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Research Paper

Path Analysis Effect Corruption, Tax, Inequality Economy and Poverty Level Against Percentage of Teenagers Not Attending School

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Path Analysis, Decomposition of Correlation, Direct Effects, Indirect Effect

Abstract
This research uses path analysis to examine the relationship between variables: Adolescents who are not in school (NS), corruption (CR), taxes (TR), economic inequality (EN), and poverty (EP). The aim of this research is to determine whether there is a direct effect of CR on TR, a direct effect of TR on EN, a direct effect of TR and EN on EP, and a direct effect of EN and EP on NS. The analysis results show that there is no direct effect of CR on TR but it is still meaningfulness with a value of 0.2588. The direct effect of CR on TR is -0.6984. There is a direct effect of TR and EN on EP. The effect of TR on EP is 0.1681. The effect of EN on EP is -0.5735. There is a direct effect of EN and EP on NS. The effect of EN on NS is -0.3859. The effect of EP on NS is 0.6037.

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1. INTRODUCTION

Indonesia is one of the developing countries and is struggling to continue to develop into a developed country. For this purpose, educated human resources and good quality human resources are needed [1]. One of the most significant aspects of human life is education. Every person has the right to a proper, and fair education. On the other hand, all Indonesian residents experience educational inequality [2], and enhancing the quality of human resources is a major goal of education [3]. However, not all Indonesian citizens have received proper education. Overall, around 4.1 million children and adolescents aged 7 to 18 years did not attend school in 2017 [4]. Taxes are very important for the country to build infrastructure and support education, but corruption often hinders .This is what often triggers poverty levels [5]. Economic problems in Indonesia are major problems that continue to arise. There are many causes of economic problems, including poverty, taxes, and corruption.

This study's objective was to investigate the relationship between factors that are related to children or adolescents who do not attend school (NS), namely corruption (CR), taxes or tax revenues (TR), economic inequality (EN) and poverty or extreme poverty (EP) using path analysis. Data was taken from ourworld in data (https://ourworldindata.org/) from 1998 to 2022 in Indonesia related to the poverty rate in percentage units converted into decimal form. Path analysis is a method used to analyze the causal relationship between factors/variables in a research model, and is used to test the causal relationship that has been previously formulated by researchers [6], while Gilmour [7] reiterates that path analysis is a method for testing hypotheses, not for building new models.

Multiple linear regression analysis is extended by path analysis, which is the application of regression analysis to determine the causal linkages between predetermined variables [8]. However, the data used is in the form of standardized data. It necessitates further presumptions but yields more details on the model under consideration. One of these assumptions is that the variables in a cause-and-effect connection are linearly connected [7, 9]. Path analysis also discusses direct and indirect influences [6, 10].

This method is often used to verify the proposed causal model, where researchers can compare models that describe

direct influences with models that take into account indirect influences. In path analysis, it is very important to have a clear time sequence between variables because causal relationships can only be identified if one variable affects another in the correct order [11].

Path analysis is widely used in various fields, such as social sciences [12, 13], transportation [14], marketing [15, 16]. In marketing, path analysis is used to assess consumer behavior and the relationship between product perceptions and purchasing decisions [17]. In biology and genetics, this causal model helps to identify the relationship between factors. Path analysis has the main advantage in explaining the direct and indirect effects between variables. Its main advantage is its ability to separate the total effect into several components such as direct effects and indirect effects. Path diagrams provide a clear picture of the relationship between variables, both directly and through intermediary variables, which helps researchers understand and test causal relationships. Path coefficients are used to measure the causal impact between variables connected by arrows [18, 19]. Path analysis helps researchers validate multi-factor hypotheses and comprehend the intricacy of interactions between variables. It enables researchers to identify elements that significantly contribute to the explanation of the phenomenon they are studying [20].

In this study, the questions to be answered in this study are 1) whether there is a direct and indirect effect of corruption (CR) on taxes (TR); 2) whether there is a direct and indirect effect of taxes (TR) on economic inequality (EN); 3) whether there is a direct and indirect effect of taxes (TR) and economic inequality (EN) on poverty (EP); 4) whether there is a direct and indirect effect of economic inequality (EN) and poverty (EP) on school dropouts (NS).

2. METHODS

Figure 1 displays the causal relationship model between the variables Corruption, Tax Reveneus, Economic inequality, Extreme Poverty, and No School. The models causality among the variables NS, CR, TR, EN, and EP can be formulated based on Figure 1, the model according to [9] can be written as follows:

$$\begin{aligned}
&\text{Model (1)} \quad TR = p_{21} \cdot CR + e_1 \\
&\text{Model (2)} \quad EN = p_{32} \cdot TR + e_2 \\
&\text{Model (3)} \quad EP = p_{42} \cdot TR + p_{43} \cdot EN + e_3 \\
&\text{Model (4)} \quad NS = p_{03} \cdot EN + p_{04} \cdot EP + e_4
\end{aligned}$$

where e_1, e_2, e_3, and e_4 is an effect that cannot be explained but can be calculated using the following formula:

$$e_i = \sqrt{1 - R_i^2} \qquad \text{where} \quad i = 1, 2, 3, 4$$

Based on the four models built, the null hypothesis that will be tested, namely: 1) There is no direct effect of CR on TR; 2) There is no direct effect of TR on EN; 3) There is no direct effect of TR and EN on EP; 4) There is no direct effect of EN and EP on NS.

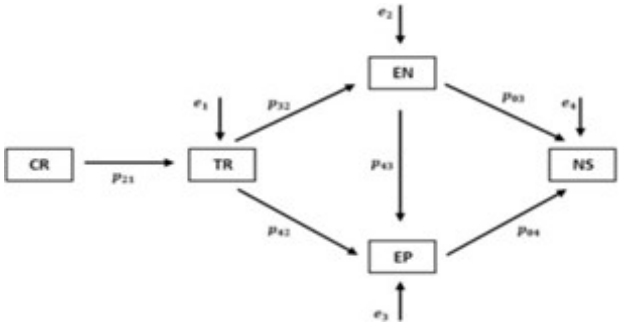

Figure 1. Causal Relationship Model Between the Variables Corruption, Tax Reveneus, Economic inequality, Extreme Poverty, and No School

Decomposition of Correlation

Path analysis has the benefit of being a technique for breaking down relationships between two variables. Thus, improving the interpretation of a correlation. The causal model that has been given in Model 1 to Model 4, allows to determine the parts from correlation between two variable which cause by direct effects and the some parts caused by indirect effects [6]. The CR, TR, EN, EP, and NS data are converted into standardized data with a standard deviation of one and a mean of zero. Thus, the expected value of

$$\begin{aligned}
E(CR \cdot CR) &= 1 \\
E(TR \cdot TR) &= 1 \\
E(EN \cdot EN) &= 1 \\
E(EP \cdot EP) &= 1 \\
E(NS \cdot NS) &= 1 \\
E(CR \cdot TR) &= r_{12} \\
E(TR \cdot EN) &= r_{23} \\
E(TR \cdot EP) &= r_{24} \\
E(EN \cdot EP) &= r_{34} \\
E(EN \cdot NS) &= r_{30} \\
E(EP \cdot NS) &= r_{40}
\end{aligned}$$

Where r_{12} is the correlation between the variables CR and TR, r_{23} is correlation between variable TR And EN, r_{24} is correlation between TR variable and EP, r_{34} is correlation between variable EN And EP, r_{30} is correlation between variable EN And NS, and r_{40} is correlation between variable EP And NS.

The decomposition of correlation from Model (1) can be found by applying algebra and calculation procedures. After multiplying both sides of Model (1) by CR, the predicted value is obtained. The result is as follows:

$$E(CR \cdot TR) = p_{21} \cdot E(CR \cdot CR)$$

To obtained

$$r_{12} = p_{21}$$

r_{23} can be determined by multiplying both sides of the Model (2) with TR and then take the expectations are taken so that,

$$E(TR \cdot EN) = p_{32} \cdot E(TR \cdot TR)$$

Thus,

$$r_{23} = p_{32}$$

The decomposition correlation r_{24} and r_{34} can be found through Model (3). To find r_{24} multiply model 3 by TR on both sides. The results the calculations are presented below.

$$E(TR \cdot EP) = p_{42} \cdot E(TR \cdot TR) + p_{43} \cdot E(TR \cdot EN)$$
$$r_{24} = p_{42} + p_{43} \cdot r_{23}$$
$$r_{24} = p_{42} + p_{43} \cdot p_{32}$$

Where as for count r_{34} multiply Model (3) with EN on both sides such that,

$$E(EN \cdot EP) = p_{42} \cdot E(EN \cdot TR) + p_{43} \cdot E(EN \cdot EN)$$
$$r_{34} = p_{42} \cdot r_{32} + p_{43}$$
$$r_{34} = p_{42} \cdot p_{32} + p_{43}$$

The decomposition of correlation r_{30} and r_{40} can be found through Model (4). To find r_{30} multiply Model (4) by EN on both sides. Results the calculations are presented below.

$$E(EN \cdot NS) = p_{03} \cdot E(EN \cdot EN) + p_{04} \cdot E(EN \cdot EP)$$
$$r_{30} = p_{03} + p_{04} \cdot r_{34}$$
$$r_{30} = p_{03} + p_{04} \cdot (p_{42} \cdot p_{32} + p_{43})$$
$$r_{30} = p_{03} + p_{04} \cdot p_{42} \cdot p_{32} + p_{04} \cdot p_{43}$$

Whereas for count r_{34} multiply Model (3) with EN on both sides such that,

$$E(EP \cdot NS) = p_{03} \cdot E(EP \cdot EN) + p_{04} \cdot E(EP \cdot EP)$$
$$r_{40} = p_{03} \cdot r_{43} + p_{04}$$
$$r_{40} = p_{03} \cdot (p_{42} \cdot p_{32} + p_{43}) + p_{04}$$
$$r_{40} = p_{03} \cdot p_{42} \cdot p_{32} + p_{03} \cdot p_{43} + p_{04}$$

3. RESULTS AND DISCUSSION

In this study the data used in are Corruption, Tax Revenue, Economic Inequality, Extreme Poverty, and No School (Our World in Data). Prior to data analysis, the data must first be converted into a standard format with a variance of one and a mean of zero.

Table 1 shows the results of the data analysis for Model (1). F-test = 1.65 with $P = 0.2116$ is used in Table 1 to test the null hypothesis (H_0) that there is no direct effect of CR on TR. As a result, H_0 is not rejected. With R^2=0.066974, the model can account for 6.6974% of the variation in TR. Table 2 shows that $p_{21} = 0.2587$ is the parameter estimate in Model (1). The value of $t = 1.28$ with $P = 0.211$ is used to test the partial model (2) (to test $H_0 : p_{21} = 0$), and H_0 is not rejected. The value $p_{21} = 0.2587 > 0.05$ according [21] and [6] is meaningfulness, so it does not need to be removed from the model.

According to the calculated parameter values $p_{21} = 0.2587$, Figure 1 displays a positive trend. The graph shows that if CR (Corruption) increases so TR (tax revenues) also increases, therefore, according to [22], CR has a direct effect on TR. TR will rise by 0.2587 standard deviations for every standard deviation that CR increases. The error is $e_1 = \sqrt{1 - 0.0669} = 0.9659$. Table 1 displays the analysis of variance for Model (1), and Table 2 shows the parameter estimate and testing for partial Model (1) parameters.

Table 1. Analysis Variance for Model (1)

Source	DF	Sum of square	Mean Square	F-value	P-value
Model	1	1.6073	1.6073	1.65	0.21
Error	23	22.3926	0.9736		
Corrected	24	24			

R-Square=0.066974

Table 2. Estimate Parameter and Testing for Partial Model (1) Parameters

Parameter	Estimate	Standard Error	t-value	P-value
Corruption	0.2587	0.2014	1.28	0.2110

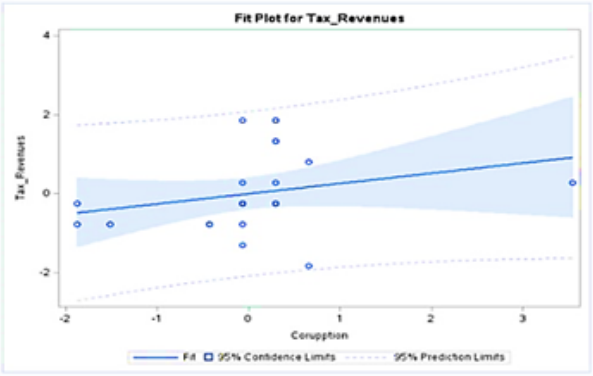

Figure 2. Plot of Model (1)

Table 3 shows the results of the data analysis for Model (2). According to Table 3, which tests H_0 that TR has no direct

influence on EN, the H_0 is rejected because CR has a direct effect on TR (F-test = 21.9, p-value = 0.0001). $R^2 = 0.4877$ indicates that the model can account for 48.77% of the variation in EN. Table 4 shows that is p-value = -0.6983 is the parameter estimates in Model (2). With $P = 0.0001$, the value of $t = -4.68$ is obtained to test the partial Model (2) (to test $H_0 : p_{32} = 0$), and H_0 is rejected. The value $p_{32} = -0.6983 > 0.05$ that according to [21] and [6] are meaningful.

Figure 2 shows a negative trend that is in line with the value of the estimate parameter, $p_{32} = -0.6983$. The graph shows that if TR (Tax_Revenues) increases, the value of EN (Economic_inequality) decreases. Therefore, according to [23] TR has a direct effect to EN. If TR increases by one standard deviation, EN will decrease as big as -0.6983 standard deviation. Error identified with, $e_2 = \sqrt{1 - 0.4877} = 0.7157$.

Table 3. Analysis Variance for Model (2)

Source	DF	Sum of square	Mean Square	F-value	P-value
Model	1	11.7054	11.705	21.9	0.0001
Error	23	12.2945	0.5345		
Corrected	24	24			

R-Square=0.4877

Table 4. Parameter Estimate and Testing for Partial Model (2) Parameters

Parameter	Estimate	Standard Error	t-value	P-value
Tax_Revenues	- 0.6983	0.1492	-4.68	0.0001

Table 3 displays the variance analysis for Model (2), and Table 4 shows the parameter estimate and testing for partial Model (2) parameters, while Figure 3 displays the plot of Model (2).

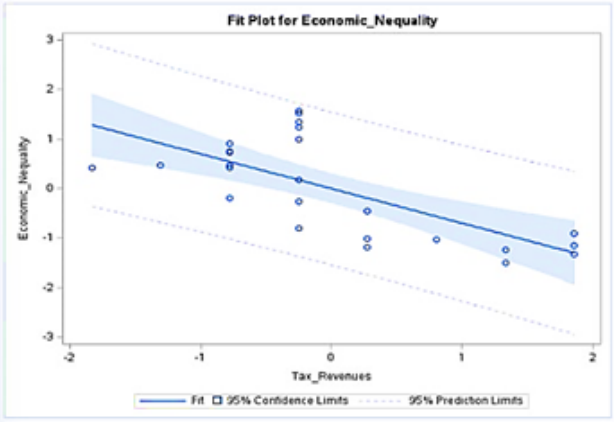

Figure 3. Plot of Model (2)

Table 5 displays the variance analysis for Model (3), and Table 6 shows the parameter estimation and testing for partial Model (3) parameters. To test H_0 that TR and EN have no direct effect on EP, Table 5 shows an F-test of 10.64 and a P-value of 0.0006. Since TR and EN have a direct impact on EP and R^2 = 0.4917 indicates that the model can account for 49.17% of the variation in EP, the H_0 is rejected. From Table 6, the parameter estimates of model 3 are $p_{42} = 0.1680$ and $p_{43} = -0.5734$. To test partial model 3 (to test $H_0 : p_{42} = 0$),the obtained value t=0.79 with P-value = 0.4372 and H_0 is accepted. The value $p_{42} = 0.1680 > 0.05$ according [6] and [21] still has meaning, so it does not need to be deleted from model. To test $H_0 : p_{43} = 0$, the t-value = -2.70 with P-value = 0.0131 and tH_0 is rejected. Therefore, there is direct effect from TR and EN to EP. Figure 4 presented contour fit for model 3 also shows a positive correlation if the TR (Tax_Revenues) value increases, the EP value moves towards to blue. The EP response increases when the TR value increases while other variables remain constant. However, there is a negative trend if the EN (Economic_inequality) value increase, the value EP decreased (blue area) while other variables remained constant. Figure 5 also supports this finding. It is also claimed by [24]. Error identified with, $e_3 = \sqrt{1 - 0.4917} = 0.7129$.

Table 5. Analysis Variance for Model (3)

Source	DF	Sum of square	Mean Square	F-value	P-value
Model	2	11.801	5.9	10.64	0.0006
Error	22	12.198	0.55		
Corrected	24	24			

R-Square=0.491723

Table 6. Estimate Parameter and Testing for Partial Parameter Model 3

Parameter	Estimate	Standard Error	t-value	P-value
Tax_Revenues	-0.6983	0.1492	-4.68	0.0001
Economic Inequality	-0.5734	0.2123	-2.7	0.0131

Table 7 displays the analysis of variance for Model (4), and Table 8 shows the parameter estimate and testing for partial Model (4) parameters. From Table 7, to test H_0 whether there is no direct effect of EN and EP on NS, F-test = 55.77 with P-value <0.0001, therefore H_0 is rejected, there is a direct effect of EN and EP on NS. R^2 = 0.8352, this means 83.52% NS variations can explained by the model. From Table 8, estimate parameter on model 4 is $p_{03} = -0.3859$, $p_{04} = 0.6036$. To test partial Model 4 (to test the $H_0 : p_{03} = 0$), obtained P-value = 0.0039 value $t = -3.22$ and the H_0 is rejected. To test $H_0 : p_{04} = 0$, the obtained value and the null hypothesis is rejected with t-value =

5.04 with P-value <0.0001 and H_0 is rejected. Therefore, there is a direct effect of EN and EP on NS.

Figure 6 displays Model 4's contour fit, also shows a negative correlation if the EN (Economic_inequality) value increases, the NS value moves towards red. The NS response decreases when the EN value increases while the other variables hold constant, and this result in line with the study of [25]. However, according to [26] there is trend positive if the value of EP (Extreme_Poverty) increases, the value NS move increase while other variables hold constant. Error identified with, $e_4 = \sqrt{1 - 0.8352} = 0.4058$.

Table 7. Analysis Variance for Model (4)

Source	DF	Sum of square	Mean Square	F-value	Pr>F
Model	2	20.0463	10.023	55.77	<.0001
Error	22	3.9536	0.1797		
Corrected	24	24			

R-Square=0.835266

Table 8. Estimate Parameter and Testing for Partial Parameter Model (4)

Parameter	Estimate	Standard Error	t-value	Pr>|t|
Economic Inequality	-0.3859	0.1196	-3.22	0.0039
Extreme poverty	0.6036	0.1196	5.04	<.0001

Direct Effect, Indirect Effect and Total Effect, and Decomposition Correlation

Relationship between variable and estimate model causal is given below:

Figure 4 displays the Contour Fit Plot Model (3). From results of analysis the estimation of Model (1) is TR = 0.2587CR with 0.9659 is an unexplained effect. The direct effect of CR on TR is $p_{21} = 0.2587$, this means that for every 1 standard deviation increase in CR, TR will increase by 0.2587 standard deviations. Table 9 shows the Decomposition of correlation between CR and TR (r_{12}), and Table 10 displays the decomposition of correlation between TR And EN (r_{32})

Estimate Model (2) is presented as follows EN = -0.6983 TR with 0.7157 is an unexplained effect. The direct effect of TR on EN is $p_{32} = -0.6983$, this means that for every 1 standard deviation increase in TR, EN will decrease by -0.6983 standard deviations.

Estimate Model (3) is as follows EP = 0.1680TR - 0.5734EN with 0.7129 is an unexplained effect. There is a direct effect of TR and EN on EP, the effect of TR ($p_{42} = 0.1680$) is positive and according to [21] it is still meaningfulness since $p_{42} > 0.05$. The

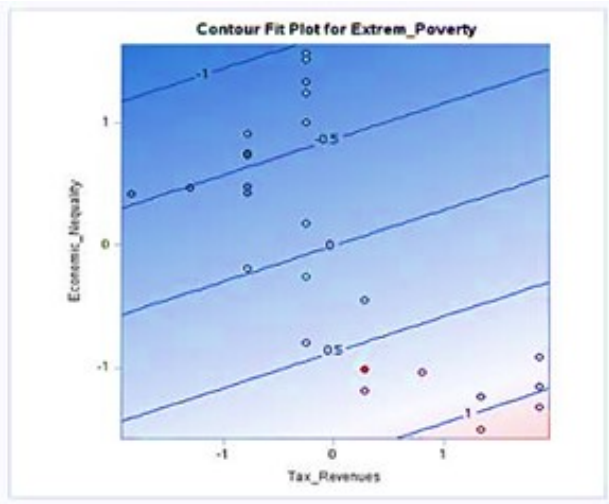

Figure 4. Contour Fit Plot Model (3)

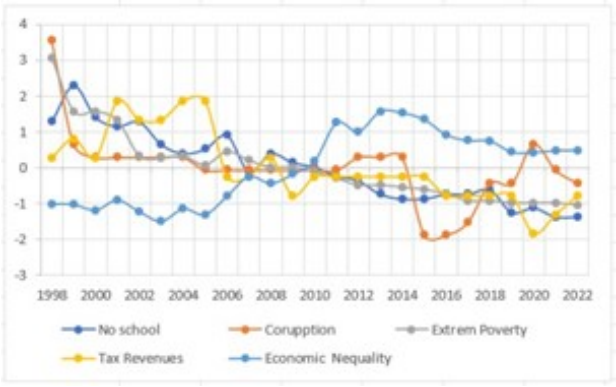

Figure 5. Plot Corruption, Tax Reveneus, Economic Inequality, Extreme Poverty, and No School After Standardization

Table 9. Decomposition of Correlation Between CR and TR (r_{12})

Component	Quantity Numeric	Meaning
p_{21}	0.2587	Because CR own effect directly to TR
Total (r_{12})	0.2587	

Table 10. Decomposition of Correlation Between TR and EN (r_{32})

Component	Quantity Numeric	Meaning
p_{32}	-0.6983	Because TR own immediate effect to EN
Total (r_{32})	-0.6983	

effect of EN ($p_{43} = -0.5734$) is negative and significant. The effect TR to EP can be divided into direct and indirect effect/influence using the path diagram (Figure 7) as follows:
Direct effects

$$p_{42} = 0.1680$$

Indirect effect

$$p_{32} \cdot p_{43} = (-0.6983)(-0.5734) = 0.4002$$

Effect total

$$p_{42} + p_{32} \cdot p_{43} = 0.568$$

Meanwhile, the effect of EN on EP can be described as direct and indirect effects as follows:
Direct effect on value

$$p_{43} = -0.5734$$

Indirect Effect

$$p_{42} \cdot p_{32} = (0.1680)(-0.6983) = -0.1173$$

Effect total

$$p_{43} + p_{42} \cdot p_{32} = -0.6907$$

Table 11. Decomposition of Correlation Between TR and EP (r_{24})

Component	Quantity Numeric	Meaning
p_{42}	0.1680	Because TR influential directly to EP
$p_{43}.p_{32}$	0.4004	Because TR is influential direct to EN and EN influential direct to EP
Total (r_{24})	0.5684	

Table 12. Decomposition of Correlation Between EN and EP (r_{34})

Component	Quantity Numeric	Meaning
$p_{42}.p_{32}$	- 0.1173	Because EN has an effect direct to TR and TR influential direct against EP
p_{43}	-0.5734	Because EN influential direct against EP
Total (r_{34})	-0.6907	

Table 11 shows the decomposition of correlation between TR and EP (r_{24}), and Table 12 displays the decomposition of correlation between EN And EP (r_{34}). Estimate Model (4) is as follows NS = -0.3859EN + 0.6036EP , with 0.4058 is an unexplained effect. There is a direct effect of EN and EP to NS, the effect EN ($p_{03} = -0.3859$), is negative and significant. The effect of EP ($p_{03} = 0.6036$) is positive, significant and meaningful. From path diagram (Figure 7), effect EN to NS can outlined to be effeced direct and indirect as follows:
Direct effect

$$p_{03} = -0.3859$$

Indirect effect

$$p_{04} \cdot p_{42} \cdot p_{32} = (0.6036)(0.1680)(-0.6983) = -0.0708$$

Effect total

$$p_{03} + p_{04} \cdot p_{42} \cdot p_{32} + p_{04} \cdot p_{43} = -0.8028$$

Meanwhile, the effect of EP on NS can be described as direct and indirect effects as follows:
Direct effect

$$p_{04} = 0.6036$$

Indirect effect

$$p_{03} \cdot p_{42} \cdot p_{32} = (-0.3859)(0.1680)(-0.6983) = 0.0452$$

Total effect

$$p_{04} + p_{03} \cdot p_{42} \cdot p_{32} + p_{03} \cdot p_{43} = 0.87$$

Table 13 shows the decomposition of correlation between EN and NS (r_{30}) and Table 14 displays the decomposition of correlation between EP and NS (r_{40}).

Table 13. Decomposition of Correlation Between EN and NS (r_{30})

Component	Quantity Numeric	Meaning
p_{03}	-0.3859	Because EN influential directly to NS
$p_{04}.p_{42}.p_{32}$	-0.0708	Because EN has an effect directly to TR, TR influential direct to EP, and EP influential directcagainst NS
$p_{04}.p_{43}$	-0.3461	Because EN has an effect direct to EP and EP influential direct to NS
Total (r_{30})	-0.8028	

Decomposition of correlation which have been analyzed as on Table 9-14 namely CR and TR (r_{12}), TR and EN (r_{23}), TR and

Table 14. Decomposition of Correlation Between EP and NS (r_{40})

Component	Quantity Numeric	Meaning
$p_{03}.p_{42}.p_{32}$	0.0452	Because EP is influential direct to TR, TR influential direct against EN, and EN influential directly against NS
$p_{03}.p_{43}$	0.2212	Because EP is influential directly to EN And EN influential direct against NS
p_{04}	0.6036	Because EP influential direct against NS
Total (r_{40})	0.87	

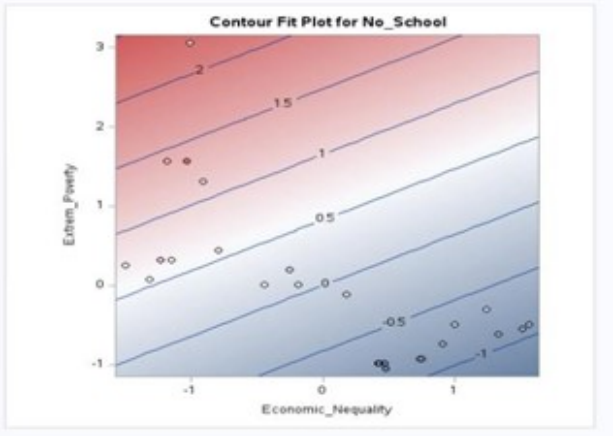

Figure 6. Plot of Contour Model (4)

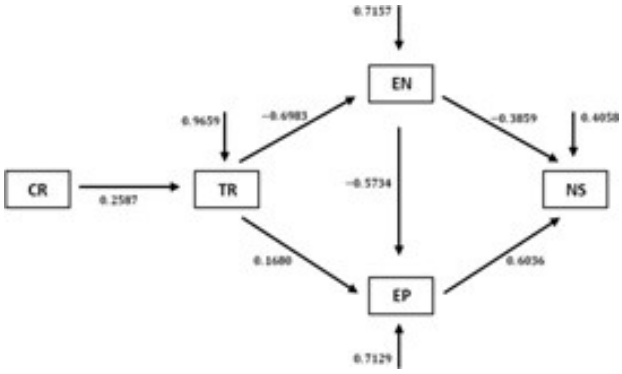

Figure 7. Estimate Parameter from Model Path Analysis

EP (r_{24}), EN and NS (r_{30}) as well as EP And NS (r_{40}) the results are the same as the correlation coefficient in Table 15.

Figure 7 shows The path coefficients from the analysis between variable. Correlation between CR and TR , $r_{12} = p_{21}$ can be explained as in Table 9.

Table 15. Coefficient Correlation Pearson, $n = 25$, Probability>|r under $Ho : Rho = 0$

	NS	CR	TR	EN	EP
NS	1	0.4861	0.7124	- 0.80297	0.87029
		0.0138	<.0001	<.0001	<.0001
CR	0.4861	1	0.2588	- 0.43877	0.71293
	0.0138		0.2116	0.0282	<.0001
TR	0.7124	0.25879	1	- 0.69837	0.56855
	<.0001	0.2116		0.0001	0.003
EN	- 0.803	- 0.43877	- 0.698	1	- 0.6908
	<.0001	0.0282	0.0001		0.0001
EP	0.8703	0.71293	0.5686	- 0.69084	1
	<.0001	<.0001	0.003	0.0001	

Correlation between TR and EN, $r_{23} = p_{32}$ can be described as seen in Table 10.
Table 11 explains the correlation between TR and EP, which is $r_{24} = p_{42} + p_{43}.p_{32}$
Table 12 explains correlation between EN and EP, $r_{34} = p_{42}.p_{32} + p_{43}$.
Table 13 explains correlation between EN and NS, $r_{30} = p_{03} + p_{04}.p_{42}.p_{32} + p_{04}.p_{43}$
Table 14 explains correlation between EP And NS, $r_{40} = p_{03}.p_{42}.p_{32} + p_{03}.p_{43} + p_{04}$.

4. CONCLUSIONS

This study investigates the causal relationship between the variables CR, TR, EN, EP, and NS using path analysis. The results indicate that CR has a direct effect on TR , TR has a direct effect on EN , TR and EN have a direct effect on EP, and EN and EP have a direct effect on NS. Some direct effects are only meaningful, some others are very significant and meaningful. To determine the direct effect, indirect effect, and total effect of one variable to another, Path analysis is applied. The results obtained indicate that CR has a direct effect on TR with value of 0.2587; TR has a direct effect on EN with value of -0.6983. TR has a direct effect on EP with value of 0.1680. TR also has an indirect effect on EP with an indirect effect value of 0.4004, while EN has a direct effect on EP with a direct effect value of -0.5734 and the indirect effect is -0.1173. EN has a direct effect on NS with a direct effect value of -0.3859and an indirect effect of -0.4169.While EP has a direct effect on NS with a direct effect value of 0.6036 and an indirect effect value of 0.2664. The correlation between variables can also be explained via path analysis, which breaks down the correlation into direct and indirect components, where this study explains the breakdown of the correlation between CR and TR, between TR and EN and EP, between EN and NS, between EN and EP , between EN and NS, and between EP and NS.

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