

Codigo de Ayuda para Realizar un ACP Con Software R

Paquetes Utilizados: FactoR, ade4, stats

Estudiantes De IAM

Descripción del problema

En este trabajo se realiza una ACP

Table 4: Conjunto de Datos

x1	x2	x3	x4	x5
5.935	14.2	2.265	2.27	2.91
1.523	13.1	0.597	0.75	2.62
2.599	12.7	1.237	1.11	1.72
4.009	15.2	1.649	0.81	3.02
4.687	14.7	2.312	2.50	2.22
8.044	15.6	3.641	4.51	2.36
2.766	13.3	1.244	1.03	1.97
6.538	17.0	2.618	2.39	1.85
6.451	12.9	3.147	5.52	2.01
3.314	12.2	1.606	2.18	1.82
3.777	13.0	2.119	2.83	1.80
1.530	13.8	0.798	0.84	4.25
2.768	13.6	1.336	1.75	2.64
6.585	14.9	2.763	1.91	3.17

Resumen descriptivo con la función *stargazer* del paquete *stargazer*

Table 6: Resuemn Descriptivo de los Datos

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
x1	14	4.323	2.075	1.523	2.766	6.322	8.044
x2	14	14.014	1.329	12.200	13.025	14.850	17.000
x3	14	1.952	0.895	0.597	1.267	2.541	3.641
x4	14	2.171	1.403	0.750	1.050	2.473	5.520
x5	14	2.454	0.710	1.720	1.880	2.843	4.250

Resumen descriptivo con la función summarise-all

Table 7: Estadísticos Básicos de las Variables

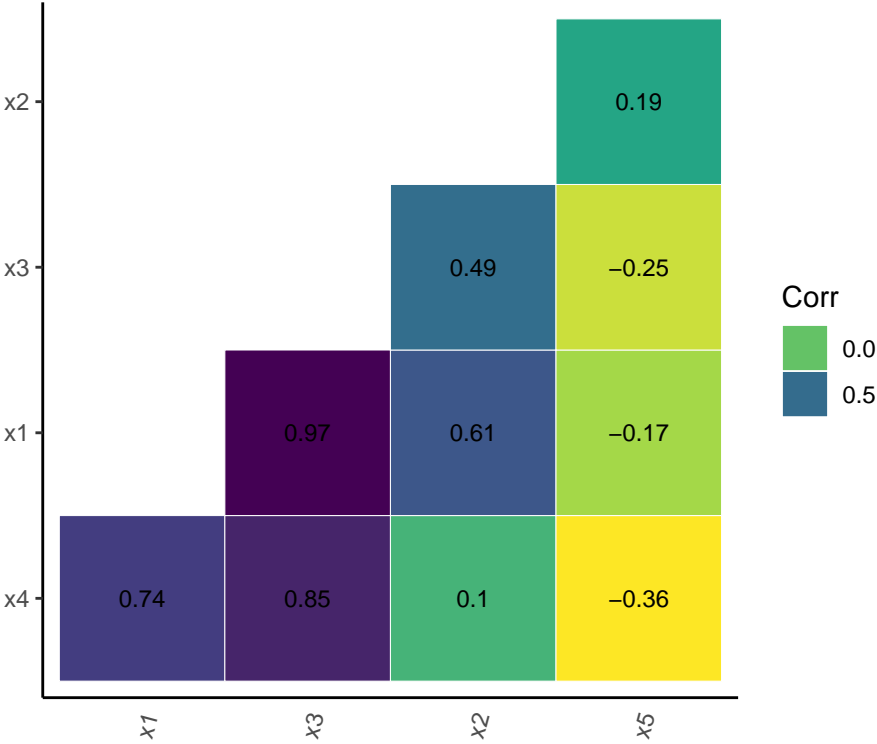
Variable	Minimo	Maximo	Media	IQR	SD
x1	1.523	8.044	4.323286	3.5555	2.0754652
x2	12.200	17.000	14.014286	1.8250	1.3294632
x3	0.597	3.641	1.952286	1.2745	0.8948008
x4	0.750	5.520	2.171429	1.4225	1.4033798
x5	1.720	4.250	2.454286	0.9625	0.7101973

Resumen de Correlaciones mas altas por pares

Table 8: Correlaciones mayores en pares de vbles

	First.Variable	Second.Variable	Correlation
11	x1	x3	0.9707333
18	x3	x4	0.8479649
16	x1	x4	0.7399839
6	x1	x2	0.6101938
12	x2	x3	0.4943040
24	x4	x5	-0.3579964
23	x3	x5	-0.2491624
22	x2	x5	0.1859277
21	x1	x5	-0.1719648
17	x2	x4	0.0953926
1	x1	x1	0.0000000
2	x2	x1	0.0000000
3	x3	x1	0.0000000
4	x4	x1	0.0000000
5	x5	x1	0.0000000

Gráfico de MATriz de Correlaciones



ACP con función PCA del Paquete FactoMineR

A continuación se presentan los resultados de un ACP utilizando la función *PCA* del paquete FactoMineR. El Análisis se realizaba por default NORMADO.

Table 9: Coord, Cos2, Contrib. y Correlaciones de las vbles sobre ejes-12

	Dim.1	Dim.2	Dim.1	Dim.2	Dim.1	Dim.2	Dim.1	Dim.2
x1	1.982	0.091	0.982	0.002	61.029	0.502	0.991	0.046
x2	0.775	0.983	0.366	0.589	9.342	58.350	0.605	0.768
x3	0.848	-0.107	0.968	0.015	11.186	0.687	0.984	-0.124
x4	1.081	-0.746	0.639	0.304	18.148	33.577	0.799	-0.552
x5	-0.138	0.338	0.041	0.244	0.295	6.883	-0.201	0.494

Table 10: Coordenadas de las vbles sobre ejes-12

	Dim.1	Dim.2
x1	1.9818676	0.0912469
x2	0.7754080	0.9834796
x3	0.8484711	-0.1067432
x4	1.0807509	-0.7460472
x5	-0.1378929	0.3377802

Table 11: Cosenos Cuadrados de las vbles sobre ejes-12

	Dim.1	Dim.2
x1	0.9819809	0.0020816
x2	0.3663469	0.5893357
x3	0.9682912	0.0153254
x4	0.6386832	0.3043455
x5	0.0405985	0.2436099

Table 12: Contribuciones de las vbles sobre ejes-12

	Dim.1	Dim.2
x1	61.0286054	0.5022817
x2	9.3421044	58.3501611
x3	11.1855735	0.6873717
x4	18.1482777	33.5771561
x5	0.2954391	6.8830295

Table 13: Correlaciones de las vbles sobre ejes-12

	Dim.1	Dim.2
x1	0.9909495	0.0456242
x2	0.6052660	0.7676820
x3	0.9840179	-0.1237959
x4	0.7991766	-0.5516751
x5	-0.2014908	0.4935685

Resultados con la función *get_pca* del paquete *factoextra*

Table 14: Correlaciones de las vbles sobre ejes

	Dim.1	Dim.2	Dim.3	Dim.4	Dim.5
x1	0.9909495	0.0456242	0.0010998	-0.1250461	-0.0173142
x2	0.6052660	0.7676820	-0.0759777	0.1963265	-0.0008304
x3	0.9840179	-0.1237959	0.0103532	-0.0273150	0.1246196
x4	0.7991766	-0.5516751	0.0980571	0.2171247	-0.0145940
x5	-0.2014908	0.4935685	0.8453272	-0.0345903	0.0041182

Table 15: Correlaciones de las vbles sobre ejes

	Dim.1	Dim.2	Dim.3	Dim.4	Dim.5
x1	0.9909495	0.0456242	0.0010998	-0.1250461	-0.0173142
x2	0.6052660	0.7676820	-0.0759777	0.1963265	-0.0008304
x3	0.9840179	-0.1237959	0.0103532	-0.0273150	0.1246196
x4	0.7991766	-0.5516751	0.0980571	0.2171247	-0.0145940
x5	-0.2014908	0.4935685	0.8453272	-0.0345903	0.0041182

Table 16: Contribuciones de las vbles sobre ejes

	Dim.1	Dim.2	Dim.3	Dim.4	Dim.5
	2.2939	0.3689	3.8307	18.7776	21.9985
	13.8677	0.0294	0.0261	1.0315	15.1924
	6.3938	1.7896	10.9409	4.9134	0.4039
	0.3933	14.6827	0.0426	0.1338	1.2488
	0.6525	0.3092	1.3058	4.8186	13.6701
	27.2759	0.0087	0.8454	2.1688	0.8413
	5.0432	0.0171	7.5403	1.4856	0.0028
	9.9309	18.9539	19.6688	10.6197	8.5149
	11.1655	35.1564	5.2712	3.6917	5.4261
	2.2400	11.0323	2.0646	4.9944	0.2162
	0.1478	8.2132	2.0149	1.1751	22.0016
	12.0750	4.1103	40.9850	8.9375	0.7502
	3.3500	0.0294	0.3755	4.6053	0.3933
	5.1706	5.2988	5.0884	32.6469	9.3398

Table 17: Contribuciones de las vbles sobre ejes-123

	Dim.1	Dim.2	Dim.3
x1	61.0286054	0.5022817	0.0013371
x2	9.3421044	58.3501611	2.6184883
x3	11.1855735	0.6873717	0.0220256
x4	18.1482777	33.5771561	4.8599731
x5	0.2954391	6.8830295	92.4981759

Table 18: Coordneadas, cosenos cuadrados y contribuciones de las variables sobre los ejes 1,2,3

	Dim.1	Dim.2	Dim.3	Dim.1	Dim.2	Dim.3	Dim.1	Dim.2	Dim.3
x1	1.982	0.091	0.002	0.982	0.002	0.000	61.029	0.502	0.001
x2	0.775	0.983	-0.097	0.366	0.589	0.006	9.342	58.350	2.618
x3	0.848	-0.107	0.009	0.968	0.015	0.000	11.186	0.687	0.022
x4	1.081	-0.746	0.133	0.639	0.304	0.010	18.148	33.577	4.860
x5	-0.138	0.338	0.579	0.041	0.244	0.715	0.295	6.883	92.498

Table 19: Cosenos cuadrados de las var. sobre los ejes, ie. sobre las CPs

	Dim.1	Dim.2	Dim.3
x1	0.982	0.002	0.000
x2	0.366	0.589	0.006
x3	0.968	0.015	0.000
x4	0.639	0.304	0.010
x5	0.041	0.244	0.715

Table 20: Coord, Cos2, y Contrib. de los Individuos sobre ejes-123

Dim.1	Dim.2	Dim.3	Dim.1	Dim.2	Dim.3	Dim.1	Dim.2	Dim.3
1.4377	0.2926	0.4405	0.7013	0.0290	0.0658	2.2939	0.3689	3.8307
-3.5349	0.0826	-0.0364	0.9947	0.0005	0.0001	13.8677	0.0294	0.0261
-2.4002	-0.6444	-0.7444	0.8376	0.0604	0.0806	6.3938	1.7896	10.9409
-0.5953	1.8459	0.0464	0.0940	0.9038	0.0006	0.3933	14.6827	0.0426
0.7667	0.2679	-0.2572	0.6571	0.0802	0.0739	0.6525	0.3092	1.3058
4.9575	-0.0449	0.2069	0.9955	0.0001	0.0017	27.2759	0.0087	0.8454
-2.1317	-0.0629	-0.6180	0.9135	0.0008	0.0768	5.0432	0.0171	7.5403
2.9913	2.0973	-0.9982	0.6097	0.2997	0.0679	9.9309	18.9539	19.6688
3.1718	-2.8563	0.5167	0.5407	0.4385	0.0144	11.1655	35.1564	5.2712
-1.4207	-1.6001	-0.3234	0.4177	0.5298	0.0216	2.2400	11.0323	2.0646
-0.3649	-1.3806	-0.3195	0.0601	0.8598	0.0460	0.1478	8.2132	2.0149
-3.2985	0.9767	1.4409	0.7674	0.0673	0.1464	12.0750	4.1103	40.9850
-1.7374	-0.0827	0.1379	0.9485	0.0021	0.0060	3.3500	0.0294	0.3755
2.1585	1.1089	0.5077	0.6527	0.1723	0.0361	5.1706	5.2988	5.0884

Table 21: Coordenadas de los Individuos sobre ejes-123

Dim.1	Dim.2	Dim.3
1.4377	0.2926	0.4405
-3.5349	0.0826	-0.0364
-2.4002	-0.6444	-0.7444
-0.5953	1.8459	0.0464
0.7667	0.2679	-0.2572
4.9575	-0.0449	0.2069
-2.1317	-0.0629	-0.6180
2.9913	2.0973	-0.9982
3.1718	-2.8563	0.5167
-1.4207	-1.6001	-0.3234
-0.3649	-1.3806	-0.3195
-3.2985	0.9767	1.4409
-1.7374	-0.0827	0.1379
2.1585	1.1089	0.5077

Table 22: Cosenos Cuadrados de los Individuos sobre ejes-123

Dim.1	Dim.2	Dim.3
0.7013	0.0290	0.0658
0.9947	0.0005	0.0001
0.8376	0.0604	0.0806
0.0940	0.9038	0.0006
0.6571	0.0802	0.0739
0.9955	0.0001	0.0017
0.9135	0.0008	0.0768
0.6097	0.2997	0.0679
0.5407	0.4385	0.0144
0.4177	0.5298	0.0216
0.0601	0.8598	0.0460
0.7674	0.0673	0.1464
0.9485	0.0021	0.0060
0.6527	0.1723	0.0361

Table 23: Contribuciones de los Individuos sobre ejes-123

Dim.1	Dim.2	Dim.3
2.2939	0.3689	3.8307
13.8677	0.0294	0.0261
6.3938	1.7896	10.9409
0.3933	14.6827	0.0426
0.6525	0.3092	1.3058
27.2759	0.0087	0.8454
5.0432	0.0171	7.5403
9.9309	18.9539	19.6688
11.1655	35.1564	5.2712
2.2400	11.0323	2.0646
0.1478	8.2132	2.0149
12.0750	4.1103	40.9850
3.3500	0.0294	0.3755
5.1706	5.2988	5.0884

Table 24: Vectores Propios (Loadings)

0.7812	-0.0709	0.0037	0.5417	0.3020
0.3056	-0.7639	-0.1618	-0.5448	0.0093
0.3344	0.0829	0.0148	0.0510	-0.9373
0.4260	0.5795	0.2205	-0.6360	0.1721
-0.0544	-0.2624	0.9618	0.0513	-0.0246

Gráfico de Valores Propios

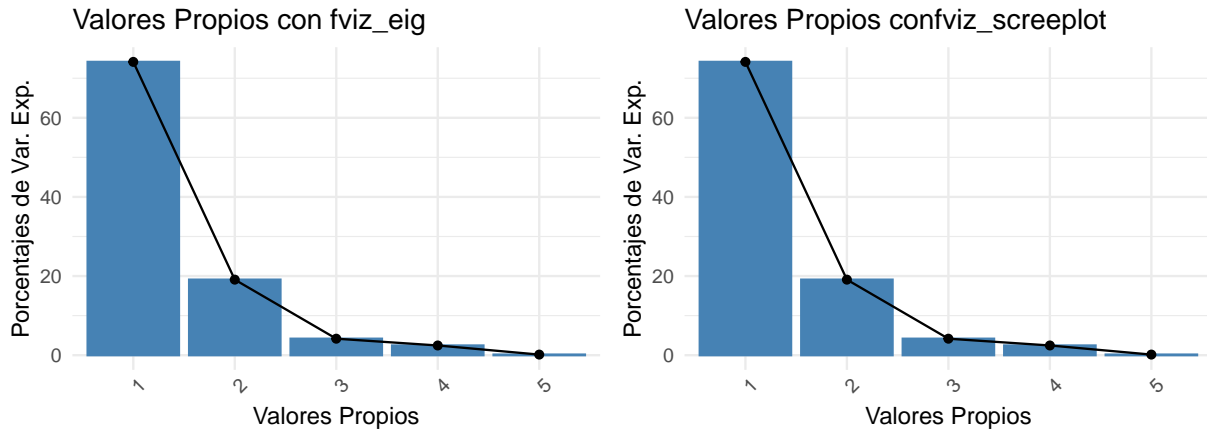


Figure 1: Gráfico de Valores Propios

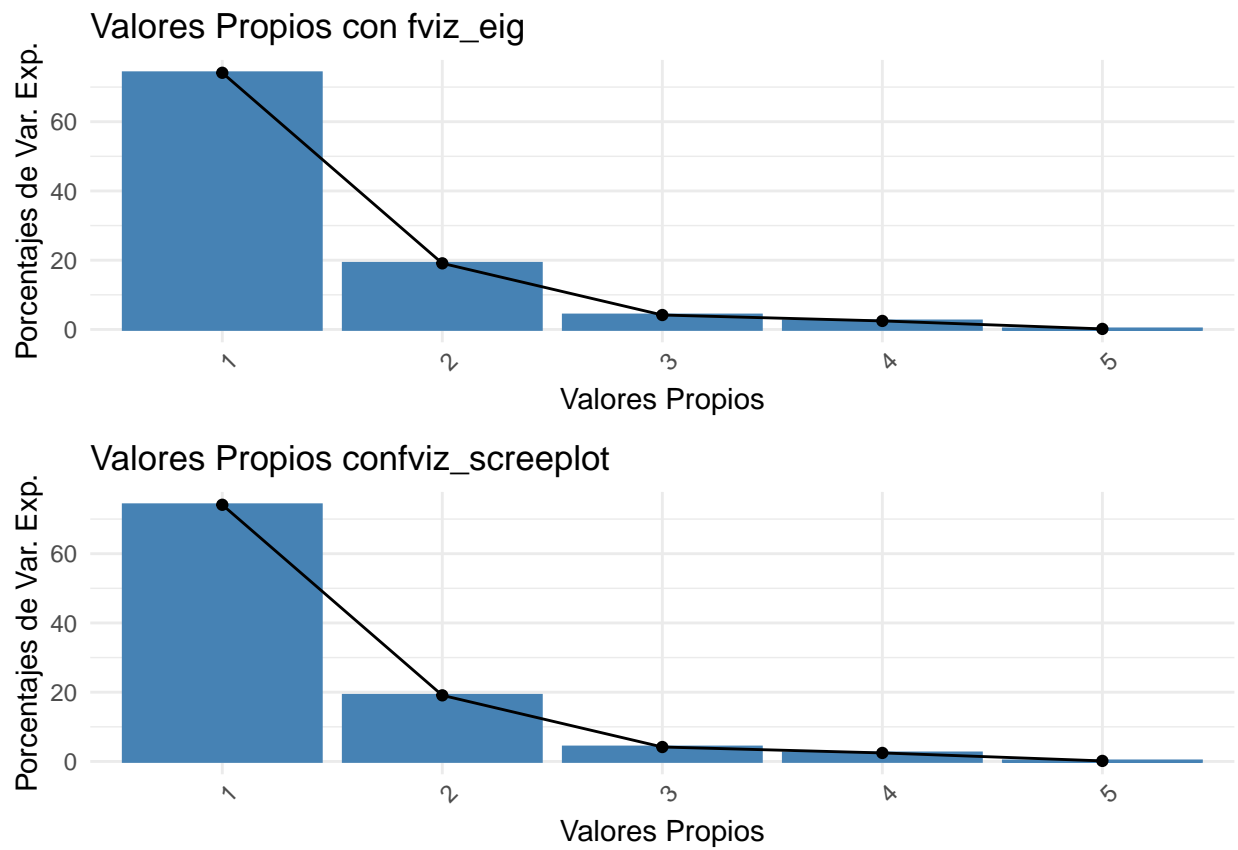
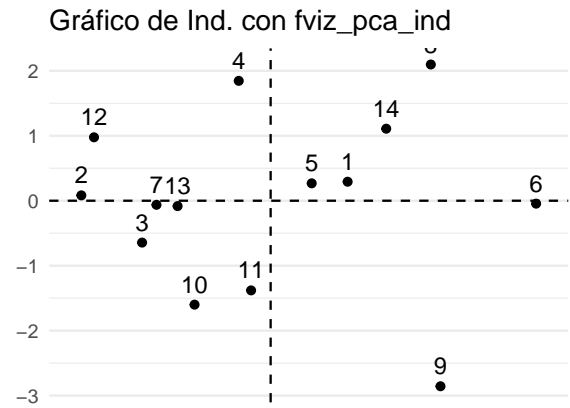
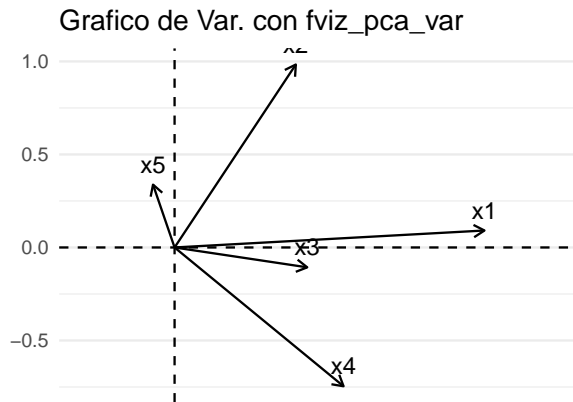
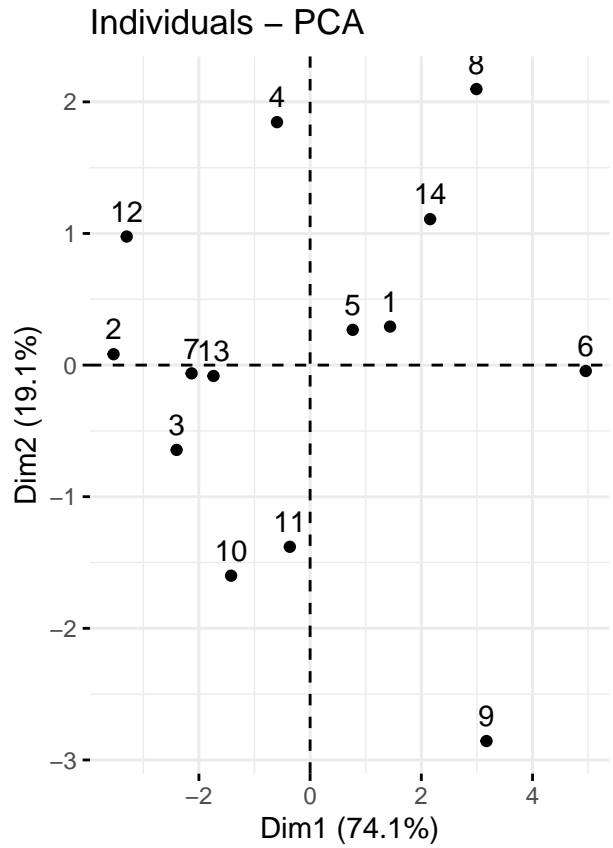
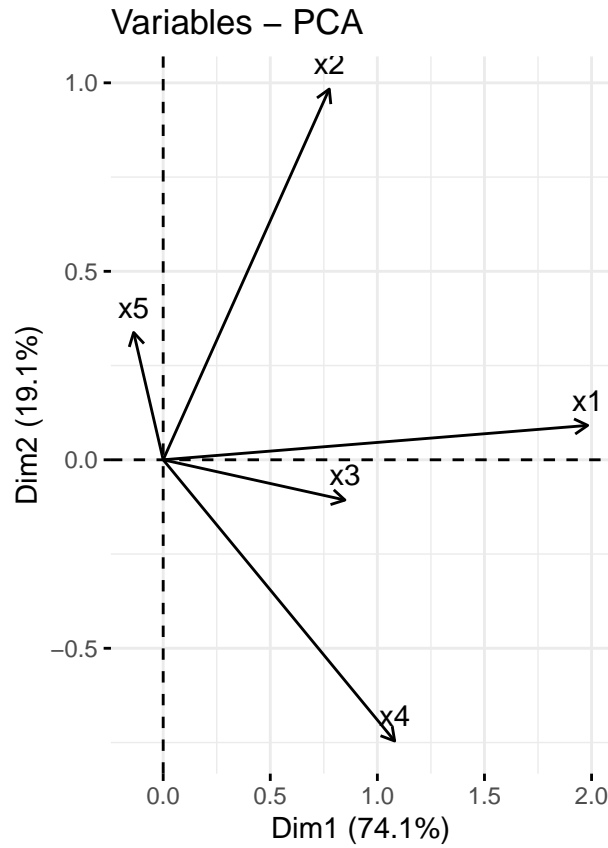


Gráfico de Variables e Individuos



Contribuciones de Variables e Individuos Sobre Eje-1

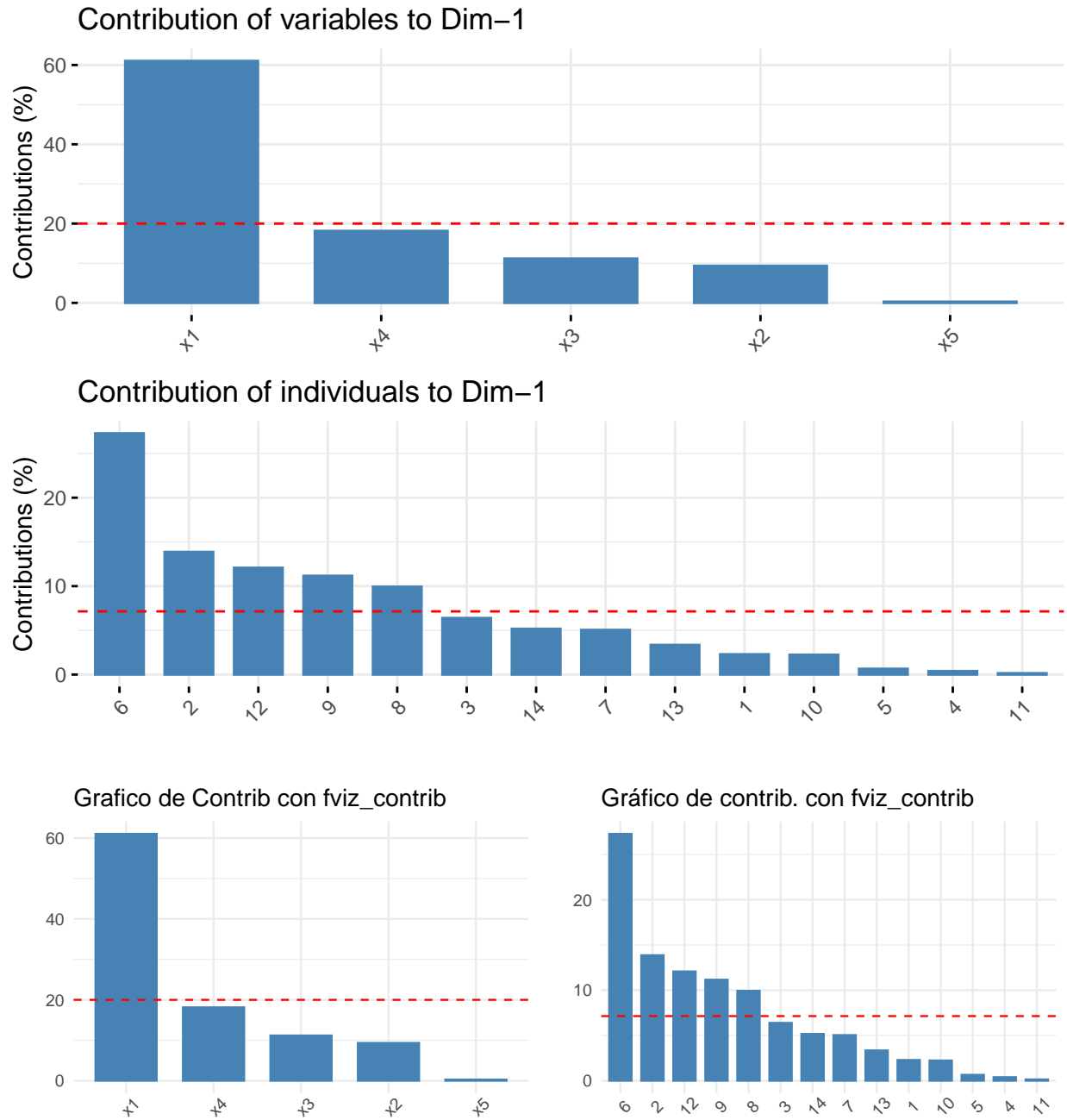
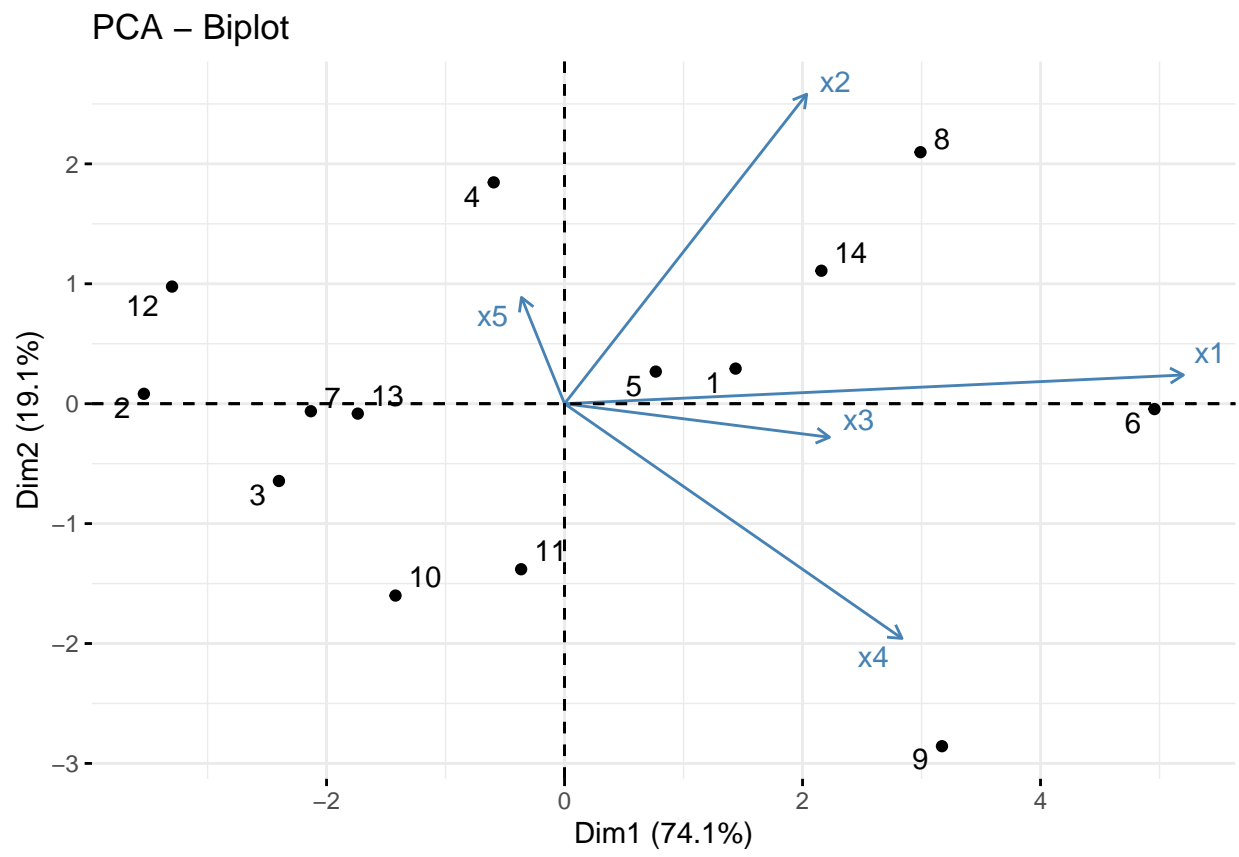


Figure 2: Contribuciones de Variables e Individuos Sobre Eje-1

Gráfico Biplot



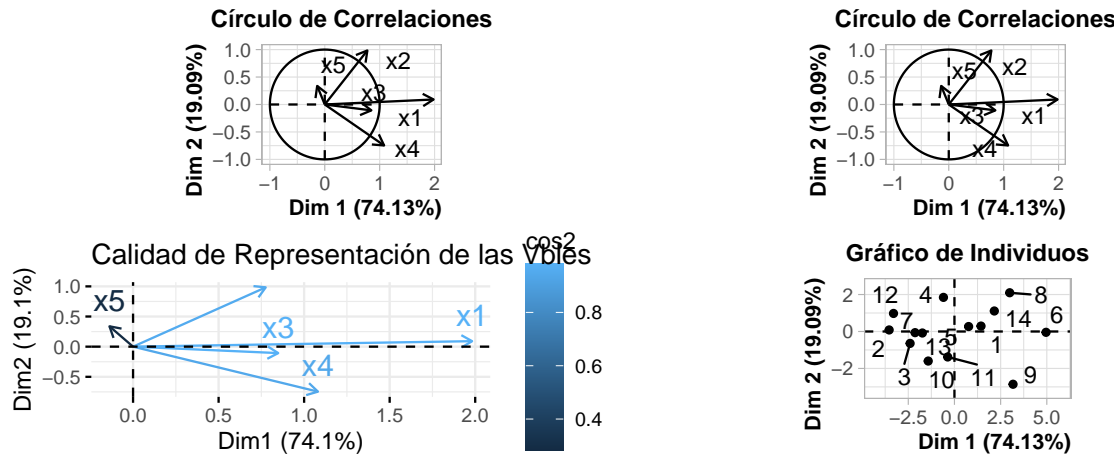
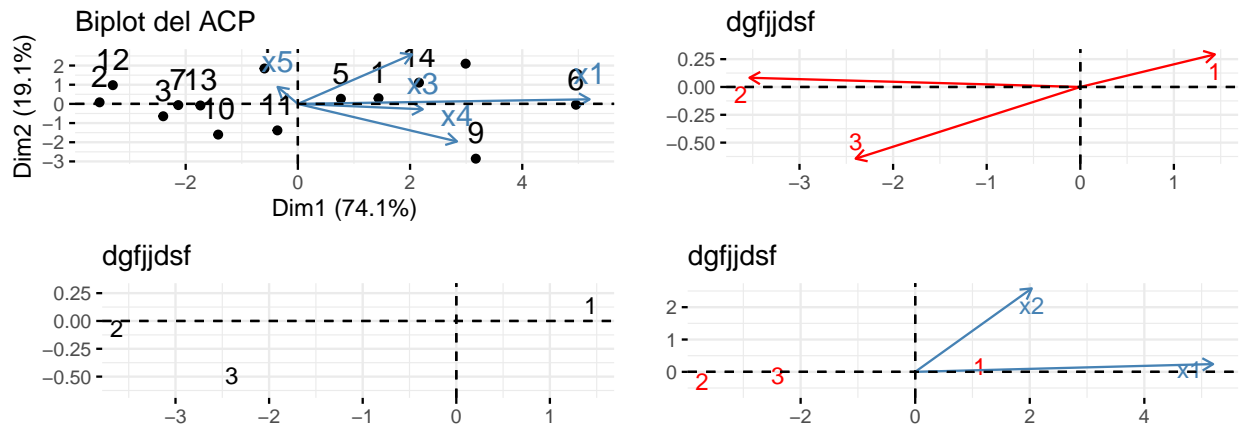


Figure 3: Gráficas Resumen-1



ACP con la función: `dudi.pca` del paquete `Ade4`

A continuación se presentan los resultados de un ACP utilizando la función `dudi.pca` del paquete `Ade4`. El Análisis se realiza por default NORMADO.

Table 25: Elementos del objeto de salida de los resultados: `res.dudi.pca`

tab	cw	lw	eig	rank	nf	c1	li	co	l1	call	cent	norm
-----	----	----	-----	------	----	----	----	----	----	------	------	------

A continuación se tienen los valores propios, valores propios acumulados y los Porcentajes de Varianza Acumulados explicados por las CPs.

```
##
## Total inertia: 8.682
##
## Projected inertia (%):
##      Ax1      Ax2      Ax3      Ax4      Ax5
## 74.1327 19.0934  4.1676  2.4550  0.1514
```

Table 26: Resumen de Valores Propios

	inertia	cum	cum(%)
Ax1	6.4359969	6.435997	74.13268
Ax2	1.6576340	8.093631	93.22605
Ax3	0.3618178	8.455449	97.39363
Ax4	0.2131340	8.668583	99.84860
Ax5	0.0131439	8.681727	100.00000

Table 27: Datos Utilizados en el Análisis (Crudos/centrados/escalados)

x1	x2	x3	x4	x5
1.6117143	0.1857143	0.3127143	0.0985714	0.4557143
-2.8002857	-0.9142857	-1.3552857	-1.4214286	0.1657143
-1.7242857	-1.3142857	-0.7152857	-1.0614286	-0.7342857
-0.3142857	1.1857143	-0.3032857	-1.3614286	0.5657143
0.3637143	0.6857143	0.3597143	0.3285714	-0.2342857
3.7207143	1.5857143	1.6887143	2.3385714	-0.0942857
-1.5572857	-0.7142857	-0.7082857	-1.1414286	-0.4842857
2.2147143	2.9857143	0.6657143	0.2185714	-0.6042857
2.1277143	-1.1142857	1.1947143	3.3485714	-0.4442857
-1.0092857	-1.8142857	-0.3462857	0.0085714	-0.6342857
-0.5462857	-1.0142857	0.1667143	0.6585714	-0.6542857
-2.7932857	-0.2142857	-1.1542857	-1.3314286	1.7957143
-1.5552857	-0.4142857	-0.6162857	-0.4214286	0.1857143
2.2617143	0.8857143	0.8107143	-0.2614286	0.7157143

Table 28: Scores o puntuaciones de los Individuos (CPs)

	Axis1	Axis2	Axis3	Axis4	Axis5
	1.4376565	-0.2926018	0.4405006	0.7485329	0.2011976
	-3.5348762	-0.0826387	-0.0363875	-0.1754389	0.1672013
	-2.4002270	0.6444380	-0.7444483	0.3828985	-0.0272622
	-0.5952725	-1.8459144	0.0464300	0.0631925	-0.0479380
	0.7667385	-0.2678930	-0.2571839	-0.3791865	-0.1586034
	4.9574860	0.0448702	0.2069372	-0.2543911	-0.0393467
	-2.1317042	0.0629136	-0.6180206	0.2105416	0.0022680
	2.9913377	-2.0972832	-0.9981553	-0.5629194	0.1251749
	3.1718449	2.8563459	0.5167299	-0.3318983	0.0999240
	-1.4206830	1.6000786	-0.3233876	0.3860401	0.0199462
	-0.3649005	1.3805932	-0.3194755	-0.1872499	-0.2012117
	-3.2984865	-0.9766691	1.4408581	-0.5164134	-0.0371544
	-1.7373697	0.0826693	0.1379124	-0.3706954	0.0269023
	2.1584560	-1.1089086	0.5076903	0.9869873	-0.1310979

Table 29: Coordenadas de las Variables

	Comp1	Comp2	Comp3	Comp4	Comp5
x1	1.9818676	-0.0912469	0.0021995	0.2500882	0.0346279
x2	0.7754080	-0.9834796	-0.0973353	-0.2515145	0.0010639
x3	0.8484711	0.1067432	0.0089271	0.0235524	-0.1074534
x4	1.0807509	0.7460472	0.1326056	-0.2936243	0.0197359
x5	-0.1378929	-0.3377802	0.5785109	0.0236723	-0.0028184

Table 30: Vectores Propios-Normalizados (Coeficientes de las CPs. o Loadings)

	CS1	CS2	CS3	CS4	CS5
x1	0.7812081	-0.0708718	0.0036566	0.5417101	0.3020397
x2	0.3056486	-0.7638728	-0.1618174	-0.5447994	0.0092796
x3	0.3344484	0.0829079	0.0148410	0.0510164	-0.9372554
x4	0.4260080	0.5794580	0.2204535	-0.6360125	0.1721452
x5	-0.0543543	-0.2623553	0.9617597	0.0512760	-0.0245831

Table 31: Vector de Medias de los Datos Crudos

x1	x2	x3	x4	x5
4.323286	14.01429	1.952286	2.171429	2.454286

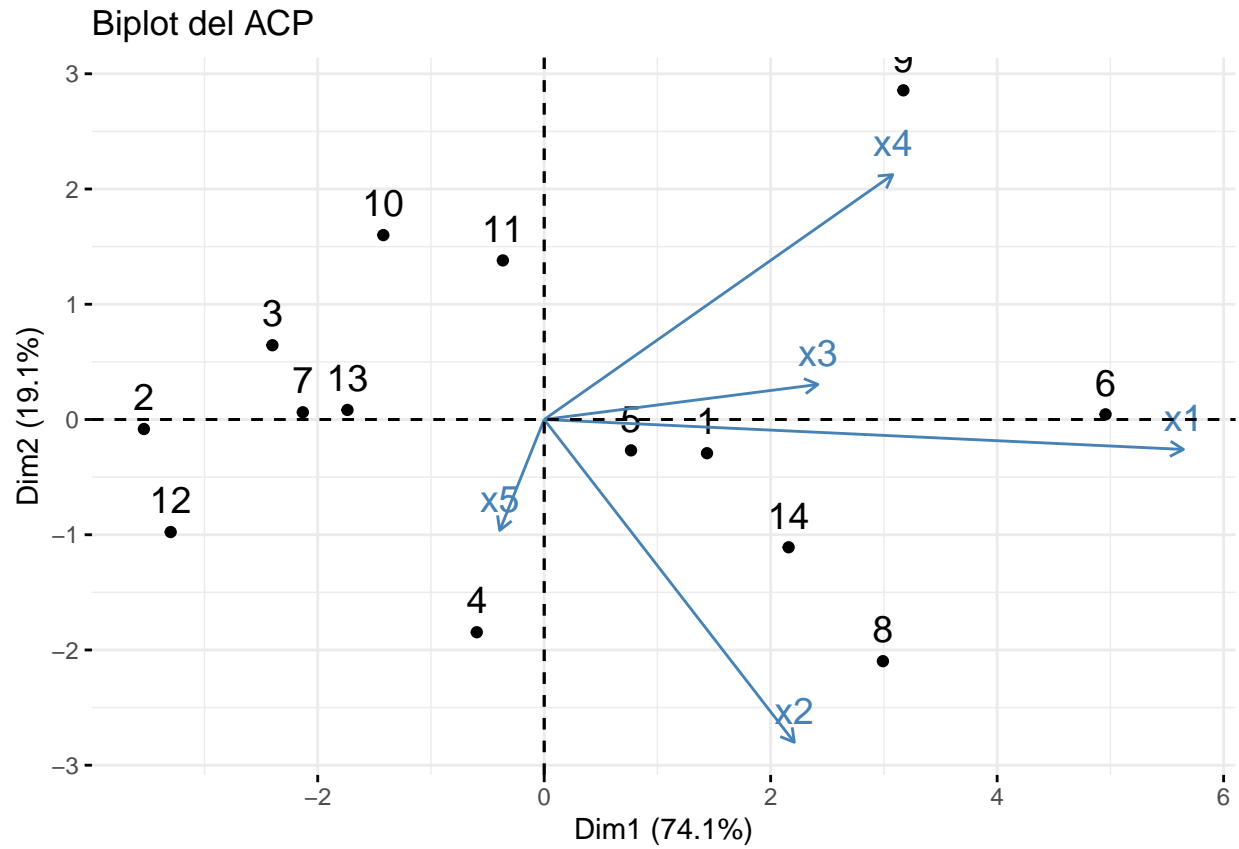


Table 32: Contribuciones de las Variables a la Varianza Total

x1	x2	x3	x4	x5
46.07232	18.90436	8.56371	21.06491	5.394699

Table 33: Contribuciones Absolutas de las Variables a las CPs

	Axis1	Axis2	Axis3	Axis4	Axis5
x1	61.0286	0.5023	0.0013	29.3450	9.1228
x2	9.3421	58.3502	2.6185	29.6806	0.0086
x3	11.1856	0.6874	0.0220	0.2603	87.8448
x4	18.1483	33.5772	4.8600	40.4512	2.9634
x5	0.2954	6.8830	92.4982	0.2629	0.0604

Table 34: Contribuciones Relativas de las Variables a las CPs (Cos2-con signos)

	Axis1	Axis2	Axis3	Axis4	Axis5
x1	98.1981	-0.2082	0.0001	1.5637	0.0300
x2	36.6347	-58.9336	-0.5773	-3.8544	0.0001
x3	96.8291	1.5325	0.0107	0.0746	-1.5530
x4	63.8683	30.4345	0.9615	-4.7143	0.0213
x5	-4.0599	-24.3610	71.4578	0.1196	-0.0017

Table 35: Contribuciones Absolutas Acumuladas de las Variables a las CPs

	Axis1	Axis1:2	Axis1:3	Axis1:4	Axis1:5	Axis6:5
x1	98.1981	98.4062	98.4064	99.9700	100	0
x2	36.6347	95.5683	96.1455	99.9999	100	0
x3	96.8291	98.3617	98.3724	98.4470	100	0
x4	63.8683	94.3029	95.2644	99.9787	100	0
x5	4.0599	28.4208	99.8787	99.9983	100	0

Table 36: Contribuciones Absolutas de los Individuos a las CPs

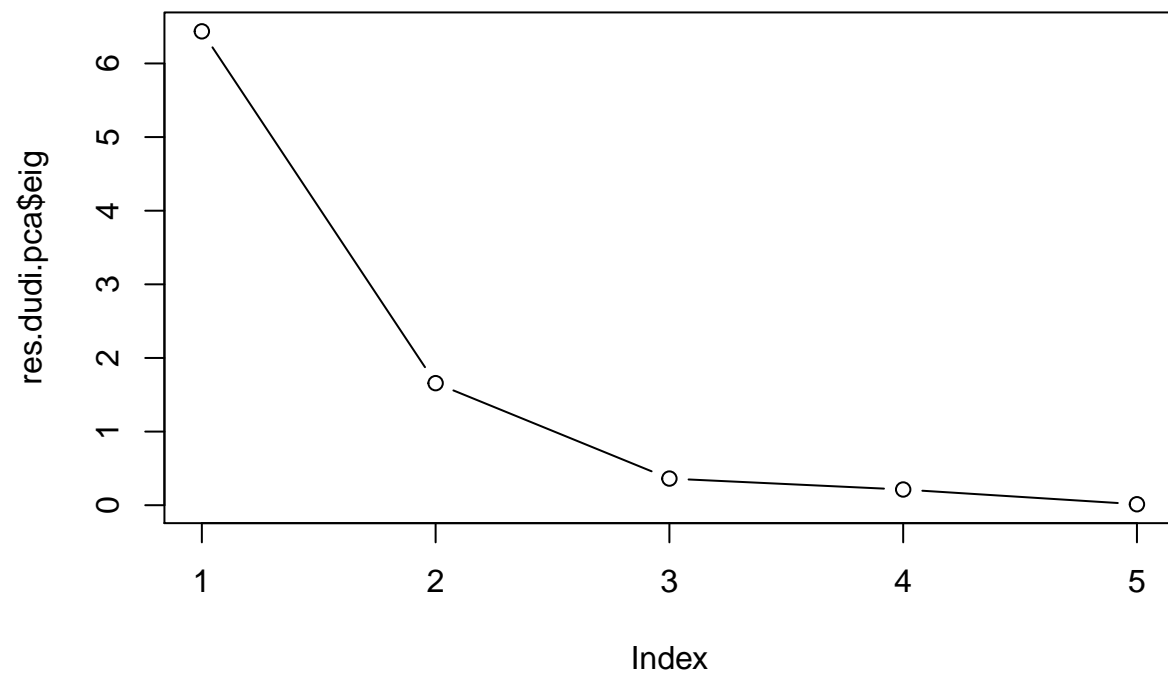
	Axis1	Axis2	Axis3	Axis4	Axis5
	2.2939	0.3689	3.8307	18.7776	21.9985
	13.8677	0.0294	0.0261	1.0315	15.1924
	6.3938	1.7896	10.9409	4.9134	0.4039
	0.3933	14.6827	0.0426	0.1338	1.2488
	0.6525	0.3092	1.3058	4.8186	13.6701
	27.2759	0.0087	0.8454	2.1688	0.8413
	5.0432	0.0171	7.5403	1.4856	0.0028
	9.9309	18.9539	19.6688	10.6197	8.5149
	11.1655	35.1564	5.2712	3.6917	5.4261
	2.2400	11.0323	2.0646	4.9944	0.2162
	0.1478	8.2132	2.0149	1.1751	22.0016
	12.0750	4.1103	40.9850	8.9375	0.7502
	3.3500	0.0294	0.3755	4.6053	0.3933
	5.1706	5.2988	5.0884	32.6469	9.3398

Table 37: Contribuciones Relativas de los Individuos a las CPs (Cos2-con signos)

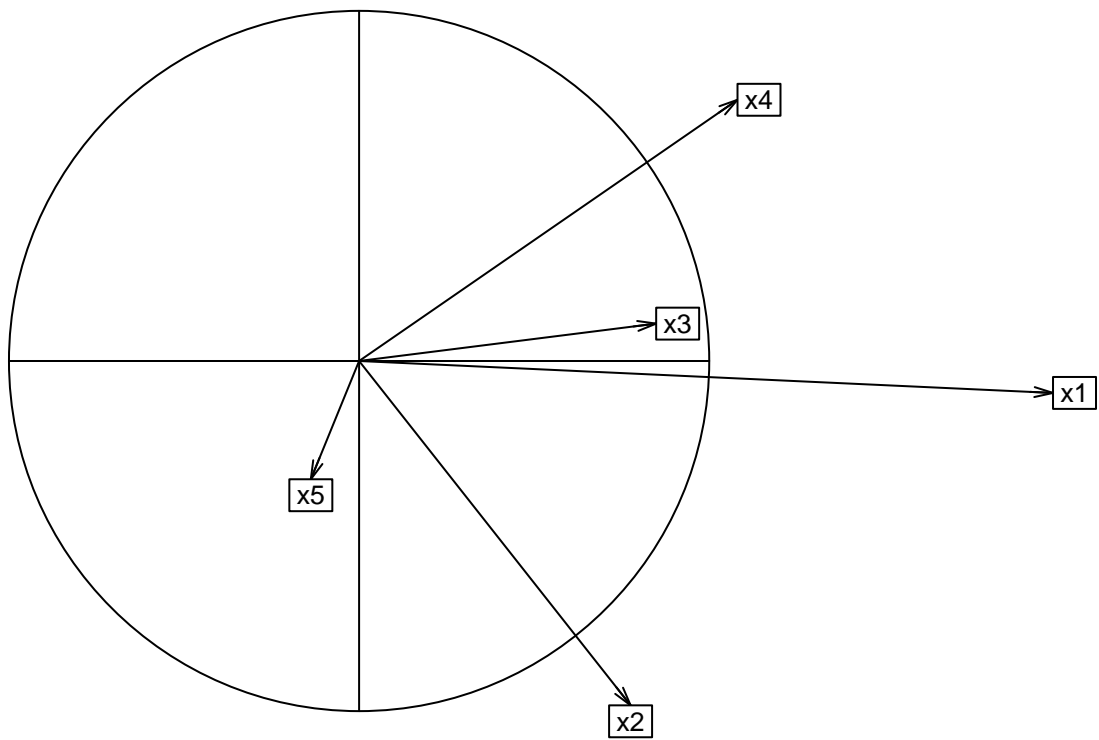
Axis1	Axis2	Axis3	Axis4	Axis5
70.1272	-2.9049	6.5837	19.0107	1.3735
-99.4675	-0.0544	-0.0105	-0.2450	0.2225
-83.7618	6.0381	-8.0577	2.1316	-0.0108
-9.3987	-90.3773	0.0572	0.1059	-0.0610
65.7052	-8.0210	-7.3925	-16.0698	-2.8114
99.5500	0.0082	0.1735	-0.2621	-0.0063
-91.3509	0.0796	-7.6783	0.8911	0.0001
60.9728	-29.9723	-6.7889	-2.1592	0.1068
54.0705	43.8488	1.4350	-0.5920	0.0537
-41.7651	52.9788	-2.1640	3.0838	0.0082
-6.0065	85.9814	-4.6041	-1.5817	-1.8263
-76.7385	-6.7279	14.6429	-1.8810	-0.0097
-94.8470	0.2147	0.5976	-4.3179	0.0227
65.2723	-17.2280	3.6111	13.6479	-0.2408

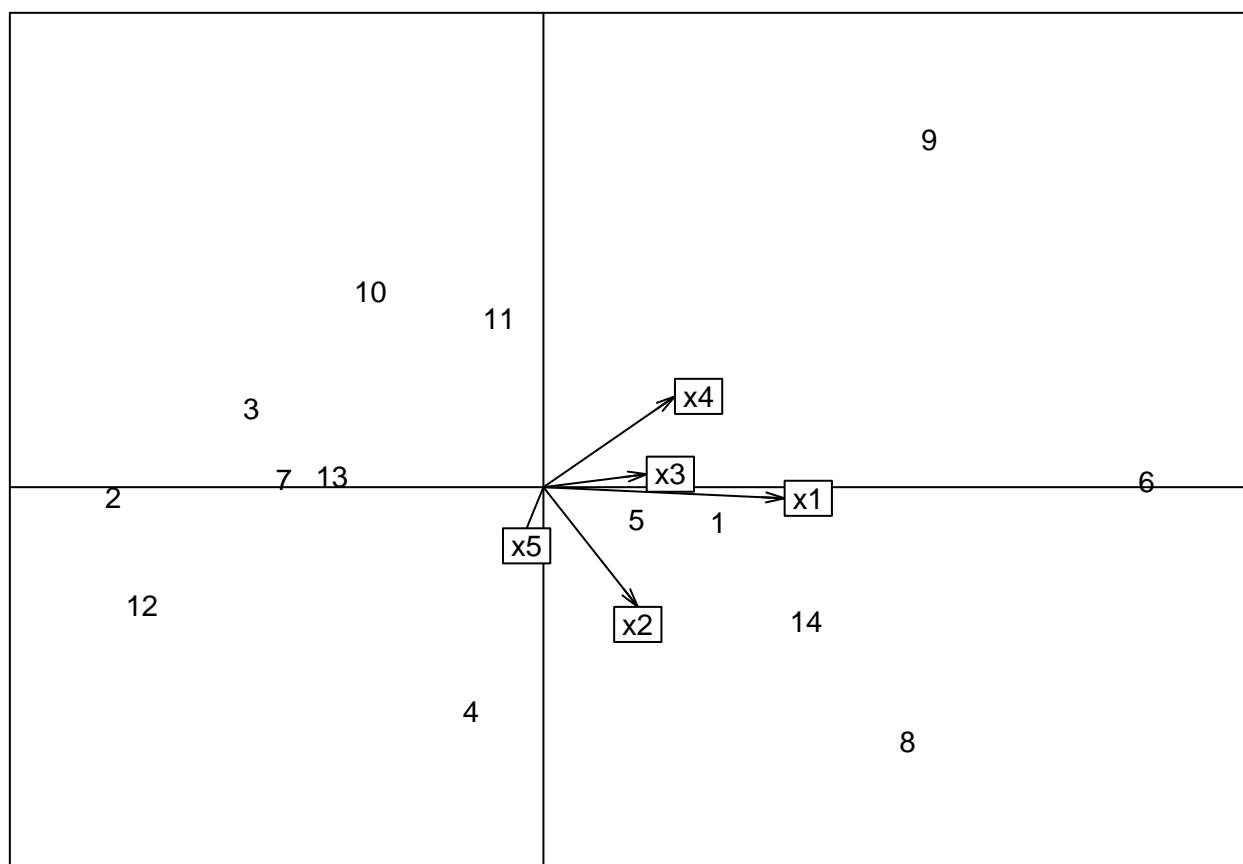
Table 38: Contribuciones Absolutas Acumuladas de los Individuos a las CPs

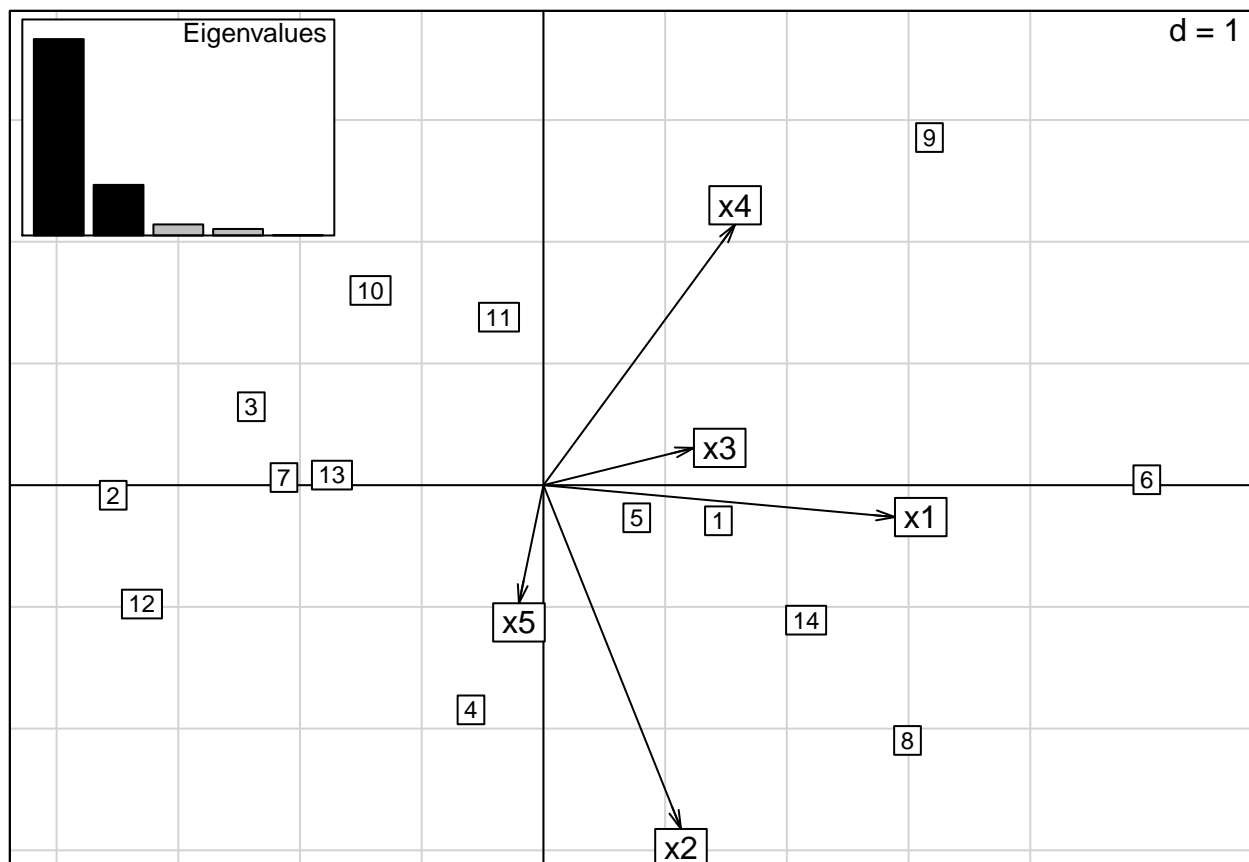
Axis1	Axis1:2	Axis1:3	Axis1:4	Axis1:5	Axis6:5
70.1272	73.0321	79.6158	98.6265	100	0
99.4675	99.5219	99.5324	99.7775	100	0
83.7618	89.7999	97.8576	99.9892	100	0
9.3987	99.7760	99.8331	99.9390	100	0
65.7052	73.7262	81.1187	97.1886	100	0
99.5500	99.5581	99.7316	99.9937	100	0
91.3509	91.4305	99.1088	99.9999	100	0
60.9728	90.9451	97.7340	99.8932	100	0
54.0705	97.9193	99.3543	99.9463	100	0
41.7651	94.7439	96.9080	99.9918	100	0
6.0065	91.9879	96.5920	98.1737	100	0
76.7385	83.4664	98.1093	99.9903	100	0
94.8470	95.0617	95.6594	99.9773	100	0
65.2723	82.5002	86.1113	99.7592	100	0









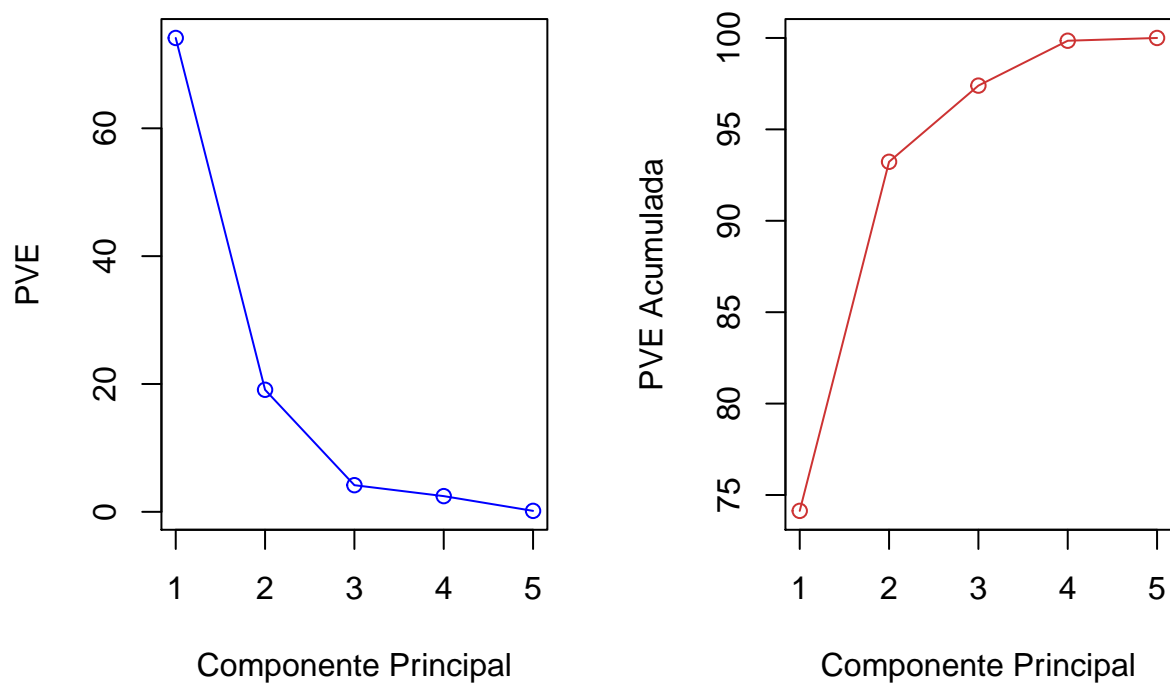


ACP con la función: princomp del paquete stats

Table 39: Porcentajes de Var Explicada

Comp.1	Comp.2	Comp.3	Comp.4	Comp.5
74.13268	19.09337	4.167579	2.454972	0.1513975

Gráfico de Valores Propios



Vectores Propios (Loadings)

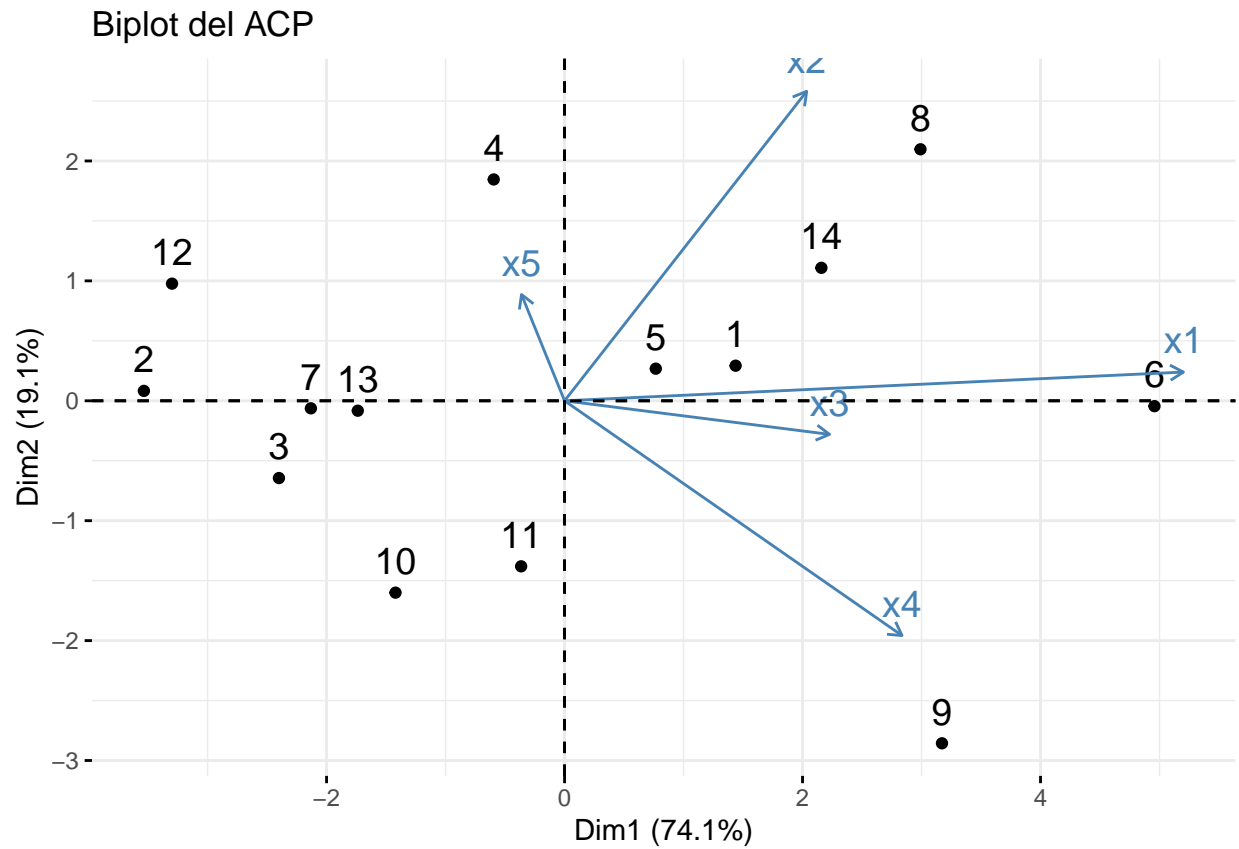
Table 40: Vectores Propios (Loadings)

	Comp.1	Comp.2	Comp.3	Comp.4	Comp.5
x1	0.7812	0.0709	0.0037	0.5417	0.3020
x2	0.3056	0.7639	-0.1618	-0.5448	0.0093
x3	0.3344	-0.0829	0.0148	0.0510	-0.9373
x4	0.4260	-0.5795	0.2205	-0.6360	0.1721
x5	-0.0544	0.2624	0.9618	0.0513	-0.0246

Puntajes de las CPs, ie. Scores o Puntajes

Table 41: Scores o Puntajes, ie. CPs

Comp.1	Comp.2	Comp.3	Comp.4	Comp.5
1.4377	0.2926	0.4405	0.7485	0.2012
-3.5349	0.0826	-0.0364	-0.1754	0.1672
-2.4002	-0.6444	-0.7444	0.3829	-0.0273
-0.5953	1.8459	0.0464	0.0632	-0.0479
0.7667	0.2679	-0.2572	-0.3792	-0.1586
4.9575	-0.0449	0.2069	-0.2544	-0.0393
-2.1317	-0.0629	-0.6180	0.2105	0.0023
2.9913	2.0973	-0.9982	-0.5629	0.1252
3.1718	-2.8563	0.5167	-0.3319	0.0999
-1.4207	-1.6001	-0.3234	0.3860	0.0199
-0.3649	-1.3806	-0.3195	-0.1872	-0.2012
-3.2985	0.9767	1.4409	-0.5164	-0.0372
-1.7374	-0.0827	0.1379	-0.3707	0.0269
2.1585	1.1089	0.5077	0.9870	-0.1311



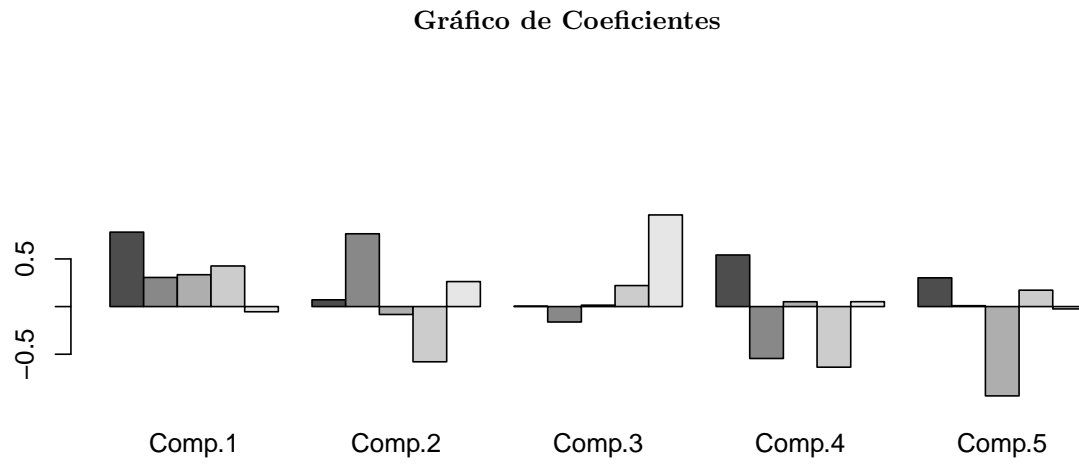


Figure 4: Gráfico de Coeficientes