

ANEXOS

Anexo N° 1.

MATRICES Y OPERACIONES CON MATRICES

Vector	Orden $n \times 1$	$\vec{a}_{n \times 1}$
Matriz	Orden $n \times p$	$A_{n \times p} = (a_{ij})$
Matriz Cuadrada	$n=p$	$A_{n \times n}$
Transpuesta	Orden $n \times p$	$A^t = (a_{ji})_{p \times n}$
Suma	A y B del mismo orden	$A+B = (a_{ij} + b_{ij})$
Resta	A y B del mismo orden	$A-B = (a_{ij} - b_{ij})$
Multiplicación por un escalar		$cA = (c a_{ij})$
Multiplicación Por un escalar	Número de columnas de A igual al número de filas de B	$AB = (\vec{a}_i \vec{b}_i)$
Producto interno	\vec{a} y \vec{b} del mismo orden	$\vec{a} \cdot \vec{b} = \sum a_i b_i$
Traza	A debe ser cuadrada	$\text{Tr } A = \sum a_{ii}$
Determinante	A debe ser cuadrada	$ A $ o $\text{Det } (A)$
Inversa	A debe ser cuadrada y $ A \neq 0$	$AA^{-1} = A^{-1}A = I$

PROPIEDADES DE OPERACIONES COM MATRICES

1.- $\text{tr}(A') = \text{tr}(A)$

2.- $(A+B)' = A' + B'$

3.- $\text{tr}(A+B) = \text{tr}(A) + \text{tr}(B)$

4.- $A + A = 2A$

5.- $I_p A_{p \times q} = A_{p \times q} I_q = A_{p \times q}$

6.- $(AB)' = B' A'$

7.- $\text{tr}(AB) = \text{tr}(BA)$

8.- $\text{tr}(AA') = \text{tr}(BA)$ $\text{tr}(AB) = \text{tr}(BA)$

9.- $A^{-1} = A A^{-1} = I$

10.- $|A^{-1}| = 1/|A|$

11.- $(A^{-1})^{-1} = A$

12.- $(A')^{-1} = (A^{-1})'$

13.- $(AB)^{-1} = B^{-1}A^{-1}$

MATRICES PARTICULARES

Vector Unicidad	$(1 \dots \dots \dots 1)'$	1 o 1_p
Diagonal	$p = n, a_{ij} = 0, i \neq j$	$\text{Diag}(a_{ii})$
Identidad	$\text{Diag}(1)$	I o I_p
Simétrica	$a_{ij} = a_{ji}$	
Matriz Unicidad	$p = n, a_{ij} = 1$	$J_p = 11'$
Matriz Triangular Superior	$a_{ij} = 0$ bajo la diagonal	Δ'
Matriz Triangular Inferior	$a_{ij} = 0$ sobre la diagonal	Δ
Asimétrica	$a_{ij} \neq a_{ji}$	
Nula	$a_{ij} = 0$	

La inversa de la matriz diagonal:

$$[\text{Diag}(a_{ii})]^{-1} = \text{Diag}(1/a_{ii}), \text{ cuando } a_{ii} \neq 0$$

MATRICES IDEMPOTENTE

$$B'AB = \Lambda$$

Definición: Una Matriz cuadrada A es idempotente si

$$A^2 = A$$

MATRICES ORTOGONALES

Definición: Una matriz cuadrada A es ortogonal si $AA' = I = A'A$

DESCOMPOSICIÓN ESPECTRAL DE MATRICES SIMÉTRICAS

Definición: Sea A una matriz real $p \times p$ y sea $\mathbf{x} = (x_1, \dots, x_p) \in \mathbb{C}^p$

Un vector llamado característico (vector latente o autovector) de A , si $\mathbf{x} \neq \mathbf{0}$ y

$$A\mathbf{x} = \lambda \mathbf{x}$$

DIAGONALIZACION Y DESCOMPOSICIÓN ESPECTRAL DE MATRICES SIMÉTRICAS

TEOREMA 1: Sea una matriz real simétrica de dimensión $p \times p$, entonces existe una matriz ortogonal B y una matriz diagonal Λ tal que

$$B'AB = \Lambda$$

usamos la ortogonalidad de B para escribir:

$$A = B \Lambda B'$$

$$= \sum_{j=1}^p \lambda_j \mathbf{b}_j \mathbf{b}_j'$$

llamada descomposición espectral de A .

LEMA 1: La matriz simétrica A es definida positiva si y sólo si todos sus autovalores son positivos.

La matriz de varianzas- covarianzas denotado por Σ . La cual es simétrica y definida positiva, se define como:

$$\Sigma = E [(\mathbf{x} - \mu)(\mathbf{x} - \mu)'] = \text{Var} [\mathbf{x}]$$

$$\Sigma = \begin{bmatrix} \mathbf{s}_{11} & \dots & \dots & \mathbf{s}_{1p} \\ \dots & \dots & \dots & \dots \\ \dots & \dots & \dots & \dots \\ \dots & \dots & \dots & \dots \\ \mathbf{s}_{1p} & \dots & \dots & \mathbf{s}_{pp} \end{bmatrix}$$

La correlación entre las variables x_i y x_j , está denotado por r_{ij} y se define como:

$$r_{ij} = \frac{\mathbf{s}_{ij}}{\sqrt{s_{ii}s_{jj}}}, i = 1,2,\dots,p \quad j = 1,2,\dots,p.$$

Así la matriz de correlaciones poblacional denotada por P, es una matriz simétrica de orden $p \times p$, donde

$$P = \begin{bmatrix} 1 & \mathbf{r}_{12} & \dots & \mathbf{r}_{1p} \\ \mathbf{r}_{2p} & 1 & \dots & \mathbf{r}_{2p} \\ \dots & \dots & \dots & \dots \\ \mathbf{r}_{p1} & \mathbf{r}_{p2} & \dots & 1 \end{bmatrix}$$

La matriz de varianzas-covarianzas, Σ , está caracterizada por $p(p+1)/2$ parámetros.

Anexo N° 2.

USUARIO	VARIABLES																				
	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15	X16	X17	X18	X19	X20	X21
1	8	8	10	10	9	10	10	8	10	10	6	7	8	8	10	10	8	8	10	10	10
2	8	8	10	8	6	7	7	7	6	6	6	7	7	8	6	9	7	7	10	8	9
3	5	7	8	6	5	4	7	8	4	4	7	5	6	5	7	10	6	5	9	10	7
4	6	7	7	9	7	8	6	10	8	8	9	10	8	9	8	6	9	8	8	8	8
5	6	7	9	9	7	9	10	10	9	10	9	8	7	4	7	10	9	5	10	9	10
6	10	10	10	10	10	10	10	10	10	10	10	1	10	10	10	10	10	10	10	10	10
7	5	7	10	8	7	8	6	4	9	9	10	8	8	7	8	8	6	7	8	8	8
8	6	7	10	9	7	7	9	9	8	3	9	9	6	8	8	6	6	8	10	10	10
9	10	10	10	10	8	10	6	9	9	9	7	8	8	8	9	9	9	7	6	8	7
10	7	7	10	10	4	10	10	9	10	10	6	9	8	10	10	10	10	10	10	10	9
11	10	9	4	10	3	9	8	7	4	6	9	3	2	6	9	8	6	5	3	2	2
12	10	8	10	10	8	10	10	10	10	10	7	10	10	10	4	10	10	10	10	10	10
13	7	6	9	4	8	9	2	6	8	10	9	3	6	3	9	4	8	3	9	7	10
14	8	8	7	7	6	7	6	7	7	7	4	4	4	5	6	7	4	5	6	7	6
15	2	5	5	6	7	5	7	4	5	5	6	3	4	5	6	5	7	6	5	4	3
16	10	8	8	6	8	8	8	10	10	10	9	6	6	8	9	10	8	9	10	10	8
17	1	8	9	3	1	1	10	1	1	1	6	1	1	1	1	1	1	1	9	2	10
18	7	8	9	8	5	6	6	10	8	5	6	4	4	6	5	7	6	5	8	8	8
19	6	5	10	9	4	9	9	9	9	10	7	8	6	8	8	9	8	6	10	10	10
20	5	7	9	8	6	5	7	4	6	7	7	6	6	6	5	7	8	7	10	10	10
21	9	10	10	8	7	5	10	1	1	10	3	1	1	2	4	8	6	5	9	7	9
22	7	9	7	6	6	10	9	7	6	9	5	4	5	6	9	9	6	6	9	9	6
23	6	6	6	5	4	6	6	3	1	7	2	3	2	3	2	5	5	4	9	9	9
24	7	7	10	8	6	10	5	6	8	9	8	8	8	8	7	9	8	8	9	10	10
25	7	9	10	6	6	5	10	8	10	10	6	4	6	5	7	10	6	8	10	10	10
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43	8	10	10	10	7	10	10	10	10	10	8	7	9	8	8	10	10	10	10	10	10
44	7	10	9	10	5	9	8	10	10	10	5	7	8	9	8	10	8	10	10	8	9
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48	6	5	8	8	4	8	6	3	8	1	3	2	7	5	2	8	3	4	3	7	7
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56	10	10	10	9	6	10	10	10	9	6	10	9	10	10	10	10	10	10	10	10	10
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59	10	10	6	8	4	9	6	4	7	8	5	2	2	6	5	6	6	6	8	7	9
60	6	8	9	8	4	8	9	5	7	9	4	7	8	9	6	9	5	6	5	4	5

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USUARIO	VARIABLES																				
	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15	X16	X17	X18	X19	X20	X21
61	8	8	9	10	9	5	9	9	2	5	6	4	4	6	6	9	8	6	8	8	8
62	8	8	10	8	7	7	6	7	9	10	3	10	8	9	7	10	10	6	8	10	10
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83	9	9	9	4	7	9	9	9	9	8	8	9	9	9	9	9	9	8	10	10	10
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109	5	8	8	5	3	4	7	9	4	2	3	5	5	7	9	10	8	8	10	10	10
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116	4	4	6	5	6	8	5	5	3	6	6	4	6	6	6	9	5	5	9	3	4
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118	10	10	10	10	9	10	9	8	8	6	7	9	8	8	8	10	10	9	10	10	10
119	9	9	10	8	6	8	6	9	10	9	6	8	9	9	10	10	10	9	10	10	10
120	7	7	5	5	3	7	7	5	5	7	5	1	5	5	5	7	5	4	5	5	5

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USUARIO	VARIABLES																				
	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15	X16	X17	X18	X19	X20	X21
121	10	10	7	6	3	7	4	4	7	9	5	1	6	5	5	9	5	1	8	7	8
122	5	8	6	9	5	8	10	8	10	10	8	6	8	10	10	8	8	10	10	10	10
123	5	7	8	7	7	8	7	5	9	7	6	5	6	7	7	7	4	7	7	8	8
124	10	7	3	6	5	6	8	3	1	1	3	1	1	1	1	4	1	1	5	3	2
125	6	8	6	8	4	8	10	6	4	5	6	6	4	5	6	2	6	8	6	8	4
126	6	6	7	6	6	6	7	5	7	8	6	6	6	6	6	9	6	6	10	8	8
127	2	5	6	7	7	2	8	5	5	7	5	1	5	8	5	4	6	8	5	7	8
128	8	8	10	8	6	7	3	2	2	6	6	1	2	4	5	9	5	6	10	9	10
129	6	6	10	8	7	8	8	7	8	9	4	9	7	9	9	9	8	7	8	8	9
130	5	8	6	8	7	10	7	8	8	3	5	7	7	7	7	9	6	6	10	8	9
131	7	7	8	8	4	8	8	7	9	9	6	9	6	7	7	7	8	6	9	9	8
132	8	8	1	1	7	4	4	4	7	7	5	1	5	5	6	7	7	7	3	1	5
133	7	7	4	4	5	6	6	7	9	9	6	8	9	4	6	6	2	6	2	2	2
134	7	8	8	6	4	8	8	8	9	9	4	4	4	6	6	7	6	6	7	8	9
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136	7	7	10	7	5	3	5	9	9	10	4	9	10	8	6	6	6	6	7	8	9
137	7	7	10	8	5	7	10	1	9	10	10	1	10	10	5	10	5	10	10	8	5
138	9	6	7	10	7	4	10	5	5	10	9	1	5	5	10	10	5	5	10	10	8
139	7	4	8	9	1	5	6	2	9	5	1	3	1	6	1	3	1	5	10	9	9
140	5	6	5	7	1	5	5	5	7	7	5	7	5	5	6	9	6	5	1	2	1
141	6	6	8	8	1	8	10	7	1	10	5	1	6	7	6	9	6	6	6	7	7
142	8	6	10	10	5	3	5	5	9	1	5	5	8	6	5	9	5	9	10	10	10
143	7	7	7	7	3	6	5	5	5	10	3	1	1	1	5	9	4	1	8	8	8
144	7	10	10	10	7	7	7	9	3	1	10	3	5	9	10	9	10	10	10	10	7
145	5	5	8	7	5	3	6	8	9	9	4	8	5	8	6	3	6	8	7	8	10
146	7	7	8	8	7	10	8	10	9	10	7	8	8	6	9	8	8	8	8	8	8
147	8	8	9	8	7	10	10	8	7	10	8	10	7	10	8	10	9	7	9	7	9
148	5	8	10	10	10	10	10	10	10	8	5	1	9	10	9	10	10	10	10	10	10
149	8	8	10	10	5	10	9	10	8	10	5	10	10	6	9	9	7	9	10	10	10
150	8	6	7	7	6	8	7	7	7	7	7	9	9	6	8	8	7	7	8	8	7
151	5	5	3	6	7	7	5	4	6	7	3	5	6	6	6	6	7	6	6	5	6
152	9	6	7	10	7	4	10	5	5	10	9	1	5	5	10	10	5	5	10	10	8
153	7	4	8	9	1	5	6	2	9	5	1	3	1	6	1	3	1	5	10	9	9
154	7	7	7	7	3	6	5	5	5	10	3	1	1	1	5	9	4	1	8	8	8
155	7	7	8	8	7	10	8	10	9	10	7	8	8	6	9	8	8	8	8	8	8
156	5	7	8	6	5	4	7	8	4	4	7	5	6	5	7	10	6	5	9	10	7
157	5	7	10	8	7	8	6	4	9	9	10	8	8	7	8	8	6	7	8	8	8
158	10	8	10	10	8	10	10	10	10	10	7	10	10	10	4	10	10	10	10	10	10
159	10	8	8	6	8	8	8	10	10	10	9	6	6	8	9	10	8	9	10	10	8
160	7	7	10	8	6	10	5	6	8	9	8	8	8	8	7	9	8	8	9	10	10
161	6	7	10	9	7	7	8	8	8	8	7	6	7	7	8	8	8	8	8	9	9
162	5	5	3	6	7	7	5	4	6	7	3	5	6	6	6	6	7	6	6	5	6
163	8	7	10	8	6	7	8	6	9	7	5	7	5	7	5	8	9	8	10	10	10
164	10	8	10	7	4	7	6	8	9	5	7	9	10	9	10	5	6	10	10	10	10
165	8	8	6	5	4	8	6	8	6	8	6	2	5	5	5	9	4	6	10	10	10
166	5	8	9	10	6	5	9	9	10	10	7	10	7	7	5	8	8	8	9	7	6
167	6	8	9	8	4	8	9	5	7	9	4	7	8	9	6	9	5	6	5	4	5
168	6	5	9	10	8	6	10	7	4	6	8	5	5	10	7	9	10	10	10	7	9
169	6	5	10	8	8	10	10	10	10	10	8	6	7	7	10	10	8	9	10	10	10
170	9	10	10	9	6	10	10	9	9	10	9	10	9	10	10	10	8	9	10	10	10
171	7	9	10	9	9	10	9	7	8	9	8	7	6	5	7	9	5	5	9	10	9
172	5	8	6	9	5	8	10	8	10	10	8	6	8	10	10	10	8	8	10	10	10
173	6	6	7	6	6	6	7	5	7	8	6	6	6	6	6	9	6	6	10	8	8
174	5	8	6	8	7	10	7	8	8	3	5	7	7	7	7	9	6	6	10	8	9
175	8	8	1	1	7	4	4	4	7	7	5	1	5	5	6	7	7	7	3	1	5
176	7	7	10	7	5	3	5	9	9	10	4	9	10	8	6	6	6	6	7	8	9
177	7	4	8	9	1	5	6	2	9	5	1	3	1	6	1	3	1	5	10	9	9
178	7	7	7	7	3	6	5	5	5	10	3	1	1	1	5	9	4	1	8	8	8
179	5	8	10	10	10	10	10	10	10	8	5	1	9	10	9	10	10	10	10	10	10
180	5	5	3	6	7	7	5	4	6	7	3	5	6	6	6	6	7	6	6	5	6
181	7	4	8	9	1	5	6	2	9	5	1	3	1	6	1	3	1	5	10	9	9

Anexo N° 3

Comparación de los Autovalores de la Matriz de correlación de Pearson y de Spearman.

Autovalores de la Matriz Pearson $\hat{\alpha}_i$	Autovalores de la Matriz Spearman $\hat{\alpha}_i$
8.114	8.173
2.172	1.804
1.462	1.369
10.75	1.159
1.14	1.090
0.921	0.852
0.778	0.799
0.711	0.774
0.626	0.671
0.575	0.579
0.548	0.522
0.488	0.478
0.434	0.460
0.42	0.405
0.343	0.363
0.305	0.341
0.283	0.312
0.229	0.270
0.196	0.225
0.183	0.211
0.124	0.143

Anexo N° 4 : Autovectores de la Matriz de correlaciones de Pearson

	β_1	β_2	β_3	β_4	β_5	β_6	β_7	β_8	β_9	β_{10}
X ₁	-0.147606	-0.032782	-0.465919	-0.495125	0.048658	0.114607	-0.049931	0.225861	0.305687	0.002435
X ₂	-0.167656	0.002743	-0.514766	-0.344234	0.084815	-0.120743	-0.16442	-0.111772	-0.162173	-0.265388
X ₃	-0.225669	-0.3214	0.062503	-0.0162	-0.090918	-0.225431	-0.202283	0.080479	-0.059852	-0.182453
X ₄	-0.22663	-0.15427	0.078319	-0.09935	0.125092	-0.297831	0.103197	0.436649	0.110296	0.41109
X ₅	-0.204249	0.157855	-0.099291	0.446217	0.095247	0.147501	-0.20025	0.014851	0.508595	-0.084128
X ₆	-0.192514	0.063208	-0.270782	0.091455	-0.297634	-0.136349	-0.052313	-0.549594	0.262989	0.535744
X ₇	-0.178731	-0.064952	-0.097718	0.327229	-0.039838	-0.679055	0.064811	0.11299	-0.009655	-0.157019
X ₈	-0.243648	0.183829	0.015594	0.034742	0.054943	0.147846	-0.015719	0.06257	-0.401981	0.281477
X ₉	-0.21859	0.105196	0.277523	-0.235607	-0.25021	0.119787	0.107934	0.298258	0.127902	0.240705
X ₁₀	-0.146811	0.154821	-0.132527	0.159457	-0.683998	0.168623	0.18415	0.312696	0.067315	-0.314639
X ₁₁	-0.203676	0.171845	-0.057176	0.23238	0.203204	0.092718	-0.577487	0.292515	-0.14213	0.042216
X ₁₂	-0.200309	0.161824	0.277804	-0.245141	-0.287321	-0.147871	-0.399589	-0.164782	-0.209318	-0.03204
X ₁₃	-0.256171	0.205616	0.198915	-0.109367	-0.109141	-0.002818	-0.06916	-0.234129	-0.036493	-0.130685
X ₁₄	-0.259627	0.095271	0.231181	-0.175775	0.125372	-0.23275	0.265062	-0.143089	0.10518	-0.20852
X ₁₅	-0.259198	0.197128	-0.04732	0.072828	0.162312	0.174013	0.10397	-0.009546	-0.168027	0.004968
X ₁₆	-0.21003	0.034373	-0.316291	0.18717	0.01127	0.018067	0.425019	-0.008376	-0.417458	0.106058
X ₁₇	-0.270185	0.158218	0.037819	0.039361	0.222403	0.152815	0.191986	-0.119158	0.036975	-0.214932
X ₁₈	-0.274109	0.083271	0.186652	-0.076165	0.311429	0.023123	0.149355	-0.062988	0.261057	-0.061052
X ₁₉	-0.200924	-0.44434	0.042612	0.155028	0.030388	0.149393	-0.080593	-0.090146	-0.011592	-0.033985
X ₂₀	-0.233875	-0.42698	0.029987	0.028715	-0.049545	0.202621	-0.007267	-0.026424	-0.074403	0.146331
X ₂₁	-0.19813	-0.459379	0.074959	-0.005153	-0.077634	0.253277	0.026316	-0.136017	0.001146	-0.158833

	β_{11}	β_{12}	β_{13}	β_{14}	β_{15}	β_{16}	β_{17}	β_{18}	β_{19}	β_{20}	β_{21}
X ₁	-0.107234	-0.017324	-0.359514	0.219226	-0.244618	-0.129515	0.179148	0.108806	-0.185755	-0.087819	0.02402
X ₂	-0.063058	-0.001057	0.413413	-0.085659	0.26497	0.182342	-0.270484	-0.112369	0.231297	0.043777	-0.059048
X ₃	0.336114	-0.13897	0.296193	-0.134699	-0.185105	-0.262965	0.514358	-0.234842	-0.02396	-0.188686	0.028103
X ₄	0.310208	-0.283196	-0.039935	-0.204142	0.018921	0.285934	-0.32398	0.046441	-0.001179	0.010262	0.113895
X ₅	0.126414	-0.27808	0.242511	0.368111	-0.056687	-0.101774	-0.158092	0.116734	0.211652	-0.040012	-0.035865
X ₆	0.012275	0.096527	-0.004392	-0.252671	0.087689	-0.006747	0.143029	0.010986	-0.059731	-0.007791	0.061904
X ₇	-0.473055	0.082853	-0.061187	0.130475	-0.070112	-0.080661	-0.084985	0.011124	-0.242566	0.090502	-0.074701
X ₈	-0.43472	-0.449175	0.123933	0.141389	-0.011549	0.203416	0.363766	0.090421	0.099009	-0.061886	0.117474
X ₉	-0.188943	0.350979	0.417805	0.179126	0.24874	-0.26702	-0.09378	-0.097314	-0.099524	-0.160423	-0.064445
X ₁₀	0.003979	-0.059135	-0.156325	-0.259958	0.039825	0.209136	0.064042	-0.048961	0.158175	0.081577	0.03093
X ₁₁	0.11261	0.441856	-0.14137	-0.145739	0.205033	0.098725	0.157704	0.155551	-0.110814	0.127451	0.047639
X ₁₂	0.069079	-0.248211	-0.353776	0.136811	0.068308	-0.35513	-0.283801	0.01165	0.147501	0.126106	0.030975
X ₁₃	0.179427	0.144271	0.07412	0.270616	-0.380977	0.554656	-0.09119	-0.144406	-0.357707	-0.09069	-0.027769
X ₁₄	0.082346	0.190965	-0.055942	-0.01535	0.096944	0.086719	0.238275	0.588514	0.36399	-0.144647	-0.062789
X ₁₅	-0.108354	0.11489	0.077734	-0.460758	-0.577984	-0.310013	-0.298503	0.065383	0.078336	-0.132805	0.004773
X ₁₆	0.421621	0.166333	-0.103074	0.402012	0.080125	-0.199638	-0.015301	-0.0766	0.035465	0.063692	0.13262
X ₁₇	0.05948	-0.307938	-0.130949	-0.231695	0.427093	-0.118709	-0.003967	-0.064551	-0.507937	-0.155352	-0.274846
X ₁₈	-0.133428	0.091381	-0.134512	-0.04461	0.014937	0.011017	0.155779	-0.5434	0.240323	0.455477	0.224208
X ₁₉	-0.190584	0.133877	-0.311608	0.053298	0.135762	0.13626	-0.170496	-0.213908	0.214684	-0.603028	0.146453
X ₂₀	-0.029366	0.03631	-0.051517	0.052072	-0.108162	0.067076	0.006904	0.040245	0.118207	0.33485	-0.733858
X ₂₁	-0.079092	-0.028685	0.16779	-0.013953	0.037788	-0.038395	-0.118667	0.368524	-0.286009	0.343864	0.491128

Anexo N° 5 : Autovectores de la Matriz de correlaciones de Spearman

	β_1	β_2	β_3	β_4	β_5	β_6	β_7	β_8	β_9	β_{10}
X ₁	-0.150879	-0.194545	-0.41509	0.449718	0.172157	0.135457	-0.050761	0.213284	0.144722	-0.021556
X ₂	-0.168139	-0.120954	-0.483089	0.418862	0.111959	-0.044686	0.030668	-0.122978	-0.168178	-0.113693
X ₃	-0.238015	-0.174669	0.083524	0.123534	-0.072504	0.003252	0.472929	0.118344	0.192953	0.083945
X ₄	-0.231058	-0.066401	0.020996	0.033203	0.16031	-0.329452	0.23919	0.407389	-0.029628	0.093582
X ₅	-0.181932	0.160456	-0.133357	-0.375259	0.289797	0.263516	0.28616	0.004121	0.521006	0.057984
X ₆	-0.197188	0.071143	-0.314334	-0.150647	-0.183004	0.123091	0.226642	-0.537785	0.017371	-0.281909
X ₇	-0.190794	-0.013825	-0.206585	-0.404777	-0.083127	-0.412365	0.250015	0.099096	-0.309626	-0.325558
X ₈	-0.237567	0.166935	-0.043751	-0.029712	0.004681	0.15342	-0.366037	0.084661	-0.080686	-0.306043
X ₉	-0.230896	0.174358	0.159947	0.086827	-0.220957	-0.061346	-0.212807	0.298435	0.112428	-0.366012
X ₁₀	-0.160824	0.140813	-0.27415	-0.123753	-0.560735	-0.029654	-0.182562	0.326921	0.287649	0.161389
X ₁₁	-0.196892	0.156732	-0.026525	-0.179652	0.237923	0.490901	0.076111	0.323703	-0.465899	0.137744
X ₁₂	-0.192023	0.261017	0.203792	0.26705	-0.303817	0.260032	0.270782	-0.042526	-0.239582	0.086775
X ₁₃	-0.245868	0.214608	0.145443	0.187385	-0.235806	0.062688	0.096109	-0.20498	-0.041327	0.227601
X ₁₄	-0.257406	0.156418	0.184369	0.158387	0.07162	-0.396809	0.030665	-0.164999	-0.070346	0.105882
X ₁₅	-0.24617	0.147856	-0.02218	-0.086216	0.184522	0.03908	-0.304956	-0.169868	-0.045701	-0.076898
X ₁₆	-0.218728	-0.143301	-0.253593	-0.214876	-0.09864	-0.154081	-0.266459	-0.153012	-0.119181	0.628268
X ₁₇	-0.26366	0.16556	0.129268	0.023857	0.282135	-0.110934	-0.151571	-0.078699	0.21853	0.078319
X ₁₈	-0.274874	0.075605	0.192446	0.061835	0.276407	-0.135643	-0.089107	-0.104512	0.094281	-0.029406
X ₁₉	-0.210304	-0.426336	0.18574	-0.161075	-0.003441	0.041142	-0.021656	0.015323	-0.200942	-0.052429
X ₂₀	-0.229475	-0.44132	0.138333	-0.08377	-0.064855	0.21839	-0.146495	-0.041668	-0.033108	0.027484
X ₂₁	-0.205372	-0.43387	0.235419	0.00998	-0.159929	0.113754	-0.033369	-0.100344	0.218233	-0.166301

	β_{11}	β_{12}	β_{13}	β_{14}	β_{15}	β_{16}	β_{17}	β_{18}	β_{19}	β_{20}	β_{21}
X ₁	0.253494	-0.253059	-0.195841	0.251248	0.316719	-0.063248	-0.222622	-0.178105	-0.039932	-0.170687	0.035776
X ₂	-0.110978	0.204232	-0.058548	-0.287129	-0.302266	0.15188	0.357699	0.24743	0.021537	0.1672	-0.067479
X ₃	0.01225	0.437211	0.21014	-0.285201	-0.029453	-0.191392	-0.437353	0.107518	-0.136095	-0.165955	-0.013777
X ₄	-0.374353	-0.234901	0.469675	0.242657	0.101088	0.002638	0.247185	-0.011447	0.127752	0.08682	0.059136
X ₅	-0.063054	-0.129191	-0.230091	-0.166155	0.160932	0.185569	0.198343	0.118418	-0.165354	0.173641	0.002952
X ₆	-0.056494	-0.290182	0.343735	0.198765	-0.219835	-0.086081	-0.175756	-0.181788	-0.012733	-0.022041	0.0134
X ₇	0.151779	0.145946	-0.359415	0.017742	0.22296	0.06583	-0.038821	-0.017754	0.230842	-0.12759	-0.080503
X ₈	-0.629514	0.164305	-0.12214	-0.112301	0.211799	-0.291665	-0.124778	-0.11637	-0.171657	0.000477	0.093246
X ₉	0.152673	-0.371839	0.131059	-0.368089	-0.146229	0.392408	-0.17092	0.14232	-0.014735	-0.101646	0.000118
X ₁₀	0.166296	0.1859	-0.021709	0.222951	-0.226003	-0.240091	0.173501	-0.019934	-0.043392	0.204836	-0.063904
X ₁₁	0.211702	0.030434	0.07922	-0.106063	-0.291226	-0.035889	0.047785	-0.307326	0.061927	-0.059083	0.077838
X ₁₂	-0.132731	0.086145	-0.209616	0.399931	0.12979	0.376557	-0.094372	0.215185	-0.040773	0.166966	0.099272
X ₁₃	0.046979	-0.249785	-0.074339	-0.296774	0.264369	-0.376348	0.33995	0.04726	0.277801	-0.293946	-0.147715
X ₁₄	0.169376	-0.006978	-0.089133	-0.096495	0.008185	0.035238	0.06687	-0.501505	-0.519835	0.253877	-0.072965
X ₁₅	0.377615	0.326276	0.45971	0.136847	0.389693	0.058586	0.134689	0.279285	-0.09908	-0.03905	0.047926
X ₁₆	-0.151921	-0.101375	-0.014531	-0.162496	0.03123	0.263852	-0.263417	0.054469	0.018039	-0.106698	0.264012
X ₁₇	-0.135418	0.159069	-0.146276	0.323942	-0.372429	0.137675	-0.016627	-0.017164	0.110208	-0.485869	-0.366622
X ₁₈	0.152052	-0.061789	-0.168988	0.045807	-0.196239	-0.307865	-0.248977	0.172127	0.418346	0.444443	0.315291
X ₁₉	0.062581	-0.265423	-0.170616	0.16293	-0.180029	-0.262832	0.12974	0.420725	-0.477317	-0.119983	0.021202
X ₂₀	-0.033735	-0.013554	0.058922	-0.033533	0.147176	0.114733	-0.104681	-0.116758	0.210655	0.377123	-0.630512
X ₂₁	0.01276	0.196538	-0.053469	0.023482	-0.01565	0.196026	0.338639	-0.343163	0.168323	-0.152557	0.473457

Anexo N° 6

Correlation Matrix

	Limpeza y el orden del centro de salud	La limpeza de los trabajadores del centro de salud	La persona que lo atendió le pareció un profesional	La atención en general que Ud. ha recibido en este centro de salud ha sido	Este centro de salud tiene equipos modernos	Este centro de salud es fácil de identificar, tiene letreros o señales	Este centro de Salud cumple con lo ofrecido	Este centro de salud cumple con su horario	Los trabajadores de este centro de salud lo ayudaron y escucharon	Este centro de salud da boletas según sus precios	Tiene medicamentos y materiales necesarios para dar una buena atención	Informan a que hora aproximadamente van a ser atendidos	Los trabajadores responden rápidamente a lo que Ud. solicita	Los trabajadores es se están dispuestos a ayudarlo	Ud. confía en los trabajadores de este centro de salud	Es fácil para Ud. llegar al consultorio donde lo atienden	Los trabajadores son amables y atentos	Los trabajadores se ayudan entre ellos para brindar a Ud. la mejor atención posible	Los doctores que atienden le explican en forma clara sobre la enfermedad que Ud. tiene	Trato que le dio la persona que lo atendió	La persona que lo atendió se mostró interesado en su salud
Correlation	1.000	.560	.216	.291	.181	.277	.103	.237	.204	.193	.202	.145	.188	.213	.273	.296	.262	.290	.202	.288	.210
Limpeza y el orden del centro de salud																					
La limpeza de los trabajadores del centro de salud	.560	1.000	.315	.239	.202	.365	.253	.308	.139	.157	.282	.184	.272	.264	.347	.382	.339	.255	.184	.242	.231
La persona que lo atendió le pareció un profesional	.216	.315	1.000	.553	.266	.273	.390	.272	.310	.181	.286	.362	.368	.425	.293	.303	.344	.390	.562	.650	.618
La atención en general que Ud. ha recibido en este centro de salud ha sido	.291	.239	.553	1.000	.270	.260	.373	.372	.405	.140	.304	.312	.354	.485	.364	.344	.426	.494	.408	.518	.383
Este centro de salud tiene equipos modernos	.181	.202	.266	.270	1.000	.375	.303	.420	.265	.306	.490	.229	.427	.316	.461	.358	.521	.458	.236	.248	.202
Este centro de salud es fácil de identificar, tiene letreros o señales	.277	.365	.273	.260	.375	1.000	.325	.340	.260	.317	.265	.304	.385	.321	.386	.392	.350	.316	.244	.315	.213
Este centro de Salud cumple con lo ofrecido	.103	.253	.390	.373	.303	.325	1.000	.290	.196	.226	.260	.192	.241	.389	.305	.329	.250	.327	.325	.271	.207
Este centro de salud cumple con su horario	.237	.308	.272	.372	.420	.340	.290	1.000	.461	.292	.451	.446	.528	.441	.599	.422	.591	.528	.245	.355	.233
Los trabajadores de este centro de salud lo ayudaron y escucharon	.204	.139	.310	.405	.265	.260	.196	.461	1.000	.361	.311	.457	.532	.529	.437	.236	.401	.522	.218	.342	.298
Este centro de salud da boletas según sus precios	.193	.157	.181	.140	.306	.317	.226	.292	.361	1.000	.216	.269	.329	.207	.326	.322	.303	.158	.102	.167	.140
Tiene medicamentos y materiales necesarios para dar una buena atención	.202	.282	.286	.304	.490	.265	.260	.451	.311	.216	1.000	.345	.424	.325	.513	.327	.444	.432	.253	.252	.118
Informan a que hora aproximadamente van a ser atendidos	.145	.184	.362	.312	.229	.304	.192	.446	.457	.269	.345	1.000	.610	.481	.350	.158	.426	.413	.183	.243	.189
Los trabajadores responden rápidamente a lo que Ud. solicita	.188	.272	.368	.354	.427	.385	.241	.528	.532	.329	.424	.610	1.000	.647	.552	.368	.563	.612	.234	.322	.261
Los trabajadores están dispuestos a ayudarlo	.213	.264	.425	.485	.316	.321	.389	.441	.529	.207	.325	.481	.647	1.000	.531	.372	.628	.716	.292	.349	.319
Ud. confía en los trabajadores de este centro de salud	.273	.347	.293	.364	.461	.386	.305	.599	.437	.326	.513	.350	.552	.531	1.000	.480	.640	.615	.249	.337	.250
Es fácil para Ud. llegar al consultorio donde lo atienden	.296	.382	.303	.344	.358	.392	.329	.422	.236	.322	.327	.158	.368	.372	.480	1.000	.476	.350	.289	.382	.250
Los trabajadores son amables y atentos	.262	.339	.344	.426	.521	.350	.250	.591	.401	.303	.444	.426	.563	.628	.640	.476	1.000	.712	.325	.349	.336
Los trabajadores se ayudan entre ellos para brindar a Ud. la mejor atención posible	.290	.255	.390	.494	.458	.316	.327	.528	.522	.158	.432	.413	.612	.716	.615	.350	.712	1.000	.395	.437	.349
Los doctores que atienden le explican en forma clara sobre la enfermedad que Ud. tiene	.202	.184	.562	.408	.236	.244	.325	.245	.218	.102	.253	.183	.234	.292	.249	.289	.325	.395	1.000	.792	.745
Trato que le dio la persona que lo atendió	.288	.242	.650	.518	.248	.315	.271	.355	.342	.167	.252	.243	.322	.349	.337	.382	.349	.437	.792	1.000	.815
La persona que lo atendió se mostró interesado en su salud	.210	.231	.618	.383	.202	.213	.207	.233	.298	.140	.118	.189	.261	.319	.250	.250	.336	.349	.745	.815	1.000

