CHAPTER IX MULTIVARIATE UTILISATION PATTERNS OF TRADITIONAL, TRANSITIONAL AND MODERN COMMUNITY INSTITUTIONS

9.1. Multivariate Utilisation Patterns of the Plural Community Institutional System

9.1.1 Multivariate Analysis of the Variables by OVERALS

The multivariate model used in this research is meant to identify the behaviour pattern of the respondents from the four village samples, towards their utilisation of traditional, transitional and modern community institutions. Although the term 'multivariate analysis' is not used consequently in social sciences, strictly speaking, multivariate analysis provides simultaneous analysis of multiple independent and dependent variables *(cf.* Tabachnick & Fidell 2001). The most common multivariate analysis techniques for categorical data, the type of data involved in this study, are: '*the 'basic correlation analysis' to measure the general relationship among variables, 'cluster analysis' to assess similarities or dissimilarities among variables, Principal component analysis' to determine variance among variables, and 'regression analysis' to establish quantitative relationships among variables and prediction*' (*cf.* Agung 2005, Leurs 2010).

In addition to the bivariate analysis in the previous section, this study is also conducting a multivariate analysis. The multivariate analyses are examined by implementing optimal scaling: the Non-Linear Generalized Canonical Correlation Analysis, which is known as OVERALS. It has been developed by the Data Theory Scaling System Group (DTSS) of Leiden University in the Netherlands. Similar studies which have used OVERALS have been done by Slikkerveer (1990), Agung (2005), Leurs (2010), Djen Amar (2010), and Ambaretnani (2012) with various topics on Ethnoscience and Development. As for the quantitative analysis of the data in this study, the analysis implements Categorical Components Analysis with optimal scaling for data reduction when the variable is categorical (nominal and ordinal with only small numbers of values, each of which corresponds to a specific category value/label). The categorical data cannot be normally distributed as they are not continuous data (*cf.* Field 2009; 2013). Categorical Component Analysis is concerned with identifying the underlying variables from the set of variables while maximizing the amount of variance accounted for in those items by the principal components. The analysis fits in as it does not assume linear correlations among the numeric data nor does it require assuming multivariate normal data. In optimal scaling, it is an advantage as the researcher specifies the chosen level of measurement, according to earlier research. The reduction technique run in IBM PASW 22.0, mainly in two dimensions with the exception of one variable, requires multiple runs in a block of variables as shown in the analytical model.

In this multivariate analysis, the study applies multiple regression and canonical correlation analysis, while at the same time OVERALS is also applied to indicate the relationship of sets of variables which are independent of each other. Seven blocks of independent variables, including one intervening variable, are used to analyse its influence on three dependent variables in the utilisation behaviour on Community Institutional Systems. As shown in Table 9.1, the dependent variables are 'Utilisation of Community Institutional Systems', divided into three types of institutions: traditional institutions, transitional institutions and modern institutions.

Table 9.1 Distribution of the Component Loadings of the 27 Variables of the Utilisation of the Community Institutions (Traditional, Transitional, Modern) by Respondents in Four Villages of Kabupaten Subang (N=345).

Set (Block)	Variable	Dimension 1	Dimension 2
1	hhrel[a,b]	.307	.124
	sex[a,b]	.302	.128
	prof[a,b]	-.285	-.178
2	knowt[b,c]	.048	.129
	knowcos[b,c]	-.067	.128
	knowgot[b,c]	.133	.199
	ktradinst[b,c]	-.255	-.180
	ktrad[b,c]	-.007	-.126
	kmod[b,c]	.175	-.080
	fmodfo[a,b]	.171	-.078
	mmodfo[a,b]	-.080	.175
	tsundbf[b,c]	.228	-.081
	mblf[b,c]	.044	-.278
3	fpercv[a,b]	-.079	.194
	mpercv[a,b]	.224	-.173
	edpercv[a,b]	-.070	-.219
	spercv[a,b]	.035	.145
4	monsav[a,b]	.171	.099
5	ob_tinst[a,b]	.044	-.434
	ob_minst[a,b]	.387	-.055
	ob_trins[a,b]	.071	-.291
	orgmod[a,b]	-.007	-.141
6	enloc[a,b]	-.049	-.293
	zonaloc[a,b]	-.615	-.120
	resstat[a,b]	-.008	-.199
7	gprom_m[b,c]	.077	-.034
	pre_m[b,c]	.006	.099
8	Ut_Trad[a,b]	-.677	.576
9	Ut_Trans[a,b]	.893	.113
10	Ut_Mod[a,b]	- .190	- .857

a. Optimal Scaling Level: Multiple Nominal
b. Projections of the Multiple Quantified Variables in the Object Space
c. Optimal Scale Level: Ordinal
d. Projections of the Single Quantified Variables in the Object Space

Source: Computations based on Fieldwork Survey (2012).

The OVERALS component loading values, corresponding eigenvalues in the available dimensions, and the component loading plots are obtained as the results of the preceding analysis of this study. Table 9.1 shows the distribution of the component loading with two dimensions in the OVERALS analysis, as examined in this research. The shaded variables are the variables which appeared statistically strong, as they have greater values than the remaining variables, both in negative and positive value. The table shows a distribution of the component loading of 27 variables in the set of 345 respondents.The component loadings are equivalent to Pearson's Correlations between the quantified variable and object scores. For instance, by considering the outcome of individual variables in every block, it is shown that among the socio-demographic

variables, 'Type of profession or Occupation' ('prof') is the strongest in terms of the correlation rate (.307 on dimension 1). As for the strongest correlation in the independent variables, it is environmental locations, represented by 'Zonation Location' ('zonloc') with the correlation rate of -.615 in dimension 1. Similarly, the strongest correlation rate in dimension 2 is 'Objective of Traditional Institutions' ('ob_tinst') with a correlation rate of -.434. Based on Table 9.1, there are five leading independent variables in dimension 1 and in dimension 2, as shown in Table 9.2, which explains the strongest correlation to people's behaviour on the utilisation of community institutional systems, among traditional, transitional and modern community institutions. As for the analysis, the 'Zonation' ('zonaloc') variable of the environmental variables in dimension 1 is the strongest correlation to 'People's behaviour in the Utilisation of the Community Institution' (correlation score of -.615). People in the low-land areas are still implementing the '*Gintingan*' tradition with the original form of the institution.

Table 9.2 Distribution of the Strongest Correlated Variables to People's Behaviour in the Utilisation of Traditional, Transitional and Modern Community Institutions by Respondents in the Four Villages of Kabupaten Subang (N=345).

Dimension 1	Dimension 2
Zonaloc	*Ob_tinst*
Ob_minst	*Enloc*
Hhrel	*Ob_trinst*
Sex	*Mblf*
Prof	*Edpercv*

Source: Computation from the Fieldwork Survey (2012).

Furthermore, people who live in the mountainous or high-land areas are also implementing the tradition. However, the form of the tradition has been adapted to the available natural resources in the area. While in the low-land area, people are still implementing *Gintingan* by making contributions of any natural resource which they have (paddy rice) for ceremonies and rituals as the researcher witnessed in Sukamelang village, the people in the highland area are still mainly implementing the tradition for building houses as has been observed during the fieldwork in *Cimanglid* village. The significant correlation of 'Environmental Variables' is also strengthened by the environmental variable ('enloc') in dimension 2 with a correlation score of -.293). People in the rural area tend to utilise traditional institution in contrast with people in the urban ones. This finding is supported by the work of Petkovic (2007) which states that rural people would in greater percentage state attitudes which are in line with the traditional institutions and sometimes with traditional social values in comparison with the urban ones. In addition to that, 'Psycho-social Variables' are also dominantly correlated with 'People's Behaviour in the Utilisation of the Community Institution'. Four out of 10 dominant variables in dimensions 1 and 2 which are among the strongest correlations of peoples' utilisation behaviour are representing 'Psycho-social Variables': 'Knowledge the Objective of the Modern Institution Support Services' ('ob_minst') in dimension 1, 'Knowledge of the Objective of the Traditional Institution Support Services' ('ob_tinst'), 'Knowledge of the Objective of the Transitional Institution Support Services' ('ob_trinst') and beliefs in Modern Cosmopolitan Life for Well-being and Good Life' ('mblf') in dimension 2. As depicted in Table 9.2 above, there are five variables in dimension 1 ('zonaloc', 'ob_minst', 'hhrel', 'sex', and 'prof') and five variables in dimension 2 ('ob_tinst','enloc','ob_trinst', 'mblf', and 'edpercv') dominantly correlated to people's behaviour in the utilisation of traditional institutions, transitional institutions and modern institutions.

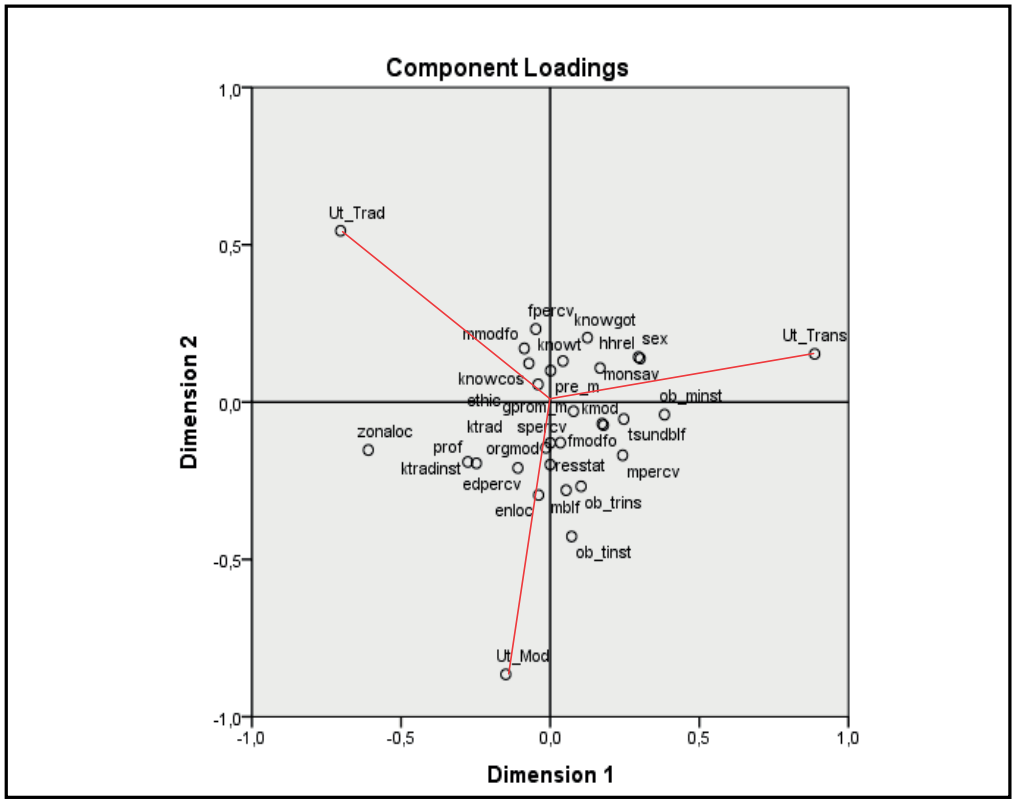

Figure 9.1 Plot of Component Loading Analysis (OVERALS) of the Utilisation of the Community Institutions in Subang.
Source: Computations based on Fieldwork Survey (2012).

As presented, the component loadings of all variables are presented graphically in the centroid plot of Figure 9.1. The distance from the origin to each variable point approximates the importance of each variable. Both the relationship and direction scores among variables can be explored as they appear in the plot. When there are no missing data, the component loadings are equivalent to Pearson's correlation between the quantified variables and the object scores. The three dependent variables are plotted with three straight lines from the center of the graph to distinguish them from the independent and the intervening variables. The line also explains the closest influences of each of the independent and intervening variables to the related dependent variables. For instance, the 'zonation location' variable, which is shown between the dependent variables of 'utilisation of traditional institutions' ('Ut_Trad') and 'utilisation of modern institutions', explains that the zonation location of the people living in the village influences people's behaviour in their preference to utilise the traditional institutions in comparison with modern institutions. People in Cimanglid village, which is located in a mountainous area, show greater preference to utilise traditional institutions than people in Sukamelang Village, which is located in the low-land and flat area of Subang District. Similar explanations can be applied to the 'environmental location' variable of people in the villages. People in the Sukamelang village, who live in a semi-urban area, show more preference to utilise modern institutions than people in Cimanglid village, which is located in a rural area of the Subang District.

9.1.2 Multiple Regression Analysis of Blocks of Variables

After examining the correlations between one variable and another in the bivariate analyses and the interaction among variables in the mutual relations analysis in Chapter VIII, the stepwise analysis is further undertaken to compare the various blocks of variables in the model with each other in order to determine the relative strength of interaction, known as the multiple regression analysis. The multivariate analysis can be extended to develop an explanatory, analytical model of utilisation behaviour towards the Plural Community Institutional Systems: Traditional, Transitional or Modern Community Institutions. It measures the correlation between the different blocks of variables identified in the model. While bivariate and multivariate analyses have so far illustrated the relationship between different variables in the model, this section seeks to calculate the maximum correlation between blocks of the variables (*cf*. Agung 2005; Leurs 2010; Chirangi 2014; Aiglsperger 2014).

The relationship between the different blocks of variables is measured by means of multiple regression analysis. In other words, multiple regression analysis estimates the significance of the overall model by comparing the observed values to the predicted ones for each dimension, represented by a multiple correlation coefficient (r). Following earlier analysis of all the variables, the following ten blocks of variables were specified for multiple regression analysis:

Blocks of Independent and Intervening Variables

1. In the blocks of socio-demographic variables, the variables are 'Household Relationship' *(hhrel)*, 'Gender of the Respondents' (*sex)*, and 'Profession of the Respondents' (*profession);*
2. In the blocks of psycho-social variables, the variables are 'Knowledge of Sundanese/Local Tradition' (*knowt*), 'Knowledge of Sundanese/Indigenous Cosmovision' (*knowcos*), 'Knowledge of *Gotong Royong* Principles and Practices' (*knowgot*), 'Knowledge of the Types of Existing Traditional Institutions' (*ktradinst*), 'Knowledge Levels of the Existing Traditional Institutions' (*ktrad*), 'Knowledge Levels of the Existing Modern Institutions' (*kmod*), 'Form of the Financial Support of the Existing Modern Institutions'(*fmodfo*), 'Form of the Medical Support of the Existing Modern Institutions' (*mmodfo*), 'Beliefs in the Sundanese Tradition for Well-being and Good Life' (*tsundblf*), and 'Beliefs in the Modern Cosmopolitan Life Style for Well-being and Good Life (*mblf*)';
3. In the blocks of perceived variables, the four variables are 'Perceived Needs of Financial Support' (*fpercv*), 'Perceived Needs of Medical Support' (*mpercv*), 'Perceived Needs of Educational Support' (*edpercv*), and 'Perceived Needs of Socio-cultural Support' (*spercv*);
4. In the blocks of enabling variables, the variable is 'Saving Ability' (*monsav*);
5. In the blocks of institutional variables, the four variables are 'Objective of Traditional Community Institutional Systems' (*ob_tinst*), 'Objective of Modern Community Institutional Systems' (*ob_minst)*, 'Objective of Transitional Community Institutional Systems' (*ob_trins)*, and 'Organisational Structure of Modern Institutions' (*orgmod*);
6. In the blocks of environmental variables, the three variables are 'Environmental Locations of the Community' (*enloc*), 'Zonation Locations of the Community' (*zonaloc*), and 'Residential Status in the Community' (*resstat*); and finally,
7. In the blocks of the intervening variables, the variables are 'Infuence of Government/Public Promotion on the Utilisation of Modern Community Institutional Systems' *(gprom_m)* and 'Influence of Commercial/Private Regulation on the Utilisation of Modern Community Institutional Systems' *(pre_m).*

Blocks of the Dependent Variables

8. The block of utilisation of the Traditional Community Institutional System (*Ut_Trad*);
9. The block of utilisation of the Transitional Community Institutional System *(Ut_Trans*);
10. The block of utilisation of the Modern Community Institutional System (*Ut_Mod*).

In order to calculate all the possible correlations between the blocks of variables and to distinguish the associations, multiple regression analysis is applied. It uses the eigenvalue (E_d) of each correlation, which is derived from the individual OVERALS analyses of all possible combinations of the blocks of variables. OVERALS provides an eigenvalue for each dimension (E_d) of the calculation, and forms the basis for the subsequent calculations of the multiple correlation coefficients (r) for each dimension. The formula is applied to the calculation of the multiple correlation coefficients using the 'eigenvalue' with the following formula of '$r = 2 \times E_d - 1$' (*cf*. Van der Burg 1988; Agung 2005; Ibui 2007; Leurs 2010; Djen Amar 2010; Ambaretnani 2012; Chirangi 2013; Aiglsperger 2014; Erwina 2019).

Table 9.3 depicts a list of all multiple correlation coefficients, which have been calculated separately for all the possible combinations of blocks of variables for each dimension. A stepwise regression analysis by the use of the 'eigenvalue' as the multivariate measure of interactions among all the variables concerned is conducted with the assistance of the statistical software of IBM PASW version 22 as the result of the Dimension-Reduction Optimal Scaling statistical technique. The optimal scaling of each of the two blocks of variables is scaled in different levels and an optimally quantified component loading number with dimensions. The first column of Table 9.3 to the left highlights the numbers of the respective blocks of variables, to which an OVERALS analysis is applied. Hereafter, the second column indicates the dimension of the solution, for which the multiple correlation coefficient is calculated. The formula which is used to calculate the multiple correlation coefficient is presented in the third column from the left and is reconstructed for each correlation using the corresponding eigenvalues. As suggested by Cohen (1988, 1992), the values of ρ are presented for each dimension in the last column to the right, whereby the value of r = .10 reveals a weak correlation effect, the value of r = .30 reveals a moderate correlation effect and the value of r = .50 reveals a strong correlation effect. Any correlation coefficients between those values will be interpreted in between the categories. For instance, if the correlation coefficient is .40, the correlation effect can be interpreted as moderate to strong, while the correlation coefficient of .0.25 can be interpreted as a weak to moderate correlation effect. In more detail, Calkins (2005) categorised the coefficient correlations as very highly correlated for r between 0.9 to 1.0, highly correlated for r between 0.7 to 0.9, moderately correlated for r between 0.5 to 0.7, weakly correlated for r between 0.3 to 0.5 and little or hardly correlated for r less then 0.3 to 0 (*cf*. Calkins 2005; Field 2013, Aiglsperger 2014, Erwina 2019).

In general, the eigenvalue reveals that for each dimension, the extent of the correlation between two blocks of variables can be explained by the model as opposed to having occurred by chance. In this respect, the sum of the eigenvalues on both dimensions of each correlation refers to the total 'fit' of the model to the respective variables, whereby a perfect 'fit' equals the number of dimensions chosen (*cf*. Van der Burg 1988; Field 2013; Aiglsperger 2014). Table 8.17 reveals that there are different correlation effects between the independent, intervening and the dependent variables. In practice, these correlations could explain the connections between Community Institutional Systems. For instance, '*Gintingan*' is a traditional community institution, implementing a bottom-up approach in the planning and implementation processes. Local people of the Subang District generally utilise '*Gintingan*' for various purposes by using the *hajatan* (ceremonies/rituals). Its implementation is correlated with a transitional community institution, *i.e.* farmer's cooperative organisation. Paddy rice, which is collected by a 'family in

need' through the '*Gintingan*' institution, will be sold to the farmer's cooperative organisation. This farmer's cooperative organisation can be categorised as a 'transitional institution' as it implements a combination between 'bottom-up' and 'top down' approaches. The initiative of the establishment of this cooperative usually came from the farmers themselves. However, as a cooperative organisation, the farmer should follow the national regulations, which regulate the operation of any cooperative organisation as it is regulated under the Indonesian Laws No. 25/1992 and No. 17/2012.

Table 9.3 List of the Multiple Correlation Coefficients calculated by means of Multiple Regression Analysis of the Ten Blocks of Variables on Two Dimensions (N=345).

Block	< -- >	Block	Dimension	Calculation ($r = 2 \times E_d - 1$)	Multiple Correlation Coefficients (r)
1	< -- >	2	1	r = (2 x 0.746) – 1 = 1.492 -1 =	0.492
			2	r = (2 x 0.643) – 1 = 1.286 -1 =	0.286
1	< -- >	3	1	r = (2 x 0.684) – 1 = 1.368 -1 =	0.368
			2	r = (2 x 0.631) – 1 = 1.262 -1 =	0.262
1	< -- >	4	1	r = (2 x 0.638) – 1 = 1.276 -1 =	0.276
1	< -- >	5	1	r = (2 x 0.826) – 1 = 1.652 -1 =	0.652
			2	r = (2 x 0.605) – 1 = 1.210 -1 =	0.210
1	< -- >	6	1	r = (2 x 0.868) – 1 = 1.736 -1 =	0.736
			2	r = (2 x 0.513) – 1 = 1.026 -1 =	0.026
1	< -- >	7	1	r = (2 x 0.808) – 1 = 1.616 -1 =	0.616
			2	r = (2 x 0.594) – 1 = 1.188 -1 =	0.188
1	< -- >	8	1	r = (2 x 0.609) – 1 = 1.218 – 1 =	0.218
1	< -- >	9	1	r = (2 x 0.652) – 1 = 1.304 -1 =	0.304
1	< -- >	10	1	r = (2 x 0.621) – 1 = 1.242 -1 =	0.242
2	< -- >	3	1	r = (2 x 0.845) – 1 = 1.690 -1 =	0.690
			2	r = (2 x 0.738) – 1 = 1.476 -1 =	0.476
2	< -- >	4	1	r = (2 x 0.655) – 1 = 1.310 -1 =	0.310
2	< -- >	5	1	r = (2 x 0.705) – 1 = 1.410 -1 =	0.410
			2	r = (2 x 0.675) – 1 = 1.350 -1 =	0.350
2	< -- >	6	1	r = (2 x 0.739) – 1 = 1.478 -1 =	0.478
			2	r = (2 x 0.657) – 1 = 1.314 -1 =	0.314
2	< -- >	7	1	r = (2 x 0.724) – 1 = 1.448 -1 =	0.448
			2	r = (2 x 0.612) – 1 = 1.224 -1 =	0.224
2	< -- >	8	1	r = (2 x 0.664) – 1 = 1.328 -1 =	0.328
2	< -- >	9	1	r = (2 x 0.677) – 1 = 1.354 -1 =	0.354
2	< -- >	10	1	r = (2 x 0.701) – 1 = 1.402 -1 =	0.402
3	< -- >	4	1	r = (2 x 0.597) – 1 = 1.194 -1 =	0.194
3	< -- >	5	1	r = (2 x 0.693) – 1 = 1.386 -1 =	0.386
			2	r = (2 x 0.651) – 1 = 1.302 -1 =	0.302
3	< -- >	6	1	r = (2 x 0.720) – 1 = 1.440 -1 =	0.440
			2	r = (2 x 0.561) – 1 = 1.102 -1 =	0.102
3	< -- >	7	1	r = (2 x 0.681) – 1 = 1.362 -1 =	0.362
			2	r = (2 x 0.606) – 1 = 1.212 -1 =	0.212
3	< -- >	8	1	r = (2 x 0.615) – 1 = 1.230 -1 =	0.230
3	< -- >	9	1	r = (2 x 0.693) – 1 = 1.386 -1 =	0.386
3	< -- >	10	1	r = (2 x 0.649) – 1 = 1.298 -1 =	0.298
4	< -- >	5	1	r = (2 x 0.626) – 1 = 1.252 -1 =	0.252
4	< -- >	6	1	r = (2 x 0.612) – 1 = 1.224 -1 =	0.224
4	< -- >	7	1	r = (2 x 0.587) – 1 = 1.174 -1 =	0.174
4	< -- >	8	1	r = (2 x 0.527) – 1 = 1.054 -1 =	0.054

Table 9.3 (*continued*)

Block < -- >Block			Dimension	Calculation ($r = 2 \times E_d - 1$)	Multiple Correlation Coefficients (r)
4	< -- >	9	1	r = (2 x 0.562) – 1 = 1.124 -1 =	0.124
4	< -- >	10	1	r = (2 x 0.542) – 1 = 1.084 -1 =	0.084
5	< -- >	6	1	r = (2 x 0.902) – 1 = 1.804 -1 =	0.804
			2	r = (2 x 0.580) – 1 = 1.160 -1 =	0.160
5	< -- >	7	1	r = (2 x 0.882) – 1 = 1.764 -1 =	0.764
			2	r = (2 x 0.595) – 1 = 1.190 -1 =	0.190
5	< -- >	8	1	r = (2 x 0.667) – 1 = 1.334 -1 =	0.334
5	< -- >	9	1	r = (2 x 0.658) – 1 = 1.316 -1 =	0.316
5	< -- >	10	1	r = (2 x 0.645) – 1 = 1.290 -1 =	0.290
6	< -- >	7	1	r = (2 x 0.901) – 1 = 1.802 -1 =	0.802
			2	r = (2 x 0.580) – 1 = 1.160 -1 =	0.160
6	< -- >	8	1	r = (2 x 0.658) – 1 = 1.290 -1 =	0.290
6	< -- >	9	1	r = (2 x 0.721) – 1 = 1.442 -1 =	0.442
6	< -- >	10	1	r = (2 x 0.636) – 1 = 1.272 -1 =	0.272
7	< -- >	8	1	r = (2 x 0.565) – 1 = 1.130 -1 =	0.130
7	< -- >	9	1	r = (2 x 0.552) – 1 = 1.104 -1 =	0.104
7	< -- >	10	1	r = (2 x 0.561) – 1 = 1.122 -1 =	0.122
8	< -- >	9	1	r = (2 x 0.830) – 1 = 1.660 -1 =	0.660
8	< -- >	10	1	r = (2 x 0.740) – 1 = 1.480 -1 =	0.480
9	< -- >	10	1	r = (2 x 0.667) – 1 = 1.334 -1 =	0.334

Source: Computations based on Fieldwork Survey (2012).

It is not surprising that, as shown in Table 9.3, the correlation effect between Block 8 of the 'Utilisation of Traditional Institutions' and Block 9 of the 'Utilisation of Transitional Institutions' can be categorised as a 'strong' correlation effect as the correlation coefficient is .660, while the correlation between Block 8 of the 'Utilisation of Traditional Institutions' and Block 10 of the 'Utilisation of Modern Institutions' is considered as a 'moderate' correlation effect as the correlation coefficient is .480 while the correlation between Block 9 of the 'Utilisation of Transitional Institutions' with Block 10 of the 'Utilisation of Modern Institutions' is considered as a 'moderate' correlation effect with a correlation coefficient of .334. The results reflect the tendency of local people in the village samples concerning their preferences, to utilise the Traditional Community Institutions as their first preference, followed by the Transitional Community Institutions and lastly the Modern Community Institutions (*cf.* Field 2013; Aiglsperger 2014).

The relationship between Block 5 of the 'Institutional Variables' and Block 6 of the 'Environmental Variables' produces the highest sum of the eigenvalue and strong correlation coefficients on the first dimension, with a correlation coefficient of .804. The second highest sum of eigenvalue and strong correlation coefficients is the relationship between Block 6 of the 'Environmental Variables' and Block 7 of the 'Intervening Variables' on the first dimension, with a correlation coefficient of .802. The third highest sum of eigenvalue and strong correlation coefficients is the relationship between Block 5 of the 'Institutional Variables' and Block 7 of the 'Intervening Variables' with a correlation coefficient of .764. Meanwhile, the relationship between Block 1 of the 'Socio-demographic Variables' and Block 6 of the 'Environmental Variables' produces the fourth highest sum of the eigenvalue and strong correlation coefficient on the first dimension, with a correlation coefficient of .736. The fifth highest sum of the eigenvalue and strong correlation coefficient is the relationship between Block 2 of the 'Psycho-social Variables' and Block 3 of the 'Perceived Variables'.

The relationship between Block 1 of the 'Socio-demographic Variables' and Block 6 of the 'Environmental Variables' produces the lowest sum of the eigenvalue and low correlation coefficient on the second dimension, with a correlation coefficient of .026. It is followed by the second lowest sum of the eigenvalue and lowest correlation coefficient on the relationship between Block 4 of the 'Enabling Variables' and Block 8 of the 'Utilisation of Traditional Community Institutions' with a correlation coefficient of .054. Meanwhile, the relationship between Block 4 of the 'Enabling Variables' and Block 10 of the 'Utilisation of Modern Community Institutions' produces the third lowest sum of the eigenvalue and lowest correlation coefficient, with a correlation coefficient of .084. Nevertheless, the relationship between Block 7 of the 'Intervening Variables' and Block 9 of the 'Utilisation of Transitional Community Institutions' produces the fourth lowest sum of the eigenvalue and correlation coefficient of .104 at the first dimension while the relationship between Block 3 of the 'Perceived Needs Variables' and Block 6 of the 'Environmental Variables' produces the fifth lowest eigenvalue and fourth lowest correlation with the correlation coeffient of .102 at dimension 2 (*cf.* Table 9.2).

9. 2 Analysis of the Model and Interpretation of the Findings

9.2.1 Preferences on the Utilisation of the Community Institutional System

Figure 9.2 shows the overall result of this research, which shows that the roles of Traditional or Indigenous Institutions in Sustainable Community Development in the Subang District of West Java Province of Indonesia have been widely accepted in the preferences of the local people in the study area. The results concluded, from the quantitative analyses of the data collected during the household surveys, that the local people in the four villages of the Subang District of West Java prefer to utilise Traditional Community Institutions, in comparison with the Transitional and the Modern ones. Out of the 345 respondents who were interviewed during the research, 47.5% of them (N=164) have utilised traditional community institutions, whereas 32.5% (N=112) utilised transitional community institutions and only 20% (N=169) prefer to utilise the modern community institutions. The result is somehow similar to the pioneering study by Slikkerveer (1990) in terms of the tendency towards the utilisation of transitional community institutions. Although the overall result from the four villages shows which of the local people in the village samples prefer to utilise traditional community institutions, there are however some people in the village samples, *i.e.* local people of the Bunihayu and Cimanglid villages, who prefer to utilise the transitional community institutions rather than the traditional and modern ones (*cf.* Table 8.5). However, the other two villages show indications that the traditional institutions, particularly in the utilisation of the indigenous institutions of '*Gintingan*' and *Talitihan*, are more to their preference. This finding is also supported by the work of North (1990) as well as Prasad (2003) of the importance of considering Institutional Variables in Development Programmes and Policies (*cf.* Slikkerveer 1990; North 1990; Prasad 2003).

From the approach of the multivariate analysis, Figure 9.2 reveals the multivariate correlations of local people's preferences to utilise the Community Institutional Systems, which is influenced by the six blocks of independent variables and 1 block of intervening variables. The numbers on the arrows are the correlation coefficients, representing each of the correlations, as presented in Table 9.5 earlier. It reveals how each block of variables correlates to another block of variables, particularly to the dependent variables, by means of multiple regressions, which result from a stepwise regression analysis through the Dimension-Reduction Optimal Scaling statistical technique as mentioned earlier. The higher the correlations' coefficient, the higher the strength of its correlation among the block of variables as categorised by Cohen (1988, 1992), Calkins (2005) and Field (2013).

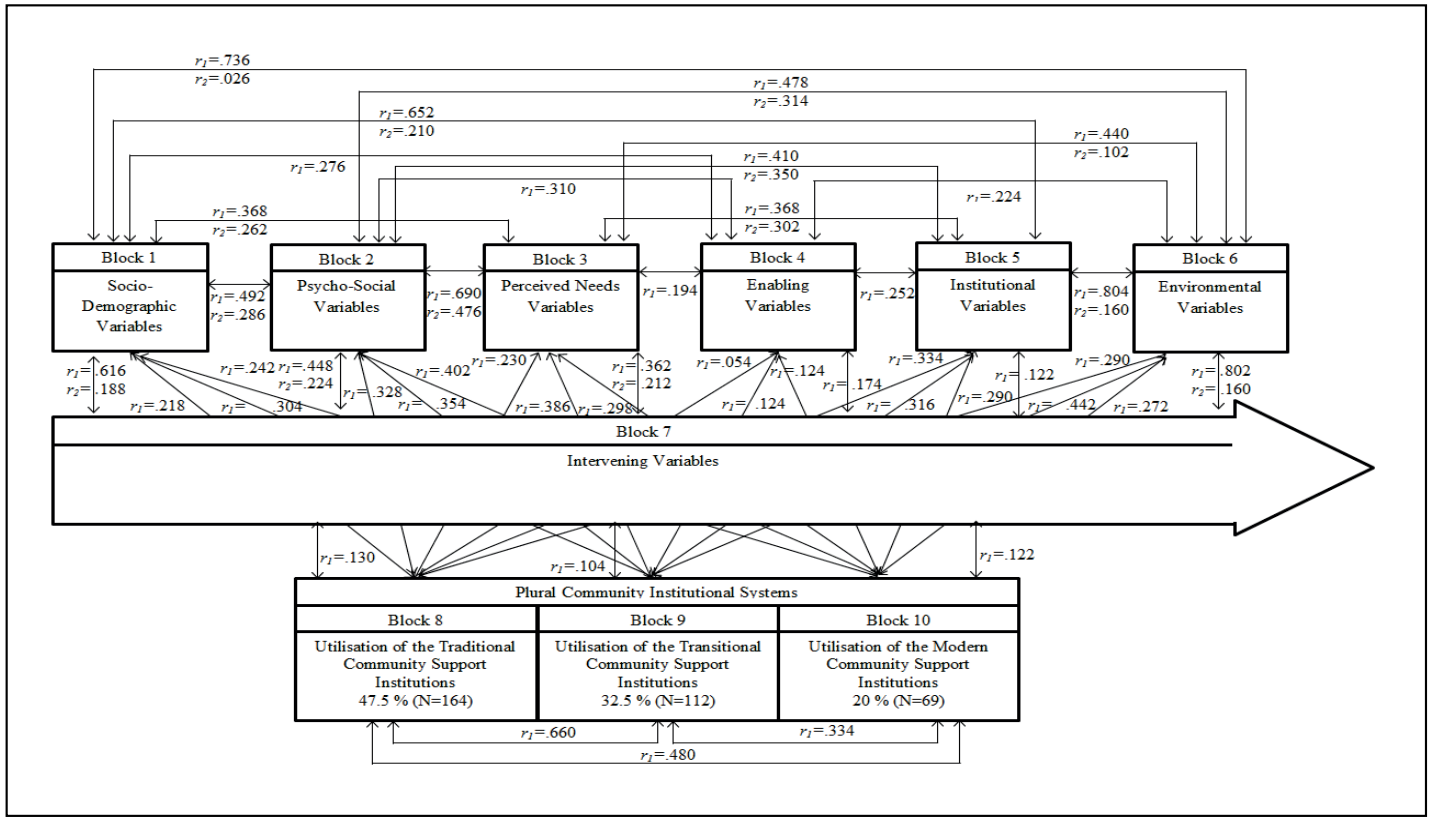

Figure 9.2 The Final Model of the Utilisation Behaviour of Community Institutional Systems indicating the Strength of the Correlations between the Blocks of Variables, based on the Multiple Regression Analysis.
Note: The indicated figures represent *'r'* = the correlation values between the variables.
Source: Computations based on Fieldwork Survey (2012).

2.2 Determinants of the Utilisation Behaviour of the Community Institutional System

As presented in Figure 9.2, the general aim of this research seeks to answer the utilisation behaviour of the local people in the village samples towards Plural Community Institutional Systems, which are represented by the respondents from the four villages in the Subang District of West Java, by looking at the categories of the people under particular circumstances, showing their preferences on the utilisation of Community Institutions. As depicted in Figures 8.2 and 8.4, the 'Utilisation of Traditional Community Institutions' in the four villages of Subang District of West Java, are determined by the independent and the intervening variables. From the 'Socio-demographic Variables', it shows that 'Household Relationship', 'Sex' and 'Profession' of the respondents have influenced people's behaviour in the Utilisation of the Plural Community Institutional Systems.

By using the criteria mentioned in Field (2009), these 'Socio-Demographic Variables' have a 'moderate' correlation to the 'Utilisation of Plural Community Institutional Systems', with a correlation coefficient of .218 with the 'Utilisation of Traditional Community Institutions', a correlation coefficient of .304 with the 'Utilisation of Transitional Community Institutions' and a correlation coefficient of .242 with the 'Utilisation of Modern Institutions'. Similarly, from the 'Pyscho-social Variables, 'Knowledge about Local/Sundanese Traditions', 'Knowledge of Cosmovision', 'Knowledge about *Gotong Royong* Principles and Practices', 'Knowledge about the Existing Traditional Institutions',' Knowledge Levels about the Traditional Institutions', 'Knowledge Levels about the Modern Institutions', 'Form of Financial Support of the Existing Modern Institutions', 'Form of Medical Support of the Existing Modern Institutions', 'Beliefs in the Sundanese Tradition for Well-being and Good Life', and 'Belief in the Modern Cosmopolitan Life Style for Well-being and Good Life', influence local peoples' behaviour in the four village samples, in the Utilisation of Community Institutional Systems.

The 'Psycho-social Variables' have a 'moderate' correlation effect with a coefficient correlation of .328 with the 'Utilisation of Traditional Institutions, a correlation coefficient of .354 with the 'Utilisation of Transitional Institutions' and a correlation coefficient of .402 with the 'Utilisation of Modern Institutions'. Considering the correlation between the 'Perceived Need Variables' and 'Utilisation Behaviour', the study reveals that 'Perceived Needs of Financial Support', 'Perceived Needs of Medical Support', 'Perceived Needs of Educational Support', and 'Perceived Needs of the Socio-cultural support' influence people's behaviour in the 'Utilisation of the existing Community Institutional Systems, with an indication of a 'moderate' correlation effect. The correlation coefficient between perceived needs variables and the utilisation of traditional institutions is .230, whereas the correlation with the transitional Community Institutional Systems is .386 while it is .298 with the modern institutions.

Concerning the determinant factor of the 'Enabling Variables', only the 'Saving Ability' variable statistically significantly influences peoples' behaviour in the 'Utilisation of Community Institutional Systems'. The 'Enabling Variables' has a 'low' correlation effect with the 'Utilisation of the Community Institutional Systems', with a correlation coefficient of .054 with the 'Utilisation of Traditional Institutions', a correlation coefficient of .124 with the 'Utilisation of Transitional Institutions' and a correlation coefficient of .084 with the 'Utilisation of Modern Institutions'. As for the 'Institutional Variables', the correlation between the determinant variables, which are represented by 'The Objective of Traditional Community Institutions', 'The Objective of Modern Community Institutions', 'The Objective of Transitional Community Institutions', and 'The Organisational Structure of Modern Community Institutions', with the 'Utilisation Behaviour of the Local People, in the 'Utilisation of Community Institutional Systems', are considered as a 'moderate' correlation effect, with a correlation coefficient of .334 with the 'Utilisation of Traditional Institutions', a correlation coefficient of .316 with the 'Utilisation of Transitional Institutions' and a correlation coefficient of .290 with the 'Utilisation

of Modern Institutions'. Nevertheless, the last block of independent variables, the 'Environmental Variables', which are represented by the variables of 'Environmental Locations of the Community', 'Zonation Locations of the Community', and 'Residential Status in the Community' have 'moderate' correlation effects to the 'Utilisation of the Traditional Institutions' and the 'Utilisation of Modern Institutions' but a 'strong' correlation effect with the 'Utilisation of Transitional Institutions'. The correlation coefficient between the 'Environmental Variables' with the 'Utilisation of Traditional Institutions' is .290 and .272 respectively with the 'Utilisation of Modern Institutions', whereas the correlation coefficient between the 'Environmental Variables' with the 'Utilisation of Transitional Institutions' is .442.

The Intervening Variables are also influencing peoples' behaviour in the Utilisation of the Community Institutional Systems. However, the correlation coefficient is considered as a 'low' correlation effect, as the correlation between the 'Intervening Variables', which are represented by 'The Influence of Government/Public Promotions on the Utilisation of Modern Institutions' and 'The Influence of Commercial/Private Regulations on the Utilisation of Modern Institutions' are .130 with the 'Utilisation of Traditional Institutions', .104 with the 'Utilisation of Transitional Institutions' and .122 with the 'Utilisation of Modern Institutions'. There are also correlations among the independent variables as well as the intervening and the dependent variables, which are depicted in detail in Figure 9.2. The relationship among the dependent variables is also identified in the model. The correlation between the 'Utilisation of Traditional Community Institutions' and the 'Utilisation of Transitional Community Institutions' is considered a 'very strong' correlation effect with a correlation coefficient of .660 while the correlation between the 'Utilisation of Traditional Community Institutions' and the 'Utilisation of Modern Community Institutions' is considered as a 'strong' correlation effect with a correlation coefficient of .480. Meanwhile, the correlation between the 'Utilisation of Transitional Community Institutions' and the 'Utilisation of Modern Community Institutions' is considered as a 'moderate' correlation effect with a correlation coefficient of .334. There is a tendency that people in the village samples prefer to utilise the traditional community institutions as their first priority, followed by the transitional community institutions and lastly the modern community institutions.

Overall, these findings support the results gained through the bivariate analysis, the mutual relations analysis in Chapter VIII, as well as the multivariate analysis in this Chapter, which illustrate the sum of eigenvalues and the correlation coeffients between the blocks of variables in the utilisation behaviour model of the Plural Community Institutional Systems. The Figure 9.2 presents the final analytical model of the Plural Community Institutional Systems. The groups of variables, which have been identified as determinants of patterns of behaviour, are shown in the respective block of variables, while the correlations (r) between the different blocks of variables, which have been identified during the multiple regression analysis, are illustrated accordingly. In this way, the correlations displayed in the model highlight the validity of the multivariate model, which is applied to the present data, and hereby produces the final, explanatory model of the utilisation preferences towards the Community Institutional Systems, for the sample population of Cimanglid, Sukamelang, Bunihayu, and Mayangan villages.

9.2.3 The Influence of the Qualitative Study on the Behavioural Patterns

The result of the research is rather interesting. In terms of the 'Socio-demographic Variables', it is observed from the field that although the household head poses as the decision maker in the family, where it concerns the utilisation behaviour in the 'Utilisation of Community Institutional Systems', both household head and spouse decide together. Similarly, although the gender factor as represented by the 'sex' variable influences the utilisation behaviour, the local people in the village samples cooperate with each other in the 'Utilisation of the Community Institutional

Systems', through a mechanism called '*Gotong-Royong*' ('Communal and Mutual Assistance'). In the practice of '*Gintingan*', for instance, the male and female are both involved in all the activities: from the meeting activities to the collection of the paddy contribution from the neighbour and also the involvement in conducting the rituals/ceremonies which are related to the implementation of the indigenous institution of '*Gintingan*'. The influence of *Gotong Royong* on the Utilisation of Community Institutional Systems supports the earlier work by Geertz (1983) as well as Teffo (2012) and Slikkerveer (2019), which both elaborate that *Gotong Royong* not only motivates the people in supporting the community members, but also became a specific local culture, which the local people would like to preserve. It is not surprising that the elder people in Cimanglid village for instance, said that the risk of 'losing social cohesion' and 'impersonal communication' are the reasons why the people tend to avoid any transaction with Modern Community Institutions, *i.e.* banking institutions, credit unions and insurance companies (*cf.* Geertz 1983; Teffo 2012; Slikkerveer 2019).

The result of this study also reveals that the utilisation of traditional institutions is also predominantly determined by the 'Environmental Locations'. People in the rural areas are mostly showing their tendency to utilise the traditional institutions more so than the urban ones. In this research, about half of the sample in the rural area preferred to utilise the 'Traditional Community Institutions', while more than half in the semi-rural/urban preferred to utilise 'Traditional Community Institutions' rather than modern ones. This result supports the work of Victor & Hope (2011) and Teffo (2012) which reveals that local people in the rural area of Africa, where kinship and community ties are still extensively practiced, tend to work with the traditional or local institutions. An earlier study of '*Gintingan*' in the Binong Sub-district of the Subang District of West Java Province of Indonesia by Wijaya (2010) also indicated a similar result. People in the rural area are showing their tendencies to utilise traditional institutions in the Subang District. Similarly, places close to the mountainous and coastal areas are more likely to utilise traditional institutions rather than modern ones. This could also be observed from the four village samples. People in Cimanglid village for instance prefer to utilise traditional institutions, *i.e.* the indigenous institutions of '*Gintingan*' and '*Andilan'*, rather than the modern institutions, *i.e.* Banking, Credit and Insurance Institutions. In Cimanglid, people prefer to utilise *'Andilan'* and *Gotong Royong* in building houses, rather than utilise any banking product to get housing credit or mortgages (*cf.* Wijaya 2010; Victor & Hope 2011; Teffo 2012). The utilisation behaviour of the people in the four village samples was also influenced mostly by the 'Psycho-social Variables' as mentioned earlier. Knowledge, Perceptions and Beliefs, including Cosmovision, are still influencing peoples' behaviour in the villages, which also motivates them to have preferences in the utilisation of 'Plural Community Institutional Systems'. As indicated by Wijaya (2010), the implementation of *Gintingan* was also led by the fact that people in the rural area of Subang are still implementing their religious beliefs in their daily life and activities. According to the interview with the representative of the elder people of Sukamelang Village, the reason why the community members are still using traditional institutions is because of their knowledge of the institutions which were introduced and practiced by them from one generation to another. The traditional institutions contribute not only to solve their economic problem, but also to preserve social interaction among the community members. The practice of the indigenous institution of *Gintingan* maintains the 'care' factor among the neighbours and becomes part of the representation of the Sundanese cultural wisdom of the *silih asah* (reciprocal learn), *silih asih* (reciprocal love) and *silih asuh* (reciprocal care). This belief was also mentioned earlier by Irawan (1999) in his study of how *Gintingan* could preserve the Sundanese arts in the Subang District. In addition to that, the Sundanese cosmology of *Tritangtu* influences the practice of *Gintingan* as it has been elaborated in the earlier chapter. It maintains the harmonious relationship between the people, the gods and the universe (*cf.* Irawan 1999; Wijaya 2010; Saefullah, *pers. comm* 2012).

Nevertheless, the 'Institutional Variables' have also influenced the utilisation behaviour of the community members in the four village samples of the Subang District. It relates to the objective of the establishment and the practice of the institutions for the people in the community. During an interview with the informal leader of Cimanglid Village, he stated that the ability of traditional community institutions to maintain social cohesion and to preserve personal interactions in the neighbourhood are the main reasons why the local people prefer to utilise the traditional institutions (Saefullah, *pers. comm* 2012). Unlike modern institutions which - in general - accommodate the needs of the people through impersonal transactions and professional interactions, traditional institutions tend to appreciate the social aspects of the people and their activities. Therefore, the traditional institutions fulfil not only the material needs of the people, but also the spiritual and the social needs. This is also similar to the explanation by the community leader in the villages of Sukamelang, Mayangan and Bunihayu. The results support the work of White (2010) who promotes the redefinition of the concept of well-being as an objective of any development programme, particularly in developing countries, including Indonesia. Although the economic needs might be the initial reason of the people to utilise traditional institutions, the interviews with the key informants, the participative observations during the fieldwork, as well as the practices of the indigenous institution of *Gintingan* indicate quite the contrary, that the role of traditional institutions is beyond the fulfilment of any material need. This is why this research has a different conclusion with the earlier research of Irawan (1999) which defined *Gintingan* as a rotation system of mutual help, such as *Arisan* (mutual rotation system of saving and borrowing), or the conclusion by the study of Prasetyo (2012), which defined *Gintingan* as a traditional economic system. This research indicates that 'Traditional Community Institutions', *i.e. Gintingan* is a socio-economic and cultural institution, implemented through mutual voluntary assistance, and aims to preserve social cohesion and communality among community members. It represents an example of how the local people in the village samples maintain a harmonious balance between the human, natural and spiritual world, based on their indigenous cosmology (*cf.* Agung 2005; Sumardjo 2010; Prasetyo 2012).

It is not surprising that concerning the 'Enabling Variables', Socio-Economic Status (SES) is found to be statistically insignificant in the utilisation behaviour of the people. People in the four village samples who are involved in the practice of '*Gintingan*' are coming from various socio-economic backgrounds. As indicated in the interview with the local community leader in the four village samples, although the practice of '*Gintingan*' could help the poor through the *Gotong-royong* activity, the involvement of *Gintingan* is more likely caused by the motive of social cohesion. This is confirmed through the interview with the *Lurah* of Sukamelang village, who explained that peoples' utilisation of *Gintingan* is led by cultural and customary reasons, and is not dominated by economic reasons, although it involves the use of material goods, *i.a.* paddy rice and money. However, the *kelurahan* (local administrative government) is not involves in any practice of *Gintingan*. Concerning the influence of the 'Intervening Variables' to the utilisation behaviours towards the utilisation of Traditional, Transitional and Modern Institutions, only two variables are indicated as statistically significant in influencing peoples' utilisation behaviour: 'The Influence of Government/Public Promotion on the Utilisation of Modern Institutions' and 'The Influence of Commercial/Private Regulation on the Utilisation of Modern Institutions'. One of the reasons why the local people do not want to utilise the modern institutions is because complicated bureaucracy and the rather detailed administrative procedures are required in the practice of Modern Institutions (Saefullah, *pers. comm* 2012). The study has also found a confirmation of the results between the quantitative survey with the qualitative explanations during the field work, through both participative and non-participative observations, in-depth interviews, including with some previous researchers as mentioned before.