

CHAPTER 4

RELATIONSHIP BETWEEN VARIABLES AFFECTING JUVENILE VIOLENT CRIMES

To present and report findings, researcher will start with overall analysis of relationship between variables, both exogenous latent variables and endogenous latent variables. After that, result of analysis based on this study's objective regarding factors affecting juvenile violent acts will be presented.

4.1 Relationship between Variables

According to analysis of correlation coefficients between exogenous latent variables and endogenous latent variables used in the analysis (correlation matrix of ETA and KSI), it was found that all variables have low correlation coefficients ranging between -0.01 to 0.58. There are two sets of variables with correlation coefficient of 0.01. The first one is between "economic factor" and "type of offence" while the second one is between "family status and relationship" and "type of offence." In addition, there are two sets of variables with correlation coefficient of -0.01. The first one is between "family status and relationship" and "offence severity" while the second set is between "social environment and risk factor" and "offence severity."

The variables with the highest correlation coefficients between latent variable are "basic personal factor" and "family status and relationship" (correlation coefficient of 0.58). The result of primary data analysis suggests that variables used for the study are not directly correlated with "type of offence" and "offence severity." Overall, correlation coefficients are all low, which supports the research hypothesis that juvenile violent crimes are not a result of only one factor. Since each variable has very low correlation coefficient, it can be explained that juvenile violent crimes are

caused by many factors which are correlated and finally lead to juvenile violent crimes.

In addition, it was also found from analysis of relations that juveniles use more violence in committing offences, depending on type of offence (correlation coefficient = 0.09) or “poor family” (correlation coefficient = 0.03).

Type of juvenile offences are mostly affected by “social environment and risk factor” (correlation coefficient = 0.13) followed by “basic personal factor” (correlation coefficient = 0.09) and “family status and relationship” (correlation coefficient = 0.01).

4.2 Relationship between Exogenous Latent Variables and Endogenous Latent Variables in Structural Equations

Researcher has analyzed correlation coefficients between exogenous latent variables and endogenous latent variables (correlation matrix of ETA and KSI). It was found that all endogenous latent variables and exogenous latent variables used in this study have low correlation coefficients, ranging between -0.01 to 0.58. This suggests that juvenile violent crimes, both in terms of “offence severity” and “type of offence” are not correlated with only one variable. We can see that overall correlation coefficients are low.

Thus, for a clear understanding of violent crime path, researcher has studied correlation in order to understand violent crime structure and path of variables causing juvenile violent crimes.

In this study, the researcher set exogenous latent variables including basic personal factor and economic fact while endogenous latent variables include family status and relationship, social environment and risk factor, type of offence and offence severity. The relations between exogenous latent variables and endogenous latent variables can be explained as shown in the following equations.

$$\text{FAMILY} = 0.70*\text{PERSON} + 0.37*\text{ECONOMY}, \text{Errorvar.} = 38.13, \\ \text{Ry} = 0.017 \dots \dots \dots (27)$$

(0.13)	(0.099)	(2.00)
5.30	3.75	19.07

$$\text{SOCIETY} = 0.045*\text{FAMILY} + 0.100*\text{PERSON} + 0.057*\text{ECONOMY} \\ , \text{Errorvar.} = 1.66 , \text{Ry} = 0.058 \dots \dots \dots (28)$$

(0.0087)	(0.032)	(0.016)
5.15	3.13	3.45
(0.091)		
18.32		

$$\text{TYPEOFF} = 0.019*\text{FAMILY} + 0.13*\text{SOCIETY} + 0.11*\text{PERSON} \\ + 0.042*\text{ECONOMY}, \text{Errorvar.} = 1.93 , \text{Ry} = 0.037 \dots \dots \dots (29)$$

(0.0058)	(0.029)	(0.035)
3.20	4.57	3.19
(0.016)	(0.12)	
2.62	16.69	

$$\text{OFFSEVE} = -0.014*\text{FAMILY} + 0.0069*\text{SOCIETY} + 0.060*\text{TYPEOFF} \\ + 0.026*\text{PERSON} + 0.038*\text{ECONOMY}, \text{Errorvar.} = 2.01 , \text{Ry} = 0.0081 \dots \dots \dots (30)$$

(0.0042)	(0.020)	(0.023)
-3.33	0.35	2.67
(0.031)	(0.013)	(0.091)
0.84	2.96	22.08

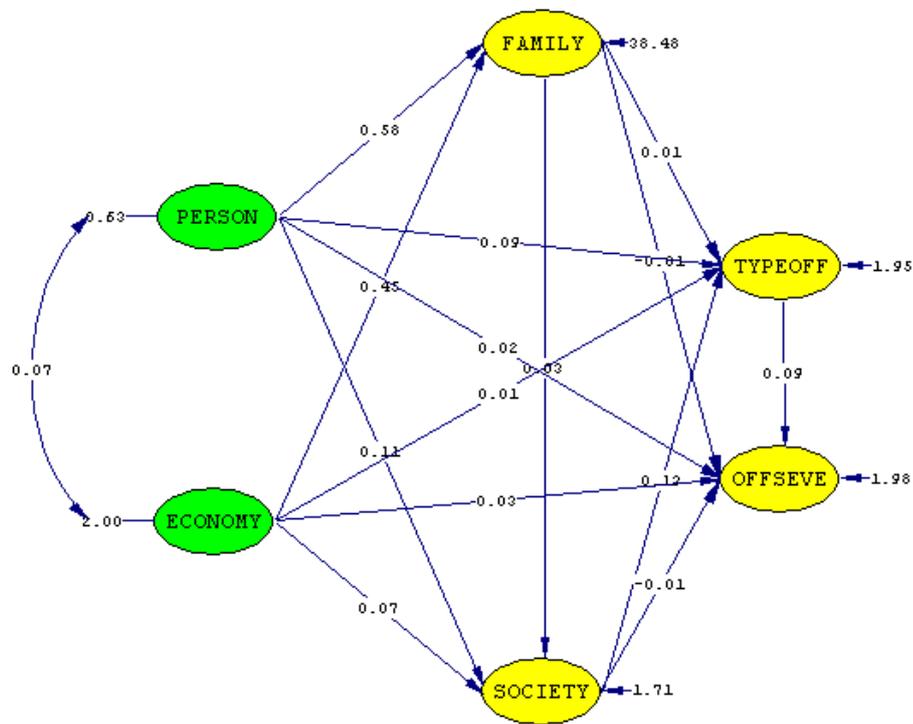
Note: Value in parentheses is error from estimation

Value in the third line is t-value

According to structural equations, it can be explained that basic personal factor and economic factor can, with statistical significance, affect family status and relations, while 1.70% of the variance can be explained (equation 27). Family status and relations, basic personal factor and economic factor all, with statistical significance, have impacts on social environment and risk factor, while 5.80% of the variance can be explained (equation 28). Family status and relations, social

environment and risk factor, basic person factor and economic factor can, with statistical significance, affect juvenile violent crimes, while 3.70% of variance can be explained (equation 29). In addition, family status and relations, type of offence, and economic status can, with statistical significance, have an impact on juvenile violent crime, while 0.81% of the variance can be explained (Equation 30)

From data analysis based on such structural equations, the researcher had used LISREL to show relations between exogenous latent variables and endogenous latent variables, both LAMDA - X and LAMDA - Y matrixes. The relations and directional relationship are displayed in the following figure.



Chi-Square = 456.78, df = 255, P-value = 0.00000, RMSEA = 0.039

Figure 4.1 Path Diagram between Exogenous Latent Variables and Endogenous Latent Variables Used for Study in Structural Equation

The researcher had analyzed the study based on structural equations. It was found that juvenile violent crimes, both in terms of type of offence and offence severity, are affected by direct and indirect factors as follows:

Table 4.1 Direct and Indirect Influence of Latent Variables to Type of Juvenile Offence

Variable	Relationship by Cause		
	Direct	Indirect	Sum Total
Basic personal characteristics	0.09	0.022362	0.112362
Economic factor	0.01	0.015355	0.025355
Status and relationship in the family	0.01	0.0039	0.0139
Social environment and risk	0.13	-	0.13

Table 4.1 shows direct and indirect factors affecting type of offence among juveniles. It was found that social environment and risk factor are the most influential followed by basic personal factor, economic factor, and family status and relations, with causal correlation coefficient of 0.13, 0.11, 0.02 and 0.01 respectively.

Table 4.2 Direct and Indirect Influence of Latent Variables to Juvenile's Offence Severity

Variable	Relationship by Cause		
	Direct	Indirect	Sum Total
Basic personal characteristics	0.02	0.00379058	0.02379058
Economic factor	0.03	-0.00262305	0.02737695
Status and relationship in the family	-0.01	0.001251	-0.008749
Social environment and risk	-0.01	0.0117	0.0017
Type of offence	0.09	-	0.09

Table 4.2 shows direct and indirect factors affecting offence severity among juveniles. It was found that type of offence is the most influential factor followed by economic factor, basic personal factor, family status and relations, and social environment and risk factor, with causal correlation coefficients of 0.09, 0.027, 0.023, -0.008 and 0.001 respectively.

4.3 Relationship between Exogenous Latent Variables and Endogenous Latent Variables based on Reduced Form Equations

Besides analyzing data based on structural equations, LISREL can also be used to create reduced form equations. Data analysis of reduced form equations aims to specify relations between exogenous latent variables and endogenous latent variables, without studying relations between endogenous latent variables. The aim is to prove that reduced variables will lead to reduced form equations as illustrated below.

$$\begin{aligned} \text{FAMILY} &= 0.70*\text{PERSON} + 0.37*\text{ECONOMY}, \text{Errorvar.} = 38.13, \\ \text{Ry} = 0.017 &\dots\dots\dots(31) \\ &\quad (0.13) \quad (0.099) \\ &\quad 5.30 \quad 3.75 \end{aligned}$$

$$\begin{aligned} \text{SOCIETY} &= 0.13*\text{PERSON} + 0.073*\text{ECONOMY}, \text{Errorvar.} = 1.74, \\ \text{Ry} = 0.014 &\dots\dots\dots(32) \\ &\quad (0.033) \quad (0.016) \\ &\quad 4.04 \quad 4.70 \end{aligned}$$

$$\begin{aligned} \text{TYPEOFF} &= 0.14*\text{PERSON} + 0.059*\text{ECONOMY}, \text{Errorvar.} = 1.98, \\ \text{Ry} = 0.011 &\dots\dots\dots(33) \\ &\quad (0.038) \quad (0.017) \\ &\quad 3.77 \quad 3.37 \end{aligned}$$

$$\begin{aligned} \text{OFFSEVE} &= 0.026*\text{PERSON} + 0.037*\text{ECONOMY}, \text{Errorvar.} = 2.02, \\ \text{Ry} = 0.0017 &\dots\dots\dots(34) \\ &\quad (0.031) \quad (0.014) \\ &\quad 0.83 \quad 2.61 \end{aligned}$$

Note: Value in parentheses is error from estimation

Value in the third line is t-value

From data analysis based on reduced form equations, it can be explained that basic personal factor and economic factor can, with statistical significance, have an impact on family status and relations, while 1.70% of relations can be explained (equation 31). Meanwhile, basic personal factor, and economic factor can, with statistical significance, influence social environment and risk factor, while 1.40% of the relations can be explained (equation 32). It can be said that basic personal factor and economic factor can, with statistical significance, have an impact on type of offence, while 1.10% of the relations can be explained (equation 33). As for equation (34), it was found that basic personal factor does not, with statistical significance, have an impact on offence severity. Finally, economic factor can, with statistical significance, affect offence severity, while 0.17% of the relations can be explained.

Therefore, it can be concluded that the study of reduced form equations suggests that exogenous latent variables can, with statistical significance, influence all endogenous latent variables, except for exogenous latent variable “basic personal factor” which does not affect endogenous latent variable “using violence.” It can be explained that exogenous latent variables are correlated with all endogenous latent variables used in this study, except for relations between basic personal factor and using violence which have no statistical significance.

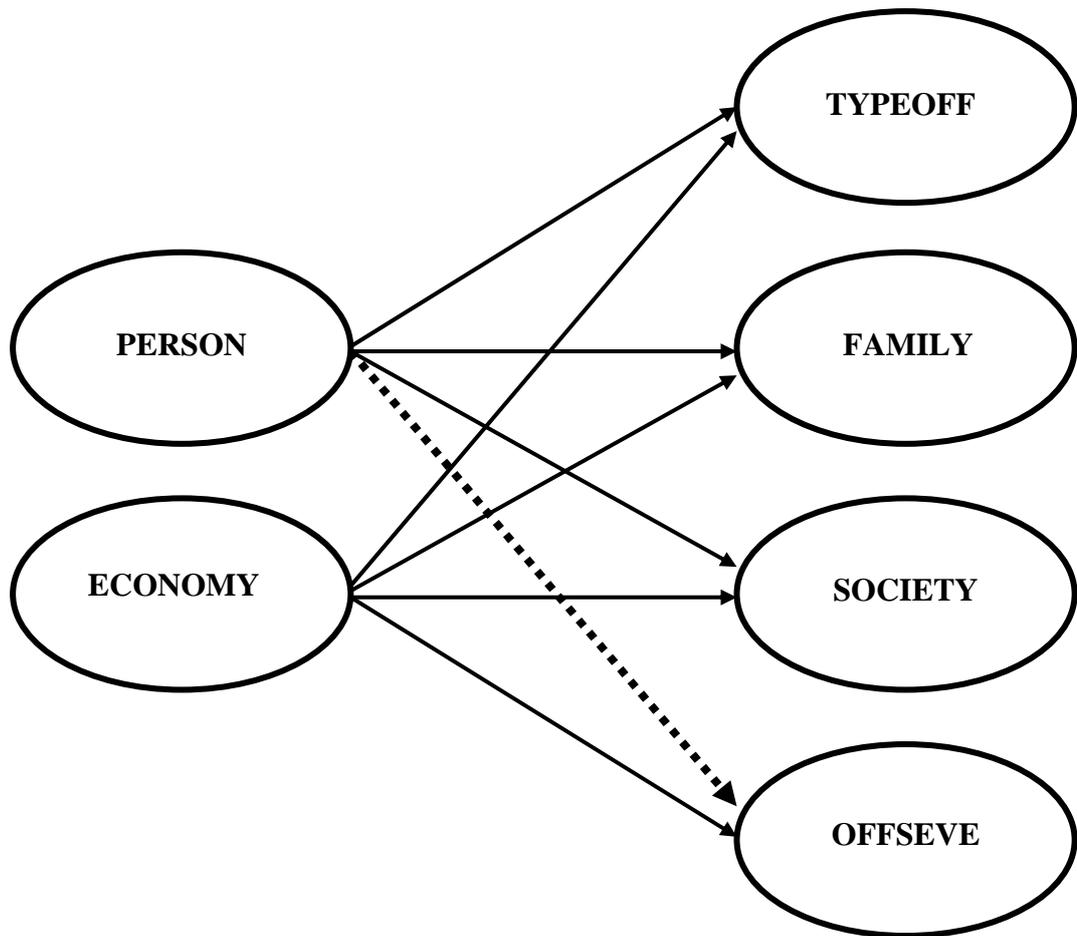


Figure 4.2 Path Relations Model of Exogenous Latent Variables and Endogenous Latent Variables used for Study in Reduce Form Equation

Note: Thick arrow represents “relation”

While arrow with dot lines represents “non-relation”

In conclusion, after using reduced form equation, it was found that all exogenous latent variables used for this study correlate with endogenous latent variables, except for basic personal factor that does not affect using of violence.