

General ideas on dimensional analysis¹

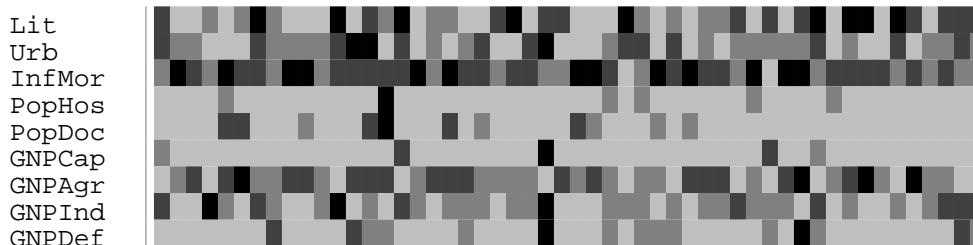
Example: Principal component analysis
Data: Subset of the globe data set (African countries)

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>DESCRIBE ALL
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Seq#	TPD	N tie	Label	descriptor
# 1	177		Lit	Literacy Rate
# 2	177		Urb	Urbanization
# 3	177		PopHos	Population/Hospital
# 4	177		PopDoc	Population/Physician
# 5	177		GNPCap	GNP per capita
# 6	177		GNPAgr	%GNP for Agriculture
# 7	177		GNPInd	%GNP for Industry
# 8	177		GNPDef	%GNP for Defense
# 9	177		InfMor	Infant Mortality

```
>LIST 1-9 BINS
```

```
52 countries  
Bins of of equal width; Symbols: ■■■  
AABBBBCCCCCDEEGGGGIIKLLLMMMMMMNNRSSSSSSSTTTTUWZZZ  
LNNTURMVAHMNJQTBMHNNVNSBBDLARRRZAGGWTNYRMADWNONGSAMI  
GGISRNRRFARGIGHOBNEBCYTRYGWLTTTCBMERNPGCLLFAAZGSNaIBM  
RLNKNKDNDRDSOBNPNAAAATAOAAAS I INSOQIRADRLHEARNZNOADhRAB
```



```
>LIST 3 7 2 1 4 5 6 8 9 BINS SORT
```

```
52 countries  
Bins of of equal width; Symbols: ■■■  
SMSMSBTGLKZCAZMWCZILUTNSGCBTEBRNSCLEGMSNACBSMCGMGMS  
YRTDATNHBNIIVLMRSMVAVSGNADBNNOTRWGWMBQNRJNGNHUMZANLMAR  
CTPGFSSNYMRGBCaR ICTNZMAOGIGHNNRARRGBTIGEGARLBFEBLL  
HSRSRNAAAABDRAOhSR TODNINNONOPDDAZNANSNBLRLDKAQRAIAIE
```




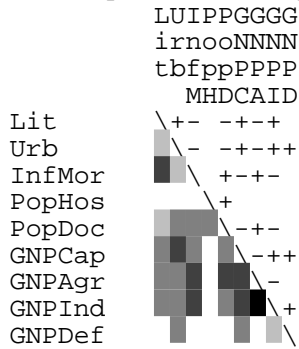
>MATRIX LIST CODED

MATRIX Pearson corr.(mean) contains similarities

Coefficient min=-1.0 max=1.0

Upper triangle shows sign of coeff.

Each symbol corresponds to an interval of width=0.2 : 



>FACTOR

52 countries

9x 9 MATRIX: Pearson corr.(mean) S stored (N= 52)

Factor Analysis of WA: Globe Data set

Matrix analyzed: Pearson corr.(mean) S,# of variables= 9

Principal component analysis

	Eigenvalues	explanation	ratio	cum%	
1	3.9880455	44.31%	44.31%	44.31%	*****
2	1.3716227	15.24%	59.55%	59.55%	*****
3	1.0693258	11.88%	71.43%	71.43%	*****
4	0.8696414	9.66%	81.10%	81.10%	*****
5	0.5056241	5.62%	86.71%	86.71%	*****
6	0.4163603	4.63%	91.34%	91.34%	*****
7	0.3933410	4.37%	95.71%	95.71%	*****
8	0.2658658	2.95%	98.66%	98.66%	*****

3 Factor solution computed (stored as C1).

Factor scores computed (stored as C2).

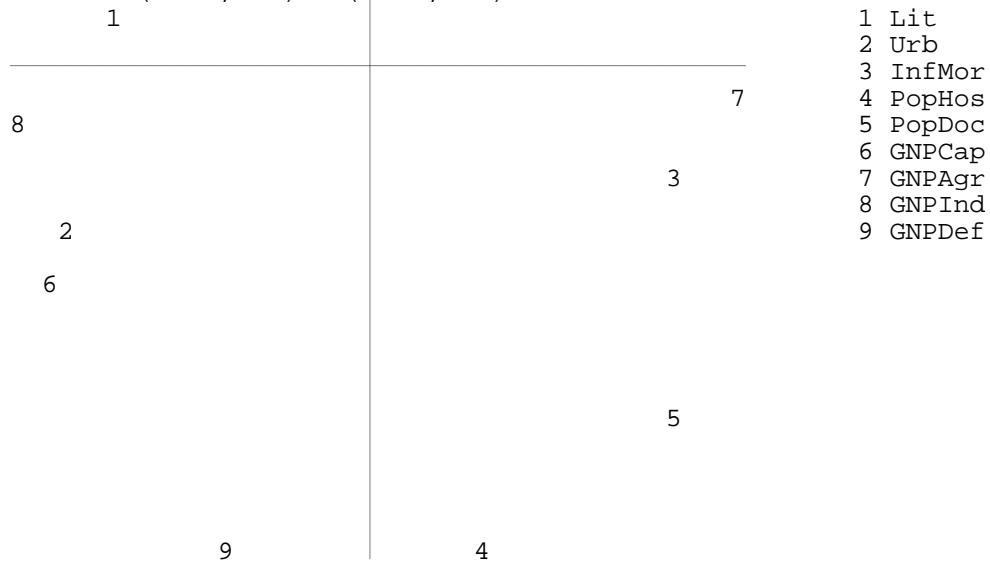
>C1 LIST CODED

Configuration :Princ components

	Dim01	Dim02	Dim03
GNPInd	-----		-
GNPCap	-----	--	
Urb	-----	-	+++
Lit	-----		
GNPDef	--	-----	+++
PopHos	+	-----	----
PopDoc	+++++	---	-
InfMor	+++++	-	+++
GNPAgr	+++++		++

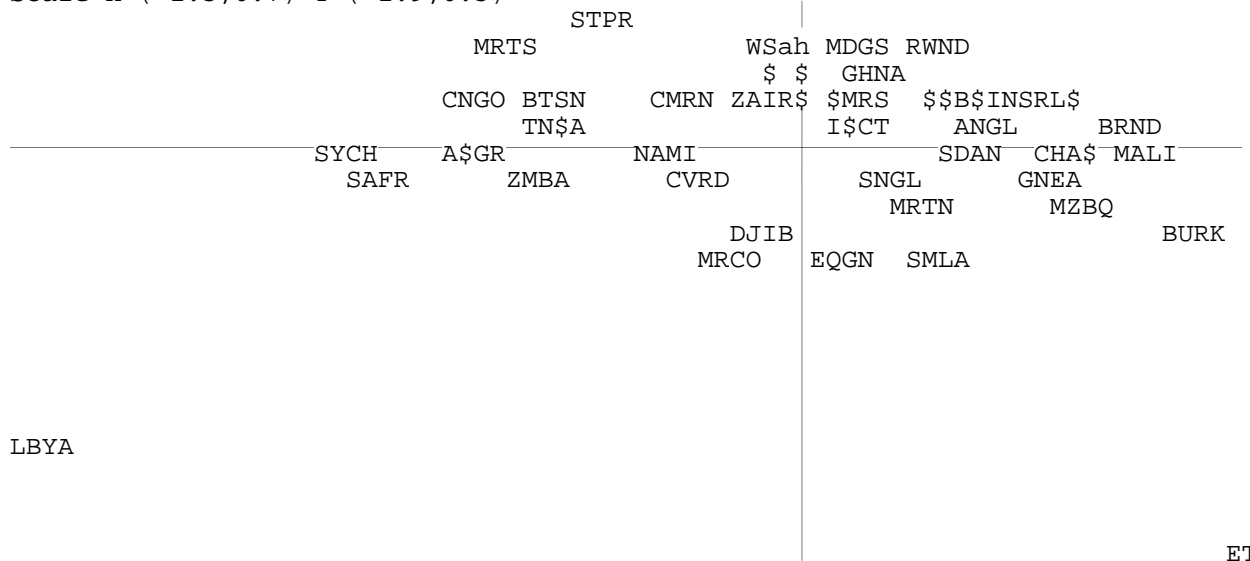
>C1 1 2 PLOT

Plot of:dim1 against dim2 C: Princ components
 Variables are numbered from 1 to 9
 Scale X=(-0.8,0.8) Y=(-0.7,0.1)



>C2 1 2 PLOT FULL

Plot of:dim1 against dim2 C: scores
 Scale X=(-1.3,0.7) Y=(-1.9,0.5)



>PLOT 10 2 CASID FULL X=55

```

52 countries
Plot of Dim01( 10) with Urb( 2)
>>> All countries shown.
75.9      One tick on x =0.0 units, on y =3.7
LBYA

```

U
r
b

