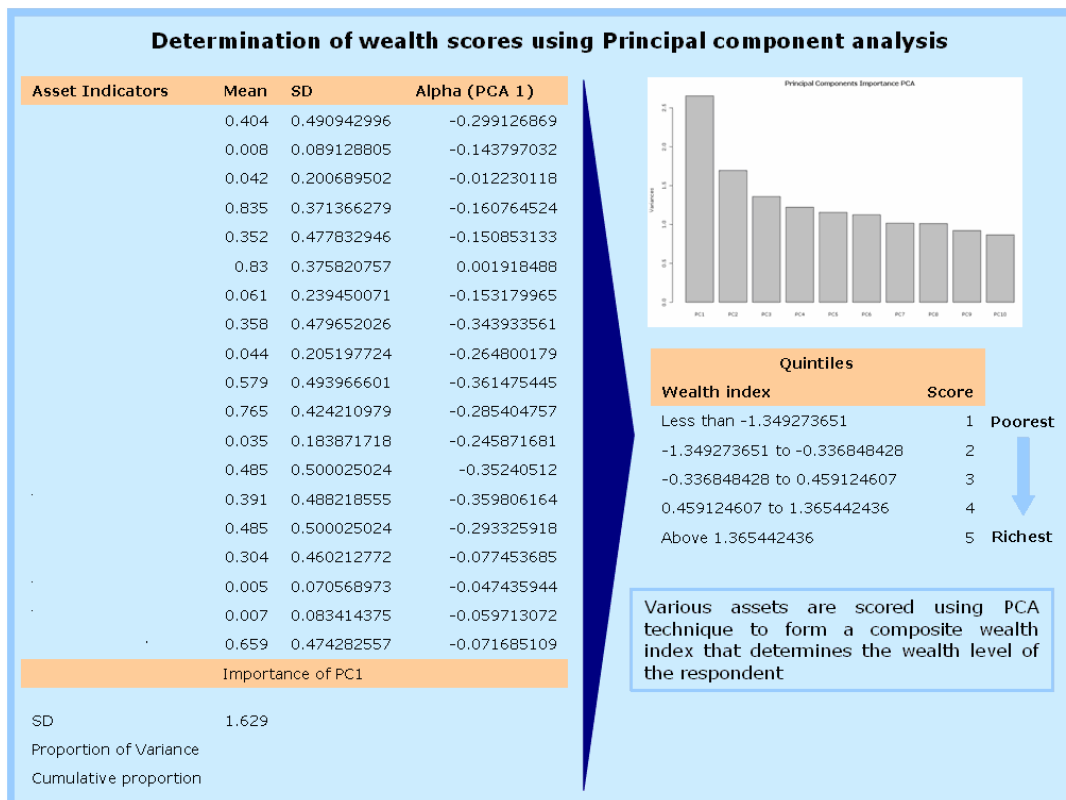# Case study : Principal component analysis to devise asset based proxy indicator for a leading SMS based job search business

The income and expense variables in the surveys will normally show a relatively high proportion of missing values due to non-response, substantially reducing the number of valid cases in multivariate statistical analyses that include the income variable. Such a loss on a key predictor variable is serious as it means that all substantive analysis is deprived of many cases that would otherwise be available for analysis.

Our client approached us to design a technique that would enable them to collect information which would qualify the well being of their customers. Aaum advised our client to collect information on household assets with the aim of obtaining more precise measures of economic well-being on the largest possible proportion of respondents. With this information, we have constructed quintiles using Principal component analysis to qualify the customers of our client that have enabled them to direct their marketing activities.

Determination of wealth scores using Principal component analysis

Asset Indicators	Mean	SD	Alpha (PCA 1)
	0.404	0.490942996	-0.299126869
	0.008	0.089128805	-0.143797032
	0.042	0.200689502	-0.012230118
	0.835	0.371366279	-0.160764524
	0.352	0.477832946	-0.150853133
	0.83	0.375820757	0.001918488
	0.061	0.239450071	-0.153179965
	0.358	0.479652026	-0.343933561
	0.044	0.205197724	-0.264800179
	0.579	0.493966601	-0.361475445
	0.765	0.424210979	-0.285404757
	0.035	0.183871718	-0.245871681
	0.485	0.500025024	-0.35240512
	0.391	0.488218555	-0.359806164
	0.485	0.500025024	-0.293325918
	0.304	0.460212772	-0.077453685
	0.005	0.070568973	-0.047435944
	0.007	0.083414375	-0.059713072
	0.659	0.474282557	-0.071685109

Importance of PC1

SD	1.629
Proportion of Variance	
Cumulative proportion	

Principal Components Importance PCA

Quintiles

Wealth index	Score	
Less than -1.349273651	1	Poorest
-1.349273651 to -0.336848428	2	
-0.336848428 to 0.459124607	3	
0.459124607 to 1.365442436	4	
Above 1.365442436	5	Richest

Various assets are scored using PCA technique to form a composite wealth index that determines the wealth level of the respondent

Please write to info@aaumanalytics.com if you are interested in knowing further details.