**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 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.

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Factor | Eigenvalue Difference Proportion Cumulative

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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

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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

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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

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Factor rotation matrix

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| 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

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

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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

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**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

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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

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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

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| 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

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

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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

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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

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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

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

Factor loadings (pattern matrix) and unique variances

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Variable | Factor1 Factor2 Factor3 Factor4 | Uniqueness

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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

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Factor rotation matrix

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| Factor1 Factor2 Factor3 Factor4

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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

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

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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

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**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

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Factor | Eigenvalue Difference Proportion Cumulative

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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

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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

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| Factor1 Factor2 Factor3 Factor4

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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

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

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Variable | Factor1 Factor2 Factor3 Factor4

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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

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**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

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Factor | Eigenvalue Difference Proportion Cumulative

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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

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LR test: independent vs. saturated: chi2(66) = 1370.91 Prob>chi2 = 0.0000

Factor loadings (pattern matrix) and unique variances

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Variable | Factor1 Factor2 Factor3 | Uniqueness

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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

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Factor rotation matrix

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| Factor1 Factor2 Factor3

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Factor1 | 0.8502 0.5255 0.0333

Factor2 | -0.1095 0.1147 0.9874

Factor3 | 0.5150 -0.8431 0.1550

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

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Variable | Factor1 Factor2 Factor3

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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

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