Kilger

MKT6971 2 credit course

Practicum I second semester

Exercise #3

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This third exercise is to give you practice at creating and extracting a single construct (abstract constructs) from multiple variables.

You can copy and edit code from exercise 2 that created the variables for the market segmentation project and create a temporary SAS system file that you can then append your code for PROC FACTOR (your PCA analysis) to.

1. Run your PCA analysis on the eight or more variables that make up the abstract construct variables that you named in exercise #1 and extracted in exercise #2. Then answer the following questions:
2. Decide which extraction technique to use and tell me why

The principal component analysis is used to extract features. This method calculates the correlation matrix of the eigenvalues. Each factor has an eigenvalue associated with it, and this value represents the amount of total variance that can be explained by that factor. We use the Kaiser criterion (eigenvalue >= 1) to determine how many factors to keep.

1. Decide which rotation method you are going to use and why

The varimax rotation method is used to help us better identify which variable in the factor pattern goes with its respective factor.

1. Run the PCA analysis.
   1. What is the criteria for determining that a factor was extracted?

The eigenvalue must be >= 1. Once these factors are extracted, their cumulative percentage must explain > 50% of the variance.

* 1. How many factors were extracted – hopefully just two factors? Was it the number you expected? If not, you may have to replace a variable or two that was not working and may have caused the excess number of factors and rerun it. Cut and paste the eigenvalue table.

Two factors were extracted, and this was my expectation.

A screenshot of a graph

Description automatically generated

* 1. What percentage of the variance was explained by the extracted factors?

The percentage of the variance that can be explained is **61.26%.**

* 1. Make a not so pretty scree plot in SAS. How do you interpret it? Cut and paste it.

A graph with numbers and lines

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* 1. Find the correct Factor Pattern matrix and cut it and paste it. Circle which variables go with which factor.

A screenshot of a table

Description automatically generated

* 1. Interpret the two factors extracted.

Factor 1 describes an individual’s attitude towards being environmentally conscious, and factor 2 describes an individual’s attitude towards online shopping. Factor 1 is showing mostly fabulous associations with its variables, except for recycle\_prods (decent association). Factor 2 is showing mostly good associations with its variables.

* 1. Turn in your report and the code that created the output.