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Trabajo Práctico N° 6

Ejercicio 1.

Estimar el modelo factorial para la base de datos "eurosec.dta", de acuerdo con el número de factores resultantes del proceso de selección de modelos introducido por Schwarz (1978). Obtener, luego, la matriz ortogonal C_{mxm} verificando que las cargas asociadas a cada factor presenten la máxima varianza posible. Finalmente, estimar el vector de factores correspondiente al ajuste efectuado.

El número de factores resultantes del proceso de selección de modelos introducido por Schwarz (1978) es 5.

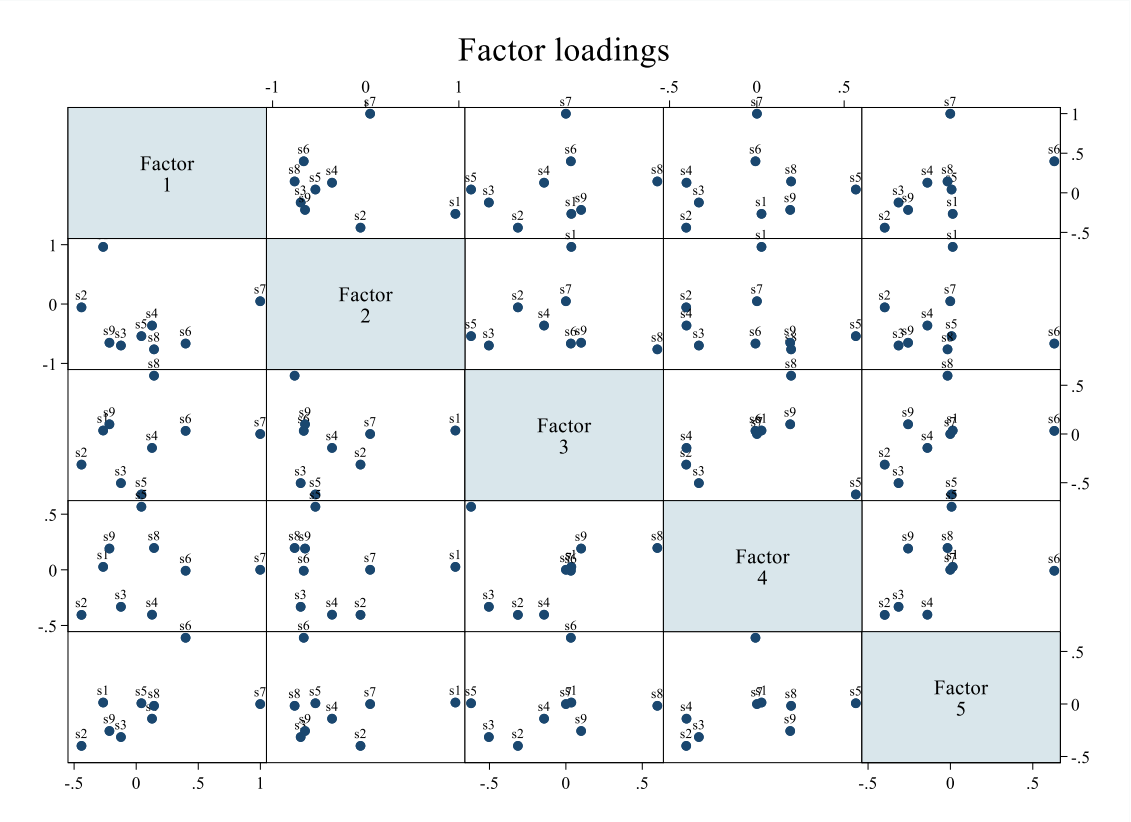
```
Test for multivariate normality

    Mardia mSkewness =  47.01711   chi2(165) =  232.414   Prob>chi2 =  0.0004
    Mardia mKurtosis =  103.1088     chi2(1) =    0.554   Prob>chi2 =  0.4566
    Henze-Zirkler    =  .9273321     chi2(1) =    0.274   Prob>chi2 =  0.6009
    Doornik-Hansen                  chi2(18) =   38.365   Prob>chi2 =  0.0035
```

Por lo tanto, para los tests Mardia mSkewness y Doornik-Hansen, con un nivel de significancia del 1%, estos datos aportan evidencia suficiente para indicar que no tienen una distribución normal multivariada, mientras que, para los tests Mardia mKurtosis y Henze-Zirkler, con un nivel de significancia del 10%, estos datos no aportan evidencia suficiente para indicar que no tienen una distribución normal multivariada.

```
Factor analysis/correlation                       Number of obs    =         26
    Method: maximum likelihood                    Retained factors =          5
    Rotation: (unrotated)                         Number of params =         35
                                                  Schwarz's BIC    =    242.486
    Log likelihood = -64.22616                    (Akaike's) AIC   =    198.452


Warning: Solution is a Heywood case; that is, invalid or boundary values of
uniqueness.

    ------------------------------------------------------------------------------
         Factor  |   Eigenvalue   Difference        Proportion   Cumulative
    -------------+----------------------------------------------------------------
        Factor1  |      1.52115     -1.77206            0.2023       0.2023
        Factor2  |      3.29322      2.16506            0.4381       0.6404
        Factor3  |      1.12816      0.29455            0.1501       0.7905
        Factor4  |      0.83361      0.09196            0.1109       0.9013
        Factor5  |      0.74164            .            0.0987       1.0000
    ------------------------------------------------------------------------------
    LR test: independent vs. saturated:  chi2(36) =  287.00 Prob>chi2 = 0.0000
    LR test:   5 factors vs. saturated:  chi2(1)  =   93.05 Prob>chi2 = 0.0000
    (tests formally not valid because a Heywood case was encountered)
```

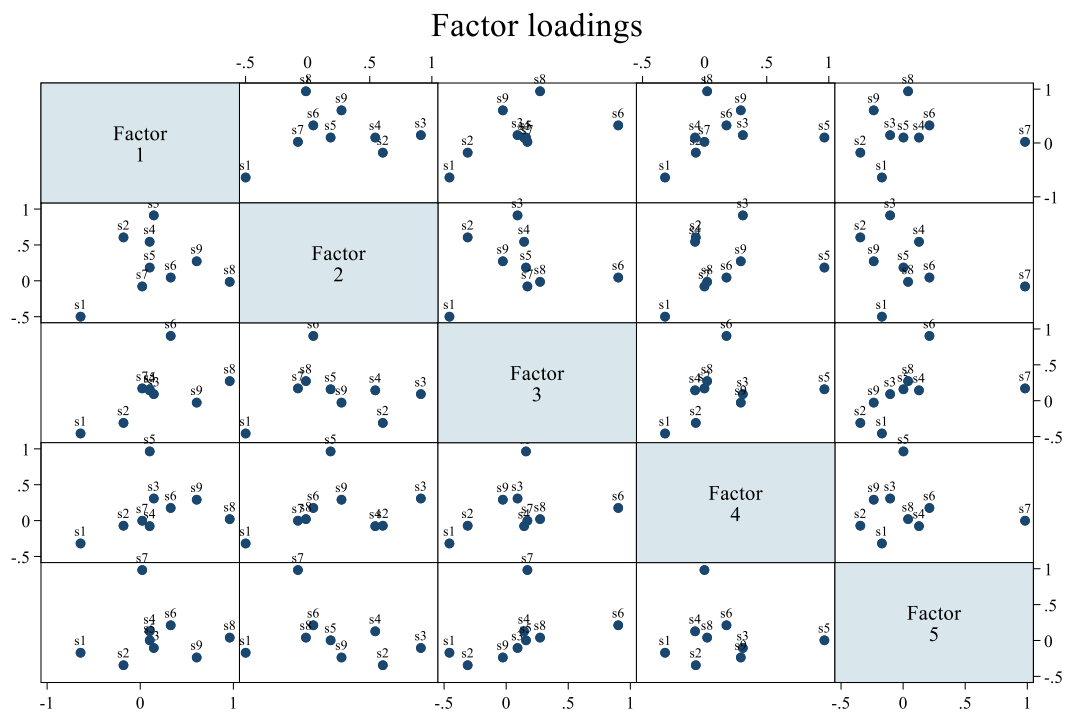
Factor loadings (pattern matrix) and unique variances

Variable	Factor1	Factor2	Factor3	Factor4	Factor5	Uniqueness
s1	-0.2659	0.9629	0.0356	0.0267	0.0139	0.0000
s2	-0.4405	-0.0559	-0.3140	-0.4046	-0.3988	0.3815
s3	-0.1227	-0.6985	-0.5040	-0.3321	-0.3148	0.0337
s4	0.1273	-0.3618	-0.1427	-0.4032	-0.1399	0.6504
s5	0.0418	-0.5404	-0.6204	0.5668	0.0071	0.0000
s6	0.3981	-0.6656	0.0325	-0.0080	0.6304	0.0000
s7	0.9989	0.0475	0.0002	0.0006	-0.0008	0.0000
s8	0.1438	-0.7632	0.5984	0.1961	-0.0173	0.0000
s9	-0.2156	-0.6515	0.0998	0.1911	-0.2569	0.4166



Factor rotation matrix

	Factor1	Factor2	Factor3	Factor4	Factor5
Factor1	0.0531	-0.0549	0.1924	0.0136	0.9783
Factor2	-0.6777	-0.4943	-0.4266	-0.3240	0.0974
Factor3	0.6435	-0.4475	-0.0440	-0.6180	-0.0428
Factor4	0.2368	-0.6263	-0.1982	0.7156	-0.0189
Factor5	-0.2604	-0.4002	0.8601	-0.0304	-0.1770



Scoring coefficients (method = regression; based on unrotated factors)

Variable	Factor1	Factor2	Factor3	Factor4	Factor5
s1	-0.04594	0.94092	0.69797	1.65016	1.00522
s2	-0.00006	0.00005	0.00001	-0.00004	-0.00004
s3	-0.00041	0.00041	0.00008	-0.00027	-0.00028
s4	-0.00002	0.00002	0.00000	-0.00001	-0.00001
s5	0.00016	-0.01895	-0.43866	1.26563	0.01842
s6	0.00204	-0.02196	0.02186	-0.01714	1.55980
s7	0.98770	0.27076	0.02651	0.21822	-0.33685
s8	0.00205	-0.07422	1.17366	1.21456	-0.12570
s9	-0.00008	0.00008	0.00002	-0.00005	-0.00005

Ejercicio 2.

Aplicar el contraste empleado en el primer ejercicio a los datos correspondientes al Problem Set anterior. Explicar, brevemente, el resultado obtenido. ¿Cuáles son las conclusiones al respecto?

Ejercicio 1:

El número de factores resultantes del proceso de selección de modelos introducido por Schwarz (1978) es 4.

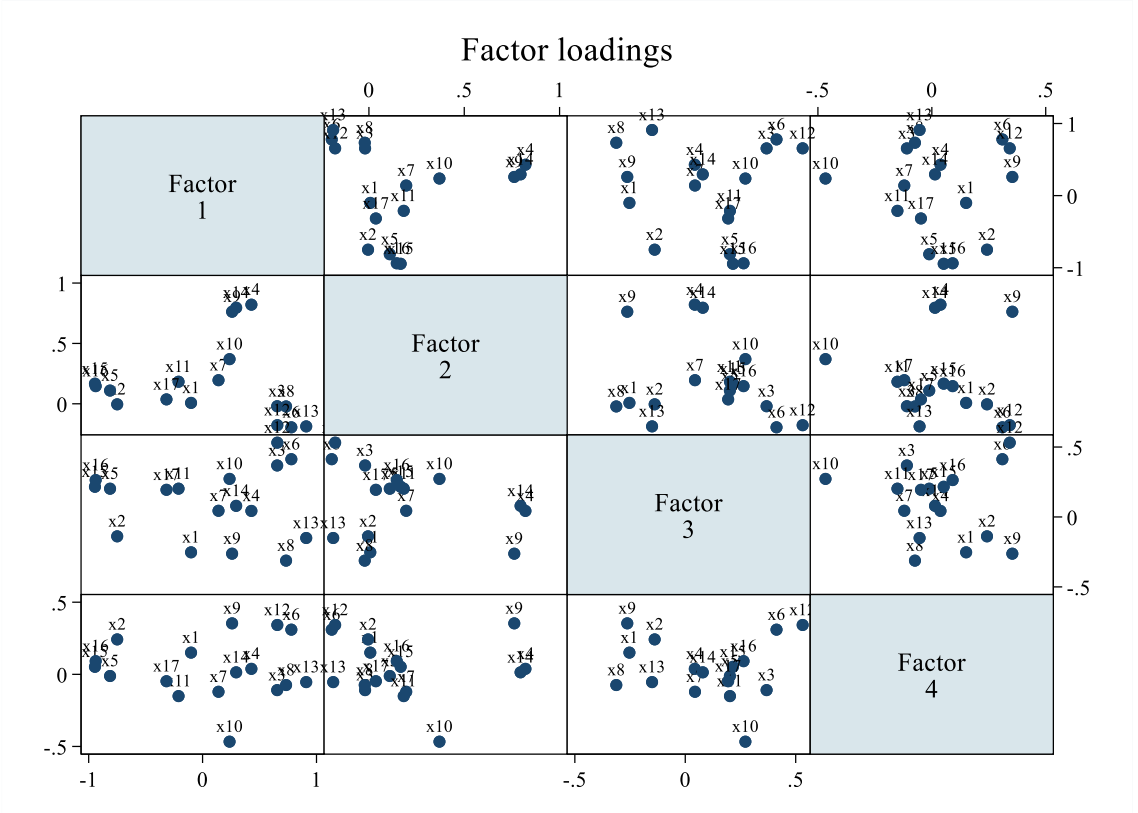
```
Test for multivariate normality

    Mardia mSkewness =  293.0869   chi2(969) = 8076.406   Prob>chi2 =  0.0000
    Mardia mKurtosis =  589.9546     chi2(1) = 4467.836   Prob>chi2 =  0.0000
    Henze-Zirkler    =   1.28147     chi2(1) =33372.390   Prob>chi2 =  0.0000
    Doornik-Hansen                  chi2(34) =10057.382   Prob>chi2 =  0.0000
```

Por lo tanto, con un nivel de significancia del 1%, estos datos aportan evidencia suficiente para indicar que no tienen una distribución normal multivariada.

```
Factor analysis/correlation                       Number of obs    =        162
    Method: principal factors                     Retained factors =          4
    Rotation: (unrotated)                         Number of params =         62

    --------------------------------------------------------------------------
         Factor  |   Eigenvalue   Difference        Proportion   Cumulative
    -------------+------------------------------------------------------------
        Factor1  |      6.39667      4.13220            0.5822       0.5822
        Factor2  |      2.26447      1.08372            0.2061       0.7883
        Factor3  |      1.18075      0.47077            0.1075       0.8957
        Factor4  |      0.70998      0.16765            0.0646       0.9604
        Factor5  |      0.54233      0.26020            0.0494       1.0097
        Factor6  |      0.28213      0.09976            0.0257       1.0354
        Factor7  |      0.18238      0.09753            0.0166       1.0520
        Factor8  |      0.08485      0.06604            0.0077       1.0597
        Factor9  |      0.01881      0.01822            0.0017       1.0614
       Factor10  |      0.00059      0.00898            0.0001       1.0615
       Factor11  |     -0.00840      0.01935           -0.0008       1.0607
       Factor12  |     -0.02775      0.03482           -0.0025       1.0582
       Factor13  |     -0.06257      0.03448           -0.0057       1.0525
       Factor14  |     -0.09706      0.02685           -0.0088       1.0437
       Factor15  |     -0.12391      0.03113           -0.0113       1.0324
       Factor16  |     -0.15504      0.04577           -0.0141       1.0183
       Factor17  |     -0.20081            .           -0.0183       1.0000
    --------------------------------------------------------------------------
    LR test: independent vs. saturated: chi2(136) = 2464.59 Prob>chi2 = 0.0000
```

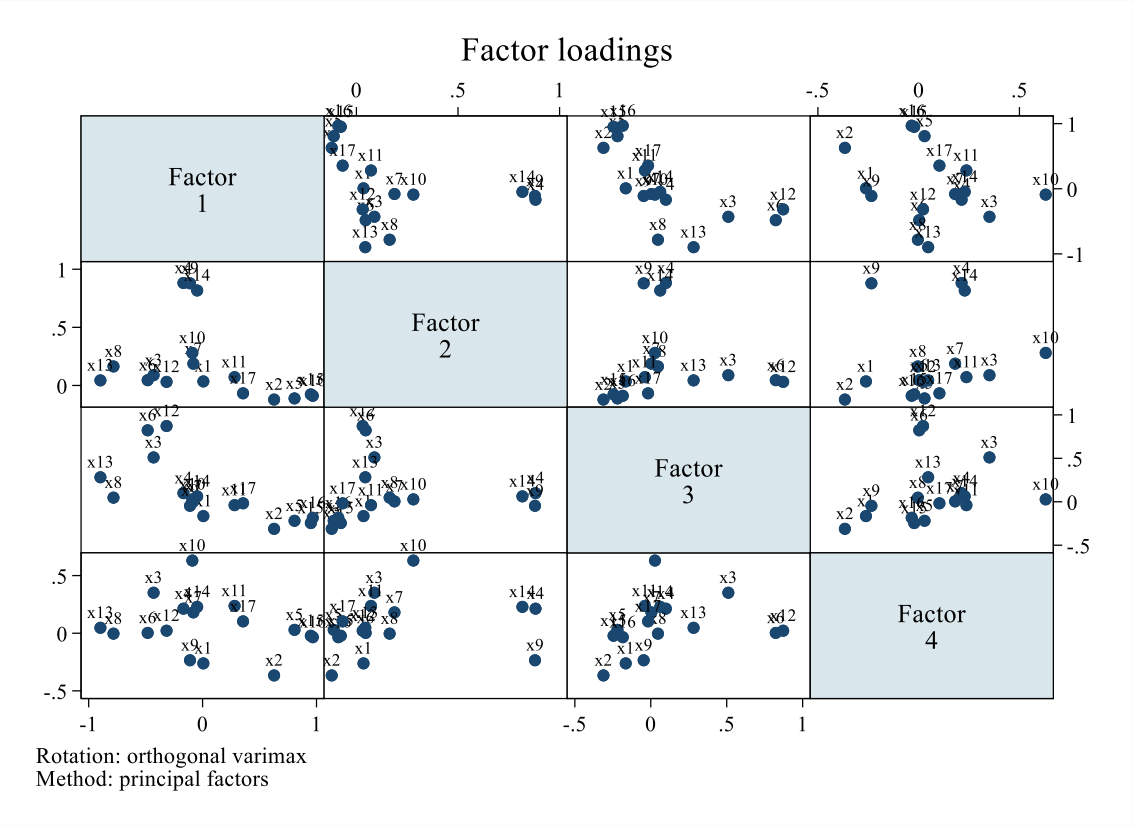
Factor loadings (pattern matrix) and unique variances

Variable	Factor1	Factor2	Factor3	Factor4	Uniqueness
x1	-0.1011	0.0073	-0.2529	0.1506	0.9031
x2	-0.7498	-0.0044	-0.1385	0.2422	0.3599
x3	0.6551	-0.0201	0.3683	-0.1094	0.4229
x4	0.4284	0.8210	0.0432	0.0381	0.1390
x5	-0.8124	0.1095	0.2020	-0.0115	0.2871
x6	0.7793	-0.1949	0.4131	0.3098	0.0882
x7	0.1398	0.1956	0.0440	-0.1209	0.9257
x8	0.7332	-0.0219	-0.3124	-0.0741	0.3589
x9	0.2591	0.7625	-0.2627	0.3534	0.1575
x10	0.2370	0.3700	0.2722	-0.4667	0.5151
x11	-0.2111	0.1827	0.2023	-0.1510	0.8583
x12	0.6562	-0.1771	0.5314	0.3422	0.1386
x13	0.9098	-0.1873	-0.1503	-0.0537	0.1118
x14	0.2948	0.7954	0.0793	0.0140	0.2740
x15	-0.9450	0.1666	0.2159	0.0522	0.0299
x16	-0.9385	0.1462	0.2639	0.0913	0.0199
x17	-0.3169	0.0364	0.1941	-0.0477	0.8583



Factor rotation matrix

	Factor1	Factor2	Factor3	Factor4
Factor1	-0.8610	0.2428	0.4287	0.1262
Factor2	0.2137	0.9406	-0.1641	0.2064
Factor3	0.4272	-0.0735	0.7547	0.4925
Factor4	0.1745	0.2256	0.4688	-0.8360



```
Scoring coefficients (method = regression; based on varimax
rotated factors)
```

Variable	Factor1	Factor2	Factor3	Factor4
x1	-0.04944	0.00332	-0.04017	-0.08511
x2	-0.00437	-0.00721	0.01715	-0.27616
x3	0.00188	-0.01766	0.04609	0.20967
x4	0.09793	0.42155	0.01785	0.47535
x5	0.06308	-0.02252	0.02446	0.11973
x6	0.05583	0.01380	0.65309	-0.28414
x7	-0.04678	0.02801	-0.01819	-0.01865
x8	-0.03647	0.03766	-0.01896	-0.03532
x9	0.00509	0.41406	-0.00435	-0.76084
x10	-0.00494	-0.00205	-0.00685	0.25791
x11	-0.00407	-0.00179	-0.01318	0.07225
x12	0.14499	0.00104	0.45527	-0.03547
x13	-0.05347	-0.04905	0.02653	0.18764
x14	0.01073	0.21243	-0.00129	0.23819
x15	0.21322	0.11839	-0.25588	0.34191
x16	0.76200	0.02826	0.67590	-0.16553
x17	0.00965	-0.02258	0.05519	0.00355

Ejercicio 2:

El número de factores resultantes del proceso de selección de modelos introducido por Schwarz (1978) es 4.

```
Test for multivariate normality

    Mardia mSkewness =  475.4859  chi2(3276) = 4297.740   Prob>chi2 =  0.0000
    Mardia mKurtosis =  759.9989     chi2(1) =    8.966   Prob>chi2 =  0.0027
    Henze-Zirkler    =  1.000247     chi2(1) =   11.470   Prob>chi2 =  0.0007
    Doornik-Hansen                 chi2(52) =  776.759   Prob>chi2 =  0.0000
```

Por lo tanto, con un nivel de significancia del 1%, estos datos aportan evidencia suficiente para indicar que no tienen una distribución normal multivariada.

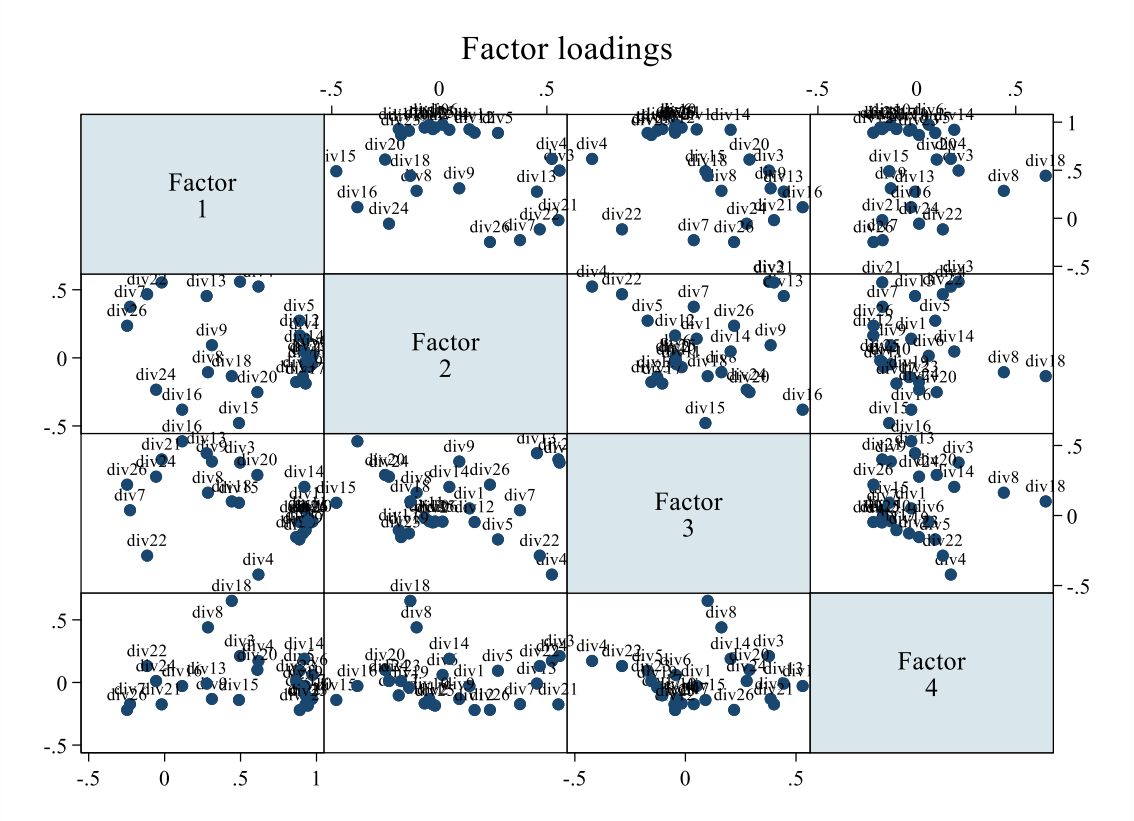
Factor analysis/correlation — Number of obs = 51
Method: principal factors — Retained factors = 4
Rotation: (unrotated) — Number of params = 98

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	12.08887	9.82667	0.6040	0.6040
Factor2	2.26220	0.68136	0.1130	0.7170
Factor3	1.58085	0.49465	0.0790	0.7960
Factor4	1.08620	0.23100	0.0543	0.8503
Factor5	0.85521	0.03978	0.0427	0.8930
Factor6	0.81542	0.30611	0.0407	0.9337
Factor7	0.50931	0.14179	0.0254	0.9592
Factor8	0.36753	0.05479	0.0184	0.9775
Factor9	0.31273	0.08655	0.0156	0.9932
Factor10	0.22618	0.02765	0.0113	1.0045
Factor11	0.19853	0.08151	0.0099	1.0144
Factor12	0.11702	0.02778	0.0058	1.0202
Factor13	0.08923	0.03101	0.0045	1.0247
Factor14	0.05822	0.01640	0.0029	1.0276
Factor15	0.04182	0.02055	0.0021	1.0297
Factor16	0.02127	0.02397	0.0011	1.0307
Factor17	-0.00270	0.00399	-0.0001	1.0306
Factor18	-0.00669	0.01393	-0.0003	1.0303
Factor19	-0.02063	0.00605	-0.0010	1.0292
Factor20	-0.02667	0.00824	-0.0013	1.0279
Factor21	-0.03492	0.01923	-0.0017	1.0262
Factor22	-0.05414	0.00437	-0.0027	1.0235
Factor23	-0.05852	0.02775	-0.0029	1.0205
Factor24	-0.08627	0.05588	-0.0043	1.0162
Factor25	-0.14215	0.04044	-0.0071	1.0091
Factor26	-0.18259	.	-0.0091	1.0000

LR test: independent vs. saturated: chi2(325) = 1451.04 Prob>chi2 = 0.0000

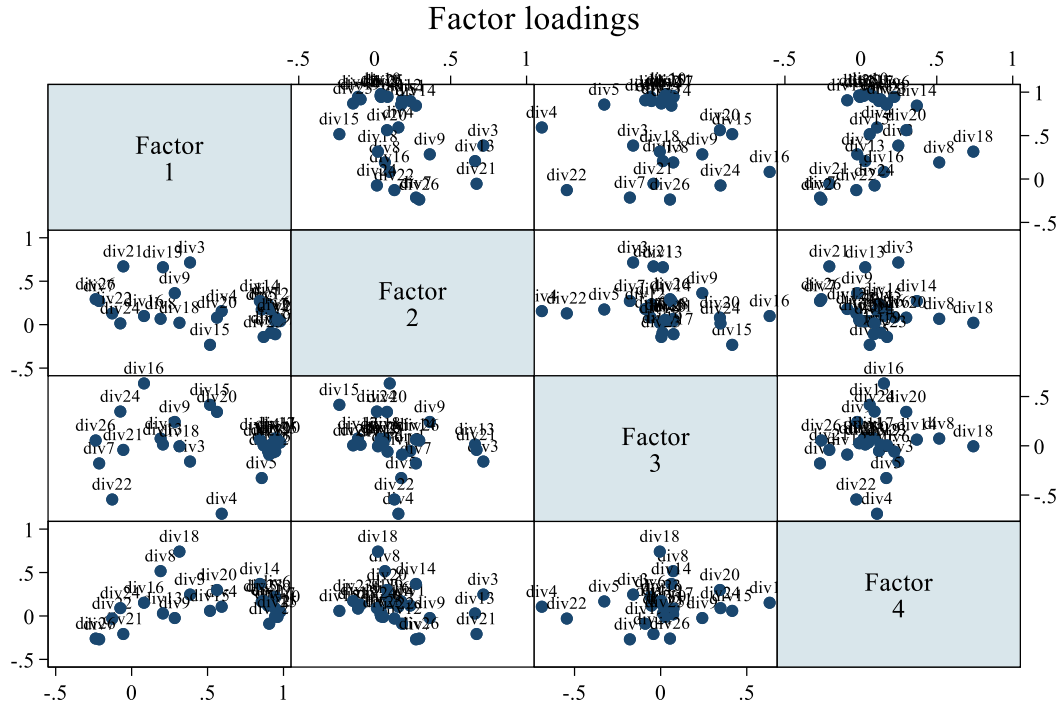
Factor loadings (pattern matrix) and unique variances

Variable	Factor1	Factor2	Factor3	Factor4	Uniqueness
div1	0.9243	0.1403	0.0508	-0.0283	0.1226
div2	0.9278	-0.0300	-0.0495	-0.1762	0.1048
div3	0.4967	0.5590	0.3778	0.2111	0.2535
div4	0.6179	0.5234	-0.4220	0.1719	0.1366
div5	0.8875	0.2726	-0.1709	0.0932	0.1002
div6	0.9735	0.0151	-0.0440	0.0602	0.0466
div7	-0.2276	0.3753	0.0376	-0.1729	0.7760
div8	0.2853	-0.1056	0.1629	0.4399	0.6874
div9	0.3114	0.0928	0.3854	-0.1314	0.7286
div10	0.9703	-0.0469	-0.0408	-0.1318	0.0373
div11	0.9436	-0.0683	-0.0171	-0.1674	0.0767
div12	0.8900	0.1640	-0.0467	-0.2200	0.1304
div13	0.2770	0.4537	0.4446	-0.0089	0.5197
div14	0.9204	0.0466	0.2044	0.1893	0.0731
div15	0.4895	-0.4788	0.0907	-0.1398	0.5034
div16	0.1155	-0.3809	0.5300	-0.0282	0.5599
div17	0.9286	-0.1886	-0.1047	-0.1031	0.0806
div18	0.4423	-0.1346	0.1006	0.6517	0.3515
div19	0.9110	-0.1410	-0.1277	-0.0393	0.1324
div20	0.6107	-0.2521	0.2895	0.1006	0.4696
div21	-0.0193	0.5537	0.4005	-0.1749	0.5021
div22	-0.1151	0.4670	-0.2868	0.1314	0.6691
div23	0.8660	-0.1777	-0.1542	0.0110	0.1945
div24	-0.0563	-0.2340	0.2771	0.0114	0.8652
div25	0.9436	-0.0199	-0.0429	-0.1849	0.0732
div26	-0.2469	0.2354	0.2200	-0.2191	0.7872



Factor rotation matrix

	Factor1	Factor2	Factor3	Factor4
Factor1	0.9783	0.1061	-0.0029	0.1777
Factor2	-0.0463	0.7224	-0.6641	-0.1872
Factor3	-0.1018	0.6833	0.7041	0.1642
Factor4	-0.1742	0.0044	-0.2514	0.9521



Rotation: orthogonal varimax
Method: principal factors

Scoring coefficients (method = regression; based on varimax rotated factors)

Variable	Factor1	Factor2	Factor3	Factor4
div1	0.17885	0.10184	-0.00660	-0.59942
div2	0.11868	-0.03913	0.22780	-0.38276
div3	-0.03201	0.27947	-0.04343	-0.01587
div4	-0.05978	-0.01037	-0.81217	0.21191
div5	0.08776	0.01832	-0.09333	0.20704
div6	0.16440	0.03515	0.07440	-0.00240
div7	0.01046	0.07851	-0.07332	-0.19326
div8	-0.00480	-0.04679	-0.02689	0.05741
div9	0.01119	0.10135	0.08398	-0.10855
div10	0.36607	-0.17317	0.48481	-1.06470
div11	0.09502	0.06248	-0.03609	-0.02651
div12	0.04555	0.17782	-0.09572	-0.29695
div13	-0.00931	0.22529	0.06891	0.05193
div14	-0.18207	0.51022	-0.00610	1.47056
div15	0.01674	-0.01596	0.08531	-0.01058
div16	-0.01491	0.05041	0.12636	-0.05363
div17	0.10932	-0.48002	0.12783	-0.09845
div18	-0.00114	-0.05393	0.07244	0.24379
div19	0.05830	-0.13966	-0.12245	0.04555
div20	0.00136	0.02748	0.12948	0.12901
div21	-0.00321	0.22648	0.07534	-0.12757
div22	0.01474	0.01834	-0.10933	-0.10336
div23	-0.02939	-0.17075	-0.23166	0.35948
div24	-0.01218	0.04318	0.09012	0.06983
div25	0.06780	0.04586	-0.05197	0.27049
div26	-0.00390	0.09017	0.02770	-0.00464

Ejercicio 3.

Estimar un modelo factorial empleando la base "sachs.dta", extracto de Gallup, Sachs & Mellinger (1999).

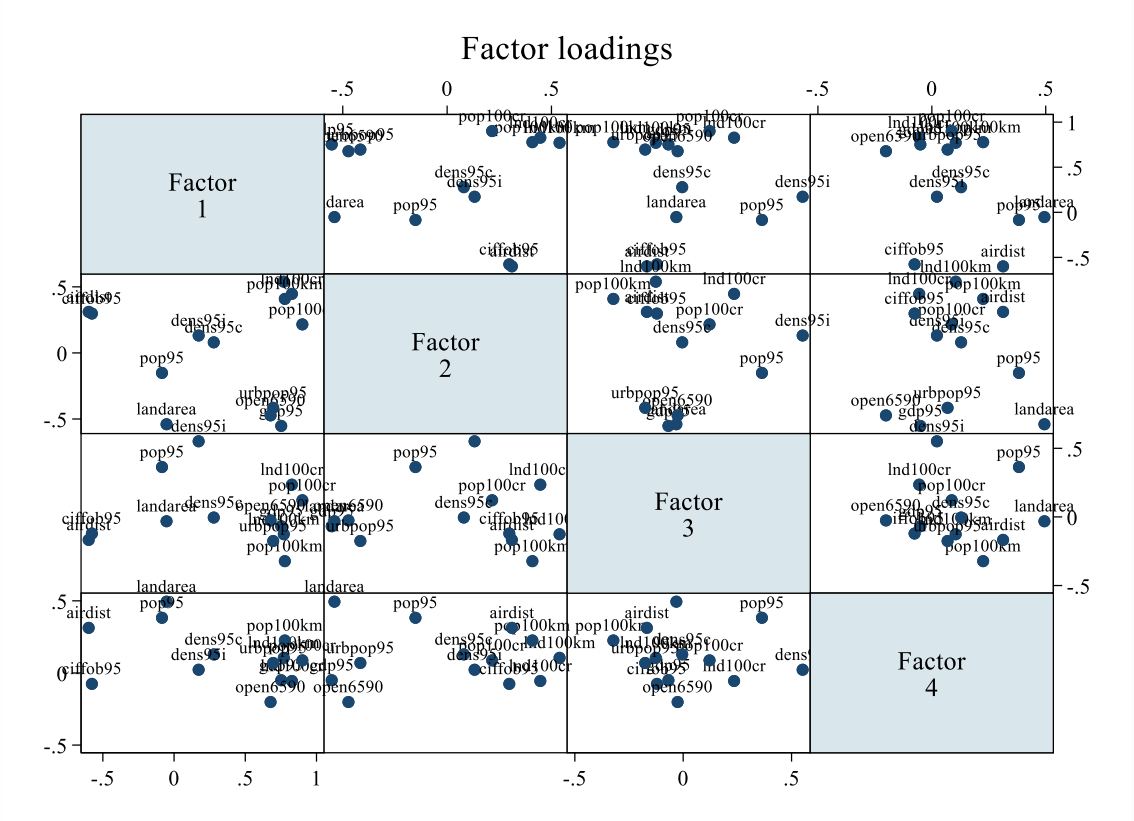
El número de factores resultantes del proceso de selección de modelos introducido por Schwarz (1978) es 4.

```
Test for multivariate normality

    Mardia mSkewness =    206.39   chi2(455) = 2457.546   Prob>chi2 =  0.0000
    Mardia mKurtosis =  324.3951     chi2(1) =  729.827   Prob>chi2 =  0.0000
    Henze-Zirkler    =  1.644722     chi2(1) = 7583.382   Prob>chi2 =  0.0000
    Doornik-Hansen                  chi2(26) = 4006.593   Prob>chi2 =  0.0000
```

Por lo tanto, con un nivel de significancia del 1%, estos datos aportan evidencia suficiente para indicar que no tienen una distribución normal multivariada.

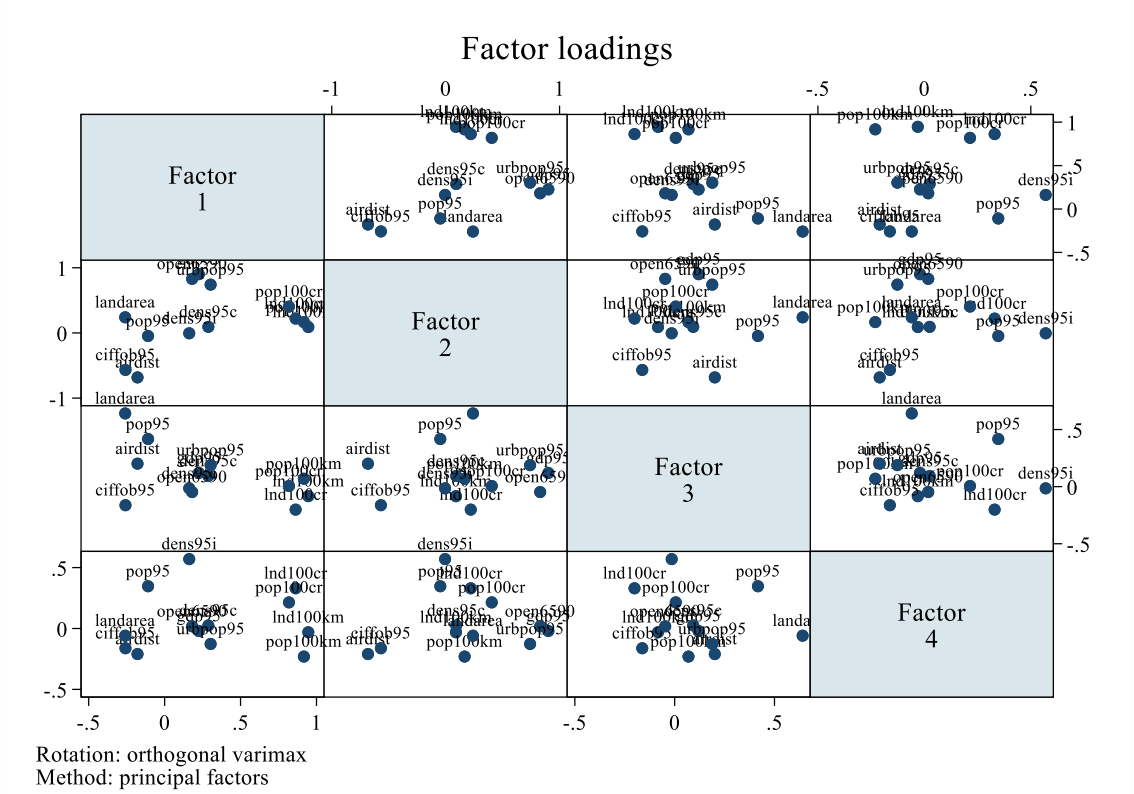
```
Factor analysis/correlation                       Number of obs    =         68
    Method: principal factors                     Retained factors =          4
    Rotation: (unrotated)                         Number of params =         46

    --------------------------------------------------------------------------
         Factor  |   Eigenvalue   Difference        Proportion   Cumulative
    -------------+------------------------------------------------------------
        Factor1  |      5.01467      3.08644            0.5908       0.5908
        Factor2  |      1.92823      1.22268            0.2272       0.8179
        Factor3  |      0.70555      0.07401            0.0831       0.9010
        Factor4  |      0.63155      0.26287            0.0744       0.9754
        Factor5  |      0.36868      0.15252            0.0434       1.0189
        Factor6  |      0.21615      0.14000            0.0255       1.0443
        Factor7  |      0.07616      0.03014            0.0090       1.0533
        Factor8  |      0.04602      0.07192            0.0054       1.0587
        Factor9  |     -0.02591      0.04197           -0.0031       1.0557
       Factor10  |     -0.06788      0.01447           -0.0080       1.0477
       Factor11  |     -0.08235      0.02814           -0.0097       1.0380
       Factor12  |     -0.11049      0.10135           -0.0130       1.0250
       Factor13  |     -0.21184            .           -0.0250       1.0000
    --------------------------------------------------------------------------
    LR test: independent vs. saturated:  chi2(78) =  691.68 Prob>chi2 = 0.0000
```

```
Factor loadings (pattern matrix) and unique variances

    -----------------------------------------------------------------------
        Variable |  Factor1   Factor2   Factor3   Factor4 |   Uniqueness
    -------------+-----------------------------------------+--------------
           gdp95 |   0.7523   -0.5526   -0.0681   -0.0504 |      0.1215
        lnd100km |   0.7707    0.5388   -0.1264    0.1049 |      0.0887
        pop100km |   0.7778    0.4087   -0.3223    0.2253 |      0.0733
        lnd100cr |   0.8274    0.4465    0.2349   -0.0555 |      0.0578
        pop100cr |   0.9009    0.2158    0.1215    0.0874 |      0.1194
         dens95c |   0.2788    0.0802   -0.0046    0.1286 |      0.8993
         dens95i |   0.1725    0.1317    0.5512    0.0223 |      0.6486
         airdist |  -0.5996    0.3105   -0.1676    0.3128 |      0.4182
        ciffob95 |  -0.5771    0.2979   -0.1212   -0.0757 |      0.5578
        landarea |  -0.0529   -0.5398   -0.0316    0.4942 |      0.4606
        open6590 |   0.6776   -0.4727   -0.0257   -0.2014 |      0.2761
        urbpop95 |   0.6959   -0.4157   -0.1754    0.0692 |      0.3073
           pop95 |  -0.0849   -0.1516    0.3634    0.3825 |      0.6915
    -----------------------------------------------------------------------
```



Factor rotation matrix

	Factor1	Factor2	Factor3	Factor4
Factor1	0.7546	0.6493	-0.0111	0.0937
Factor2	0.6116	-0.7223	-0.3200	0.0422
Factor3	-0.0970	-0.0306	0.0147	0.9947
Factor4	0.2170	-0.2359	0.9472	-0.0001



Scoring coefficients (method = regression; based on varimax rotated factors)

Variable	Factor1	Factor2	Factor3	Factor4
gdp95	-0.06881	0.51213	0.18654	-0.28673
lnd100km	0.32177	-0.07360	0.37913	0.28969
pop100km	0.40629	-0.21274	-0.04651	-1.16543
lnd100cr	0.28593	-0.25421	-0.90320	0.31861
pop100cr	0.11440	0.32092	0.64413	0.70563
dens95c	0.02714	-0.04003	0.05469	0.02433
dens95i	0.00876	-0.04354	0.10595	0.18612
airdist	0.06427	-0.12876	0.27673	-0.01836
ciffob95	0.01223	-0.05945	-0.07444	-0.11893
landarea	0.01604	-0.06632	0.38983	0.04208
open6590	-0.09585	0.25316	-0.27843	0.17955
urbpop95	0.00689	0.15520	0.12482	-0.18473
pop95	0.00550	-0.00865	0.25192	0.22795

Ejercicio 4.

En base a los datos empleados por la Fundación Heritage para construir el Freedom Index 2010, contenidos en la base "heritage.dta", ajustar un modelo factorial y comentar, brevemente, los resultados obtenidos.

El número de factores resultantes del proceso de selección de modelos introducido por Schwarz (1978) es 3.

```
Test for multivariate normality

    Mardia mSkewness =   56.1748   chi2(364) = 1717.712   Prob>chi2 =  0.0000
    Mardia mKurtosis =  226.8436     chi2(1) =  463.736   Prob>chi2 =  0.0000
    Henze-Zirkler    =  1.070629     chi2(1) =  160.551   Prob>chi2 =  0.0000
    Doornik-Hansen                  chi2(24) =  365.055   Prob>chi2 =  0.0000
```

Por lo tanto, con un nivel de significancia del 1%, estos datos aportan evidencia suficiente para indicar que no tienen una distribución normal multivariada.

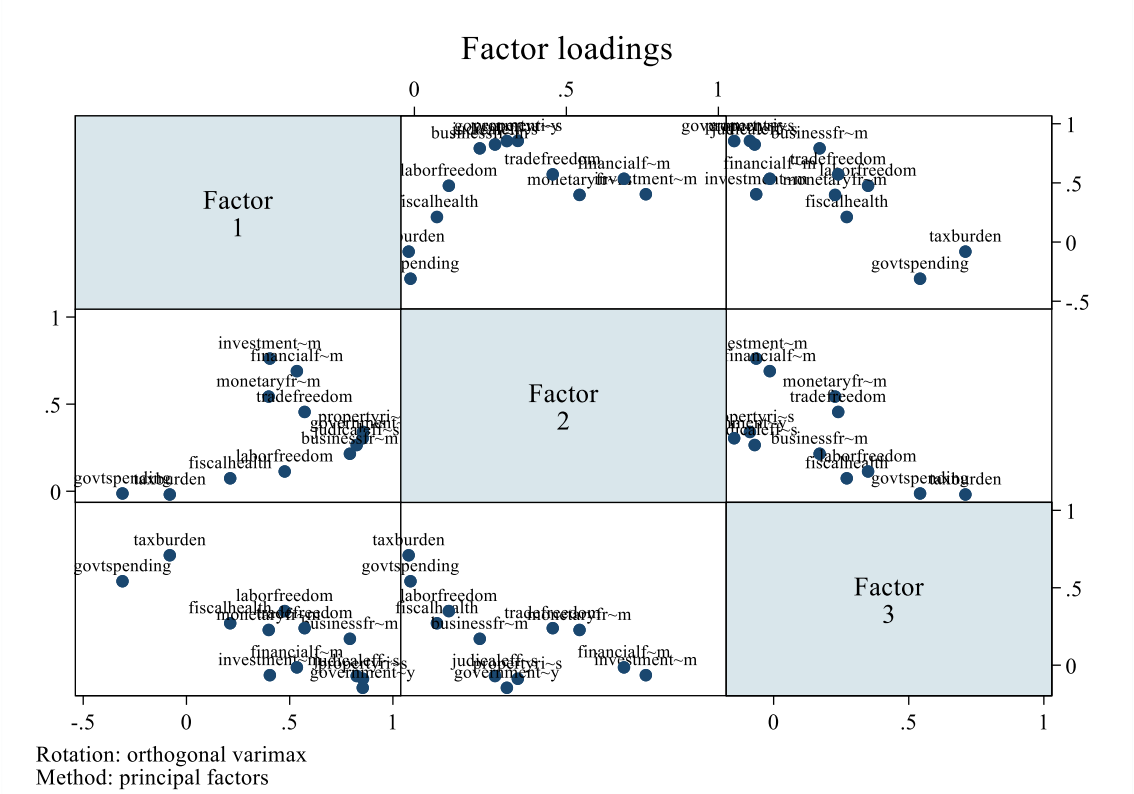
```
Factor analysis/correlation                       Number of obs    =        180
    Method: principal factors                     Retained factors =          3
    Rotation: (unrotated)                         Number of params =         33

    --------------------------------------------------------------------------
         Factor  |   Eigenvalue   Difference        Proportion   Cumulative
    -------------+------------------------------------------------------------
        Factor1  |      5.41921      4.23969            0.7939       0.7939
        Factor2  |      1.17951      0.63156            0.1728       0.9667
        Factor3  |      0.54795      0.32643            0.0803       1.0470
        Factor4  |      0.22152      0.09794            0.0325       1.0795
        Factor5  |      0.12358      0.08258            0.0181       1.0976
        Factor6  |      0.04100      0.09542            0.0060       1.1036
        Factor7  |     -0.05441      0.00706           -0.0080       1.0956
        Factor8  |     -0.06147      0.03881           -0.0090       1.0866
        Factor9  |     -0.10028      0.00635           -0.0147       1.0719
       Factor10  |     -0.10662      0.04573           -0.0156       1.0563
       Factor11  |     -0.15235      0.07947           -0.0223       1.0340
       Factor12  |     -0.23183            .           -0.0340       1.0000
    --------------------------------------------------------------------------
    LR test: independent vs. saturated:  chi2(66) = 1370.91 Prob>chi2 = 0.0000
```

Factor loadings (pattern matrix) and unique variances

Variable	Factor1	Factor2	Factor3	Uniqueness
propertyri~s	0.9027	-0.1412	0.1399	0.1456
judicaleff~s	0.8381	-0.1291	0.1902	0.2448
government~y	0.8810	-0.2028	0.1606	0.1570
taxburden	-0.0549	0.7075	0.0842	0.4894
govtspending	-0.2522	0.5675	-0.0647	0.6101
fiscalhealth	0.2281	0.2526	0.0886	0.8763
businessfr~m	0.7919	0.1061	0.2527	0.2978
laborfreedom	0.4757	0.3060	0.2036	0.6386
monetaryfr~m	0.6318	0.2432	-0.2175	0.4944
tradefreedom	0.7337	0.2255	-0.0519	0.4082
investment~m	0.7414	-0.0206	-0.4439	0.2529
financialf~m	0.8166	0.0064	-0.3080	0.2383

Factor rotation matrix

	Factor1	Factor2	Factor3
Factor1	0.8502	0.5255	0.0333
Factor2	-0.1095	0.1147	0.9874
Factor3	0.5150	-0.8431	0.1550



Scoring coefficients (method = regression; based on varimax rotated factors)

Variable	Factor1	Factor2	Factor3
propertyri~s	0.36310	-0.12448	-0.10484
judicaleff~s	0.21451	-0.11300	-0.01531
government~y	0.34141	-0.13879	-0.20422
taxburden	0.01266	-0.01098	0.38810
govtspending	-0.03155	0.01738	0.27961
fiscalhealth	-0.00061	0.01366	0.12259
businessfr~m	0.21898	-0.15093	0.20870
laborfreedom	0.07333	-0.05357	0.16750
monetaryfr~m	-0.01848	0.17040	0.13541
tradefreedom	0.05514	0.10121	0.18267
investment~m	-0.17474	0.54042	-0.10334
financialf~m	-0.13248	0.46943	-0.02438