, now more than ever should TVET be emphasized and

16 Alama, Rudolph Ian. (May 3, 2019). Build, build, build projects boost demand for skilled workers. Philippine Information Agency. Retrieved from <https://pia.gov.ph/news/articles/1021604> (Accessed May 2019)

focused on.

Meanwhile, in the information and communication technology (ICT) sector, there is a lack of skilled labor despite the growing demand for these workers. In a report by SunStar<sup>17</sup>, technical- vocational education has been scene as the key to developing skilled laborers that are needed by the industry. Pedro V. Sandalo Jr., the school director for operations and finance of Vocational Technical Training and Assessment Institute (VocTech) in Mambaling, Cebu said “We see that there is a need for workers, but when the industry demands, there are not enough people available. With VocTech, we will have a pool of talents to serve the needs of the industry.” Additionally, Information Technology and Business Process Association of the Philippines (IBPAP) Board Trustee Jonathan D. de Luzuriaga believes that the Philippines already has a sizeable workforce with basic capabilities but to become more competitive and even catch up with the country’s ASEAN neighbors, more advanced skills must be developed<sup>18</sup>. ICT graduates also absorbed 7.9 percent of the TVET graduates of 2014 or 97,768 graduates.

Lastly, the tourism sector has the most batch of graduates from 2015-2016, absorbing 8.88% percent of the 2,151,000 TVET graduates. (See Figure 1)



**Figure 1. TVET Graduates in Top 10 Qualifications. 2016**

Source: TESDA

17 Galolo, Jeandie O. (April 4, 2016). ICT workers in short supply. SunStar Philippines. Retrieved from <https://www.sunstar.com.ph/article/66721> (Accessed May 2019)

18 Cortez, Gillian M. (March 24, 2019). PHL IT workers skilled in basics, developing capability seen key. BusinessWorld. Retrieved from <https://www.bworldonline.com/phl-it-workers-skilled-in-basics-developing-capability-seen-key/> (Accessed May 2019)

TVET courses for the tourism sector mostly focus on hotel and restaurant service and management, such as housekeeping, food and beverage services, bartending, cookery, and, bread and pastry production. The Hotels and Restaurants Association of Baguio (HRAB) is in close partnership with various technical vocational schools and has found TVET graduates to be crucial in the industry. Anne Juzette Ruth Toledo, an executive from HRAB, said “Graduates of technical vocational courses augment the industry, provide support and employment opportunity to the TESDA graduates.” She also mentioned that the partnership with TESDA has proven particularly beneficial for the company saying, “We consider TESDA as our partner in the industry and the objective of HRAB is to develop the hospitality and tourism industry and it would not be complete without the help of TESDA in terms of producing quality graduates.”<sup>19</sup>

**Table 2. TVET Enrollees and Graduates by Delivery Mode by Sex: 2014-2016**

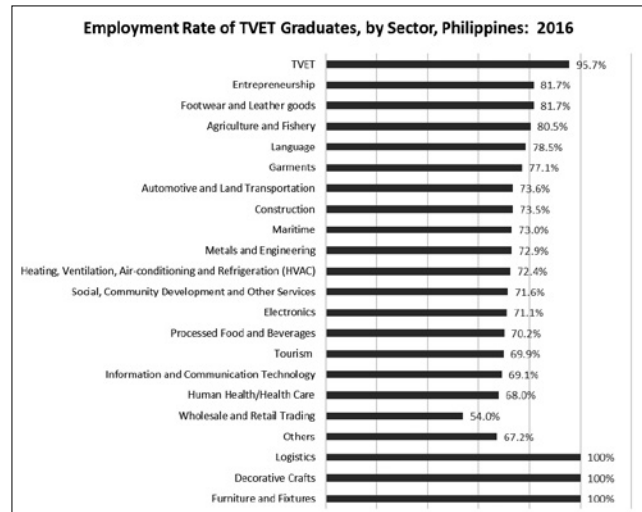
Delivery Mode	2014			2015			2016		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Enrollees	972,359	1,061,058	2,033,417	1,099,118	1,182,271	2,281,389	1,060,463	1,209,202	2,269,665
Institution-based	542,419	485,586	1,028,005	647,040	519,573	1,166,613	591,133	560,511	1,151,644
Enterprise-based	32,793	36,345	69,138	34,797	28,828	63,625	36,643	35,815	72,458
Community-based	397,147	539,127	936,274	417,281	633,870	1,051,151	432,687	612,876	1,045,563
Graduates	859,448	928,253	1,787,701	1,009,968	1,119,792	2,129,760	1,004,487	1,148,779	2,153,266
Institution-based	448,817	388,042	836,859	551,245	488,044	1,039,289	543,838	613,936	1,157,774
Enterprise-based	30,617	27,400	58,017	28,235	28,767	57,002	35,558	31,522	67,080
Community-based	383,812	510,791	894,603	430,488	605,981	1,036,469	425,261	601,321	1,026,582

Source: 2014-2016 MIS 03-02 data from TESDA Regional Office, Provincial Office and TechVoc Institute ROPOTI. Consolidated and Validated by Planning Office - Labor Market Information Division

Table 2 shows the delivery mode having the greatest number of graduates. From 2014-2016, technical-vocational education delivered by institutions such as schools, learning centers and universities, have the most graduates. Due to the close supervision, mentoring and on-the-job training in close partnership with industry, these institutions are able to immediately employ almost 100% of their graduates. This mode of training would entail the capital deepening aspect of technical-vocational education and training prevalent in the European

19 Agoot, Liza. (April 10, 2019). TESDA graduates are quality workers: tourism exec. Philippine News Agency. Retrieved from <https://www.pna.gov.ph/articles/1066961> (Accessed May 201

context. Students have to be closely supervised by their trainers, in order to skillfully use instruments and equipment essential for effective job performance. It also ensures an excellent quality of graduates, whose skills and competencies match the needs of the industry. Figure 2 shows their employability by sector.



**Figure 2. Employment Rate of TVET Graduates by Sector. Philippines 2016**

Source: TESDA

In summary, the results show that the tourism sector-related skills and competencies taught via TVET, which has a consistently high level of enrollment and graduates, are among the courses contributing to high labor productivity for the country.

### Industry Focus-Graduates of an Institution- Based TVE: FPTI Schools

Lifelong development for women from all walks of life is the primary focus of the Foundation for Professional Training, Inc. (FPTI). Guided by this thrust, the FPTI Schools believe that raising the educational level of women and developing their skills--be this for household chores or institutional services--reounds to the good of the family they belong to and the community that they serve. FPTI’s vision is to educate and train women to be agents of social change at all levels of society by committing themselves to service and wholistic personal development. FPTI’s mission is



to contribute to the efforts of nation-building by empowering women of all walks of life--especially among the less privileged sectors – through development education, skills training, and character-building founded on Christian values of life and work.

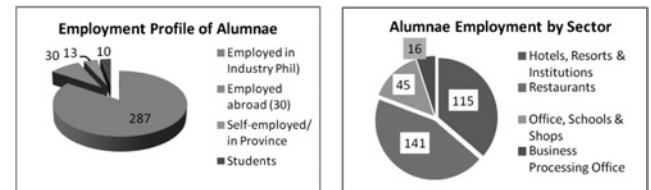
The FPTI schools recognize and have faith in the dignity of the person as the sustainable foundation for development. Development education is a lasting solution to overcome the negative effects of poverty: the lack of skills, opportunities for employment, lack of self-esteem and self-reliance, and lack of access to social integration. The FPTI schools also believe in life long professional training to ensure competent service and the active participation of women in various aspects of development, good governance, and responsible partnership with stakeholders.

These are achieved through an institution’s readiness to undertake collaborative projects in the field of educational development, explore and implement appropriate innovative approaches to formal and non-formal training that will foster lifelong learning activities of women, manage training centers that offer enhanced education-to-employment programs in both residential and institutional services, conduct continuing programs among trainers and volunteers to strengthen institutional support and capabilities, and promote advocacy programs that will heighten awareness of socio-civic responsibilities among individuals and corporate entities. All these are geared toward supporting the promoting technical-vocational training in the Philippines.

The two-year program offered by the FPTI Schools responds to said needs by assuring graduates of employment in the hotel and restaurant industry. The programs are self-sustaining and provide innovative technical and vocational education and mentoring. Livelihood training is further imparted through one-on-mentoring in the school and coaching during on-the-job training.

With more than 20 years of service and development commitment, FPTI schools continue to meet the challenges of its various stakeholders — women from various socio-economic status, their volunteers, hospitality industry partners, donors — through constant nurturing of its core educational values and updating of strategies

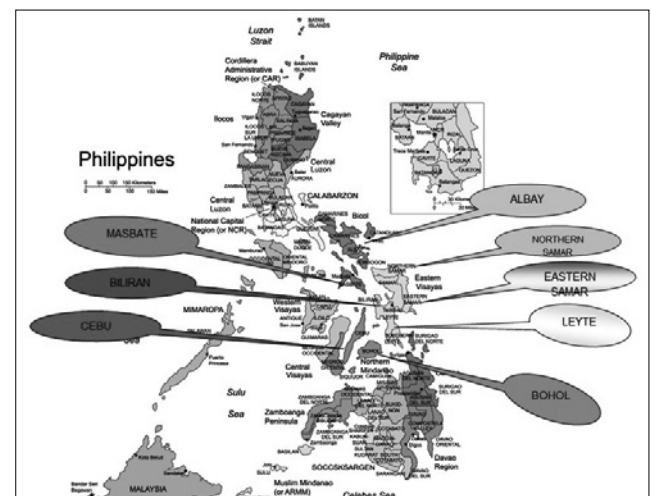
for honing its competencies. Students are given livelihood training, mentoring and coaching.



**Figures 3. & 4. Employment Profile of Batch 2006-2012 Alumnae**

Source: Banilad Center for Professional Development

Figures 3 & 4 shows employment from a sample of 340 graduates from the Banilad Center for Professional Development (BCPD) based in Cebu. This sample of graduates are earning at least a gross income Php20,000 – Php25,000 per month, equaling the regional per capita gross domestic product of NCR of Php21,158 as of 2018. Most of the enrollees come from the low income D socio-economic status, as can be seen in Figure 5.



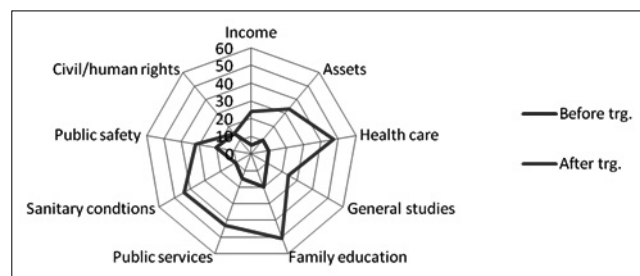
**Figure 5. Map of the Recipient Provinces of BCPD Training in the Philippines**

Source: Banilad Center for Professional Development

The areas receiving training from BCPD belong to the poorest regions in the Philippines. While being in their on-the-job training after acquiring their appropriate skills training and competencies, their highly satisfactory job performance is observed by their potential

employers, most of whom are in the hotel and restaurant industry. They immediately get hired after their TVE graduation along with their NC II certificates in house-keeping, food and beverage services, cookery, and bread and pastry production. Some of them are absorbed by the maritime industry, or, in the hotel and restaurant industry abroad, such as pension homes, hostels and hotels in Italy, Spain, East Asia and North America, enabling them to lift the socio-economic status of their families just within a span of 5 years. These graduates are able to save enough in order to build their families a home.

Based on the results of the social economic welfare index (SEWI) survey (see Figure 6) of the BCPD students using Maslow's hierarchy of needs before training of the BCPD alumnae and after finishing the 2-year Hotel and Restaurant Services (HRS) course, results show a positive increment improvement in the 8 out of 9 SEWI indicators. (See Tables A2-A3 for calculation of SEWI). To facilitate the comparison of the SEWI survey results, data is presented using the M&E Wheel or Spider web, which is one of the methods for monitoring and evaluating projects (ANCP Annual Development Plan (2012-2103, Annex D-40). The spider web provides a visual means of measuring project performance vis-a-vis targets and in comparing changes in ratings through time. The spider web was used here to help represent the social economic welfare index of the BCPD students before and after training as illustrated in Figure 6.



**Figure 6. Comparative SEW Index of BCPD Students Before and After Training**

Source: Banilad Center for Professional Development

The increment improvement in the 8 social economic welfare indicators varies. Highest improvement (77%) is

seen in the individual-tangible goods and services, such as income (79%) health care (79%) and properties/assets- housing (69%). It is followed closely by the collective-tangible (71%) indicators; namely, sanitary conditions (77%) and public services- utilities (65%). These results are congruent with Maslow's Hierarchy of Needs theory in which the basic low-level physiological requirements to sustain life, such as air, water, nourishment, shelter, warmth, sleep must be satisfied before the higher-level needs, such as self-fulfillment. Moreover, the second level -safety and security is required to be free from the threat of physical and emotional harm, such as living in a safe area, medical insurance, job security and financial reserves. Most of these needs are satisfied in the lives of the alumnae.

In the area of individual-intangible (61%) goods and services, such as general studies (58%) and family education (61%), the increment improvement is minimal. It seems that higher education is not an urgent need for the alumnae to succeed in their career in the hotel and restaurant industry. There is a wide array of opportunities to grow and develop in their competence and profession that satisfies their social needs and esteem. Also, majority (63 or 68%) of the survey respondents belong to batch 2010 to 2012; just taking off in their career with one to three years experience in their wings.

Lastly, lowest increment improvement in the social economic welfare index is in the collective-intangible (29%) goods and services; namely public safety (38%). It is reassuring to note that there is no threat of harm in the community environment where the alumnae live, but there is no assurance of protection in case of aggression or harm. Furthermore, Civil and human rights enforceability has not improved as graded by the students and alumnae; that is (15 or Low-low) the same level before and after training. It may be a manifestation of the low economic capacity of the local government unit or a lack of political will of local officials in implementation of programs and delivery of basic services.

BCPD envisions a brighter future for the Filipino women. From the social economic welfare index (SEWI) survey results, it is safe to conclude that this vision has been fulfilled in the lives of the alumnae beneficiaries.

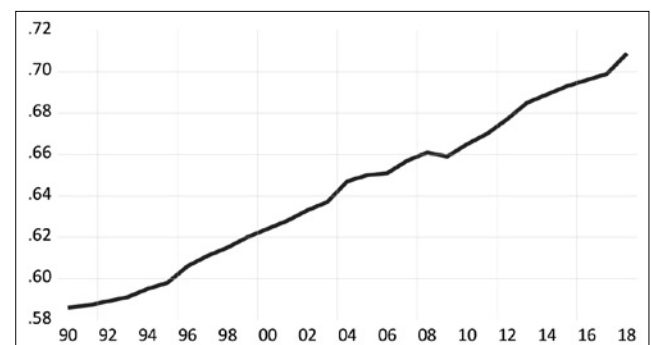
The graduates are 100 percent employed and earn at least a minimum amount that uplifts the family from poverty line that satisfies their physiological and safety needs. Although, it would be desirable if the alumnae's communities, through the local officials improve in civil and human rights enforceability. In general, BCPD training has indeed led to an improved quality of life of the alumnae and their families. As of 2019, the SEWI is being updated.

Referring further to Maslow's hierarchy of needs theory, it can be gleaned that the alumnae are also growing in the other levels of sociability, esteem and self-actualization; although these may not be quantified in the SEWI survey results. Being in the service industry, they are dynamic and relate with all types of people, gaining self-respect and recognition along the way. The quest for excellence inculcated in them makes them seek realization of their full potential as shown in their staying in the job for 5-6 years rising in the career ladder or moving on to greener pastures trying out new ventures even in foreign lands. The mentoring program for the alumnae has to be institutionalized so that they can be guided to make prudent career and life choices.

It seems the alumnae are content with the BCPD diploma. However, as the alumnae get on in years, there is a need to 'reinvent themselves', 'sharpen the saw' and acquire higher level qualification certificates or diploma for their professional portfolio to remain competitive in the tourism industry. Hence, BCPD can take the lead by looking into offering higher qualifications (e.g. TESDA National Certificate III and IV) for the alumnae so that they maintain an edge in the competitive hotel and restaurant industry

From a macroeconomic standpoint, the contributions of these schools and institutions providing TVET shall be summarized using an estimated human development index. The human development index is the geometric mean of the index for life expectancy at birth, index for expected average years of schooling, index for the mean years of schooling and the index for gross national income per capita in \$PPP (purchasing power parity). In the absence of data to compute or estimate these variables with the contribution of TVET graduates for 2018,

a regression of the HDI for the Philippines shall be done. The additional labor force for the Philippines in 2018 is 5 million individuals. About 2 million of these are employed. Of the additional labor force in 2018, 480,000 are graduates of TVET<sup>20</sup>. If these 480,000 graduates would have been employed in 2018, then their percentage would be 24%. If all TVET graduates would have been able to attain 12 years of schooling, i.e. finished senior high school, then that would mean that the average years of schooling for the Philippines would no longer be 9.3 years, but 9.948. Forecasting the HDI for the Philippines for 2018, with a 9.948 mean number of schooling years, all other variables constant would increase the HDI from 0.699 to 0.7088. The HDI of the Philippines has been from 0.693 in 2015 to 0.669 in 2017 or a 0.4% growth. If we include the forecasted HDI with the inclusion of TVET graduates, the growth rate will be significantly higher, or 0.7%. With TVET, the additional employable graduates, with at least senior high school education, would significantly increase the average years of schooling. (See Figure 7)



**Figure 7. Human Development Index Philippines with 2018 Forecast**

Source: Human Development Index, UNDP

## Summary

With the high population of the Philippines, TVET education has become a driver for economic growth. The young labor force has a large contribution to the

<sup>20</sup> Orbeta, et al 2018 "Senior High School and the Labor Market: Perspectives of Grade 12 Students and Human Resource Officers," PIDS Discussion Paper Series No. 2018-49.

production and consumption of the economy. However, it is more important to consider the human capital of the country. The following table summarizes the results of the study.

The results in Table 3 show that increasing the quality of education is a must, and one of the many ways to promote this is through TVET.

**Table 3. Summary of Results by Objectives**

Objectives	Results
Objective 1. To understand the significance of technical- vocational training on labor productivity	<ul style="list-style-type: none"> <li>• Number of TVET Graduates in the labor force very significantly explains labor productivity in the Philippines.</li> <li>• Seen from the regression results in Table 1.</li> </ul>
Objective 2. To promote technical-vocational education in key sectors that are concerned with stimulating growth in the Philippine economy	<p>The study focused on three areas. Results are based on TESDA reports and from the industry focus on FPTI Schools:</p> <ul style="list-style-type: none"> <li>• <u>Provide relevant industry training.</u> Due to the high enrollment and graduation rate in TVET with intense industry- relevant skills and competencies training, graduates acquire NC II qualification which ensures employability. Excellent experience of BCPD. (Figures 3-6)</li> <li>• <u>Institution-Based Training Quality.</u> Institutions offering TVET provide mentoring and coaching to students. Mentors and coaches are equipped with the expertise to provide these skills and competencies while students undergo on-the-job training. There is high employability of TVET graduates in the following sectors: construction, computer and information technology and tourism-related industries which require skills in food and beverage preparation, cookery, bread and cake preparation and housekeeping. (See Table 2)</li> <li>• <u>TVET Image Imparted.</u> Higher wages in comparison to those with no NC II, high skills, high employability (Figure 1, 2)</li> </ul>

Objective 3. To estimate the contribution of technical-vocational education and training to the human development index	<ul style="list-style-type: none"> <li>• If the additional labor force for 2018 would consist of at least 24% technical-vocational education and training (TVET) senior high school graduates, the mean years of schooling in the Philippines will increase from 9.3 years to 9.948 years. This will increase the Philippine Human Development Index of 0.699 in 2017 to 0.7088 in 2018. (See Figure 7)</li> <li>• This will be a significant increase in the country’s human development</li> </ul>
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This paper attempted to prove this hypothesis based on the discussion paper on “Labor Productivity and Vocational Training: Evidence from Europe” by Salva and Silva. The framework assumed that developing human capital through trainings would be beneficial as it would translate to improving the quality of their output and also have the ability to utilize new capital, technologies, and processes. The empirical methodology is conducted through a panel regression, focusing on the top three sectors with the most graduates. These sectors are tourism, construction, and information communication technology. After running the regression, the results show that vocational training is the most significant factor than capital deepening, and wage. Investment on key resources would be vital.

It is worth noting that all variables manifested a positive relationship with labor productivity. Under the construction sector, TVET graduates proved to have a major contribution attributed to the infrastructure boom from the Build Build Build Program of the Duterte Administration, creating more jobs and demand for carpenters and masons. The ICT have high demand for skilled workers, but the supply of ICT graduates is not enough. With TVET, it would allow people to be more capable on this field and serve the needs of the country. As for tourism that mainly focuses on hotel and restaurant service and management, TVET graduates proved to have skills aligned with the needs of the sector. This is further supported by the fact that TESDA is in partner with Hotels and Restaurants Association of Baguio (HRAB) who has been providing employment opportunities for its graduates.

## Conclusion

Given the positive correlation between TVET and labor productivity, as well as the forecasted improvement in the Human Development Index for the Philippines, if the mean years of schooling were increased from 9.3 to 9.948 given the increase in the labor force with TVET graduates, it can be said that TVET has, indeed, a significant contribution to human development. Aimed at providing practical and affordable education to the general public, TVET is evidently geared towards reducing unemployment and job-mismatches. It develops graduates with the necessary skill sets to be productive employees in the industry. More so, this study confirms the importance of TVET and its graduates, especially from institution-based graduates, in the key-sectors of the Philippine economy. TVET graduates, as seen in this study, affirmed their present positive contribution to these sectors through labor productivity.

From simply just going through TVET to remedy unemployment to becoming actual drivers and stimulants for economic growth, TVET graduates have proven the value and quality of their work to society and the labor market. With wages being a positive incentive to workers, the improvement of this key sector may possibly lead to further growth and productivity.

In conclusion, with a formidable incentive structure and proper policy implementation, TVET can be developed further and can continue to produce graduates of even higher quality. With the development of such, much of the Philippine population will be able to benefit and transform the labor market for the better.

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## Appendix

**Table A1. Regression Result for HDI**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.093702	0.059578	-1.572768	0.1294
LIFEBIRTH	0.006685	0.001054	6.343263	0.0000
EYEARSSCH	0.011319	0.000896	12.63229	0.0000
MEANYEARSSCH	0.014782	0.000783	18.88743	0.0000
GNIPC2011PPP	5.49E-06	3.34E-07	16.41371	0.0000
R-squared	0.999588	Mean dependent var	0.639964	
Adjusted R-squared	0.999516	S.D. dependent var	0.036567	
S.E. of regression	0.000804	Sum squared resid	1.49E-05	
Durbin-Watson stat	1.624901	J-statistic	8.45E-39	
Instrument rank	5			

**Table A2. Tabulated Indicators of the 9 Social Economic Welfare Index (SEWI)**

Nine Indicators	Weight	Component
income	20%	individual-tangible
properties/assets	12%	individual-tangible
health care	8%	individual-tangible
general education	12%	individual-intangible
professional training	18%	individual-intangible
security	10%	collective-intangible
civil & human rights	10%	collective-intangible
public services	5%	collective-tangible
sanitary conditions	5%	collective-tangible

Source: Alumnae Social Economic Welfare Index Survey Results (2013), Banilad Center for Professional Development

**Table A3. Socio-economic Welfare Matrix**

	<b>Individual (70%)</b>	<b>Collective (30%)</b>
	<b><i>Economic resources</i></b> 40%	<b><i>Public resources</i></b> 10%
(50%) <b>Tangible</b>	-income (50%) -assets (30%) -access to insurance (20%)	-Utilities: water, electricity, internet use (50%) -sanitary conditions (50%)
	<b><i>Personal resources</i></b> 30%	<b><i>Community resources</i></b> 20%
(50%) <b>Intangible</b>	-Technical/ Higher Education (60%) -Family education (40%)	-public safety (50%) -civil and human rights enforceability (50%)

Source: Alumnae Social Economic Welfare Index Survey Results (2013), Banilad Center for Professional Development