



Research Paper

Impact of Vocational Education and Training on Income and Employment in Sri Lanka

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ABSTRACT: It has been widely accepted that the economic viability of any country depends on educating and training its individuals to participate in the labor market. In response, the Sri Lankan government has introduced vocational education and training (VET), comprising the National Vocational Qualification (NVQ) and Non-national Vocational Qualification (Non-NVQ) systems, to develop individual skills. The study aimed to determine whether VET has a positive influence on income in the Sri Lankan context, and its findings categorically illustrate that VET increases individual income. Specifically, the results obtained suggest that the level of impact on gross monthly income increase ratio is higher for NVQ individuals, which is at 29.8%, than in the case of Non-NVQ at 13.1%. In terms of the impact of VET on employment, both the VET programs significantly enhance employability. This study also expands on previous research that used the ordinary least square method by employing a more rigorous approach to cater to potential bias that may influence the results.

KEYWORDS: Employment, Income, Vocational Education and Training, NVQ, Non- NVQ

Received 15 May, 2024; Revised 27 May, 2024; Accepted 29 May, 2024 © The author(s) 2024.

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I. INTRODUCTION

VET plays a leading role in developing a skilled workforce to improve industrial productivity (Banerjee, 2016). The importance of VET has been emphasized since the mid-20th century. Arum and Shavit (1955), as cited in Neuman and Zideman (1989), opined that individuals have a greater chance to enter the labor market through VET and earn more. UNESCO (2012) defines VET as:

“A comprehensive term referring to those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life” (p. 284).

According to Choi et al. (2019), VET is an enabler of economic growth. It acts as a critical component of economic development in developing countries when used in the form of vocationalized or diversified secondary schools (Brunello, 2007; King and Palmer, 2007; Lee et al., 2016). VET is also considered to reduce youth unemployment in most advanced economies (Hanushek et al., 2017; Nilsson, 2010). Furthermore, Golsteyn and Stenberg (2017) suggest that VET is believed to ease the transition from school to work, especially for students who are less academically inclined.

Globally, vocational training programs started to resurface on the agendas of government and foreign donor agencies in the mid-2000s after a period of decline in funding in the 1990s and early 2000s (King and Palmer, 2010; Hirshleifer et al., 2014). The excess demand identified by employers, coupled with supply constraints of skills in the working-age population, has raised concerns that low levels of skill could impede growth in some countries (UNESCO, 2012; World Bank, 2012a). The global economic downturn, which started in 2007, caused a surge of interest in policies that could help minimize unemployment (World Bank, 2012b). Considering the prevalence of labor market imbalances, there are concerns that unemployment will become more systemic, necessitating a focus on skills training in order to minimize skill mismatches (ILO, 2012). Consequently, the most common form of labor market policy introduced internationally in response to the crisis

was enhanced training programs (McKenzie and Robalino, 2010). VET is now a top priority for governments to resuscitate the global labor crisis (Hirshleifer et al., 2014)

Notably, in Sri Lanka, VET plays a critical role in developing a skilled labor force. The Sri Lankan government has been emphasizing on tertiary education and the vocational sector as the main engines for developing a quality workforce in the country. VET has a long history in the country, and this program was first established in 1983. Currently, VET comprises a major network that includes more than 270 training centers nationwide. In addition, more than 400 private and NGO- run training centers have been established so far (UNESCO-UNEVOC, 2018). The main objective of the government in creating these centers is to train crafts persons for the industrial sector. Recently, other than supplying employees to the information and communication technology sector, it has also started to cater to sectors such as that of health services, elderly care, and beauty culture. The primary focus of the private sector VET providers is to offer employment opportunities in the service sector. The training centers of NGOs have been maintained mainly in conflict-affected and less developed areas. They provide both VET as well as livelihood development programs (ADB, 2011).

In the Sri Lankan context, VET can be classified into two categories, National Vocational Qualification (NVQ) and Non-national Vocational Qualification (Non-NVQ). NVQ is provided by the National Vocational Qualification Framework (NVQF) established in Sri Lanka. It is responsible for conducting quality assured training programs relevant to the economic and social development of the country in accordance with international standards. NVQF comprises craft, middle technical, and degree-level credentials based on industry-identified competency requirements, while Non-NVQF includes all of the above but without degree-level credentials (ADB, 2011). Most of the Non-NVQ courses are short term and serve as a gap-filling program for those who intend to improve their career or basic course for obtaining skills and knowledge in the hope of preparing for the future as entrepreneurs.

This study assesses the impact of VET on income and employment in Sri Lanka by comparing the impact gap between NVQ and Non-NVQ training. If properly placed, VET has the potential to stimulate economic growth, social progress, traditional education, empowerment, wealth creation, poverty reduction, and ability enhancement (Maclean, 2011). In Sri Lanka, where youth restlessness is widespread, VET is well-suited in helping youths and adults become self-sufficient and self-reliant. Concurrently, VET is also beneficial to those employed in the industry in skill enhancement, mitigating high worker turnover, and obsolescence risks (Okolocha, 2012). According to the Labor Market Information Bulletin, Statistical Services (2011), VET provides a skilled labor force to the labor market; however, it has not been receiving the required attention. Details of the VET system adopted in the Sri Lankan education system is shown in Figure 1.

Most of the Non-NVQ courses are short term and serve as a gap-filling program for those who intend to improve their career or basic course for obtaining skills and knowledge in the hope of preparing for the future as entrepreneurs.

Accordingly, this study's primary objective is to investigate the impact of VET on employment to achieve sustainable development. The specific objectives include:

- i. To estimate the impact of training (NVQ) on income in Sri Lanka.
- ii. To estimate the impact of training (Non-NVQ) on income in Sri Lanka.
- iii. To estimate the impact of training (NVQ) on employability in Sri Lanka.
- iv. To estimate the impact of training (Non-NVQ) on employability in Sri Lanka.

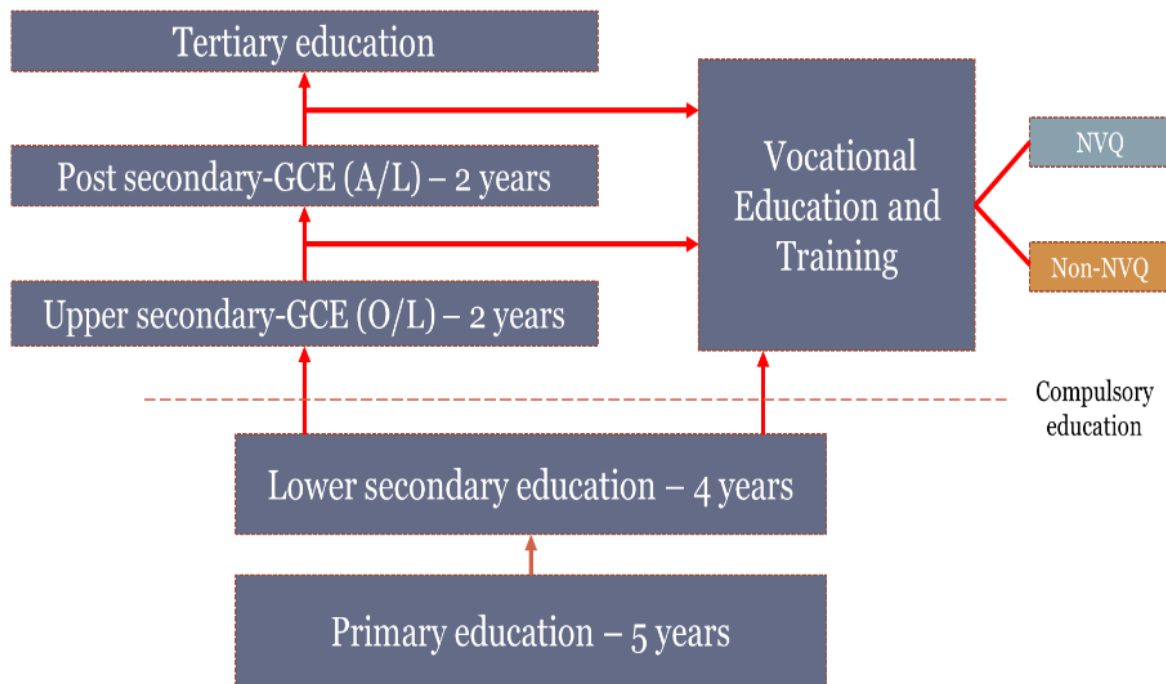


Figure 1: VET system adopted in the Sri Lankan education system

According to the global educational indicators, the World Bank (2014) indicated that Sri Lanka has a gross tertiary enrolment rate of 21%, which is below the averages for lower-middle-income and upper-middle-income countries standing at 22% and 44%, respectively. Hence, the gap between secondary and tertiary education is vast, even though some of these students (5.8%) enrolled in vocational programs; this has led to high unemployment and social vices such as stealing, robbery, and rape. In 2019, a high unemployment rate of 6.5% and 9.5% was recorded among GCE(O/L) and GCE(A/L and above), respectively (Sri Lanka Labour Force Statistics Quarterly Bulletin, 2nd Quarter, 2019). The high rate of unemployment is a matter of grave concern for the Sri Lankan government as it cascades or breeds many social vices that affect society.

Another problem that the research identified for redressal is the mismatch between the educational system and companies' employment requirements.

In order to address these challenges, the Sri Lankan government instituted the VET to develop labor force skills. This study observes the following research questions.

- Does VET have a positive effect on the income of individuals?
- Does VET have a positive impact on the employability of individuals?
- To what extent has the introduction of VET (NVQ and Non-NVQ) by the Sri Lankan government affected individuals.

II. LITERATURE REVIEW

A plethora of studies have discussed the impact of VET on employment, income, or both. There are mixed results in terms of the impact of VET on employability and wages. Some studies found a positive impact of VET on employment or income, while others did not find any effect. In addition, most of the studies considered VET contemporaneously but failed to take into account the different types of VET which could provide a comprehensive policy direction for governments; this is one of the research gaps filled by this study. This discussion has been elaborated below.

The first part of the review closely observes the impact of VET on employment. In Romania, Popescu and Roman (2017) evaluated the direct effects of vocational training on employment. The authors employed PSM to evaluate the effect of VET using micro survey data. The major findings are that the training measure has a positive and modest influence on Romanian employability: participation enhances employment possibilities by 15% when adequately regulated. Furthermore, the study examines the heterogeneity of groups of trainees in order to determine the categories in which the program excels but failed to consider the different types of VET. Choi et al. (2019) compared VET graduates with general academic graduates, without considering

the different types of VET, on adult skills and employment in the Organization for Economic Co-operation and Development (OECD) countries. The authors employed the Program on the International Assessment of Adult Competencies (PIAAC) dataset obtained from OECD countries. The results showed that vocational track graduates are better positioned in three ways: 1) they have literacy skill disadvantages, 2) they have short term employment advantages, and 3) they have long term employment disadvantages when compared to general track graduates. The authors also discovered that people in VET-oriented countries are more likely to be employed initially as compared to general track graduates.

In India, Kumar et al. (2019) investigated the impact of VET on the wages of an individual at both the sectoral and overall levels. The study used the nationally representative National Sample Survey Office (NSSO) data and employed a multiple regression model to identify the effect of VET on wages. The results obtained suggest that individuals who obtained VET had a wage increase of 36.9% and 17.6% at the primary and secondary sectors, respectively. The authors concluded that VET is linked to higher wages with the greatest impact in the primary sector. They suggested that good economic returns are associated with VET; consequently, it is essential to invest resources in VET.

The last part of the review considers the impact of VET on both employment and income. Banerjee (2016) conducted a study, which is closely related to our analysis, on the impact of formal VET and non-formal VET on employment and wages in Indian manufacturing industries. The presence of ethnic differences in employment and wages are perceived to be common in cases where equally qualified citizens from assumed ethnic minorities receive lower wages. The study included individuals from different social groups with equal levels of skills through VET programs and how it affected their employment and wages. The study focused on the manufacturing sector and used the National Sample Survey of 2011 to 12. The study employed an OLS approach to estimate the impact, although it failed to use a causal inference approach such as PSM. The study demonstrated that formal and non-formal VET significantly improves participation in the manufacturing sector across all social groups in India. Formal and non-formal VET was found to enhance workers' wages to approximately 28% and 6%, respectively, in the manufacturing sector at the aggregate level.

Brunello and Rocco (2017) went beyond the scope of VET and compared it with academic education. They investigated the effects of vocational education on adult skills employment and wage outcomes by using the PIAAC survey. The data sample consisted of 17 countries, including Finland, France, Germany, Japan, Spain, the United Kingdom, and the United States, among others, with reliable information on vocational education. The authors compared the effect of academic education and VET on labor market outcomes and considered the levels of basic skills such as that of literacy and numeracy. The study determined that vocational education does not perform well as compared to academic education. However, VET performs slightly better in terms of employment at the post-secondary level.

From the aforementioned review, it is evident that a considerable number of studies have been focused on the impact of VET on employment and wages at the individual level; however, there is limited coherent evidence on the different forms or types of VET at the individual level. Most of the studies on VET focused on general VET or on-the-job training. However, VET has different forms; when considering the economic benefits of VET, it is imperative to evaluate the different segments of training or programs under it to estimate its impact in order to generate a more precise conclusion. This study attempts to fill this literature gap

III. METHODOLOGY

Intend to evaluate the impact of training (NVQ and Non-NVQ) on employment and the total income of individuals who participated in a training as captured in the LFS 2018 report. Many scholars such as Caliendo and Kopeinig (2008), Dehejia and Wahba (2002), Heckman, Ichimura and Todd (1998), Lechner (1999), and Smith and Todd (2005) have argued that PSM, which was first proposed by Rosenbaum and Rubin (1983), is the most commonly used method to assess the effectiveness of a training program. Rosenbaum and Rubin (1983) proposed a three-level step. First, the individual's propensity scores to participate in the program are calculated. Second, these scores are used to balance the treated and non-treated *individuals with different techniques. Finally, by comparing the performance of the two groups after matching, the impact of the programs is analyzed.

PSM refers to the act of pairing treatment and control groups with similar or equal values of the propensity score and their covariates (Gu and Rosenbaum, 1993). The fundamental concept of the approach is to create two groups of individuals who are identical in their measurable characteristics (observed characteristics). Those belonging to the treatment group have access to the intervention, while those in the control group have not benefited from the treatment. Matching algorithms are used to determine a non-treated individual that is close to a participating one to avoid biases, allowing an estimation of the effect of the intervention as the difference between a participant and their matched counterpart. It offers an approximation of the mean program

effect for the participants, weighted for all participants. The propensity scores are usually calculated using either a logit or a probit model in the binary case of treatment versus non-treatment units. The general form of the model of probity proposed by Rubin (1983) is as follows:

$$P_r(T_i = 1/X_i) = \int_{-\infty}^{X_i} \varphi(t) dt = \varphi(X_i), \dots\dots (1)$$

$$\text{where } \varphi(X_i) = \frac{\exp\left(-\frac{x_i^2}{2}\right)}{\sqrt{2\pi}}. \dots\dots (2)$$

One of the matching techniques (for example, nearest-neighbor (NN) matching and caliper matching) is then used to appropriately connect the treatment and non-treatment units based on their scores. The NN algorithm relates the comparison units with the nearest scores to a particular treated unit. The following is the simplest distance metric for matching propensity scores:

$$d(i, J) = \left| p(X_i) - \frac{1}{|J|} \sum_{j \in J} p(X_j) \right|,$$

where i = Treated unit

J = Control unit

$|J|$ = Cardinality of the control unit

$p(X_i)$ = Probability of the unit i to be treated.

I then minimize the distance of search using the following objective function:

$$\min_{m(\cdot)} D = \frac{1}{n} \sum_{i=1}^n d(i, m(i)), \dots\dots (4)$$

where $m(i)$ = Control units matched with the treated unit i .

To measure the program's impact on the parameter, the average treatment effect (ATE) is used. It involves averaging the impact over the entire population.

$$ATE = E(\delta) = E(Y_1 - Y_0),$$

where $E(\cdot)$ represents the average (or expected value).

IV. RESULTS AND DISCUSSION

4.1 DESCRIPTIVE STATISTICS

Table 1 displays the mean differences of covariates between the treatment and control groups. The covariates are individual characteristics, such as gender (male=1, female=0), age, years of education, marital status (married=1, single=0) and religion (Buddhist=1, non-Buddhist=0).

The variables of interest in this study are the participation in long term VET training NVQ and short term VET training Non-NVQ.

The preliminary findings from the mean statistics suggest that trained individuals, both NVQ and Non-NVQ (treatment groups), are younger than their untrained counterparts (control group). In terms of education, trained individuals, both NVQ and Non-NVQ (treatment groups), are better educated than untrained individuals (control group), as shown by the years of schooling. From a comparison between the individuals of the NVQ and Non-NVQ groups, the mean statistics suggest that individuals with NVQ training are moderately better educated than their Non-NVQ counterparts. However, individuals with Non-NVQ training are moderately older than those with NVQ. The substantial differences between the trained (treatment group) and untrained individuals (control group) justify the use of our methodology, that is, the PSM approach.

4.2 Mean difference between the treated and control groups before and after matching

The main objective of using PSM is to balance covariates between trained (treatment group) and untrained individuals (control group) for measured confounding. Accordingly, the quality of the PSM model is assessed based on the covariate balance achieved.

National Vocational Qualification

Table 2 presents the means of the covariates for the treatment, control, unmatched, and the matched groups. The results demonstrate that the means of trained individuals are significantly close (over 97%) to the corresponding means of their matched counterparts and relatively different from the means of untrained individuals after matching. However, before matching, the means of pre-treatment in the treatment group are unmatched with the control group, and this has been clearly depicted in Figure 2 in the balance plot graph.

Table 1: Mean difference between the treatment and control groups

Covariates	Control Mean	Treatment Mean	Diff	St_Err	t_value	p_value
NVQ (No. of control obs = 40,385 and No. of treatment obs= 907)						
Sex (male=1)	0.47	0.55	-0.08	0.017	-4.90	0.000
Age	34.71	31.29	3.41	0.409	8.35	0.000
Education	10.15	12.25	-2.09	0.097	-21.55	0.000
Marital_statu (single=0, married=1)	0.64	0.52	0.12	0.016	7.75	0.000
Religion (Non Buddhist=0, Buddhist=1)	0.62	0.79	-0.17	0.016	-10.35	0.000
Non-NVQ (No. of control obs = 40,385 and No. of treatment obs= 3,199)						
Sex (male=1)	0.47	0.43	0.04	0.009	4.50	0.000
Age	34.71	33.82	0.89	0.222	4.00	0.000
Education	10.15	12.18	-2.03	0.052	-38.80	0.000
Marital_statu	0.64	0.65	-0.01	0.009	-1.60	0.113
Religion	0.62	0.78	-0.16	0.009	-17.60	0.000

Non-national Vocational Qualification

Similarly, Table 3 presents the means of the covariates for the treatment, control, unmatched, and matched groups. With the exception of marital status whose means are close to each other (over 84%), covariates such as gender, age, education, and religion have significantly close means (over 93%) when compared to the corresponding means of their matched counterparts; they are comparatively different from the means of untrained individuals after matching. However, before matching, the means of pre-treatment in the treatment group are unmatched with the control group, and this is clearly depicted in Figure 3 in the balance plot graph.

Table 2: Mean difference between the treated and control groups before and after matching

Variable	Unmatched Matched	Mean		% Reduction		T test		V(T)/V(C)
		Treatment	Control	% bias	bias	t	P> t	
Sex	U	0.550	0.468	16.500		4.900	0.000	-
	M	0.550	0.548	0.400	97.300	0.090	0.925	-
Age	U	31.293	34.707	-		-8.340	0.000	0.610*
	M	31.293	31.216	0.700	97.700	0.170	0.863	1.010
Education	U	12.247	10.151	88.800		21.570	0.000	0.310*
	M	12.247	12.241	0.200	99.700	0.070	0.942	1.000
Religion	U	0.788	0.620	37.500		10.37	0.000	-
	M	0.788	0.789	-0.200	99.300	-0.06	0.954	-
Marital status	U	0.515	0.640	-		-7.760	0.000	-
	M	0.515	0.512	0.700	97.400	0.140	0.888	-

* if variance ratio outside [0.88; 1.14] for U and [0.88; 1.14] for M

Sample	Ps R2	LR chi2	p>chi2	Mean Bias	Med Bias	B	R	%Var
Unmatched	0.085	740.240	0.000	39.900	31.100	100.7*	0.29*	100
Matched	0.000	0.050	1.000	.5	.4	1.1	1.020	0

* if B>25%, R outside [0.5; 2]

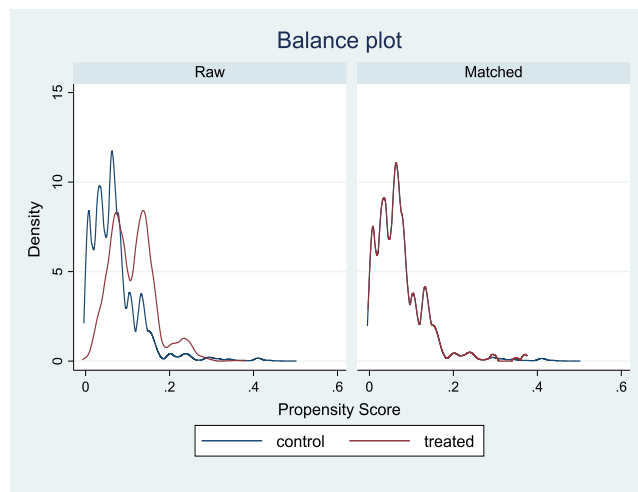


Figure 2: Graph of balance plot before and after matching

4.3 Propensity score matching results

This study focuses on employment and the natural logarithm of gross monthly income as our outcome variables. The propensity scores for each covariate are estimated using the probit model to predict the conditional probability of participation in VET training (NVQ and Non-NVQ). This is the very first step analysis required for PSM as I consider that by observing the characteristics of the individuals, it is likely to determine their participation in the VET training.

Table 3: Mean difference between the treated and control groups before and after matching

Variable	Unmatched Matched	Mean		% Reduction		t- test		V(T) /V(C)
		treatment	Control	% bias	bias	t	P> t	
Sex	U	0.427	0.468	-8.300		-4.480	0.000	-
	M	0.427	0.424	0.600	93.100	0.230	0.820	-
Age	U	33.818	34.707	-7.900		-4.000	0.000	0.690*
	M	33.818	33.795	0.200	97.300	0.090	0.926	1.000
Education	U	12.180	10.151	84.400		38.800	0.000	0.360*
	M	12.180	12.182	-0.100	99.900	-0.040	0.972	0.960
Religion	U	0.775	0.620	34.300		17.590	0.000	-
	M	0.775	0.775	0.000	100.00	0.000	1.000	-
Marital status	U	0.654	0.640	2.900		1.580	0.113	-
	M	0.654	0.652	0.500	84.300	0.180	0.854	-

* if variance ratio outside [0.93; 1.07] for U and [0.93; 1.07] for M

Sample	Ps R2	LR chi2	p>chi2	Mean Bias	MedBias	B	R	%Var
Unmatched	0.087	1991.430	0.000	27.600	8.3	88.6*	0.39*	100
Matched	0.000	0.090	1.000	.3	.2	.8	1.010	0

* if B>25%, R outside [0.5; 2]

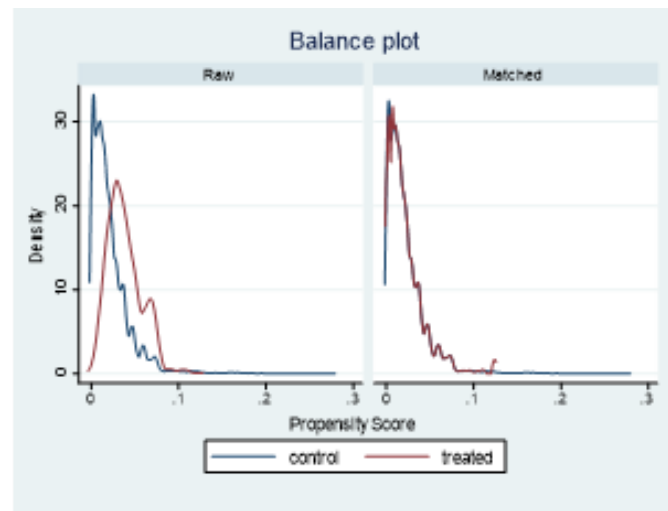


Figure 3: Graph of balance plot before and after matching

Results of the probit model for income

Table 4 presents the results of the covariates for both NVQ and Non-NVQ. The likelihood of participation in NVQ and Non-NVQ training is significantly influenced by gender, age, education, marital status, and religion. The probit model results show that almost all the variables are statistically significant determinants of individuals participating in the VET training (NVQ and Non-NVQ)

Results of the probit model for employment

The results of the probit model for employment are shown in Table 6. In the context of NVQ, our results suggest

that marital status has no significant relationship with the probability of an individual joining the NVQ training. It should be noted that NVQ training includes degree programs and it takes longer time. Therefore, it takes determination to complete such training; consequently, individuals who chose to attend this training are more likely to be single. Age has a negative and significant relationship with the probability of individuals joining the NVQ training, indicating the lower likelihood of older individuals' participation. This can be explained by the fact that older individuals are reluctant to learn vocational skills and new technological skills. Education and religion have positive and significant relationships with the probability of an individual joining the NVQ training. This simply implies that individuals who are educated and religious tend to have a higher chance of joining the NVQ training in a bid to increase their employability.

Table 4: Estimation of the propensity score (outcome variable: ln income)

Covariates	NVQ		Non-NVQ	
	Coef.	Std.Err.	Coef.	Std.Err.
Sex	0.013	0.042	- 0.154***	0.027
Age	-0.018***	0.002	- 0.012***	0.001
Education	0.124***	0.008	0.142***	0.005
Marital_status	-0.044	0.048	0.085***	0.033
Religion	0.368***	0.046	0.304***	0.029
Cons	-2.879***	0.125	-2.619***	0.082

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 5: Estimation of the propensity score (outcome variable: employment)

Covariates	NVQ		Non-NVQ	
	Coef.	Std.Err.	Coef.	Std.Err.
sex	0.206***	0.030	0.003	0.019
Age	-0.010***	0.002	- 0.007***	0.001
Education	0.133***	0.006	0.150***	0.004
Marital_status	-0.012	0.039	0.174***	0.026
Religion	0.334***	0.034	0.317***	0.021
_cons	-3.510***	0.087	-3.236***	0.057

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

4.4 Average treatment effects estimation for National Vocational Qualification and Non-national Vocational Qualification

Results of the average treatment effects for income

The impact of NVQ and Non-NVQ training on an individual's gross monthly income shows in Table 6. The results that the level of impact on gross monthly income is higher for individuals with NVQ training at approximately 29.8% than in the case of those with Non-NVQ training at approximately 13.1%

Table 6: ATE estimation for income based on NVQ and Non-NVQ

InTotalincome	Coef.	St.Err.	z	p-value	[95% Conf	Interval]
NVQ (1 or 0)	0.298	0.048	6.23	0.000	0.204	0.392
NonNVQ (1 or 0)	0.131	0.029	4.53	0.000	0.074	0.188

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Results of the average treatment effects for employment

Table 7 shows the results of the ATE estimation for employment based on NVQ and Non-NVQ. The results show the coefficients of NVQ and Non-NVQ to be 0.110 and 0.079, respectively.

Table 7: ATE estimation for employment based on NVQ and Non-NVQ

Employment	Coef.	St.Err.	Z	p-value	[95% Conf	Interval]
NVQ (1 or 0)	0.110	0.024	4.59	0.000	0.063	0.157
Non-NVQ (1 or 0)	0.079	0.012	6.54	0.000	0.055	0.103

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Robustness check using average treatment effect on treatment

Employed four alternative estimators to confirm the robustness of our results. Used the ATE on treated (ATT), which is important to estimate the effect on a trained individual to conduct a comparison and ensure fairness using different estimators on only the trained individuals. As shown in Table 9, all the matching estimators indicate that an individual's participation in the NVQ and Non-NVQ trainings has positive and statistically significant effects on gross monthly income and employment. The estimates are significant at the 1% level of confidence for both the NVQ and Non-NVQ trainings.

Table 9: Robustness check using ATE on treatment (ATT) (ln income)

<i>Outcome variable:</i>	(1) PSM	(2) Caliper (0.05)	(3) NNeighbor (1)	(4) NNeighbor (5)
Income				
<i>NVQ</i>	0.162*** (0.029)	0.162*** (0.029)	0.148*** (0.029)	0.150*** (0.029)
<i>Non-NVQ</i>	0.065*** (0.019)	0.065*** (0.019)	0.055*** (0.019)	0.054*** (0.018)
Employment				
<i>NVQ</i>	0.051*** (0.015)		0.045***	0.042***

<i>Non-NVQ</i>	0.060*** (0.008)	0.051*** (0.015)	(0.014)	(0.014)
		0.060*** (0.008)	0.056*** (0.008)	0.059*** (0.008)

V. DISCUSSION

In Sri Lanka, VET has been categorized into NVQ and Non-NVQ to cater to all the individuals who want vocational education. Further, it has been integrated into the industrial sector leading to employment and better conditions of life. These initiatives clearly support our claims in the results obtained.

This study presents the impact of NVQ and Non-NVQ trainings on an individual's gross monthly income in Table 7. The results that the level of their impact on gross monthly income is higher for individuals with NVQ training at 29.8% than in the case of those with Non-NVQ training at 13.1%. This clearly suggests that the potential for an individual's gross monthly income increase ratio is twice more for NVQ than Non-NVQ. Our results are consistent with the studies conducted in Colombia, which revealed a 20% increase in monthly earnings (Attanasio et al., 2011), and in India with a 28% and 6% increase in the monthly earnings for formal and non-formal VET, respectively (Banerjee, 2016).

VI. CONCLUSION

This study adopted a quasi-experimental design by employing the PSM approach and examined the impact of VET on income and employment. The treatment group comprised individuals who received training on VET. Here, the study used secondary data obtained from the Department of Statistics and Census, Sri Lanka.

The study aimed to determine whether VET has a positive effect on income in Sri Lanka, and the findings clearly illustrate that VET increases individual income. In terms of the impact of VET on employment, both the VET programs significantly enhance employability. When considering NVQ and Non-NVQ, NVQ has a higher impact on both income and employment than Non-NVQ. This can be attributed to the fact that NVQ has a better reputation, enhanced quality, longer training period, and meets international standards. Consequently, industries prefer individuals with NVQ certificate to fulfill the middle-level manpower requirement, which accounts for a majority of the employees working in most of the industries in Sri Lanka. At the individual level, VET assists people in enhancing their abilities and expanding their job market opportunities. It has also been found to be beneficial for increasing individual income; hence, it recommends that the government should make a greater effort to provide VET. Although the findings can be considered noteworthy, the study has some limitations. A small number of covariates, which included demographic information, were used in the analysis. Furthermore, it could not control for the unobservable variables such as human skills and individuals' capabilities. The ATT estimator may be susceptible to self-selection bias because it was unable to test whether those variables become adequately balanced after matching. Considering the aforementioned limitations, it recommends that future studies be conducted using IV and CEM identification strategies to incorporate the unobserved characteristics, which has the potential to cause endogeneity or bias in the results obtained.

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