The Impact of Mini Vocational and Educational Training (VET) Policy Implementation on Economic Growth in East Java Indonesia, 2014-2019

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Abstract

Mini Vocational and Educational Training (VET) is one the East Java Provincial Government programs, which is expected to accommodate islamic boarding school (*pondok pesantren/Ponpes*) graduates to enter the world of work, and encourage economic growth. So this study seeks to determine the effect of the implementation of Mini VET on the economic growth of East Java as seen from the GDRP. The results show that in the short term, the implementation of Mini VET actually slows down the economy of East Java, due to the focus on costs and program implementation.

Keywords: Mini VET; economic growth; *ponpes*; labor force; Gross Domestic Regional Product (GDRP).

1. Introduction

East Java, in 2018 is a province with a contribution to national GDP reaching 14.67% [24]. This condition is supported by the high population of East Java Province, which occupies the second position nationally, which is 40,665,696 people [27].

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The size of the population, according to national conditions, is also dominated by people under 40, reaching 60% [25]. This condition is known as a demographic bonus, which will have two effects, encourage economic growth, or even become a burden on a country's economy [3]. The high of young age in East Java means that many school-age children are taking basic education in formal and non-formal institutions. For formal, there are elementary school to Senior High School or Vocational School (VET) state or private. Meanwhile, non-formal, one of the most common is Islamic Boarding School that called *Pondok Pesantren (Ponpes)*. Even the number of students (*santri*) in East Java is the highest in Indonesia. However, the number of Ponpes is still inferior to West Java and Banten Provinces [12, 28]. The high interest in Ponpes is supported by the fact that 96% of the population of East Java is Moslem [27]. Ponpes in providing education, of course, prioritizes religious education [15, 12]. So that the work skills are still very minimal. Whereas after graduating from the *pesantren*, the students need jobs to support themselves, which will also encourage economic growth. This is in accordance with Solow's [19] theory of economic growth which states that economic growth requires a stock of capital and labor. So many santri graduates are a large stock of workforce, but unfortunately it is minimal in terms of quality to enter the world of work. From these problems, the East Java Provincial Government, since 2014, initiated the establishment of Mini VET, which is actually not much different from general VET. The curriculum is 30% theory and 70% practical. However, the main target of this program is santri and the community around the *Ponpes*, as well as young people in potential and remote areas. The hope is that the presence of Mini VET can be an investment in labor, especially for youths with limited access to skills education [5, 11]. The existence of Mini VET is an effort to invest in order to increase productivity and efficiency of labor capital [10]. So it can be said that economic growth is strongly influenced by investment in labor capital in the form of increased productivity and efficiency. From this explanation, it is interesting to study the effect of the Mini VET policy implementation on economic growth in East Java Province, in the period 2014 to 2019. So that it can be used as knowledge and material for consideration, for other provinces in Indonesia or other countries that want to implement the kind of the VET model.

2. Literature review

Mini VET is a vocational school that is specifically provided for students and residents around the *Ponpes*, as well as youth in potential and remote areas in East Java. This program has been in effect since 2014, through a Governor Regulation. The curriculum at Mini VET, consists of 30% theory and 70% practice [5]. Mini VET is not much different from general VET. This education system is applied in many countries, both developed and developing. The goal is to prepare a skilled workforce that is needed in the industrialized world [2]. Because the workforce is educated, it is more prepared in the strategic realm, while implementation is more focused on secondary education. Various studies on the relationship between VET and economic growth, some are positive and negative. A positive relationship, shown in research conducted by Joesoef and his colleagues [8]. Research results of VET in regencies / cities in Indonesia, during 2003 - 2006, showed a positive relationship between VET and regional economic growth. Khilji and his colleagues [9], who examined the impact of VET on Pakistan's economic growth, during the period 1980 - 2010. The results showed that VET was able to provide the workforce needed to increase production, resulting in economic growth. This opinion is also stated by Finch and Labaree, who based their opinion on the theory of social efficiency [9]. Not only has an impact on economic growth, the presence of VET based on observations of Cedefop (Center for Vocational Development in Europe),

from 2011 to 2012, affects: wages, company performance, job satisfaction, measures of individual social capital, as well as competence and civilian health. Nilsson [14], who examined VET with a literature study approach and unemployment data in Europe during 1992 - 2006. The results showed that VET was able to increase productivity, but to encourage economic growth was still far from expectations. As for social inclusion, it is still uncertain. Meanwhile, the negative relationship between VET and economic growth is evidenced by Slamet PH [17]. Based on the results of his research using data from SMK and unemployment in Indonesia during 2012-2014, it shows that VET does not support economic growth, but instead contributes to an increase in unemployment. One of the causes is the mismatch of VET output with the needs of the world of work.

3. Research Method

Solow growth model [19], assumes economic growth as output growth (Y). To obtain additional output, technology (A), capital stock (K) and labor stock (L) are needed. So that from this statement, the formulation can be written, as follows,

$$Y = AK^a L^{1-\alpha} \tag{1}$$

The model was then developed by Romer, Mankiw and Weil [10], by incorporating human capital into the model as an input factor. Because according to the three, human capital is very influential on population growth. So then assuming that economic growth is directly proportional to the stock of labor, physical capital and human capital (H), an equation can be drawn up,

$$Y = AK^a H^\beta L^{1-\alpha-\beta} \tag{2}$$

Human capital is defined as an investment in the supply of the labor force to increase its productivity and efficiency.

Human capital can be classified into two main groups, namely education and health. Each of them has its own role in investing in human capital. Education is assumed to increase productivity and skills. Meanwhile, health is assumed to be an increase in the efficiency of the workforce. According to the purpose of this study to determine the relationship between the implementation of the Mini VET policy on the economic growth of East Java, so that equation (2) can be rearranged into equation 3, below:

$$Y = AK^a E^\beta L^{1-\alpha-\beta} \tag{3}$$

E represents the educational factor of human capital. Equation (3) is used to develop an empirical model for analysis. Data taken from Central Bureau of Statistics, Central Bank of Indonesia and world growth indicators. The rate of economic growth, obtained from data on the real GDRP (Gross Regional Domestic Product) of East Java, the level of government spending in the education sector is indicated by the percentage of education expenditure against GDRP, an indication of labor participation in the economy is indicated by the level of labor force participation, physical capital uses data gross fixed capital formation or nominal fixed investment (NFI), and the level of participation in Mini VET is shown from the growth of it. The data used is the 2014-2019

period, which shows the start of the implementation of Mini VET in East Java. All values on both sides of the equation use natural logarithms.

The regression equation that can be structured as follows,

$$LnY = \alpha + \beta1Ln(ERGB) + \beta2Ln(LFPR) + \beta3Ln(NFI) + \beta4Ln(PMV) + e \quad (4)$$

Where:

Ln = Natural Logarithm

Y = East Java GDRP Riil

$ERGB$ = East Java Percentage of regional government budget on education

$LFPR$ = East Java Labor Force Paticipation Rate Jawa Timur

NFI = East Java nominal fixed investment (NFI)

PMV = Participation on Mini VET

e = Error

Data processing is done in three steps. First, for time series data, a unit root test is required, to ensure whether the data is stationary or not. This first test is done using the ADF test. Furthermore, the second test is a long-term relationship test conducted using Johansen Cointegration. Then the error correction model (ECM) test is carried out to determine the causal relationship between the research variables.

4. Result and Discussion

Augmented Dickey Fuller (ADF) test, is done to determine the stationarity of a time series data. From the test results in table 1, it appears that not all data are stationary at the level. So then it is necessary to test the cointegration.

Table 1: ADF Unit Root Test

Variabel	Level			First Difference		
	Intercept	Intercept and Trend	None	Intercept	Intercept and Trend	None
GDRP	**-7.258601***	-2.929969	-0.160460	-1.072863	**-5.977438***	**-4.613379***
ERGB	-0.622221	-2.269826	1.215035	-2.669167	-2.578343	**-2.145048***
LFPR	-0.884828	-2.378310	0.812055	-1.761075	-2.038000	-1.607294
NFI	-2.728167	**-6.865102***	0.370377	-2.886593	-2.151759	**-3.086997***
PMV	-1.300023	-2.146790	0.888978	-2.070133	-2.139754	-1.858613

Note: *show significance at $\alpha = 10\%$

The cointegration test is carried out to determine the presence or absence of a long-term relationship. To do this, the Johansen cointegration test is used. The test results show that there is an intercept assumption in a long-term relationship and a linear trend in the level data. The trace statistics show a long-term relationship at the 4th rank, while the max-eigenvalue shows a long-term relationship at the 2nd and 4th ranks, with a significance level of 5%. Therefore, the model is stated to have a long-term relationship, so that ECM testing can be done.

Table 2: Cointegration Test

LR Test	Null	Alternative	Model2	Model3	Model4
Trace Statistic	r = 0	r = 1	250.8654**	207.6225**	207.6225**
	r <= 1	r = 2	80.06632**	63.72970**	63.72970**
	r <= 2	r = 3	50.40425**	35.04232*	35.04232*
	r <= 3	r = 4	32.80728**	18.20980*	18.20980*
	r <= 4	r = 5	16.06963**	1.868780	1.868780
Maximum Eigen Value	r = 0	r = 1	170.7991**	143.8928**	143.8928**
	r <= 1	r = 2	29.66206*	28.68738*	28.68738*
	r <= 2	r = 3	17.59697	16.83252	16.83252
	r <= 3	r = 4	16.73765*	16.34102*	16.34102*
	r <= 4	r = 5	16.06963*	1.868780	1.868780

Note: *show significance at α = 10%

Table 3: Long-Term Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ERGB	0.272846	0.065549	4.162468	0.0007
LFPR	-3.765158	1.336015	-2.818200	0.0124
NFI	0.071171	0.061965	1.148574	0.2676
PMV	-0.196298	0.106765	-1.838600	0.0846
C	34.71194	12.38194	2.803434	0.0128

Table 4: Error Correction Model (ECM)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.020864	0.000228	91.37331	0.0000
ERGB	0.003560	0.002337	1.523347	0.1485
LFPR	-0.445163	0.054403	-8.182633	0.0000
NFI	0.007638	0.002415	3.162790	0.0064
PMV	0.010076	0.004065	2.478875	0.0255

Error Correction Model Test, done in two steps. First is determining long-term regression, then short-term

regression (ECM). The long-term regression results are presented in table 3, which shows that the variables that have a significant effect on economic growth are ERGB and LFPR. While the results of the ECM regression are shown in table 4, which shows that the variables that have a significant effect on economic growth are LFPR, NFI and PMV. The R^2 value is 0.871 or 87.1%, indicating that the dependent variable is influenced by 87.1% of the independent variables outside the model. The estimation results show that the long-term and short-term economic growth is influenced by LFPR or labor force participation rate. The effect of LFPR is negative on economic growth, that is, the higher the LFPR, the lower the economic growth will be, and vice versa. This is in accordance with the definition of LFPR, which is the workforce that does not work (still continuing education, housewives, or doing other activities) [27] Another variable that affects economic growth in the long term is ERGB or percentage of the expenditure budget for education, with a unidirectional effect. The point is that when ERGB increases, economic growth will also increase. The estimation results show that the cost for education is a long-term investment. In the short term, there are two other variables that affect economic growth, namely NFI or nominal fixed income and PMV or participation on Mini VET. These results indicate that physical capital will have a short-term effect on economic growth, with a positive effect. When physical capital is higher, economic growth will also increase. Meanwhile, the level of participation in Mini VET has a negative effect. In other words, when the number of Mini VET continues to increase in number, it will actually decrease economic growth. Therefore, the move to terminate the establishment of Mini VET in 2017 is indeed a strategic step [24]. This finding is also in accordance with research conducted by Slamet PH [18], which states that VET does not promote economic growth, but instead increases the unemployment rate. However, if it is seen that the allocation of costs for education is a long-term investment, the Mini VET program should continue to be carried out, by evaluating and improving. Because indeed the weakness of VET in Indonesia and other developing countries, is the focus on costs and program implementation. Meanwhile, VET in developed countries, which are able to encourage economic growth, are more focused on development, monitoring and evaluation [16].

5. Conclusion

This study seeks to study the effect of the implementation of Mini VET's policy on economic growth in East Java. The results show that Mini VET in the short term actually slows down the economy of East Java. Therefore, his temporary dismissal since 2017 is the right step. However, the government budget for education is a long-term investment, because it has a positive effect on economic growth in the long run. So that the Mini VET program is still feasible to be continued, by increasing development, monitoring and evaluation as applied to VET in developed countries.

6. Limitation

The research was conducted in the short term, because Mini VET is still in the early stages of implementation. So long-term research is needed, which will reveal how the influence Mini VET on economic growth in the long term. In addition, the independent research variables used are still lacking. Suggestions for the next research are a longer time and multiply the research independent variables.

References

[1].   Aliaga, A. O. (2001) 'Human capital, HRD and the knowledge organization', in O. A. Aliaga (ed.) Academy of Human Resource Development 2001: Conference Proceedings, Baton Rouge, LA: AHRD, pp. 427– 34

[2].   European Centre for the Development of Vocational Training (Cedefop).(2014). "Jurnal.Macroeconomic benefits of vocational education and training (VET)". Luxembourg: Publications Office of the European Union, 2014

[3].   Fang.(2000)."Demographic Transition and Economic Growth in China," 2Beijing: CASS, 2006

[4].   Hoeckel, K. (2008). Costs and Benefits in Vocational Education and Training. OECD

[5].   Hudiyono.(2014)." Policy Implementation of Mini VET in East Java". East Java Education Office

[6].   Ireland, A. N. (2008). Definition of vocational education and training. Reseach and Library Services, 64,21–26.

[7].   Jayasooriya, S.P. (2017). Growth Slowdowns, Middleincome Trap, and Demographic Profile in South Asia. ADBI Working Paper Series Asian Development Bank Institute

[8].   Joesoef, Jose Rizal, Umi Muawanah, Fahmi Poernamawatie, Sugeng Mulyono, Imam Mukhlis.(2007). "The Role of VET in Supporting Regional Economic Growth: A Macroeconomic Analysis". Directorate of Vocational High School Development, Directorate General of Primary and Secondary Education Management, Ministry of National Education

[9].   Khilji, Bashir Ahmad, Zaheer Khan Kakar, Sabahat Subhan.(2012). "Impact of Vocational Training and Skill Development on Economic Growth in Pakistan".World Applied Sciences Journal 17 (10): 1298-1302, 2012

[10]. Mankiw, N. Gregory, David Romer, David N. Weil.(1992). "A Contribution To The Empirics Of Economic Growth". The Quarterly Journal of Economics, May 1992

[11]. Maskuri."Policies for Vocational High Schools in Islamic Boarding Schools (Study of East Java Regional Regulation Number 9 of 2014 concerning Education Implementation)."Dissertation, State Islamic University of Sunan Ampel Surabaya, Indonesia, 2018

[12]. Maskuri, Minhaji.(2017). Analysis of East Java Regional Government Policies Regarding the Development of Mini Vocational High Schools in Islamic Boarding Schools. Journal of Indonesian Islamic Education 1(2):251-272 DOI: 10.35316/jpii.v1i2.53

[13]. Muja, A., Blommaert, L., Gesthuizen, M., & Wolbers, M. H. J. (2019). Research in Social Stratification and Mobility The vocational impact of educational programs on youth labor market integration. Research in Social Stratification and Mobility, 64(September), 100437. https://doi.org/10.1016/j.rssm.2019.100437

[14]. Nilsson, Anders.(2010)."Vocational education and training an engine for economic growth and a vehicle for social inclusion?" International Journal of Training and Development 14:4

[15]. OECD/Asian Development Bank.(2015)."Education in Indonesia: Rising to the Challenge".OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264230750-en

[16]. Pavlova, Margarita.(2014)." TVET as an important factor in country's economic development. Pavlova SpringerPlus 2014, 3(Suppl 1):K3 http://www.springerplus.com/content/3/S1/K3

[17]. Slamet PH.(2011)." The Role of Vocational Education in Economic Development".Cakrawala Pendidikan, June 2011, Th. XXX, No. 2

[18]. Slamet PH.(2016). Policy Contribution to Increase the Number of Vocational School Students to Indonesia's Economic Development. Cakrawala Pendidikan, October 2016, Th. XXXV, No. 3

[19]. Solow, Robert M.(1956).A Contribution to the Theory of Economic Growth.The Quarterly Journal of Economics, Vol. 70, No. 1 (Feb., 1956), pp. 65-94

[20]. Suharno,. Pambudi, N.A & Harjanto, B. (2020). Children and Youth Services Review Vocational education in Indonesia : History , development , opportunities , and challenges. Children and Youth Services Review, 115(May), 105092. https://doi.org/10.1016/j.childyouth.2020.105092

[21]. Vu, T. B., Hammes, D. L., & Im, E. I. (2012). Vocational or university education ? A new look at their effects on economic growth. Economics Letters, 117(2), 426–428. https://doi.org/10.1016/j.econlet.2012.06.027

[22]. Idris, Muhammad."7 Provinsi dengan Jumlah Penduduk Terbanyak di Indonesia": https://money.kompas.com/read/2021/01/24/090600726/7-provinsi-dengan-jumlah-penduduk-terbanyak-di-indonesia?page=all , 2021 [Feb. 2, 2021]

[23]. Sofiana Sulvi."Pendirian SMK Mini Distop, Ini Rencana Dinas Pendidikan Jatim": https://surabaya.tribunnews.com/2017/01/14/pendirian-smk-mini-distop-ini-rencana-dinas-pendidikan-jatim , 2017 [Aug. 23, 2020]

[24]. WE Online."PDRB Provinsi Jawa Timur Sumbang 14,67% Terhadap PDB Nasional": https://www.wartaekonomi.co.id/read204506/pdrb-provinsi-jawa-timur-sumbang-1467-terhadap-pdb-nasional , 2018 [Feb. 2, 2021]

[25]. Worldbank. (2010). www.worldbank.org

[26]. bi.go.id

[27]. bps.go.id

[28]. ditpdpontren.kemenag.go.id

[29]. dpr.go.id

[30]. npd.kemdikbud.go.id