The Causal Relationship Between Education Level, Income, Unemployment, and Poverty in The District of Sumenep Period 2003-2012

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Abstract

This study aims to examine the causal relationship between the variables education level, income, unemployment, and poverty in the District of Sumenep. Data that isused in this study is a time series data from the period 2003-2012. Methods used to view the data stationary using Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) method and testing the causal relationship between variables using Granger Causality Test. Based on the results of the data analysis it can be concluded that relationship between education level and poverty are not mutually independence or influence; the relationship between poverty and unemployment is not independence or influence each other; the relationship between unemployment and income is interdependence or mutual influence; the relationship between income and education level is interdependence or mutual influence; the relationship between education level and unemployment are not mutually independence or influence; the relationship between income and poverty is interdependence or mutual influence. Furthermore, there is a very interesting findings about the relationship interdependence is negative between education level and income, especially higher education level and income. This requires further study.

Keywords Causality, education level, income, unemployment, poverty

INTRODUCTION

Development is a dynamic process and aims to improve the welfare of the community. The main purpose of the business of economic development in addition to creating the highest growth in height, must also remove or reduce the level of poverty. Therefore, the development priorities are to eradicate poverty (Todaro, 2000:20).

According Suryana (2000:30) The success of a regional economic development effort is influenced by several economic factors, including: human resource

(labor supply, education, disipline, motivation); resources; capital formation; technology and entrepreneurship (technology and entrepreneurship). The United Nations (2006) at the World Summit for Social Development Agreement defines poverty as low levels of income and productive resources that ensure sustainable life; hunger and malnutrition; low level of health; limitations and lack of access to education and other basic services.

Furthermore, in other theories and previous research states that to promote economic development is not only seen from poverty variables alone, but also can be seen from the other variables which include the education level variable, variable income, and unemployment variables. All of these variables affect each other and have a causal relationship.

The relationship between education level and poverty, according to the results of previous studies conducted by Afzal *et al.*, (2010) there is a causal relationship between education and economic growth, economic growth and poverty, poverty and education. This study also recommends that the government should reduce poverty and improve education. The results of the study of Afzal was also supported by the results of research John Knight and Deng Quheng (2008) found that poverty has an adverse effect on the quality and quantity of education that contribute to the poverty trap. Furthermore, when viewed from the effects of education, suggesting that the education level of different household income so that it can affect poverty.

The causal relationship between poverty and unemployment, Gillani *et al.*, (2009) that there is a long-term cointegration relationship between crime, unemployment, poverty and inflation. Granger Causality Test has been tested through a Toda-Yamamoto procedure. Causality results indicate that there is a causal relationship between unemployment, poverty and inflation in Pakistan.

The relationship between unemployment and income, According Jonaidi (2012), there is a reciprocal relationship between income and unemployment. Increased revenue will push up demand for household products locally made so as giving greater stimulus to local production, and to increase employment opportunities, thus reducing unemployment. In addition, unemployment will lead to national revenue derived from the tax sector to be reduced. This occurs because of high unemployment will lead to decreased economic activity so that people's income will decline. Thus, the tax to be paid from by the public would be decreased. If tax revenues decline, funding for government economic activity will be reduced also so that development activities will continue declining.

The relationship between income and education level, according to research conducted by Bourguignon and Morrison (2000), there is a positive feedback between education and income. This study shows that the increase of one per cent of the increase in education, it will increase the share of income of 6-15%. Behrman (1999) states that unequal education tend to have a negative impact on income per capita that would effect on increasing poverty in many countries. In addition, the increase in revenue was also greatly affect the education level with varying rates of return.

The relationship between education level and unemployment, According Jonaidi (2012), Education will be able to improve the quality of human resources is shown by the increased knowledge and skills of a person. Increased knowledge and expertise will promote one's work productivity. The company will get more results by hiring workers with higher productivity.

According to research conducted by Odia and Omofonmwan (2007) that the problem of poverty that isexperienced by Nigeria because to lack of funding in the education sector, it can be seen from inadequate classrooms, lack of teaching aids, as well as the lack of qualified teachers. So with the lack of educational support tool resulted in the quality of human resources / quality of graduates is low and less able to compete in the world of work. Therefore, the Nigerian government is required to increase the budget in the education sector.

The relationship between income and poverty, very poor communities often do not have the energy left to invest for repairs themselves, which increased revenue in the future. In fact, poor families often get stuck in a poverty trap, the trap that ensnared the poor to get poorer or survive in a situation of permanent poverty. When a seriously ill family member so they sell their productive assets for a fee, the poor are likely fall into this trap (Samirin, 2014). Furthermore, if one's income is low, then such a person has no choice in improving the quality of life is worth (absolute poverty) so it will be trapped in poverty. (Prawoto, 2009).

LITERATURE REVIEW AND HYPOTHESES

The theory used based on the definition and concept of the education level, income, unemployment, and poverty in the District of Sumenep were studied to determine the causal relationship between variables and suggests the development of the empirical studies and the results of previous research conducted in accordance with the title of this research

The Causality Between Level of Education and Poverty

According Faturochman and Ambar (2011), poverty is a phenomenon that prevents poor people taking part in the actual opportunity there, including educational opportunities, this is caused by the imbalance in the institutional structure of society. Today's modern education system as one of the important institutions involved reflect the structure of society as well as preserve inequality. There is a kind of "vicious circle" a very profound effect between educational success on the one hand and poverty on the other. Education of the poor are less successful because they are poor. And on the contrary, they remain poor because of lack of success in education.

According Widyastuti (2012) In view of the general public, a prosperous family will be able to send their family members to be as high as possible. Similarly, if the higher one's education level, it will bring more prosperity for

their families obtain reciprocity as a steady job and sufficient income. According Sinungan, (2008:9) the same increase in productivity by increasing labor input where the input is defined as revenue, because revenue can generate dollars to meet the needs of daily living, productivity is said to have a direct impact on the improvement of family welfare through income. Measurement of productivity seen from the form of sacrifice and labor outcomes. Wage workers is the result of sacrifice in the form of dollars, while the hours and days of work is a form of sacrifice that has made a worker.

Samirin (2014) states that one of the high unemployment caused by the width the gap between the skills needed by the workforce, with the knowledge and skills of labor. This gap is commonly experienced by those who are less fortunate, who do not have access to quality education. In addition, education is an important factor affecting the level of income of the people, so that the education gap will result in an unequal society.

According to the results of previous studies conducted by Afzal *et al.*, (2010) with the title "Relationship Among Education, Poverty and Economic Growth in Pakistan: An Econometric Analysis" method Toda-Yamamoto Granger Causality Augmented (TYAGI) there is a causal relationship between education and growth economy, economic growth and poverty, poverty and education. The study also recommends that the government should reduce poverty and improve education. The results of the study of Afzal was also supported by the results of research and Deng Quheng John Knight (2008) under the title "Education and the Poverty Trap in Rural China" found that poverty has an adverse effect on the quality and quantity of education that contribute to the poverty trap. Furthermore, when viewed from the effects of education, suggesting that the education level of different household income as a result of varying so that it can affect poverty.

The Causality Between Poverty and Unemployment

Yacoub (2012) Efforts to lower the unemployment rate and the poverty rate is just as important. In theory, if people do not have jobs and are unemployed means of income, and the income possessed of work is expected to meet the needs of life. If needs are met, then there will be poor. So said the unemployment rate is low (high employment) then the poverty rate is also low. Ningsih and Hardinto (2012) stated that the problem of poverty is a problem faced by many regions. Poverty arises because of unemployment and limited employment opportunities that exist in rural areas. Besides, it also inhibits a person's poverty in improving the knowledge and skills that will encourage increased labor productivity, if knowledge and expertise is low, companies are reluctant to accept someone in work, this is because the company is only hiring workers with higher productivity (Jonaidi, 2012).

According to the findings of research conducted by Gillani *et al.*, (2009) with the title "Unemployment, Poverty, Inflation and Crime Nexus: Cointegration and Causality Analysis of Pakistan", that there is a long-term cointegration relationship between crime, unemployment, poverty and inflation. Granger

causality has been tested through a Toda-Yamamoto procedure. Causality results indicate that there is a causal relationship between long-term unemployment, poverty and inflation in Pakistan.

The Causality Between Unemployment and Income

According Jonaidi (2012), there is a reciprocal relationship between income and unemployment. Increased revenue will push up demand for household products locally made so as to give greater stimulus to local production, and to increase employment opportunities, thus reducing unemployment. In addition, unemployment will lead to national revenue derived from the tax sector to be reduced. This occurs because of high unemployment will lead to decreased economic activity so that people's income will decline. Thus, the tax to be paid from the public would be decreased. If tax revenues decline, funding for government economic activity will also be reduced so that development activities will continue to decline.

The achievement of high economic growth and equitable distribution of income, means directly or indirectly will reduce the amount of unemployment which is a condition where a person's belonging to the labor force but does not possess the job (Nanga, 2001: 249) Equity income will increase job creation (seers, 1969). According to this theory the goods consumed by the poor tend to be more labor intensive than the consumption of higher-income communities. Thus, income distribution will lead to a shift in the pattern of demand which in turn will create job opportunities (Kartasasmita, 2013).

According Susilowati (2007) Revenue community will affect the unemployment rate, with the increasing income of the people it will result in the increase in the purchasing power of domestic labor-intensive, so with that company will absorb more labor and community will benefit from the jobs created. Furthermore, unemployment will affect the level of income, the longer a person unemployed the more difficult for someone to gain the expected income.

The Causality Between Income and Education Level

Education is one important factor in determining the size of the income. According Kuncoro, (1997:124) it is caused because of access to high-paying jobs either government or the private sector depends on the high education level. Widyastuti (2012) adds that the level of higher education will guarantee a better future, but need that extra spending anyway to achieve this. In a family that is able to or respected then one family member can take the highest level. The higher the education level of the families increasingly able to obtain reciprocity such as steady job with a high salary, so that will result in increased revenue it receives.

Todaro and Smith (2006:436) states that high income does not always guarantee a high education level. Human capital should receive special attention even in the fast-growing economy. Improved education can help

families out of poverty. But on the other hand Todaro and Smith (2006:453) states that one of the things that greatly affect the number of desired education level is hope for a better educated student to get a job with a better income in the modern sector in the future.

According to research conducted by Hassan and Rukhsana (2012) under the title "The Triangular Causality Among Education, Health and Economic Growth: A Time Series Analysis of Pakistan", based on the Granger Causality test shows that there is a long-term relationship between real GDP per capita, education spending per capita and health expenditure per capita in Pakistan. There is a bidirectional relationship between real GDP per capita and education per capita spending in the short term. This study also confirms the existence of mutual causality between GDP per capita, education spending per capita and health expenditure per capita in both the short term and long term in Pakistan. According to the results of research conducted by Bourguignon and Morrison (2000), there is a positive feedback between education and income. This study shows that the increase of one per cent of the increase in education, it will increase the share of income of 6-15%. Behrman (1999) states that unequal education tend to have a negative impact on income per capita that would effect on increasing poverty in many countries. In addition, the increase in revenue was also greatly affect the education level with varying rates of return.

The Causality Between Education Level and Unemployment

According Jonaidi (2012), Education will be able to improve the quality of human resources is shown by the increased knowledge and skills of a person. Increased knowledge and expertise will promote one's work productivity. The company will get more results by hiring workers with higher productivity. According to the findings of Farley (1987) in the United States indicates that the school performance of poor children (disadvantage children) is generally lower than that of American children classified as lucky (advantages children). These conditions will have an impact in the future after the poor children with low education is entering the world of work. They will occupy a position that is also low in or become unskilled labor (unskilled labor), even being unemployed (jobless). Furthermore, due to unemployed person will have difficulty in increasing knowledge and productivity due to low income or no have income.

The Causality Between Income and Poverty

Very poor communities often do not have the energy left to invest for repairs themselves, which increased revenue in the future. In fact, poor families often get stuck in a poverty trap, the trap that ensnared the poor to get poorer or survive in a situation of permanent poverty. When a seriously ill family member so they sell their productive assets for a fee, the poor are likely fall into this trap (Samirin, 2014). Furthermore, if one's income is low, then such a person has no

choice in improving the quality of life is worth (absolute poverty) so it will be trapped in poverty. (Prawoto, 2009).

Poverty is caused by a lack of mastery of assets and means of production such as land, agricultural land or plantations, thus directly affecting the income of a person in society. This approach determines the rigid standard of one's income in the community to distinguish social class (Sinaga, 2014). Furthermore, the income will affect poverty, low income so if someone would be restricted in increasing the productive resources that ensure sustainable livelihoods, (UN, 2006).

Based on the above theoretical study, the hypothesis in this study are as follows:

H1: Allegedly there is a causal relationship between education level and poverty;
H2: Allegedly there is a causal relationship between poverty and unemployment;
H3: Allegedly there is a causal relationship between unemployment and income;
H4: Allegedly there is a causal relationship between income and education level;
H5: Allegedly there is a causal relationship between education level and unemployment;
H6: Allegedly there is a causal relationship between income and poverty.
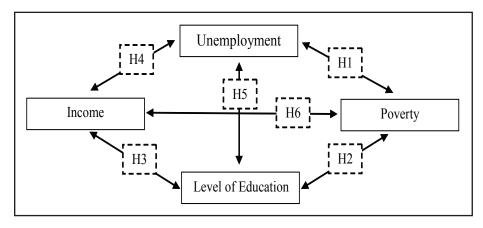

Figure 1 Research model of causal relationship

RESEARCH METHODOLOGY

Type of research is a causal comparative research. Causal comparative research is study aimed to investigate the causal relationship between variables (Suryabrata, 2011:84). In this case the researchers wanted to know about the causal relationship between education level, income, unemployment, and

poverty in the district of the District of Sumenep. The data used in this study is quantitative data with the type of time series. The population is the total population, education level, income, unemployment, and poverty in the District of Sumenep from year 2003 to 2012. Whereas, the sampling technique used in the study is the saturation sampling technique. Saturation sampling technique is sampling technique used by all members of the population as the sample (Sugiyono, 2008:215). Reasons for using the technique's a sampling saturated is because the data used to reach the goal in this study was obtained through the documentation of data as the data collection method, so it is not necessary sampling techniques or questionnaires. The period of data used in this study is 2003 to 2012 years. Methods of data collection using the documentation.

Engineering Data Analysis, Data analysis in this research is the analysis of Vector Auto Regression (VAR) with eviews program. According Ajija *et al.*, (2011:164) states that the analysis of the Vector Auto Regression (VAR) treats all variables as endogenous (not distinguished between independent and dependent). Engineering analysis used in this study includes several stages, as follows:

1. Stationary test
   Stationary test can use the unit root test. The unit root test is used to see if the data is stationary or nonstationary. To determine the significance of the stationary test, it can be seen from the probability values of 0.10, if $0.10 \leq$ Sig the data is nonstationary, whereas if $0.10 \geq$ Sig the data is stationary.

2. Cointegration test
   If the data is non stationary then the cause is most likely a long-term relationship between the variables in the VAR system. In this step will be know whether this model is the degree of differentiation var if no cointegration and VECM if there cointegration. To determine the significance of the cointegration test, it can be seen from the value of probability of 0.10, if $0, 10 \leq$ Sig the data does not cointegration, whereas if $0.10 \geq$ Sig the data cointegration.

3. VAR estimation
   The crucial thing in the VAR estimation is the problem of determining the length of lags in the VAR system. Determination of the optimal length of inaction could use some criteria such as the Akaike Information Criteria (AIC), Schwartz Information Criteria (SIC), Hannan-Quin Criteria (HQ), Likelihood Ratio (LR), as well as of the Final Predictor Error (FPE).

4. Variance Decomposition
   Analysis of Variance Decomposition illustrate the relative importance of each variable in the VAR system because of the shock. Variance Decomposition is useful for predicting the contribution percentage of variance of each variable due to changes in certain variables in the VAR system.

5. Causality test (Granger Causality)

Causality test is performed to determine whether an endogenous variable can be treated as an exogenous variable. Causality test can be done by various methods including methods of Granger Causality and Error Correction Model. In this study, the method used Granger Causality. Granger Causality is used to examine the causal relationship between the two variables. To determine the significance of causality test, it can be seen from the value of probability of 0.10, if $0.10 \leq$ Sig then there is not causal relationship (independent), whereas if the Sig ≥ 0.10 then there is a causal relationship (interdependent).

ANALYSIS AND DISCUSSION

Stationary Test

Based on test results using the Augmented Dickey-Fuller approach (ADF) and Phillips-Perron (PP) note that all variables which include education level, income, unemployment, and poverty has a probability below 0.10 , so the data has stationary. Because the data were examined stationary, it can be concluded that these data can improve the accuracy of the VAR. Because the data is stationary and cointegration test is not required. Stationary test results will appear from the table below:

Table 1 Stationarity Test

Null Hypothesis: Proverty has a unit root				Null Hypothesis: Primary Education has a unit root			
		t-Statistic	Prob.*			t-Statistic	Prob.*
ADF test statistic		-3.144614	0.0489	**ADF test statistic**		-3.850563	0.0218
Test critical values:	1% level	-4.420595		Test critical values:	1% level	-4.420595	
	5% level	-3.259808			5% level	-3.259808	
	10% level	-2.771129			10% level	-2.771129	
		Adj. t-Stat	Prob.*			Adj. t-Stat	Prob.*
PP test statistic		-4.199295	0.0135	**PP test statistic**		-6.940941	0.0005
Test critical values:	1% level	-4.420595		Test critical values:	1% level	-4.420595	
	5% level	-3.259808			5% level	-3.259808	
	10% level	-2.771129			10% level	-2.771129	

Continue... (Table 1)

Null Hypothesis: Secondary Education has a unit root			
		t-Statistic	Prob.*
ADF test statistic		-5.707920	0.0020
Test critical values:			
	1% level	-4.420595	
	5% level	-3.259808	
	10% level	-2.771129	
		Adj. t-Stat	Prob.*
PP test statistic		-6.061488	0.0013
Test critical values:			
	1% level	-4.420595	
	5% level	-3.259808	
	10% level	-2.771129	

Null Hypothesis: Higher Education has a unit root			
		t-Statistic	Prob.*
ADF test statistic		-3.309994	0.0466
Test critical values:			
	1% level	-4.420595	
	5% level	-3.259808	
	10% level	-2.771129	
		Adj. t-Stat	Prob.*
PP test statistic		-3.943180	0.0192
Test critical values:			
	1% level	-4.420595	
	5% level	-3.259808	
	10% level	-2.771129	

Null Hypothesis: Income has a unit root			
		t-Statistic	Prob.*
ADF test statistic		-3.047371	0.0476
Test critical values:			
	1% level	-4.420595	
	5% level	-3.259808	
	10% level	-2.771129	
		Adj. t-Stat	Prob.*
PP test statistic		-3.047371	0.0476
Test critical values:			
	1% level	-4.420595	
	5% level	-3.259808	
	10% level	-2.771129	

Null Hypothesis: Unemployment has a unit root			
		t-Statistic	Prob.*
ADF test statistic		-4.552263	0.0084
Test critical values:			
	1% level	-4.420595	
	5% level	-3.259808	
	10% level	-2.771129	
		Adj. t-Stat	Prob.*
PP test statistic		-4.513991	0.0088
Test critical values:			
	1% level	-4.420595	
	5% level	-3.259808	
	10% level	-2.771129	

VAR Estimation

The crucial thing in the VAR estimation is the problem of determining the length of lags in the VAR system. Determination of the optimal length of inaction could use some criteria such as the Akaike Information Criteria (AIC), Schwartz Information Criteria (SIC), Hannan-Quin Criteria (HQ), Likelihood Ratio (LR), as well as of the Final Predictor Error (FPE). Based on this test we concluded that the long lags in the top three. VAR Estimation results will appear from the table below:

Table 2 VAR Estimation

VAR Lag Order Selection Criteria						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	-56.56282	NA*	63603.04*	16.73224	16.71678	16.54122
1	-53.66418	3.312734	97679.85	17.04691	17.00055	16.47387

Continue... (Table 2)

2	-50.87676	1.592814	253718.6	17.39336	17.31609	16.43830
3	427.0145	0.000000	NA	-118.0041*	-118.1123*	-119.3412*

* indicates lag order selected by the criterion

Variance Decomposition

Based on the analysis of variance decomposition obtained the following information:

1. Shocks variable education level in the first period is more influenced by the variable itself, but in the next period is influenced by, income, unemployment, and poverty.
2. Shocks variable income in the first period only influenced by variable education level, but in the next period shocks influenced by variables, unemployment, and poverty.
3. Unemployment variable shocks in the first period only influenced by variable education level, but in the next period is affected by the variable income shocks, and poverty.
4. Poverty variable shocks in the first period only influenced by variable education level, but in the next period shocks is affected by the variable income, and unemployment.

Variance Decomposition results will appear from the table below:

Table 3 Variance Decomposition

Variance Decomposition of Primary Education				Variance Decomposition of Primary Education			
Period	S.E.	Primary Education	Income	Period	S.E.	Primary Education	Unemployment
1	12.95521	100.0000	0.000000	1	14.28965	100.0000	0.000000
2	16.40548	97.82648	2.173522	2	20.07789	87.64189	12.35811
3	17.23657	89.67317	10.32683	3	20.55654	83.62544	16.37456
4	17.78672	88.42477	11.57523	4	20.62839	83.21028	16.78972
5	18.01345	88.54941	11.45059	5	20.96729	83.69250	16.30750
6	18.09156	87.84776	12.15224	6	21.17035	83.06154	16.93846
7	18.19154	87.90496	12.09504	7	21.22421	83.06636	16.93364
8	18.22346	87.83647	12.16353	8	21.25229	82.88961	17.11039
9	18.24076	87.73116	12.26884	9	21.28788	82.94622	17.05378
10	18.25650	87.75084	12.24916	10	21.30119	82.85888	17.14112

Continue... (Table 3)

Variance Decomposition of Income			
Period	S.E.	Primary Education	Income
1	18.08854	4.380423	95.61958
2	19.23307	15.38726	84.61274
3	19.32424	15.26736	84.73264
4	19.70378	17.87850	82.12150
5	19.90670	19.32746	80.67254
6	19.96377	19.23047	80.76953
7	20.02707	19.67563	80.32437
8	20.04750	19.78192	80.21808
9	20.05852	19.79434	80.20566
10	20.06905	19.87733	80.12267

Variance Decomposition of Primary Education			
Period	S.E.	Primary Education	Proverty
1	17.34081	100.0000	0.000000
2	21.21644	95.81717	4.182834
3	21.47761	95.79597	4.204025
4	21.90747	93.97870	6.021301
5	22.47859	94.22791	5.772093
6	22.56672	93.95255	6.047455
7	22.62925	93.98060	6.019402
8	22.66527	93.97050	6.029498
9	22.67005	93.93100	6.069000
10	22.67040	93.92959	6.070413

Variance Decomposition of Proverty			
Period	S.E.	Primary Education	Proverty
1	5.028183	20.02200	79.97800
2	6.342285	48.14592	51.85408
3	6.705380	43.08553	56.91447
4	7.180143	48.24377	51.75623
5	7.220307	47.93800	52.06200
6	7.314207	47.60739	52.39261
7	7.314845	47.61599	52.38401
8	7.342361	47.26527	52.73473
9	7.352111	47.33937	52.66063
10	7.359082	47.25345	52.74655

Variance Decomposition of Secondary Education			
Period	S.E.	Secondary Education	Proverty
1	26.39748	100.0000	0.000000
2	32.26031	99.96451	0.035487
3	34.01426	99.87422	0.125779
4	34.59182	99.78887	0.211131
5	34.70713	99.78519	0.214808
6	34.71783	99.78528	0.214721
7	34.71863	99.78482	0.215179
8	34.71872	99.78468	0.215324
9	34.71872	99.78467	0.215328
10	34.71874	99.78467	0.215332

Variance Decomposition of Unemployment			
Period	S.E.	Primary Education	Unemployment
1	12.19008	21.39103	78.60897
2	14.00101	39.87210	60.12790
3	19.64697	68.17570	31.82430
4	21.96069	66.93348	33.06652
5	22.08277	66.29510	33.70490
6	22.13066	66.04126	33.95874
7	22.35181	66.69307	33.30693
8	22.42321	66.40690	33.59310
9	22.45412	66.49914	33.50086
10	22.46615	66.43010	33.56990

Variance Decomposition of Secondary Education			
Period	S.E.	Secondary Education	Income
1	24.88739	100.0000	0.000000
2	33.14649	99.70107	0.298926
3	36.48598	99.68172	0.318282
4	36.88821	99.68755	0.312454
5	36.97511	99.65202	0.347980
6	37.42407	99.62297	0.377029
7	37.75546	99.61831	0.381693
8	37.82403	99.61960	0.380400
9	37.82555	99.61721	0.382787
10	37.85994	99.61434	0.385661

Variance Decomposition of Income			
Period	S.E.	Secondary Education	Income
1	11.74894	52.55465	47.44535
2	18.48567	78.83447	21.16553
3	20.78107	83.18758	16.81242
4	20.79797	83.15763	16.84237
5	21.37834	83.92342	16.07658
6	22.16682	84.97724	15.02276
7	22.47581	85.37945	14.62055
8	22.49105	85.39700	14.60300
9	22.52324	85.42812	14.57188
10	22.59358	85.51115	14.48885

Variance Decomposition of Higher Education			
Period	S.E.	Higher Education	Income
1	101.7728	100.0000	0.000000
2	104.3451	99.99726	0.002739
3	105.8762	99.98761	0.012388
4	105.8827	99.98759	0.012410
5	105.8854	99.98642	0.013579
6	105.9852	99.98643	0.013569
7	105.9884	99.98642	0.013580
8	106.0122	99.98642	0.013580
9	106.0126	99.98642	0.013581
10	106.0134	99.98641	0.013586

Continue... (Table 3)

Variance Decomposition of Proverty				Variance Decomposition of Income		
Period	S.E.	Secondary Education	Proverty	Period	S.E.	Higher Education	Income
1	4.478442	1.295504	98.70450	1	4.176512	89.00384	10.99616
2	4.489560	1.475001	98.52500	2	18.51346	99.43814	0.561859
3	5.197043	21.44670	78.55330	3	19.01385	99.46258	0.537416
4	5.486104	29.48979	70.51021	4	20.79618	99.54785	0.452153
5	5.504277	29.79759	70.20241	5	20.85340	99.54969	0.450314
6	5.505328	29.81288	70.18712	6	20.90706	99.55015	0.449852
7	5.507880	29.85537	70.14463	7	20.92688	99.55083	0.449172
8	5.508207	29.86340	70.13660	8	20.92823	99.55072	0.449279
9	5.508253	29.86373	70.13627	9	20.93392	99.55094	0.449061
10	5.508266	29.86397	70.13603	10	20.93545	99.55100	0.448996

Variance Decomposition of Higher Education				Variance Decomposition of Higher Education		
Period	S.E.	Higher Education	Unemployment	Period	S.E.	Higher Education	Proverty
1	81.20019	100.0000	0.000000	1	99.25850	100.0000	0.000000
2	86.35500	97.19527	2.804730	2	105.5923	97.29709	2.702914
3	107.4861	96.68033	3.319671	3	109.0396	91.90088	8.099119
4	114.0009	96.64066	3.359339	4	114.3176	84.51865	15.48135
5	114.7154	96.57214	3.427859	5	114.5732	84.50531	15.49469
6	115.0229	96.50974	3.490260	6	116.6524	81.54609	18.45391
7	115.4886	96.46862	3.531384	7	117.0220	81.11581	18.88419
8	115.8754	96.45020	3.549801	8	117.3176	80.82090	19.17910
9	116.0562	96.44092	3.559076	9	117.5927	80.44433	19.55567
10	116.1340	96.43513	3.564874	10	117.6118	80.44925	19.55075

Variance Decomposition of Unemployment				Variance Decomposition of Proverty		
Period	S.E.	Higher Education	Unemployment	Period	S.E.	Higher Education	Proverty
1	17.40129	92.37815	7.621848	1	5.483944	28.17538	71.82462
2	19.18151	92.85856	7.141436	2	5.635502	27.26961	72.73039
3	20.23804	92.79469	7.205312	3	5.805525	28.27167	71.72833
4	20.61347	92.74745	7.252553	4	5.861863	28.11620	71.88380
5	20.91416	92.72424	7.275759	5	5.866365	28.22646	71.77354
6	21.09659	92.72603	7.273971	6	5.873771	28.27174	71.72826
7	21.20046	92.72661	7.273392	7	5.875240	28.25777	71.74223
8	21.25440	92.72526	7.274745	8	5.875707	28.26894	71.73106
9	21.28519	92.72398	7.276017	9	5.876080	28.26835	71.73165
10	21.30343	92.72347	7.276533	10	5.876292	28.26664	71.73336

Variance Decomposition of Income				Variance Decomposition of Income		
Period	S.E.	Income	Unemployment	Period	S.E.	Income	Proverty
1	5.983942	100.0000	0.000000	1	19.01679	100.0000	0.000000
2	13.33779	70.29877	29.70123	2	19.19496	99.08020	0.919795
3	17.31506	66.50681	33.49319	3	19.29385	98.96752	1.032484
4	18.33926	65.23674	34.76326	4	19.38942	98.85614	1.143857
5	18.55403	65.34126	34.65874	5	19.39771	98.83697	1.163028
6	19.04333	65.33062	34.66938	6	19.42635	98.84037	1.159633
7	19.10915	65.32837	34.67163	7	19.42884	98.83716	1.162837
8	19.11270	65.33661	34.66339	8	19.42938	98.83575	1.164253
9	19.11435	65.33893	34.66107	9	19.43001	98.83567	1.164331
10	19.11633	65.33734	34.66266	10	19.43014	98.83545	1.164551

Continue... (Table 3)

Variance Decomposition of Unemployment			
Period	S.E.	Income	Unemployment
1	14.40255	54.90083	45.09917
2	15.28578	55.32515	44.67485
3	17.01463	57.40356	42.59644
4	17.95389	58.01150	41.98850
5	18.04832	58.14171	41.85829
6	18.08115	58.20234	41.79766
7	18.08218	58.20540	41.79460
8	18.08873	58.20316	41.79684
9	18.09361	58.20367	41.79633
10	18.09728	58.20610	41.79390

Variance Decomposition of Unemployment			
Period	S.E.	Unemployment	Proverty
1	12.96434	100.0000	0.000000
2	13.88666	99.30185	0.698151
3	18.47290	96.88638	3.113624
4	21.46829	95.27536	4.724641
5	21.58820	95.22494	4.775062
6	21.67963	95.17723	4.822770
7	21.70375	95.16811	4.831887
8	21.70628	95.16575	4.834246
9	21.70825	95.16452	4.835483
10	21.70849	95.16436	4.835644

Variance Decomposition of Proverty			
Period	S.E.	Unemployment	Proverty
1	5.494659	89.44084	10.55916
2	5.661780	89.54523	10.45477
3	5.813766	89.46809	10.53191
4	5.844241	89.46859	10.53141
5	5.854747	89.46320	10.53680
6	5.860679	89.46244	10.53756
7	5.861084	89.46218	10.53782
8	5.861967	89.46206	10.53794
9	5.861968	89.46205	10.53795
10	5.862063	89.46203	10.53797

Variance Decomposition of Proverty			
Period	S.E.	Income	Proverty
1	1.791602	19.20311	80.79689
2	1.802474	19.07954	80.92046
3	2.753137	64.99152	35.00848
4	2.787477	65.58439	34.41561
5	2.812887	66.18390	33.81610
6	2.815682	66.15051	33.84949
7	2.815775	66.14635	33.85365
8	2.818244	66.20402	33.79598
9	2.818326	66.20400	33.79600
10	2.818468	66.20707	33.79293

Causality Test (Granger Causality Test)

Causality test is performed to determine whether an endogenous variable can be treated as exogenous. Causality test results will appear from the table below:

Table 4 Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
Primary Education does not Granger Cause Proverty	8	0.29305	0.7652
Proverty does not Granger Cause Primary Education		0.10764	0.9013

Continue... (Table 4)

Income does not Granger Cause Proverty	8	12.6232	0.0346
Proverty does not Granger Cause Income		0.17541	0.0971
Unemployment does not Granger Cause Proverty	8	0.00153	0.9985
Proverty does not Granger Cause Unemployment		1.21772	0.4100
Secondary Education does not Granger Cause Proverty	8	0.76028	0.5406
Proverty does not Granger Cause Secondary Education		0.00845	0.9916
Higher Education does not Granger Cause Proverty	8	0.00740	0.9926
Proverty does not Granger Cause Higher Education		0.31475	0.7515
Income does not Granger Cause Primary Education	8	1.38031	0.3758
Primary Education does not Granger Cause Income		0.35177	0.7290
Unemployment does not Granger Cause Primary Education	8	0.86747	0.5043
Primary Education does not Granger Cause Unemployment		1.57392	0.3409
Unemployment does not Granger Cause Income	8	15.4207	0.0264
Income does not Granger Cause Unemployment		0.70205	0.0922
Secondary Education does not Granger Cause Income	8	2.88932	0.1998
Income does not Granger Cause Secondary Education		0.19706	0.8310
Higher Education does not Granger Cause Income	8	33.2350	0.0090
Income does not Granger Cause Higher Education		0.22619	0.0891
Secondary Education does not Granger Cause Unemployment	8	0.45150	0.6739
Unemployment does not Granger Cause Secondary Education		8.62797	0.6070
Higher Education does not Granger Cause Unemployment	8	0.00849	0.9916
Unemployment does not Granger Cause Higher Education		1.21168	0.4114

Based on the above table in the know that the variable education level and poverty, unemployment and poverty, education and unemployment rate does not have a causal relationship (dependent) this is because the probability value $0.10 \leq$ Sig. While the relationship between unemployment and income, education level and income, income and poverty have a causal relationship (interdependent) this is because the probability of $0.10 \geq$ Sig.

There is not causal relationship between education level and poverty strengthened by a study conducted by Budhi (2013) results showed that the percentage of poor people who had completed the nine-year compulsory education is not significant in reducing poverty, population, GDP, and the share of the agricultural sector influence significant positive against poverty, while the industrial sector share significant negative effect. However, contrary to the findings of research conducted by Ehigiamusoe (2013) which states that there is a long-term relationship between education, economic growth and poverty in Nigeria, the total spending on education or literacy levels cause changes in poverty in Nigeria. While public expenditure on education was found to have a positive and significant impact on economic growth (both in the short term and in the long run), the literacy rate has a positive but insignificant impact on growth.

There is not causal relationship between unemployment and poverty is contrary to the theory of Yacoub (2012) which states that efforts to lower the unemployment rate and the poverty rate is just as important. In theory, if people do not have jobs and are unemployed means of income, and the income possessed of work is expected to meet the needs of life. If needs are met, then there will be poor. So said the unemployment rate is low (high employment) then the poverty rate is also low. As well as contrary to the theory and Hardinto Ningsih (2012) which states that poverty is a problem faced by many regions. Poverty arises because of unemployment and limited employment opportunities that exist in rural areas. Besides, it also inhibits a person's poverty in improving the knowledge and skills that will encourage increased labor productivity, if knowledge and expertise is low, companies are reluctant to accept someone in work, this is because the company is only hiring workers with higher productivity (Jonaidi, 2012).

There is a negative causal relationship between unemployment and income, meaning that the higher unemployment will cause revenue declines or conversely the higher the income, it will cause unemployment to decline. This is reinforced by the theory of Susilowati (2007) Revenue community will affect the unemployment rate, with the increasing income of the people it will result in the increase in the purchasing power of domestic labor-intensive, so with that company will absorb more labor and community will benefit from the jobs created. Furthermore, unemployment will affect the income level, the longer a person unemployed the more difficult for someone to gain the expected income. In addition, the existence of a causal relationship of unemployment and income in accordance with the results of the study Mosikari (2013). This study supports policies on economic growth with the idea that growth will increase if there are additional jobs in South Africa.

There is a negative causal relationship between education level and income. This means that the higher the income, it will cause revenue declines or conversely the higher the income, it will cause revenues to decline. These findings indicate that the higher the education level the costs to be incurred in studying the greater the revenue so generated is smaller than the expenditure. Conversely the higher the income of the people tend not continue education because without high education level society had biased increase revenue or entrepreneurship. This relationship is only valid for the higher education level, and does not apply to the primary level and secondary level because the level of basic education and income as well as secondary education level and income are independent or do not affect each other.

According to the theory of the negative relationship between income and education level of theory reinforced by Todaro and Smith (2006:436) states that high income does not always guarantee a high education level. Human capital should receive special attention even in the fast-growing economy. Improved education can help families out of poverty.

However, contrary to the results of research conducted by Hassan and Rukhsana (2012) which states that there is a causal relationship between income and education. As well as research conducted by Bourguignon and Morrison (2000), there is a positive feedback between education and income. This study shows that the increase of one per cent of the increase in education, the share of revenues 6-15%.

There is not causal relationship between education and unemployment rate as opposed to the theory of Jonaidi (2012) that education will improve the quality of human resources is shown by the increased knowledge and skills of a person. Increased knowledge and expertise will promote one's work productivity. The company will get more results by hiring workers with higher productivity. The findings are also contrary to the results of research conducted by Farley (1987), in the United States shows that school performance of poor children (disadvantage children) is generally lower than that of American children classified as lucky (advantage children). These conditions will have an impact in the future after the poor children with low education is entering the world of work. They will occupy a position that is also low in or become unskilled labor, jobless. Furthermore, due to unemployed person will have difficulty in increasing knowledge and productivity due to low income or not have income.

There is a negative causal relationship between income and poverty. This means that the higher the income, it will cause poverty to decline or conversely the higher the poverty it will cause revenue to decline. This relationship is strengthened by Sinaga which states that poverty is caused by lack of mastery of assets and means of production such as land, agricultural land or plantations, thus directly affecting the income of a person in society. This approach determines the rigid standard of one's income in the community to distinguish social class (Sinaga, 2014). As well as the opinion of Samirin, very poor communities often do not have the energy left to invest for repairs

themselves, which increased revenue in the future. In fact, poor families often get stuck in a poverty trap, the trap that ensnared the poor to get poorer or survive in a situation of permanent poverty. When a seriously ill family member so they sell their productive assets for a fee, the poor are likely fall into this trap (Samirin, 2014).

However, the above findings are not consistent with the results of previous studies conducted by Aurangzeb and khola Asif (2013). According to the results of the study showed that there is not causal relationship between income and poverty. However, in this study suggests that there is a positive relationship between the direction of the income poverty rate in Pakistan.

CONCLUSION

Conclusion, Based on the results of the study indicate that there is a relationship interdependence between unemployment and negative earnings, income and education level, and income and poverty. Nevertheless, the education level and poverty, poverty and unemployment, as well as the education level and unemployment is independence.

Furthermore, there is a very interesting findings about the relationship interdependence is negative between education level and income, especially higher education level and income. This requires further study.

Advice, Noting the above conclusion, it can be argued that some of the suggestions the District of Sumenep government pay more attention to the investment of human capital. Several ways to do that is to make not only a policy of compulsory education to 9 years; provide scholarships; add to educational facilities; and collaborate with community / religious leaders in socializing the public about the importance of education.

Attract investors to invest in the District of Sumenep. Strategies that can be done in marketing the area to investors, namely: simplify business licensing; promote the benefits and attractiveness (to make marketing image) areas; improve infrastructure that eases access to economic activities. Besides the need to provide training small and medium businesses, this refers to this effort is a labor-intensive effort, so hopefully people can create a whole small business jobs at the same medium, so can increase incomes. And the need to revitalize counseling, mentoring, growth and strengthening agricultural institutions. It is expected that with this policy, farmers can improve skills in farming and increase the capacity and improve the bargaining position of farmers. Recommended in order to conduct further research about the causal relationship between education level and income in the District of Sumenep.

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