Chapter 10

APPENDIX FACTOR ANALYSIS

Below is an example of what a factor analysis looks like using sample data provided as part of the Fair Trade example. In this survey there are 10 items that have been adapted from a scale about measuring perceived value. The original scale by Sweeney and Soutar (2001) included 19 items covering 5 dimensions of value and the students in this project used 10 of these items which they believe measures 2 dimensions economic value (4 items) and quality (6 items). They want to make sure that these in fact measure the dimensions that are suggested. The ANOVA analysis provides a lot of detail and we will briefly explain a few of the tables produced. In Panel A the program reports how many factors (or variables) seem to exist in the data. We have used the rule of thumb where the Eigen value needs to be greater than 1 which suggests there are 2 factors or variables. These are found to explain 72% of the variance in the data component. Factor One explains 55.372 of the variance and Factor Two explains 17.556%. Panel B reports how the individual items load on these two factors. The number is referred to as the loading or loading weight. The data is then rotated to allow it to fit the data better (you would need to select the rotation method and the discussion of the rotations is beyond this chapter). The rotated factor structure is presented in Panel C. This is then used to identify what items comprise what factors or variables. A rule of thumb is that for an item to be considered to be included in a factor the loading should be greater than .4 **AND** not load on more than one factor. Panel C suggests that Factor One comprises four items (bolded in the column labelled Factor 1) and Factor Two comprises 2 items bolded in the column labeled Factor 2. Four items (highlighted in green) loaded on both factors and thus would be excluded from the definition of the composite measures, in later analysis. It is important to identify that even though the students used an existing scale it did not measure things in the same ways as it was proposed by (Sweeney & Soutar 2001). Factor 1 – Economic Value- comprised the same four items suggested initially, however Factor 2- Quality- only comprised two of the proposed six items. This could have occurred because the students did not include all the items initially used (as they excluded three components of the measure), or that value does not hold in the same way within this context, with this sample.

APENDIX Figure 10.1- Factor Analysis

Panel A

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.537	55.372	55.372	5.537	55.372	55.372	4.766	47.656	47.656
2	1.756	17.556	72.928	1.756	17.556	72.928	2.527	25.272	72.928
3	.837	8.373	81.301						
4	.454	4.541	85.842						
5	.360	3.597	89.439						
6	.308	3.080	92.519						
7	.236	2.365	94.883						
8	.208	2.075	96.959						
9	.166	1.658	98.617						
10	.138	1.383	100.000						

Extraction Method: Principal Component Analysis.

Panel B

Component Matrix[a]

	Component	
	1	2
10.1 This shoe...- is reasonably priced	.784	-.402
10.2 This shoe...-offers value for money	.807	-.388
10.3 This shoe...-is a good product for the price	.827	-.332
10.4 This shoe...-would be economical	.839	-.310
10.5 This shoe...-has consistent quality	.812	.184
10.6 This shoe...-is well made	.805	.270
10.7 This shoe...-has an acceptable standard of quality	.824	.192
10.8 This shoe...-has poor workmanship	.404	.680
10.9 This shoe...-would not last a long time	.250	.767
10.10 This shoe...-would perform consistently	.820	.208

Extraction Method: Principal Component Analysis.
a. 2 components extracted.

Panel C

Rotated Component Matrix[a]

	Component	
	1	2
10.1 This shoe...- is reasonably priced	**.881**	-.005
10.2 This shoe...-offers value for money	**.895**	.019
10.3 This shoe...-is a good product for the price	**.887**	.078
10.4 This shoe...-would be economical	**.888**	.102
10.5 This shoe...-has consistent quality	.641	.531
10.6 This shoe...-is well made	.597	.605
10.7 This shoe...-has an acceptable standard of quality	.648	.544
10.8 This shoe...-has poor workmanship	.053	**.789**
10.9 This shoe...-would not last a long time	-.123	**.797**
10.10 This shoe...-would perform consistently	.638	.556

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Sweeney, J. C., & Soutar, G. N. (2001). Consumer perceived value: The development of a multiple item scale. Journal of retailing, 77(2), 203-220.