**Aklima’s Data Analysis**

|  |  |
| --- | --- |
| **Kaiser-Meyer-Olkin factor adequacy** | |
| MSA | 0.58 |
| **Bartlett test of homogeneity of variances** | |
| Bartlett's K-squared | 19.723 |
| df | 7 |
| p-value | 0.0062 |

|  |  |  |
| --- | --- | --- |
| Low Adequacy | Moderate | High Adequecy |
| 0-0.5 | 0.5-0.6 | 0.6-1.0 |

Principle component Analysis (PCA)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Total Variance** | | | | | | | | |
|  | PC1 | PC2 | PC3 | PC4 | PC5 | PC6 | PC7 | PC8 |
| Standard deviation | 2.654339 | 0.718835 | 0.503896 | 0.360108 | 0.224998292 | 0.055938 | 0.02014669 | 0.003362 |
| Proportion of Variance | 0.88069 | 0.06459 | 0.03174 | 0.01621 | 0.00633 | 0.00039 | 5.00E-05 | 0 |
| Cumulative Proportion | 0.88069 | 0.94528 | 0.97702 | 0.99323 | 0.99956 | 0.99995 | 1 | 1 |
| \*\*\*94.5% explained in first two components | | | | | | | | |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Loadings** | | | | | | | | | |
|  | PC1 | PC2 | PC3 | PC4 | PC5 | PC6 | PC7 | PC8 |
| Uttara | -0.27588 | -0.93991 | 0.164119 | -0.02804 | -0.080532138 | 0.074601 | 0.021679971 | 0.014644 |
| Banani | -0.36376 | 0.138314 | 0.294202 | 0.521917 | -0.094456564 | 0.065485 | -0.365057896 | -0.58576 |
| Mokkarom.Vobon..DU | -0.37347 | 0.083273 | 0.140396 | -0.1368 | 0.341957064 | -0.24184 | -0.620469954 | 0.504732 |
| Demra | -0.36999 | 0.037293 | -0.10899 | 0.103515 | 0.773128579 | 0.10491 | 0.463264407 | -0.12559 |
| Bank.of.Buriganga.River | -0.36244 | 0.100175 | -0.46512 | -0.29282 | -0.184640089 | 0.695687 | -0.1953923 | -0.01646 |
| Kamrangir.Chor | -0.35324 | -0.0353 | -0.65025 | 0.251428 | -0.27045362 | -0.55192 | 0.096152452 | 0.030449 |
| Jahangirnagar.University | -0.35802 | 0.162899 | 0.274899 | -0.69175 | -0.178354682 | -0.31786 | 0.195922275 | -0.34636 |
| Amin.Bazar | -0.36176 | 0.226477 | 0.374415 | 0.264403 | -0.36177698 | 0.176143 | 0.425272682 | 0.514761 |

![Chart, histogram

Description automatically generated]()

Fig 3: Scree plots explained that majority of variances explained in first two component

![Chart

Description automatically generated]()

Fig 4: PCA loading plots of first two components

HierarchicalCluster Analysis

Optimum cluster determination test (using ‘NbClust’ function on ‘R-language’)

![Chart

Description automatically generated]()

Fig 5: Optimum number of Clusters (in here it was 2)

Chart, box and whisker chart

Description automatically generated

Fig 6: Hierarchical Cluster Analysis (HCA) with 2 cluster