



66980

COLECCION HISTORICA

EJEMPLO " ESTIMACION DE LA FUNCION DE DEMANDA POR ARROZ EN COLOMBIA,
1960-1977".

En Colombia, la época de 1960 a 1977 se caracterizó por la gestación y rápido cambio tecnológico en la producción de arroz, gracias a un proceso de investigación y transferencia en el marco del triángulo institucional FEDEARROZ, ICA, CIAT que permitió la adopción de una nueva tecnología.

Esta tecnología, consistente en variedades mejoradas y algunas prácticas culturales, produce efectos que se reflejan en los precios y finalmente sobre el consumo.

Para cuantificar el proceso, se pretende estimar una función de demanda a través de series temporales.

Las variables consideradas son:

- variable dependiente : consumo per capita de arroz
- variables independientes : precios de arroz, de algunos sustitutos y complementarios (carbohidratos) y el ingreso per capita.
- modelos propuestos : lineal
log-log (cobb-douglas) o elasticidades constantes.

VALORES MONETARIOS NOMINALES

OBS	FECHA	PREC NOM ARROZ	PREC NOM H MAIZ	PREC NOM PAPA	PREC NOM YUCA	PREC NOM PLATANO	PREC NOM H TRIGO	INGRESO NOMINAL
1	1960	2.17	1.00	0.67	0.60	0.78	1.70	26.64
2	1961	2.40	1.10	0.74	0.66	0.86	1.88	30.35
3	1962	2.28	0.95	0.45	0.64	0.96	1.87	34.20
4	1963	3.20	1.24	1.19	0.89	1.00	2.56	43.56
5	1964	3.33	1.54	1.66	1.95	2.20	3.32	53.54
6	1965	3.98	1.42	1.25	2.51	1.40	3.65	61.05
7	1966	4.39	1.63	1.80	2.46	1.53	4.01	73.76
8	1967	4.51	1.77	1.71	2.73	1.54	4.07	83.14
9	1968	4.63	1.88	1.70	2.76	1.94	4.34	96.75
10	1969	4.14	2.06	2.19	1.85	2.77	4.14	111.33
11	1970	4.58	1.96	2.12	2.13	1.71	4.14	130.27
12	1971	5.12	2.48	3.07	2.85	1.96	4.28	152.12
13	1972	5.20	2.91	2.25	3.69	2.49	4.68	186.22
14	1973	6.23	4.29	3.82	4.49	3.26	7.16	243.30
15	1974	10.12	5.10	3.68	4.48	3.26	7.16	329.16
16	1975	10.50	6.57	6.43	7.53	5.11	14.13	413.01
17	1976	11.69	7.50	5.91	6.37	5.91	16.51	533.66
18	1977	17.06	13.31	8.46	8.69	9.15	23.48	716.95

DEFLACTORES Y POBLACION

OBS	FECHA	DEFLACTOR IPC	DEFLACTOR INGRESO	POBLACION
1	1960	35.2	34.3	15.60
2	1961	38.9	37.0	16.18
3	1962	39.3	39.5	16.78
4	1963	51.9	48.8	17.40
5	1964	64.5	56.5	18.05
6	1965	67.3	62.2	18.52
7	1966	79.5	71.2	19.01
8	1967	83.5	77.2	19.51
9	1968	89.5	84.2	20.02
10	1969	94.7	91.1	20.54
11	1970	100.0	100.0	21.08
12	1971	112.6	110.4	21.63
13	1972	129.9	125.2	22.20
14	1973	167.4	152.8	22.78
15	1974	216.2	195.0	23.38
16	1975	274.9	235.6	23.85
17	1976	330.2	291.3	24.33
18	1977	462.3	373.2	24.82

VALORES MONETARIOS REALES

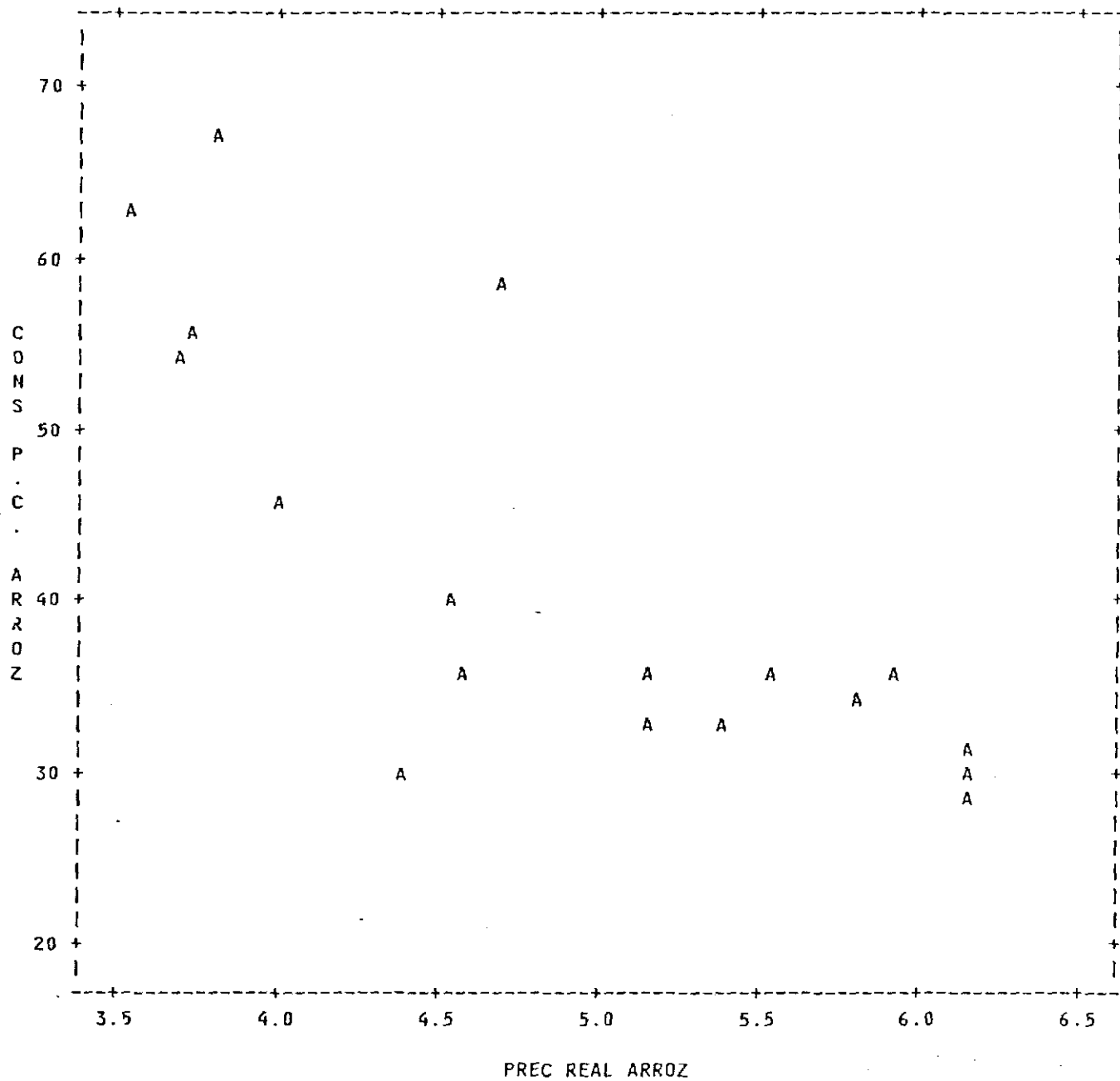
OBS	FECHA	PREC REAL ARROZ	PREC REAL H MAIZ	PREC REAL PAPA	PREC REAL YUCA	PREC REAL PLATANO	PREC REAL H TRIGO	INGRESO REAL	INGRESO REAL P.C.
1	1960	6.17	2.83	1.90	1.70	2.21	4.83	77.68	4.98
2	1961	6.17	2.83	1.90	1.70	2.21	4.83	82.03	5.07
3	1962	5.80	2.42	1.14	1.63	2.44	4.76	86.58	5.16
4	1963	6.16	2.39	2.29	1.71	1.93	4.93	89.26	5.13
5	1964	5.16	2.39	2.57	3.03	3.41	5.15	94.76	5.25
6	1965	5.91	2.11	1.86	3.73	2.08	5.42	98.15	5.30
7	1966	5.52	2.05	2.26	3.09	1.92	5.04	103.60	5.45
8	1967	5.40	2.12	2.05	3.27	1.85	4.88	107.70	5.52
9	1968	5.17	2.10	1.90	3.08	2.17	4.85	114.91	5.74
10	1969	4.37	2.18	2.31	1.95	2.93	4.37	122.21	5.95
11	1970	4.58	1.96	2.12	2.13	1.71	4.14	130.27	6.18
12	1971	4.55	2.20	2.73	2.53	1.74	3.80	137.79	6.37
13	1972	4.00	2.24	1.73	2.84	1.92	3.60	148.74	6.70
14	1973	3.72	2.56	2.28	2.68	1.95	4.28	159.23	6.99
15	1974	4.68	2.36	1.70	2.07	1.51	3.31	168.80	7.22
16	1975	3.82	2.39	2.34	2.74	1.86	5.14	175.30	7.35
17	1976	3.54	2.27	1.79	1.93	1.79	5.00	183.20	7.53
18	1977	3.69	2.88	1.83	1.88	1.98	5.08	192.11	7.74

DISPONIBILIDAD DE ARROZ

OBS	FECHA	RENDIMIENTOS	PRODUCCION	EXPORTACIONES	INVENTARIOS	CONSUMO APARENTE	CONS P.C. ARROZ
1	1960	1.98	450	0	40	450	28.85
2	1961	2.00	474	0	40	474	29.30
3	1962	2.09	585	1	40	584	34.80
4	1963	2.17	550	3	40	547	31.44
5	1964	1.99	600	0	40	600	33.24
6	1965	1.84	672	0	41	671	36.23
7	1966	1.94	680	0	46	675	35.51
8	1967	2.21	622	0	65	643	32.96
9	1968	2.84	786	0	128	723	36.11
10	1969	2.70	689	16	188	613	29.84
11	1970	3.22	753	5	186	750	35.58
12	1971	3.57	905	0	235	856	39.57
13	1972	3.81	1043	2	259	1017	45.81
14	1973	4.04	1176	20	147	1268	55.66
15	1974	4.26	1570	1	344	1372	58.68
16	1975	4.25	1622	73	306	1587	66.54
17	1976	4.16	1481	78	195	1514	62.23
18	1977	4.03	1307	57	108	1337	53.87

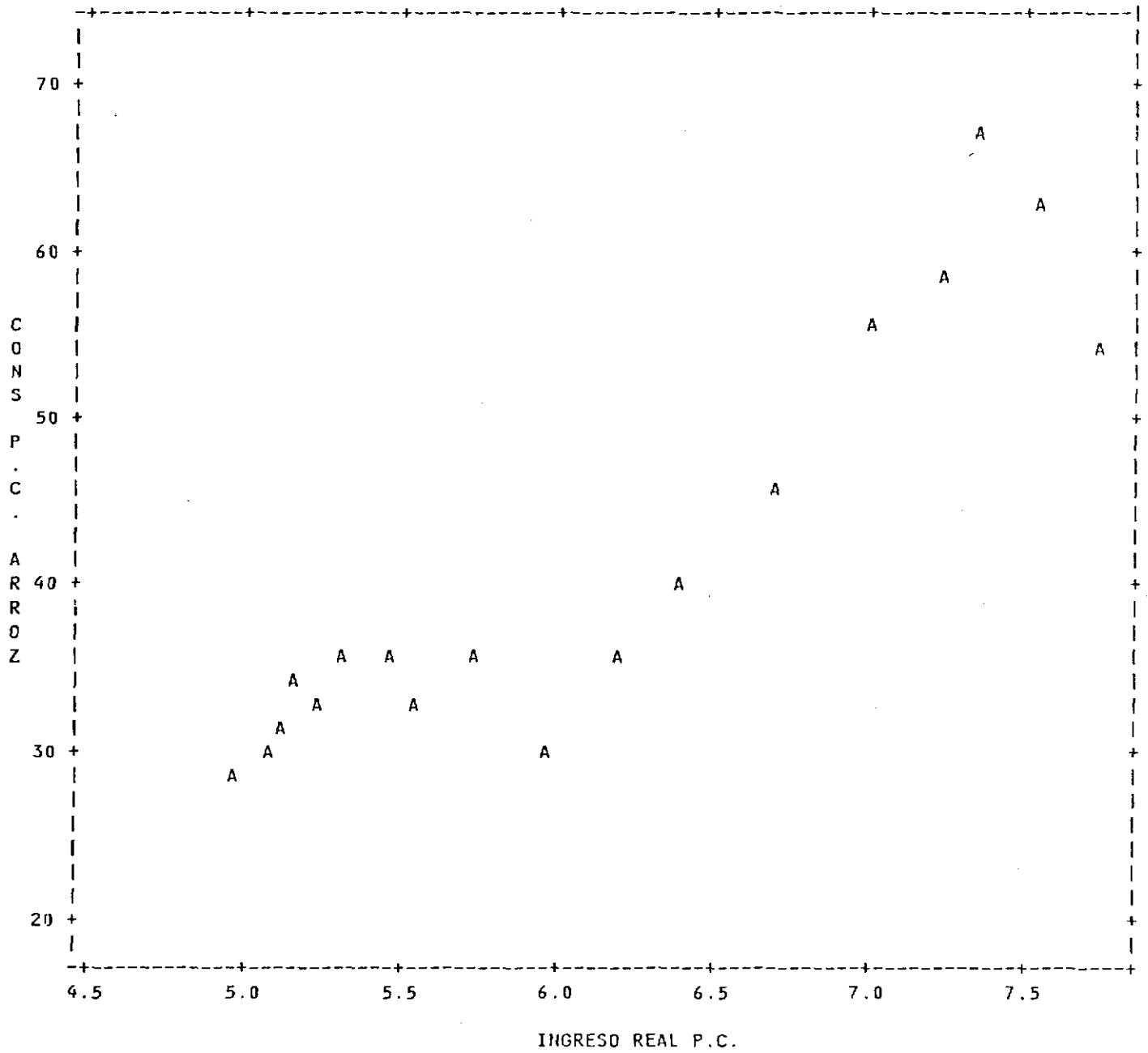
DISPONIBILIDAD DE ARROZ

PLOT OF APARENPC×PRAR. LEGEND: A = 1 OBS, B = 2 OBS, ETC.



DISPONIBILIDAD DE ARROZ

PLOT OF APARENPC*INGRESRP. LEGEND: A = 1 OBS, B = 2 OBS, ETC.



DISPONIBILIDAD DE ARROZ

CORRELATION ANALYSIS

8 'VAR' VARIABLES: APARENPC PRAR PRHM PRYU PRPL PRHT PRPA INGRESRP

SIMPLE STATISTICS

VARIABLE	N	MEAN	STD DEV	SUM	MINIMUM	MAXIMUM	LABEL
APARENPC	18	41.4568	12.3377	746.2231	28.8462	66.5409	CONS P.C. ARROZ
PRAR	18	4.9117	0.9284	88.4100	3.5400	6.1700	PREC REAL ARROZ
PRHM	18	2.3489	0.2745	42.2800	1.9600	2.8800	PREC REAL H MAIZ
PRYU	18	2.4272	0.6497	43.6900	1.6300	3.7300	PREC REAL YUCA
PRPL	18	2.0894	0.4553	37.6100	1.5100	3.4100	PREC REAL PLATANO
PRHT	18	4.6339	0.5882	83.4100	3.3100	5.4200	PREC REAL H TRIGO
PRPA	18	2.0389	0.3690	36.7000	1.1400	2.7300	PREC REAL PAPA
INGRESRP	18	6.0904	0.9455	109.6280	4.9795	7.7401	INGRESO REAL P.C.

PEARSON CORRELATION COEFFICIENTS / PROB > |R| UNDER H0: RHO=0 / N = 18

	APARENPC	PRAR	PRHM	PRYU	PRPL	PRHT	PRPA	INGRESRP
APARENPC CONS P.C. ARROZ	1.00000 0.0	-0.78575 0.0001	0.11098 0.6611	0.00887 0.9721	-0.46925 0.0495	-0.17537 0.4864	-0.07861 0.7565	0.91395 0.0001
PRAR PREC REAL ARROZ	-0.78575 0.0001	1.00000 0.0	0.06303 0.8038	-0.02592 0.9187	0.22011 0.3801	0.32216 0.1923	-0.14773 0.5586	-0.92302 0.0001
PRHM PREC REAL H MAIZ	0.11098 0.6611	0.06303 0.8038	1.00000 0.0	-0.55385 0.0171	0.12831 0.6119	0.15470 0.5399	-0.19466 0.4389	0.07486 0.7678
PRYU PREC REAL YUCA	0.00887 0.9721	-0.02592 0.9187	-0.55385 0.0171	1.00000 0.0	0.01914 0.9399	0.18940 0.4516	0.29325 0.2376	-0.07368 0.7714
PRPL PREC REAL PLATANO	-0.46925 0.0495	0.22011 0.3801	0.12831 0.6119	0.01914 0.9399	1.00000 0.0	0.34747 0.1577	0.16179 0.5213	-0.45764 0.0562
PRHT PREC REAL H TRIGO	-0.17537 0.4864	0.32216 0.1923	0.15470 0.5399	0.18940 0.4516	0.34747 0.1577	1.00000 0.0	0.01772 0.9444	-0.33161 0.1788
PRPA PREC REAL PAPA	-0.07861 0.7565	-0.14773 0.5586	-0.19466 0.4389	0.29325 0.2376	0.16179 0.5213	0.01772 0.9444	1.00000 0.0	-0.00471 0.9852
INGRESRP INGRESO REAL P.C.	0.91395 0.0001	-0.92302 0.0001	0.07486 0.7678	-0.07368 0.7714	-0.45764 0.0562	-0.33161 0.1788	-0.00471 0.9852	1.00000 0.0

DISPONIBILIDAD DE ARROZ

DESCRIPTIVE STATISTICS

VARIABLES	SUM	MEAN	UNCORRECTED SS	
INTERCEP	18	1	18	Intercept
PRAR	88.41	4.9116666667	448.8931	PREC REAL ARROZ
PRHM	42.28	2.3488888889	100.5916	PREC REAL H MAIZ
PNPA	49.08708	2.72706	215.71406422	PREC NOM PAPA
PRYU	43.69	2.4272222222	113.2223	PREC REAL YUCA
PRPL	37.61	2.0894444444	82.1087	PREC REAL PLATANO
PRHT	83.41	4.6338888889	392.3947	PREC REAL H TRIGO
INGRESRP	109.62797858	6.0904432543	682.88040369	INGRESO REAL P.C.
APARENPC	746.22312736	41.456840409	33523.756242	CONS P.C. ARROZ

VARIABLES	VARIANCE	STD DEVIATION	
INTERCEP	0	0	Intercept
PRAR	0.8619205882	0.9283967838	PREC REAL ARROZ
PRHM	0.0753281046	0.2744596593	PREC REAL H MAIZ
PNPA	4.8147442256	2.1942525437	PREC NOM PAPA
PRYU	0.422174183	0.6497493232	PREC REAL YUCA
PRPL	0.2073349673	0.455340496	PREC REAL PLATANO
PRHT	0.346001634	0.5882190357	PREC REAL H TRIGO
INGRESRP	0.8939659466	0.9454977243	INGRESO REAL P.C.
APARENPC	152.21783186	12.337659092	CONS P.C. ARROZ

DISPONIBILIDAD DE ARROZ

MODEL: MODEL1

DEPENDENT VARIABLE: APARENPC CONS P.C. ARROZ

ANALYSIS OF VARIANCE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB>F
MODEL	5	2020.91349	404.18270	8.557	0.0012
ERROR	12	566.78965	47.23247		
C TOTAL	17	2587.70314			

ROOT MSE	6.87259	R-SQUARE	0.7810
DEP MEAN	41.45684	ADJ R-SQ	0.6897
C.V.	16.57769		

PARAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB > T
INTERCEP	1	68.283708	23.82709092	2.866	0.0142
PRAR	1	-10.108803	1.92178199	-5.260	0.0002
PRHM	1	10.923626	7.72165953	1.415	0.1826
PRYU	1	1.962464	3.28815767	0.597	0.5617
PRPL	1	-10.456838	3.94586671	-2.650	0.0212
PRHT	1	3.075487	3.34927576	0.918	0.3766

VARIABLE	DF	VARIABLE LABEL
INTERCEP	1	Intercept
PRAR	1	PREC REAL ARROZ
PRHM	1	PREC REAL H MAIZ
PRYU	1	PREC REAL YUCA
PRPL	1	PREC REAL PLATANO
PRHT	1	PREC REAL H TRIGO

COLLINEARITY DIAGNOSTICS

NUMBER	EIGENVALUE	NUMBER	INTERCEP	PRAR	PRHM	PRYU	PRPL	PRHT
1	5.86761	1.00000	0.0001	0.0008	0.0002	0.0011	0.0010	0.0003
2	0.06574	9.14735	0.0002	0.0183	0.0140	0.4596	0.0303	0.0003
3	0.03111	13.73444	0.0050	0.1451	0.0136	0.0012	0.8873	0.0020
4	0.02364	15.75554	0.0165	0.7379	0.0888	0.0000	0.0348	0.0065
5	0.00879	25.83476	0.0412	0.0490	0.0638	0.0743	0.0460	0.9855
6	0.00311	43.40157	0.9369	0.0488	0.8195	0.4638	0.0005	0.0054

DURBIN-WATSON D 1.073
 (FOR NUMBER OF OBS.) 18
 1ST ORDER AUTOCORRELATION 0.410

OBS	DEP VAR APARENPC	PREDICT VALUE	STD ERR PREDICT	RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
1	28.8462	31.9074	3.987	-3.0613	5.598	-0.547	*	0.025
2	29.2954	31.9074	3.987	-2.6120	5.598	-0.467		0.018
3	34.8033	28.4113	3.392	6.3921	5.977	1.069	**	0.061
4	31.4368	30.4572	3.758	0.9796	5.754	0.170		0.002
5	33.2410	28.3570	5.391	4.8840	4.263	1.146	**	0.350
6	36.2311	33.8284	4.386	2.4027	5.291	0.454		0.024
7	35.5076	36.3639	3.151	-0.8563	6.108	-0.140		0.001
8	32.9575	38.9347	3.108	-5.9773	6.130	-0.975	*	0.041
9	36.1139	37.2300	2.531	-1.1161	6.390	-0.175		0.001
10	29.8442	34.5499	4.862	-4.7057	4.858	-0.969	*	0.157
11	35.5787	42.4271	3.892	-6.8483	5.664	-1.209	**	0.115
12	39.5747	44.7776	3.001	-5.2030	6.183	-0.842	*	0.028
13	45.8108	48.8854	3.925	-3.0746	5.642	-0.545	*	0.024
14	55.6629	56.6751	3.658	-1.0122	5.818	-0.174		0.002
15	58.6826	45.2066	4.358	13.4760	5.314	2.536	*****	0.721
16	66.5409	57.5110	3.565	9.0299	5.876	1.537	***	0.145
17	62.2277	57.7424	4.617	4.4853	5.090	0.881	*	0.106
18	53.8678	61.0506	4.699	-7.1828	5.015	-1.432	**	0.300

SUM OF RESIDUALS 0
 SUM OF SQUARED RESIDUALS 566.7897
 PREDICTED RESID SS (PRESS) 1511.1314

DISPONIBILIDAD DE ARROZ

MODEL: MODEL1
 DEPENDENT VARIABLE: APARENPC CONS P.C. ARROZ

ANALYSIS OF VARIANCE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB>F
MODEL	7	2399.73567	342.81938	18.238	0.0001
ERROR	10	187.96747	18.79675		
C TOTAL	17	2587.70314			
ROOT MSE	4.33552	R-SQUARE	0.9274		
DEP MEAN	41.45684	ADJ R-SQ	0.8765		
C.V.	10.45792				

PARAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR H0: PARAMETER=0	PROB > T
INTERCEP	1	-249.247119	74.28326428	-3.355	0.0073
PRAR	1	7.869264	4.57060104	1.722	0.1159
PRHM	1	3.952772	5.68861883	0.695	0.5030
PNPA	1	-5.815845	2.38471473	-2.439	0.0349
PRYU	1	1.542903	2.09294295	0.737	0.4779
PRPL	1	2.067891	3.92431158	0.527	0.6097
PRHT	1	9.667402	3.74341695	2.583	0.0273
INGRESRP	1	33.784883	7.98024496	4.234	0.0017

VARIABLE	DF	VARIABLE LABEL
INTERCEP	1	Intercept
PRAR	1	PREC REAL ARROZ
PRHM	1	PREC REAL H MAIZ
PNPA	1	PREC NOM PAPA
PRYU	1	PREC REAL YUCA
PRPL	1	PREC REAL PLATANO
PRHT	1	PREC REAL H TRIGO
INGRESRP	1	INGRESO REAL P.C.



DISPONIBILIDAD DE ARROZ

COLLINEARITY DIAGNOSTICS

NUMB	EIGENVALUE	CONDITION NUMBER	VAR PROP INTERCEP	VAR PROP PRAR	VAR PROP PRHM	VAR PROP PNPA	VAR PROP PRYU	VAR PROP PRPL	VAR PROP PRHT
1	7.47302	1.00000	0.0000	0.0000	0.0001	0.0002	0.0006	0.0003	0.0001
2	0.40595	4.29052	0.0000	0.0005	0.0000	0.0301	0.0016	0.0016	0.0001
3	0.06564	10.67036	0.0000	0.0010	0.0111	0.0001	0.4535	0.0113	0.0001
4	0.03222	15.22851	0.0002	0.0101	0.0057	0.0024	0.0032	0.3324	0.0000
5	0.01599	21.61947	0.0009	0.0110	0.0044	0.0427	0.0002	0.0143	0.0855
6	0.00486	39.20413	0.0036	0.0007	0.7039	0.0073	0.5255	0.0015	0.0820
7	0.00220	58.34185	0.0001	0.4104	0.2701	0.3875	0.0152	0.2642	0.5091
8	0.0001258	243.72291	0.9953	0.5663	0.0046	0.5299	0.0000	0.3746	0.3230

NUMBER	VAR PROP INGRESRP
1	0.0000
2	0.0000
3	0.0000
4	0.0006
5	0.0100
6	0.0113
7	0.0049
8	0.9732

DURBIN-WATSON D 1.779
 (FOR NUMBER OF OBS.) 18
 1ST ORDER AUTOCORRELATION 0.024

OBS	DEP VAR APARENPC	PREDICT VALUE	STD ERR PREDICT	RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
1	28.8462	28.7209	2.690	0.1253	3.400	0.037		0.000
2	29.2954	31.3645	2.623	-2.0691	3.452	-0.599	*	0.026
3	34.8033	31.2525	2.360	3.5509	3.637	0.976	*	0.050
4	31.4368	29.3647	2.431	2.0720	3.590	0.577	*	0.019
5	33.2410	30.0444	3.508	3.1966	2.548	1.255	**	0.373
6	36.2311	39.8229	3.081	-3.5918	3.050	-1.178	**	0.177
7	35.5076	33.4263	2.169	2.0813	3.754	0.554	*	0.013
8	32.9575	34.2202	2.235	-1.2627	3.715	-0.340		0.005
9	36.1139	39.8914	1.739	-3.7776	3.972	-0.951	*	0.022
10	29.8442	33.3653	3.094	-3.5211	3.037	-1.159	**	0.174
11	35.5787	37.8410	2.674	-2.2623	3.413	-0.663	*	0.034
12	39.5747	36.8346	3.012	2.7400	3.118	0.879	*	0.090
13	45.8108	47.5279	2.797	-1.7171	3.312	-0.518	*	0.024
14	55.6629	53.6451	3.168	2.0178	2.960	0.682	*	0.067
15	58.6826	57.7711	4.121	0.9115	1.346	0.677	*	0.537
16	66.5409	58.9360	2.305	7.6049	3.672	2.071	****	0.211
17	62.2277	62.6176	3.353	-0.3899	2.748	-0.142		0.004
18	53.8678	59.5767	3.613	-5.7089	2.396	-2.383	****	1.615

SUM OF RESIDUALS 0
 SUM OF SQUARED RESIDUALS 187.9675
 PREDICTED RESID SS (PRESS) 887.1565

DISPONIBILIDAD DE ARROZ

DESCRIPTIVE STATISTICS

VARIABLES	SUM	MEAN	UNCORRECTED SS	
INTERCEP	18	1	18	Intercept
LPRAR	28.335473272	1.5741929595	45.243248952	PREC REAL ARROZ LOG
LPRHM	15.259523815	0.847751323	13.154929308	PREC REAL H MAIZ LOG
LPRPA	12.515401573	0.6953000874	9.3582123005	PREC REAL PAPA LOG
LPRYU	15.355281223	0.853071179	14.310285886	PREC REAL YUCA LOG
LPRPL	12.920355319	0.7177975177	9.9133509488	PREC REAL PLATANO LOG
LPRHT	27.44999929	1.5249999606	42.179213733	PREC REAL H TRIGO LOG
LINGRP	32.321569677	1.7956427598	58.431468617	INGRESO REAL P.C. LOG
LAPAREPC	66.359500452	3.686638914	245.94789162	CONS P.C. ARROZ LOG

VARIABLES	VARIANCE	STD DEVIATION	
INTERCEP	0	0	Intercept
LPRAR	0.0375144955	0.1936865908	PREC REAL ARROZ LOG
LPRHM	0.0128616356	0.1134091513	PREC REAL H MAIZ LOG
LPRPA	0.0386030879	0.1964766853	PREC REAL PAPA LOG
LPRYU	0.0712434134	0.2669146183	PREC REAL YUCA LOG
LPRPL	0.0375971748	0.1938999093	PREC REAL PLATANO LOG
LPRHT	0.0187038763	0.1367621159	PREC REAL H TRIGO LOG
LINGRP	0.0231456495	0.1521369432	INGRESO REAL P.C. LOG
LAPAREPC	0.0767279377	0.2769980825	CONS P.C. ARROZ LOG

DISPONIBILIDAD DE ARROZ

MODEL: MODEL1

DEPENDENT VARIABLE: LAPAREPC CONS P.C. ARROZ LOG

ANALYSIS OF VARIANCE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB>F
MODEL	7	1.17801	0.16829	13.317	0.0002
ERROR	10	0.12637	0.01264		
C TOTAL	17	1.30437			

ROOT MSE	0.11241	R-SQUARE	0.9031
DEP MEAN	3.68664	ADJ R-SQ	0.8353
C.V.	3.04922		

PARAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR H0: PARAMETER=0	PROB > T
INTERCEP	1	-1.057672	2.61509591	-0.404	0.6944
LPRAR	1	0.307619	0.61066137	0.504	0.6254
LPRHM	1	0.314387	0.33151093	0.948	0.3653
LPRPA	1	-0.187815	0.15524238	-1.210	0.2542
LPRYU	1	0.209805	0.13607842	1.542	0.1541
LPRPL	1	-0.111008	0.24629815	-0.451	0.6618
LPRHT	1	0.241049	0.23343412	1.033	0.3261
LINGRP	1	2.036723	0.87281965	2.333	0.0418

VARIABLE	DF	VARIABLE LABEL
INTERCEP	1	Intercept
LPRAR	1	PREC REAL ARROZ LOG
LPRHM	1	PREC REAL H MAIZ LOG
LPRPA	1	PREC REAL PAPA LOG
LPRYU	1	PREC REAL YUCA LOG
LPRPL	1	PREC REAL PLATANO LOG
LPRHT	1	PREC REAL H TRIGO LOG
LINGRP	1	INGRESO REAL P.C. LOG

COLLINEARITY DIAGNOSTICS

NUM	EIGENVALUE	CONDITION NUMBER	VAR PROP INTERCEP	VAR PROP LPRAR	VAR PROP LPRHM	VAR PROP LPRPA	VAR PROP LPRYU	VAR PROP LPRPL	VAR PROP LPRHT
1	7.76945	1.00000	0.0000	0.0000	0.0001	0.0009	0.0007	0.0003	0.0001
2	0.09965	8.82982	0.0000	0.0003	0.0109	0.1000	0.2503	0.0247	0.0008
3	0.05357	12.04304	0.0001	0.0000	0.0135	0.0005	0.0354	0.2623	0.0003
4	0.04908	12.58169	0.0000	0.0005	0.0002	0.7819	0.2437	0.0033	0.0014
5	0.01710	21.31813	0.0000	0.0279	0.0221	0.0466	0.0233	0.0752	0.0030
6	0.00638	34.88900	0.0016	0.0003	0.8454	0.0030	0.4148	0.0265	0.0141
7	0.00470	40.65957	0.0009	0.0130	0.0078	0.0007	0.0241	0.0589	0.9558
8	0.0000689	335.69431	0.9973	0.9581	0.0999	0.0665	0.0076	0.5488	0.0246

NUMBER	VAR PROP LINGRP
1	0.0000
2	0.0000
3	0.0009
4	0.0000
5	0.0038
6	0.0088
7	0.0024
8	0.9841

DURBIN-WATSON D 1.178
 (FOR NUMBER OF OBS.) 18
 1ST ORDER AUTOCORRELATION 0.262

OBS	DEP VAR LAPAREPC	PREDICT VALUE	STD ERR PREDICT	RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2-1-0 1 2	COOK'S D
1	3.3620	3.3811	0.070	-0.0191	0.088	-0.217		0.004
2	3.3774	3.4177	0.065	-0.0403	0.091	-0.441		0.013
3	3.5497	3.4579	0.091	0.0918	0.066	1.398		0.472
4	3.4480	3.3742	0.072	0.0737	0.087	0.850		0.061
5	3.5038	3.4125	0.088	0.0912	0.070	1.297		0.327
6	3.5899	3.6059	0.074	-0.0160	0.085	-0.188		0.003
7	3.5697	3.5480	0.054	0.0218	0.099	0.221		0.002
8	3.4952	3.6045	0.056	-0.1093	0.098	-1.120	**	0.052
9	3.5867	3.6500	0.050	-0.0634	0.101	-0.628	*	0.012
10	3.3960	3.4923	0.086	-0.0963	0.072	-1.331	**	0.313
11	3.5717	3.6319	0.071	-0.0601	0.087	-0.687	*	0.038
12	3.6782	3.6940	0.066	-0.0158	0.091	-0.175		0.002
13	3.8245	3.8488	0.083	-0.0243	0.076	-0.321		0.016
14	4.0193	3.9307	0.076	0.0886	0.083	1.066	**	0.118
15	4.0721	4.0091	0.104	0.0631	0.043	1.475	**	1.605
16	4.1978	4.0687	0.063	0.1291	0.093	1.389	**	0.111
17	4.1308	4.0527	0.078	0.0781	0.081	0.966	*	0.109
18	3.9865	4.1794	0.081	-0.1929	0.078	-2.466	****	0.810

SUM OF RESIDUALS 0
 SUM OF SQUARED RESIDUALS 0.1264
 PREDICTED RESID SS (PRESS) 0.6762

DISPONIBILIDAD DE ARROZ

INITIAL FACTOR METHOD: PRINCIPAL COMPONENTS

PRIOR COMMUNALITY ESTIMATES: ONE

EIGENVALUES OF THE CORRELATION MATRIX: TOTAL = 7 AVERAGE = 1

	1	2	3	4	5	6	7
EIGENVALUE	2.4529	1.7548	1.1228	0.7247	0.5785	0.3436	0.0227
DIFFERENCE	0.6981	0.6320	0.3981	0.1462	0.2349	0.3209	
PROPORTION	0.3504	0.2507	0.1604	0.1035	0.0826	0.0491	0.0032
CUMULATIVE	0.3504	0.6011	0.7615	0.8650	0.9477	0.9968	1.0000

DISPONIBILIDAD DE ARROZ

MODEL: MODEL1

DEPENDENT VARIABLE: LAPAREPC CONS P.C. ARROZ LOG

ANALYSIS OF VARIANCE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB>F
MODEL	7	1.17801	0.16829	13.317	0.0002
ERROR	10	0.12637	0.01264		
C TOTAL	17	1.30437			

ROOT MSE	0.11241	R-SQUARE	0.9031
DEP MEAN	3.68664	ADJ R-SQ	0.8353
C.V.	3.04922		

PARAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR H0: PARAMETER=0	PROB > T
INTERCEP	1	3.686639	0.02649616	139.139	0.0001
FACTOR1	1	-0.227941	0.02726432	-8.360	0.0001
FACTOR2	1	-0.041497	0.02726432	-1.522	0.1590
FACTOR3	1	0.061568	0.02726432	2.258	0.0475
FACTOR4	1	-0.089990	0.02726432	-3.301	0.0080
FACTOR5	1	0.033336	0.02726432	1.223	0.2495
FACTOR6	1	0.033767	0.02726432	1.238	0.2438
FACTOR7	1	0.038405	0.02726432	1.409	0.1893

DURBIN-WATSON D 1.178
 (FOR NUMBER OF OBS.) 18
 1ST ORDER AUTOCORRELATION 0.262

DISPONIBILIDAD DE ARROZ

MODEL: MODEL1
 DEPENDENT VARIABLE: LAPAREPC CONS P.C. ARROZ LOG

ANALYSIS OF VARIANCE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB>F
MODEL	5	1.13355	0.22671	15.926	0.0001
ERROR	12	0.17083	0.01424		
C TOTAL	17	1.30437			
ROOT MSE	0.11931	R-SQUARE	0.8690		
DEP MEAN	3.68664	ADJ R-SQ	0.8145		
C.V.	3.23635				

PARAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR H0: PARAMETER=0	PROB > T
INTERCEP	1	3.686639	0.02812228	131.093	0.0001
FACTOR1	1	-0.227941	0.02893758	-7.877	0.0001
FACTOR2	1	-0.041497	0.02893758	-1.434	0.1771
FACTOR3	1	0.061568	0.02893758	2.128	0.0548
FACTOR4	1	-0.089990	0.02893758	-3.110	0.0090
FACTOR5	1	0.033336	0.02893758	1.152	0.2718

DURBIN-WATSON D 0.923
 (FOR NUMBER OF OBS.) 18
 1ST ORDER AUTOCORRELATION 0.472

DISPONIBILIDAD DE ARROZ

OBS	_MODEL_	_DEPVAR_	_TYPE_	_K_	_Q_	_SSE_	_MSE_	INTERCEP	LAPAREPC
1	MODEL1	LAPAREPC	RIDGE	0.00	.	0.126368	0.0126368	-1.0577	-1
2	MODEL1	LAPAREPC	RIDGESTD	0.00	.	0.126368	0.0126368	-1.0577	-1
3	MODEL1	LAPAREPC	RIDGE	0.05	.	0.139721	0.0139721	1.5364	-1
4	MODEL1	LAPAREPC	RIDGESTD	0.05	.	0.139721	0.0139721	1.5364	-1
5	MODEL1	LAPAREPC	RIDGE	0.10	.	0.148310	0.0148310	2.0819	-1
6	MODEL1	LAPAREPC	RIDGESTD	0.10	.	0.148310	0.0148310	2.0819	-1
7	MODEL1	LAPAREPC	RIDGE	0.15	.	0.155930	0.0155930	2.3481	-1
8	MODEL1	LAPAREPC	RIDGESTD	0.15	.	0.155930	0.0155930	2.3481	-1
9	MODEL1	LAPAREPC	RIDGE	0.20	.	0.163699	0.0163699	2.5177	-1
10	MODEL1	LAPAREPC	RIDGESTD	0.20	.	0.163699	0.0163699	2.5177	-1
11	MODEL1	LAPAREPC	RIDGE	0.25	.	0.171804	0.0171804	2.6405	-1
12	MODEL1	LAPAREPC	RIDGESTD	0.25	.	0.171804	0.0171804	2.6405	-1
13	MODEL1	LAPAREPC	IPC	.	0	0.126368	0.0126368	-1.0577	-1
14	MODEL1	LAPAREPC	IPCSTD	.	0	0.126368	0.0126368	-1.0577	-1
15	MODEL1	LAPAREPC	IPC	.	1	0.151443	0.0137675	2.5716	-1
16	MODEL1	LAPAREPC	IPCSTD	.	1	0.151443	0.0137675	2.5716	-1
17	MODEL1	LAPAREPC	IPC	.	2	0.170826	0.0142355	2.7834	-1
18	MODEL1	LAPAREPC	IPCSTD	.	2	0.170826	0.0142355	2.7834	-1
19	MODEL1	LAPAREPC	IPC	.	3	0.189718	0.0145937	3.1003	-1
20	MODEL1	LAPAREPC	IPCSTD	.	3	0.189718	0.0145937	3.1003	-1
21	MODEL1	LAPAREPC	IPC	.	4	0.327388	0.0233849	3.5527	-1

OBS	LPRAR	LPRHM	LPRPA	LPRYU	LPRPL	LPRHT	LINGRP
1	0.30762	0.31439	-0.18781	0.209805	-0.11101	0.24105	2.03672
2	0.61066	0.33151	0.15524	0.136078	0.24630	0.23343	0.87282
3	-0.26601	0.39014	-0.20535	0.202563	-0.27906	0.19906	1.17224
4	0.22055	0.29170	0.14872	0.126635	0.16590	0.22582	0.29987
5	-0.36356	0.37416	-0.19528	0.185614	-0.29948	0.17476	0.99451
6	0.15374	0.27239	0.14406	0.118209	0.15293	0.21654	0.19716
7	-0.39850	0.35182	-0.18354	0.170380	-0.30174	0.15435	0.90835
8	0.12800	0.25713	0.13970	0.111209	0.14539	0.20805	0.15669
9	-0.41314	0.33029	-0.17239	0.157240	-0.29882	0.13638	0.85291
10	0.11488	0.24496	0.13590	0.105563	0.13977	0.20082	0.13616
11	-0.41882	0.31073	-0.16218	0.145908	-0.29403	0.12036	0.81187
12	0.10706	0.23508	0.13261	0.100968	0.13523	0.19467	0.12422
13	0.30762	0.31439	-0.18781	0.209805	-0.11101	0.24105	2.03672
14	0.61066	0.33151	0.15524	0.136078	0.24630	0.23343	0.87282
15	-0.54143	0.49575	-0.24253	0.236239	-0.37790	0.21232	0.81400
16	0.10229	0.31886	0.15688	0.140679	0.16426	0.24272	0.09541
17	-0.54470	0.18093	-0.19929	0.088435	-0.37937	0.34778	0.82164
18	0.09718	0.17983	0.15517	0.066477	0.16702	0.21781	0.09680
19	-0.64026	0.08079	-0.26269	0.088925	-0.20750	0.19964	0.82256
20	0.08542	0.15939	0.14689	0.067307	0.07601	0.17799	0.09800
21	-0.54017	0.22865	0.11439	-0.031069	-0.18919	-0.23725	0.68777

DISPONIBILIDAD DE ARROZ

OBS	_MODEL_	_DEPVAR_	_TYPE_	_K_	_Q_	_SSE_	_MSE_	INTERCEP	LAP/
22	MODEL1	LAPAREPC	IPCSTD	.	4	0.327388	0.0233849	3.55271	-
23	MODEL1	LAPAREPC	IPC	.	5	0.391829	0.0261219	4.19449	-
24	MODEL1	LAPAREPC	IPCSTD	.	5	0.391829	0.0261219	4.19449	-
25	MODEL1	LAPAREPC	IPC	.	6	0.421102	0.0263189	4.20835	-
26	MODEL1	LAPAREPC	IPCSTD	.	6	0.421102	0.0263189	4.20835	-

OBS	LPRAR	LPRHM	LPRPA	LPRYU	LPRPL	LPRHT	LINGRP
22	0.09996	0.19235	0.102098	0.069378	0.09593	0.13544	0.110926
23	-0.41712	0.01990	-0.016568	-0.037891	-0.32316	-0.43038	0.592569
24	0.07088	0.15383	0.068497	0.073197	0.05480	0.07328	0.100354
25	-0.41055	-0.14091	0.055243	0.039266	-0.31664	-0.40802	0.568956
26	0.07087	0.02432	0.009536	0.006778	0.05466	0.07043	0.098212

EJEMPLO 2.

Dentro del esquema global de investigación en arroz, se requiere medir las productividades marginales de varios insumos, con el fin de identificar posibles ineficiencias en su uso.

Como zona de estudio, se eligió el departamento del Tolima (Colombia), por constituir una población homogénea de arroceros, quienes hacen uso de una tecnología relativamente alta.

En 1980, a través de encuestas a agricultores, se recopiló información suficiente para estimar funciones de respuesta en producción o su equivalente en términos monetarios (ingresos).

A continuación se muestra parte del trabajo realizado con esos datos.

MODELO DE PRODUCCION DE ARROZ

DEP VARIABLE: LINGRESO

ANALYSIS OF VARIANCE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB>F
MODEL	9	32.38227394	3.59803044	101.781	0.0001
ERROR	34	1.20192189	0.03535064		
C TOTAL	43	33.58419583			
ROOT MSE		0.1880177	R-SQUARE	0.9642	
DEP MEAN		14.04169	ADJ R-SQ	0.9547	
C.V.		1.338996			

PARAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR H0: PARAMETER=0	PROB > T
INTERCEP	1	2.55545381	0.71935165	3.552	0.0011
LSEEDS	1	0.76463161	0.13245095	5.773	0.0001
LMANOS	1	0.004810970	0.10194389	0.047	0.9626
LNITROS	1	0.02513658	0.05879385	0.428	0.6717
LFOSFOS	1	-0.02850269	0.02946149	-0.967	0.3401
LPOTAS	1	0.03940228	0.02668229	1.477	0.1490
LMAQUIS	1	0.19455778	0.08768217	2.219	0.0333
LHERBIS	1	0.003694656	0.04215572	0.088	0.9307
LINSES	1	-0.02756834	0.03918681	-0.704	0.4865
LFUNGIS	1	0.004775046	0.01015222	0.470	0.6411

OBS	ACTUAL	PREDICT VALUE	STD ERR PREDICT	RESIDUAL	STD ERR RESIDUAL	STUDENT RESIDUAL	-2	-1	0	1	2	COOK'S D
1	15.7804	15.4218	0.0894	0.3586	0.1654	2.1678			****			0.137
2	13.5577	13.7863	0.0936	-0.2286	0.1631	-1.4022		**				0.065
3	13.4269	13.2145	0.0682	0.2124	0.1752	1.2125			**			0.022
4	13.4939	13.4493	0.0857	0.0446	0.1673	0.2666						0.002
5	12.6927	12.6829	0.0983	.0098055	0.1603	0.0612						0.000
6	13.6548	13.4811	0.0472	0.1737	0.1820	0.9545			*			0.006
7	13.3815	13.2998	0.1063	0.0817	0.1551	0.5272			*			0.013
8	13.9877	13.8237	0.1289	0.1639	0.1369	1.1974			**			0.127
9	13.2700	13.2721	0.0806	-0.00218	0.1699	-0.0128						0.000
10	14.9541	14.8076	0.0658	0.1465	0.1761	0.8317			*			0.010
11	13.3501	13.2405	0.0698	0.1096	0.1746	0.6279			*			0.006
12	14.3463	14.1941	0.0392	0.1522	0.1839	0.8280			*			0.003
13	14.1809	14.7000	0.0724	-0.5191	0.1735	-2.9916		*****				0.156
14	14.5181	14.4686	0.0843	0.0494	0.1680	0.2943						0.002
15	15.6920	15.6881	0.1005	.0038491	0.1589	0.0242						0.000
16	14.2197	14.3124	0.1353	-0.0927	0.1305	-0.7102			*			0.054
17	15.2929	15.2477	0.0868	0.0452	0.1668	0.2710						0.002
18	14.8314	15.1118	0.0867	-0.2805	0.1668	-1.6813		***				0.076
19	13.3000	13.3950	0.0690	-0.0950	0.1749	-0.5433			*			0.005
20	14.1436	14.0797	0.0818	0.0639	0.1693	0.3775						0.003
21	12.9824	13.2541	0.0848	-0.2717	0.1678	-1.6192		***				0.067
22	12.9641	12.8751	0.1813	0.0891	0.0498	1.7895			***			4.248
23	15.2623	15.4452	0.0837	-0.1830	0.1683	-1.0868		**				0.029
24	14.5538	14.6638	0.0890	-0.1100	0.1656	-0.6639			*			0.013
25	15.3325	15.0035	0.0911	0.3290	0.1645	1.9999			***			0.123
26	14.7651	14.7746	0.0992	-.009514	0.1597	-0.0596						0.000
27	15.3520	15.4096	0.0990	-0.0575	0.1599	-0.3598						0.005
28	15.2476	15.0541	0.0892	0.1935	0.1655	1.1690			**			0.040
29	13.7277	13.6843	0.0464	0.0434	0.1822	0.2380						0.000
30	16.0049	15.8787	0.0793	0.1262	0.1705	0.7405			*			0.012
31	13.4325	13.4438	0.0843	-0.0113	0.1680	-0.0675						0.000
32	13.4764	13.4127	0.0887	0.0637	0.1658	0.3842						0.004
33	13.5000	13.7216	0.0592	-0.2217	0.1785	-1.2422		**				0.017
34	15.0277	15.2111	0.1035	-0.1834	0.1570	-1.1684		**				0.059
35	13.4695	13.3534	0.0970	0.1161	0.1611	0.7207			*			0.019
36	13.3804	13.3974	0.0949	-0.0171	0.1623	-0.1052						0.000
37	13.4515	13.5282	0.0571	-0.0767	0.1792	-0.4281						0.002
38	13.4300	13.3679	0.0465	0.0621	0.1822	0.3407						0.001
39	13.7537	13.8139	0.0905	-0.0602	0.1648	-0.3655						0.004
40	13.5383	13.4085	0.0538	0.1298	0.1802	0.7204			*			0.005
41	13.2819	13.2997	0.1158	-0.0178	0.1481	-0.1200						0.001
42	13.3441	13.5291	0.1077	-0.1850	0.1541	-1.2002		**				0.070
43	13.3264	13.3326	0.0632	-0.0062	0.1771	-0.0350						0.000
44	13.1511	13.2943	0.0895	-0.1392	0.1653	-0.8420		*				0.021

SUM OF RESIDUALS 3.34843E-13
SUM OF SQUARED RESIDUALS 1.201922
PREDICTED RESID SS (PRESS) 3.536251

MODELO DE PRODUCCION DE ARROZ
INITIAL FACTOR METHOD: PRINCIPAL COMPONENTS

PRIOR COMMUNALITY ESTIMATES: ONE

EIGENVALUES OF THE CORRELATION MATRIX: TOTAL = 9 AVERAGE = 1

	1	2	3	4	5
EIGENVALUE	5.898667	1.183810	0.992997	0.309066	0.266743
DIFFERENCE	4.714856	0.190814	0.683931	0.042323	0.138768
PROPORTION	0.6554	0.1315	0.1103	0.0343	0.0296
CUMULATIVE	0.6554	0.7869	0.8973	0.9316	0.9613

	6	7	8	9
EIGENVALUE	0.127975	0.121766	0.054315	0.044662
DIFFERENCE	0.006209	0.067451	0.009653	
PROPORTION	0.0142	0.0135	0.0060	0.0050
CUMULATIVE	0.9755	0.9890	0.9950	1.0000

9 FACTORS WILL BE RETAINED BY THE NFACTOR CRITERION

MODELO DE PRODUCCION DE ARROZ

DEP VARIABLE: LINGRESO

ANALYSIS OF VARIANCE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB>F
MODEL	9	32.38227394	3.59803044	101.781	0.0001
ERROR	34	1.20192189	0.03535064		
C TOTAL	43	33.58419583			

ROOT MSE	0.1880177	R-SQUARE	0.9642
DEP MEAN	14.04169	ADJ R-SQ	0.9547
C.V.	1.338996		

PARAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR H0: PARAMETER=0	PROB > T
INTERCEP	1	14.04169000	0.02834473	495.390	0.0001
FACTOR1	1	0.84634176	0.02867243	29.518	0.0001
FACTOR2	1	-0.08480198	0.02867243	-2.958	0.0056
FACTOR3	1	0.04286455	0.02867243	1.495	0.1441
FACTOR4	1	-0.05217719	0.02867243	-1.820	0.0776
FACTOR5	1	-0.04475177	0.02867243	-1.561	0.1278
FACTOR6	1	0.06505497	0.02867243	2.269	0.0297
FACTOR7	1	-0.08069951	0.02867243	-2.815	0.0081
FACTOR8	1	-0.09886558	0.02867243	-3.448	0.0015
FACTOR9	1	-0.05008863	0.02867243	-1.747	0.0897

MODELO DE PRODUCCION DE ARROZ

DEP VARIABLE: LINGRESO

ANALYSIS OF VARIANCE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB>F
MODEL	4	31.30596010	7.82649003	133.978	0.0001
ERROR	39	2.27823573	0.05841630		
C TOTAL	43	33.58419583			

ROOT MSE	0.2416946	R-SQUARE	0.9322
DEP MEAN	14.04169	ADJ R-SQ	0.9252
C.V.	1.721265		

PARAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR H0: PARAMETER=0	PROB > T
INTERCEP	1	14.04169000	0.03643684	385.371	0.0001
FACTOR1	1	0.84634176	0.03685809	22.962	0.0001
FACTOR2	1	-0.08480198	0.03685809	-2.301	0.0268
FACTOR3	1	0.04286455	0.03685809	1.163	0.2519
FACTOR4	1	-0.05217719	0.03685809	-1.416	0.1648

MODELO PRODUCCION ARROZ - RIDGE

OBS	_MODEL_	_DEPVAR_	_TYPE_	_K_	_Q_	_SSE_	_MSE_	INTERCEP	LINGRESO	LSEEDS
1	MODEL1	LINGRESO	RIDGE	0.00	.	1.20192	0.0353506	2.55545	-1	0.764632
2	MODEL1	LINGRESO	RIDGESTD	0.00	.	1.20192	0.0353506	2.55545	-1	0.132451
3	MODEL1	LINGRESO	RIDGE	0.05	.	1.37396	0.0404104	4.02665	-1	0.502341
4	MODEL1	LINGRESO	RIDGESTD	0.05	.	1.37396	0.0404104	4.02665	-1	0.075038
5	MODEL1	LINGRESO	RIDGE	0.10	.	1.54642	0.0454831	4.62939	-1	0.403902
6	MODEL1	LINGRESO	RIDGESTD	0.10	.	1.54642	0.0454831	4.62939	-1	0.054728
7	MODEL1	LINGRESO	RIDGE	0.15	.	1.67869	0.0493732	4.98849	-1	0.350769
8	MODEL1	LINGRESO	RIDGESTD	0.15	.	1.67869	0.0493732	4.98849	-1	0.043736
9	MODEL1	LINGRESO	RIDGE	0.20	.	1.78550	0.0525148	5.24165	-1	0.316919
10	MODEL1	LINGRESO	RIDGESTD	0.20	.	1.78550	0.0525148	5.24165	-1	0.036768
11	MODEL1	LINGRESO	RIDGE	0.25	.	1.87656	0.0551931	5.43810	-1	0.293158
12	MODEL1	LINGRESO	RIDGESTD	0.25	.	1.87656	0.0551931	5.43810	-1	0.031945
13	MODEL1	LINGRESO	IPC	.	0	1.20192	0.0353506	2.55545	-1	0.764632
14	MODEL1	LINGRESO	IPCSTD	.	0	1.20192	0.0353506	2.55545	-1	0.132451
15	MODEL1	LINGRESO	IPC	.	1	1.30980	0.0374230	3.09834	-1	0.720989
16	MODEL1	LINGRESO	IPCSTD	.	1	1.30980	0.0374230	3.09834	-1	0.133832
17	MODEL1	LINGRESO	IPC	.	2	1.73010	0.0480584	4.94788	-1	0.281535
18	MODEL1	LINGRESO	IPCSTD	.	2	1.73010	0.0480584	4.94788	-1	0.030318
19	MODEL1	LINGRESO	IPC	.	3	2.01014	0.0543280	5.22404	-1	0.238832
20	MODEL1	LINGRESO	IPCSTD	.	3	2.01014	0.0543280	5.22404	-1	0.026178
21	MODEL1	LINGRESO	IPC	.	4	2.19212	0.0576873	5.65663	-1	0.198620
22	MODEL1	LINGRESO	IPCSTD	.	4	2.19212	0.0576873	5.65663	-1	0.014666

OBS	LMANDS	LNITROS	LFOSFOS	LPOTAS	LMAQUIS	LHERBIS	LINSES	LFUNGIS
1	0.004811	0.025137	-0.028503	0.0394023	0.194558	0.003695	-0.027568	0.0047750
2	0.101944	0.058794	0.029461	0.0266823	0.087682	0.042156	0.039187	0.0101522
3	0.101652	0.062917	-0.015167	0.0401743	0.170531	0.028768	0.004661	0.0135266
4	0.056599	0.044365	0.022850	0.0206835	0.048999	0.035770	0.032461	0.0092407
5	0.125912	0.075863	-0.005286	0.0368881	0.159669	0.041623	0.020006	0.0163451
6	0.042652	0.037363	0.019425	0.0179035	0.036358	0.031872	0.029149	0.0090046
7	0.134725	0.082001	0.001442	0.0342582	0.152311	0.049521	0.029647	0.0175372
8	0.035328	0.032588	0.017099	0.0160642	0.029579	0.028797	0.026584	0.0088055
9	0.138181	0.085357	0.006223	0.0323515	0.146719	0.054814	0.036361	0.0180595
10	0.030653	0.029053	0.015410	0.0147324	0.025257	0.026308	0.024488	0.0086078
11	0.139326	0.087323	0.009771	0.0309621	0.142209	0.058549	0.041300	0.0182509
12	0.027351	0.026317	0.014129	0.0137165	0.022239	0.024262	0.022742	0.0084122
13	0.004811	0.025137	-0.028503	0.0394023	0.194558	0.003695	-0.027568	0.0047750
14	0.101944	0.058794	0.029461	0.0266823	0.087682	0.042156	0.039187	0.0101522
15	0.170201	0.012369	-0.039932	0.0517069	0.068400	0.006358	-0.000443	0.0079665
16	0.038897	0.060023	0.029556	0.0264794	0.051164	0.043345	0.037019	0.0102750
17	0.230539	0.102723	-0.051942	0.0800126	0.201167	0.014752	0.003883	0.0209356
18	0.039073	0.060772	0.033246	0.0284396	0.036691	0.049038	0.041925	0.0107865
19	0.176665	0.190164	-0.011522	0.0342947	0.123319	0.037587	-0.012286	0.0316092
20	0.034099	0.051881	0.030538	0.0225573	0.018604	0.041100	0.044003	0.0104606
21	0.199341	0.114353	0.040675	0.0022843	0.145341	0.070586	0.032093	0.0270143
22	0.032736	0.032191	0.0112490	0.0146794	0.014621	0.041256	0.0378378	0.0104641

MODELO PRODUCCION ARROZ - RIDGE

OBS	_MODEL_	_DEPVAR_	_TYPE_	_K_	_Q_	_SSE_	_MSE_	INTERCEP	LINGRESO	LSEEDS
23	MODEL1	LINGRESO	IPC	.	5	2.27824	0.0584163	5.71332	-1	0.184844
24	MODEL1	LINGRESO	IPCSTD	.	5	2.27824	0.0584163	5.71332	-1	0.009439
25	MODEL1	LINGRESO	IPC	.	6	2.39530	0.0598825	5.75795	-1	0.178929
26	MODEL1	LINGRESO	IPCSTD	.	6	2.39530	0.0598825	5.75795	-1	0.008569
27	MODEL1	LINGRESO	IPC	.	7	2.47431	0.0603490	5.77926	-1	0.176212
28	MODEL1	LINGRESO	IPCSTD	.	7	2.47431	0.0603490	5.77926	-1	0.008268
29	MODEL1	LINGRESO	IPC	.	8	2.78354	0.0662747	6.10216	-1	0.168040
30	MODEL1	LINGRESO	IPCSTD	.	8	2.78354	0.0662747	6.10216	-1	0.007795

OBS	LMANOS	LNITROS	LFOSFOS	LPOTAS	LMAQUIS	LHERBIS	LINSES	LFUNGIS
23	0.175648	0.080675	0.0338476	0.0133307	0.140431	0.116212	0.047002	0.0274320
24	0.026540	0.016733	0.0098242	0.0116377	0.014147	0.017647	0.036041	0.0105244
25	0.140073	0.102308	0.0299019	0.0187930	0.123729	0.093351	0.096994	0.0261424
26	0.008643	0.006901	0.0095380	0.0111163	0.007903	0.007204	0.007294	0.0106157
27	0.143816	0.108045	0.0277212	0.0158042	0.124659	0.099053	0.097635	0.0142282
28	0.008036	0.004780	0.0093835	0.0108495	0.007892	0.005241	0.007300	0.0022682
29	0.131249	0.107983	0.0484010	0.0400337	0.110651	0.091527	0.083375	0.0091768
30	0.006088	0.005009	0.0022452	0.0018570	0.005133	0.004246	0.003867	0.0004257

EJEMPLO

En 1981 se realizo en Colombia una encuesta de hogares con el proposito de obtener informacion cuantitativa sobre el consumo de diferentes alimentos, por region, area (rural y urbana), y grupo de ingreso.

Se recolectaron datos en terminos de cantidades fisicas, gastos, aportes caloricos y proteinicos por familia-mes.

Como una extension del trabajo, se realizaron estimaciones econométricas de elasticidades ingreso y precio para las principales categorias de alimentos.

MODEL: MODEL1
 DEPENDENT VARIABLE: LRESC

ANALYSIS OF VARIANCE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB>F
MODEL	4	224.60468	56.15117	108.074	0.0001
ERROR	89	46.24114	0.51956		
C TOTAL	93	270.84583			

ROOT MSE	0.72081	R-SQUARE	0.8293
DEP MEAN	8.37083	ADJ R-SQ	0.8216
C.V.	8.61094		

PARAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR H0: PARAMETER=0	PROB > T
INTERCEP	1	-11.406744	2.65861841	-4.290	0.0001
LPRES	1	-0.976884	0.04762249	-20.513	0.0001
LPCERD	1	-0.006493	0.01956717	-0.332	0.7408
LPAVE	1	0.003858	0.01948274	0.198	0.8435
LIMON	1	1.284637	0.29235112	4.394	0.0001

COLLINEARITY DIAGNOSTICS

NUMBER	EIGENVALUE	CONDITION NUMBER	VAR PROP INTERCEP	VAR PROP LPRES	VAR PROP LPCERD	VAR PROP LPAVE	VAR PROP LIMON
1	3.06686	1.00000	0.0001	0.0021	0.0224	0.0223	0.0001
2	0.73217	2.23791	0.0001	0.0030	0.3644	0.3649	0.0001
3	0.57807	2.51859	0.0000	0.0000	0.6054	0.6024	0.0000
4	0.02250	12.76706	0.0049	0.9210	0.0104	0.0018	0.0070
5	0.0004086	94.73019	0.9949	0.0738	0.0044	0.0086	0.9929

MODEL: MODEL2
 DEPENDENT VARIABLE: LRESC

ANALYSIS OF VARIANCE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB>F
MODEL	5	224.85919	44.97184	86.058	0.0001
ERROR	88	45.98664	0.52258		
C TOTAL	93	270.84583			

ROOT MSE	0.72289	R-SQUARE	0.8302
DEP MEAN	8.37083	ADJ R-SQ	0.8206
C.V.	8.63587		

PARAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR HO: PARAMETER=0	PROB > T
INTERCEP	1	-8.845865	4.53598560	-1.950	0.0543
LPRES	1	-0.975171	0.04782339	-20.391	0.0001
LPCERD	1	-0.006019	0.01963557	-0.307	0.7599
LPAVE	1	0.003738	0.01953990	0.191	0.8487
LIMON	1	0.895650	0.62980651	1.422	0.1585
LEAC	1	0.503338	0.72125522	0.698	0.4871

COLLINEARITY DIAGNOSTICS

NUM	EIGENVALUE	CONDITION NUMBER	VAR PROP INTERCEP	VAR PROP LPRES	VAR PROP LPCERD	VAR PROP LPAVE	VAR PROP LIMON	VAR PROP LEAC
1	4.61015	1.00000	0.0000	0.0014	0.0128	0.0128	0.0000	0.0002
2	0.77346	2.44140	0.0000	0.0015	0.3750	0.3744	0.0000	0.0002
3	0.57807	2.82402	0.0000	0.0000	0.6038	0.6032	0.0000	0.0000
4	0.03050	12.29531	0.0001	0.6929	0.0019	0.0008	0.0002	0.0313
5	0.00772	24.44497	0.0119	0.2734	0.0065	0.0058	0.0029	0.2222
6	0.0001076	206.98676	0.9880	0.0308	0.0000	0.0029	0.9968	0.7461

MODEL: MODEL3

DEPENDENT VARIABLE: LRESC

ANALYSIS OF VARIANCE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB>F
MODEL	5	225.25073	45.05015	86.948	0.0001
ERROR	88	45.59509	0.51813		
C TOTAL	93	270.84583			

ROOT MSE	0.71981	R-SQUARE	0.8317
DEP MEAN	8.37083	ADJ R-SQ	0.8221
C.V.	8.59902		

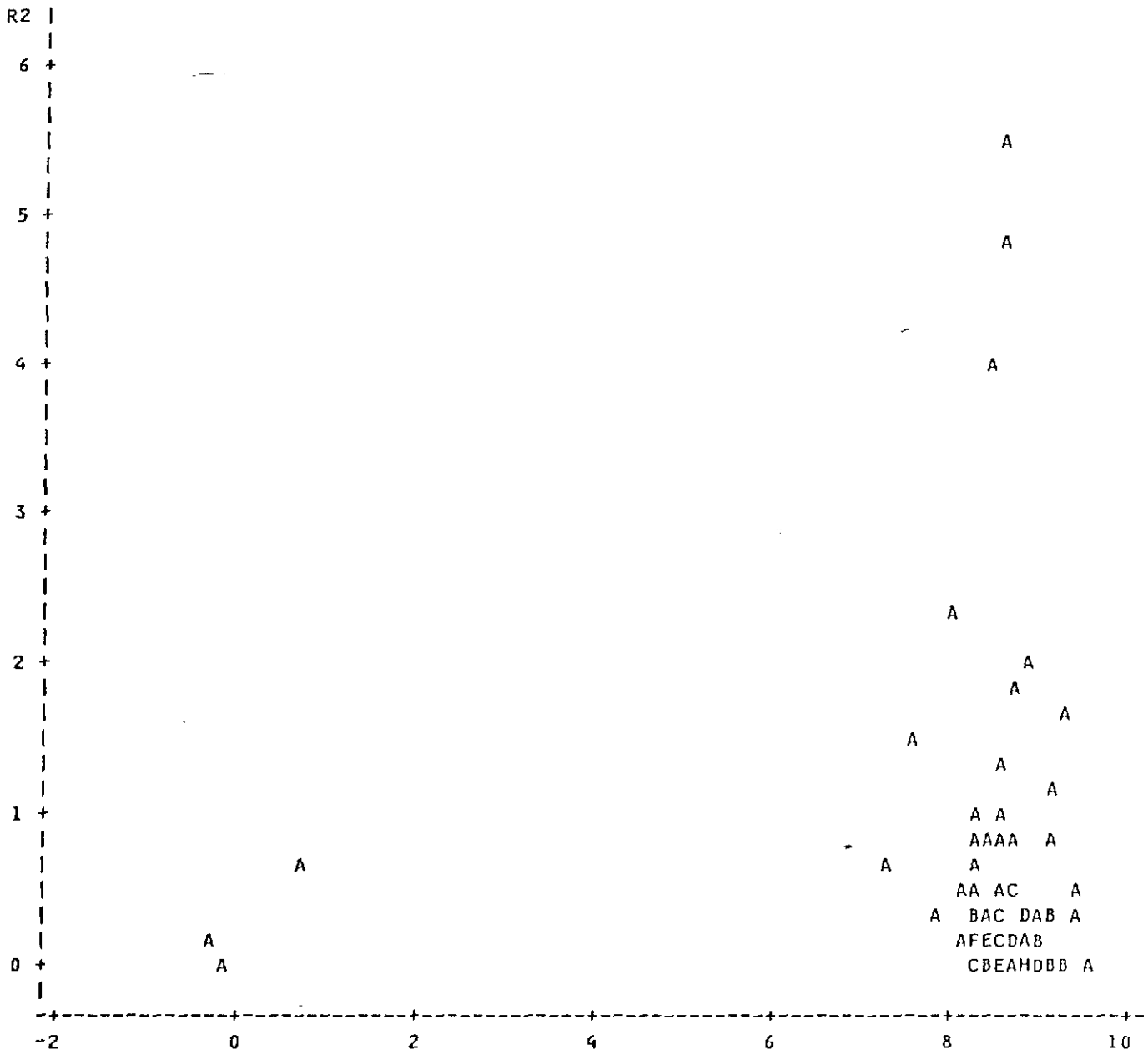
PARAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR H0: PARAMETER=0	PROB > T
INTERCEP	1	-11.672382	2.66557475	-4.379	0.0001
LPRES	1	-0.973850	0.04763413	-20.444	0.0001
LPCERD	1	-0.010572	0.01987857	-0.532	0.5962
LPAVE	1	0.004094	0.01945692	0.210	0.8338
LPPEZ	1	0.018370	0.01645149	1.117	0.2672
LIMON	1	1.326814	0.29437967	4.507	0.0001

COLLINEARITY DIAGNOSTICS

NUM	EIGENVALUE	CONDITION NUMBER	VAR PROP INTERCEP	VAR PROP LPRES	VAR PROP LPCERD	VAR PROP LPAVE	VAR PROP LPPEZ	VAR PROP LIMON
1	4.23276	1.00000	0.0000	0.0016	0.0160	0.0155	0.0167	0.0000
2	0.74360	2.38584	0.0001	0.0019	0.3088	0.4373	0.0703	0.0001
3	0.59701	2.66270	0.0000	0.0005	0.5637	0.4634	0.0606	0.0000
4	0.40422	3.23597	0.0001	0.0048	0.1021	0.0734	0.8682	0.0001
5	0.02201	13.86832	0.0052	0.9218	0.0073	0.0016	0.0226	0.0072
6	0.0004038	102.37817	0.9946	0.0693	0.0020	0.0087	0.0117	0.9926

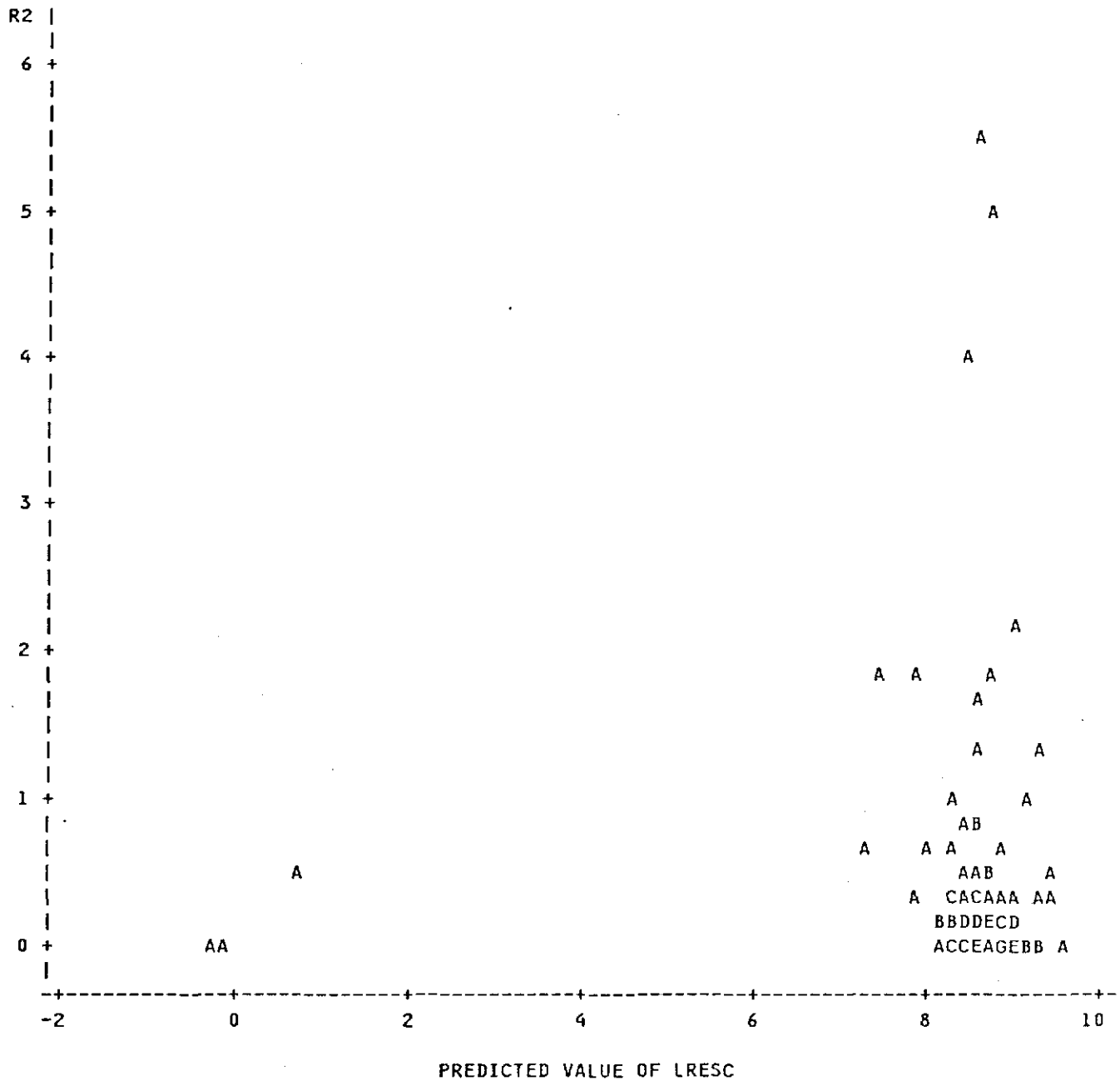
PLOT OF R2×P. LEGEND: A = 1 OBS, B = 2 OBS, ETC.



PREDICTED VALUE OF LRESC

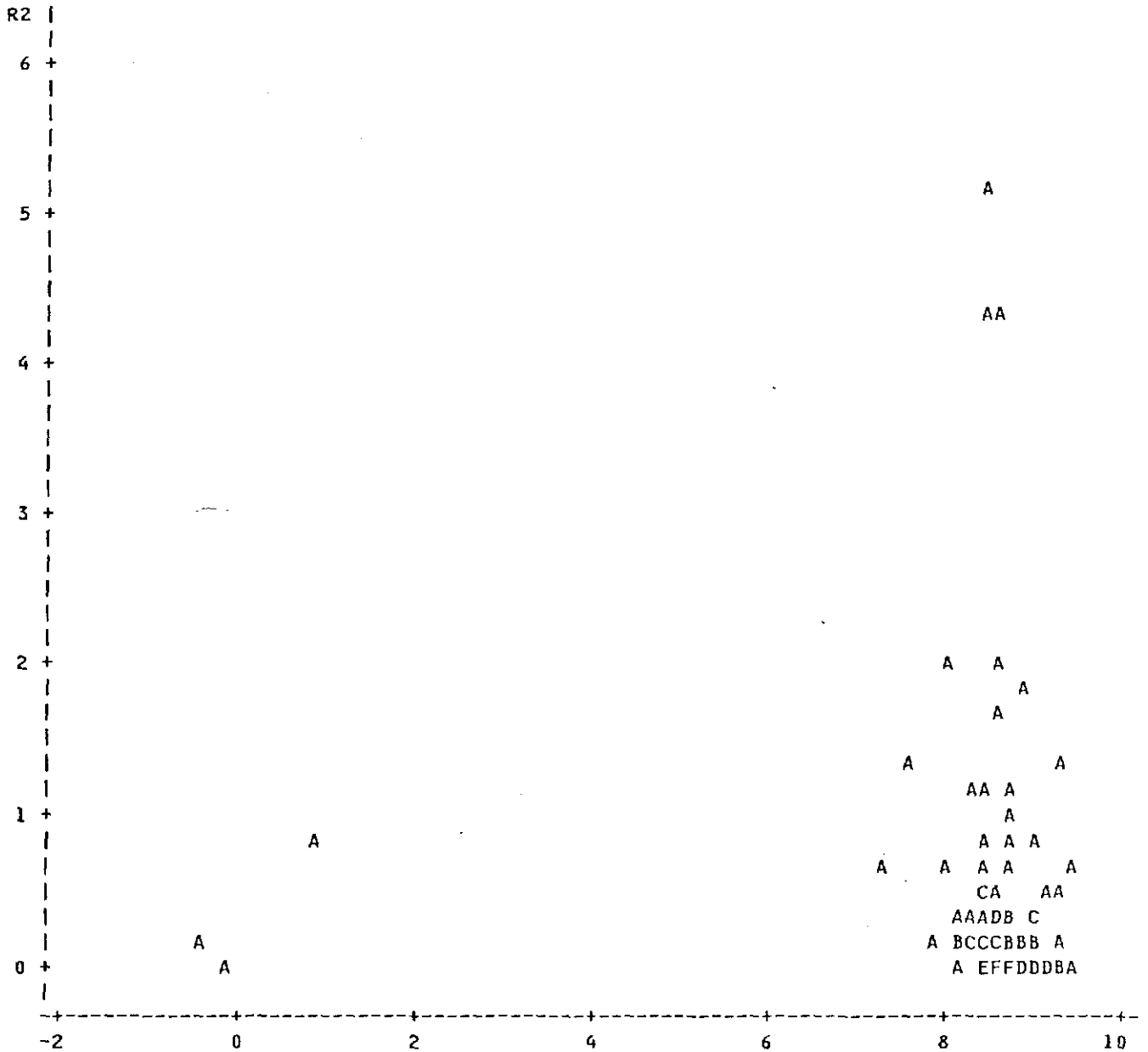
MODELO 1

PLOT OF R2*P. LEGEND: A = 1 OBS, B = 2 OBS, ETC.



MODELO 2

PLOT OF R2*P. LEGEND: A = 1 OBS, B = 2 OBS, ETC.



MODEL: MODEL1

DEPENDENT VARIABLE: LRESC

ANALYSIS OF VARIANCE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB>F
MODEL	4	7823.09279	1955.77320	38.765	0.0001
ERROR	89	4490.21821	50.45189		
C TOTAL	93	12313.31099			

ROOT MSE	7.10295	R-SQUARE	0.6353
DEP MEAN	8.43898	ADJ R-SQ	0.6189
C.V.	84.16832		

PARAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR H0: PARAMETER=0	PROB > T
INTERCEP	1	-15.089195	3.23646799	-4.662	0.0001
LPRES	1	-0.934579	0.07945026	-11.763	0.0001
LPCERD	1	-0.001910	0.01961916	-0.097	0.9227
LPAVE	1	-0.007960	0.01957141	-0.407	0.6852
LIMON	1	1.736312	0.35266156	4.923	0.0001

COLLINEARITY DIAGNOSTICS

NUMBER	EIGENVALUE	CONDITION NUMBER	VAR PROP INTERCEP	VAR PROP LPRES	VAR PROP LPCERD	VAR PROP LPAVE	VAR PROP LIMON
1	3.82372	1.00000	0.0000	0.0008	0.0216	0.0214	0.0000
2	0.66298	2.40155	0.0001	0.0016	0.3635	0.3311	0.0001
3	0.50419	2.75389	0.0000	0.0000	0.6087	0.6304	0.0000
4	0.00879	20.85649	0.0094	0.9322	0.0009	0.0006	0.0147
5	0.0003193	109.42618	0.9905	0.0655	0.0053	0.0165	0.9851

MODEL: MODEL2

DEPENDENT VARIABLE: LRESC

ANALYSIS OF VARIANCE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB>F
MODEL	5	7824.93931	1564.98786	30.683	0.0001
ERROR	88	4488.37168	51.00422		
C TOTAL	93	12313.31099			

ROOT MSE	7.14172	R-SQUARE	0.6355
DEP MEAN	8.43898	ADJ R-SQ	0.6148
C.V.	84.62779		

PARAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR H0: PARAMETER=0	PROB > T
INTERCEP	1	-14.198705	5.70023669	-2.491	0.0146
LPRES	1	-0.934326	0.07989501	-11.694	0.0001
LPCERD	1	-0.001810	0.01973325	-0.092	0.9271
LPAVE	1	-0.007619	0.01975996	-0.386	0.7007
LIMON	1	1.598945	0.80433056	1.988	0.0499
LEAC	1	0.184241	0.96830227	0.190	0.8495

COLLINEARITY DIAGNOSTICS

UMBER	EIGENVALUE	CONDITION NUMBER	VAR PROP INTERCEP	VAR PROP LPRES	VAR PROP LPCERD	VAR PROP LPAVE	VAR PROP LIMON	VAR PROP LEAC
1	4.77460	1.00000	0.0000	0.0005	0.0128	0.0126	0.0000	0.0001
2	0.70234	2.60733	0.0000	0.0008	0.3745	0.3389	0.0000	0.0001
3	0.50419	3.07732	0.0000	0.0000	0.6070	0.6263	0.0000	0.0000
4	0.01416	18.36270	0.0000	0.4896	0.0000	0.0026	0.0001	0.0700
5	0.00463	32.09955	0.0152	0.4926	0.0055	0.0192	0.0040	0.1597
6	0.0000767	249.54347	0.9848	0.0165	0.0001	0.0003	0.9959	0.7701

MODEL: MODEL3

DEPENDENT VARIABLE: LRESC

ANALYSIS OF VARIANCE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PROB>F
MODEL	5	7997.67673	1599.53535	32.616	0.0001
ERROR	88	4315.63427	49.04130		
C TOTAL	93	12313.31099			

ROOT MSE	7.00295	R-SQUARE	0.6495
DEP MEAN	8.43898	ADJ R-SQ	0.6296
C.V.	82.98334		

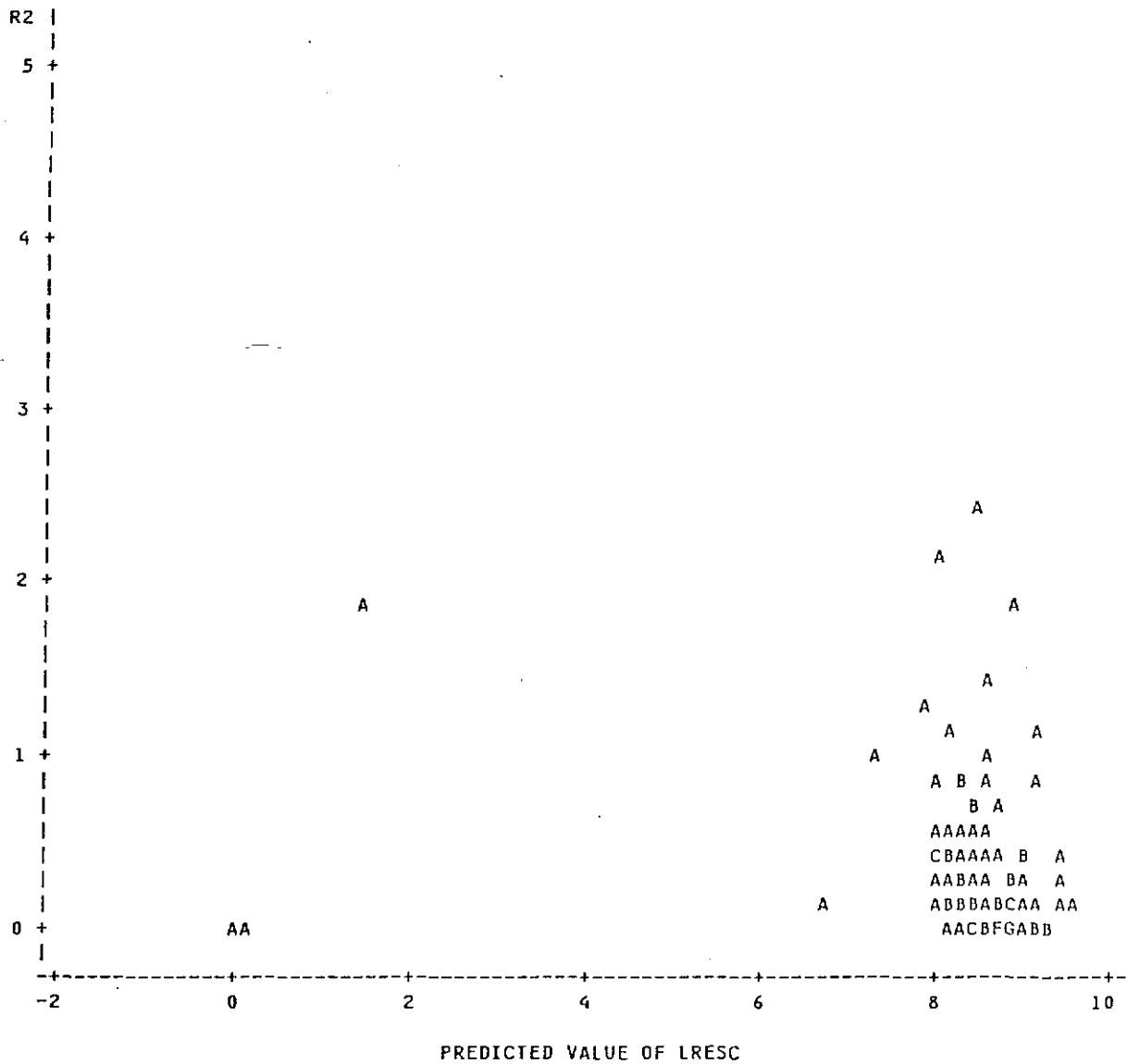
PARAMETER ESTIMATES

VARIABLE	DF	PARAMETER ESTIMATE	STANDARD ERROR	T FOR H0: PARAMETER=0	PROB > T
INTERCEP	1	-15.783719	3.21206449	-4.914	0.0001
LPRES	1	-0.932304	0.07834098	-11.901	0.0001
LPCERD	1	-0.008119	0.01962092	-0.414	0.6800
LPAVE	1	-0.009030	0.01930419	-0.468	0.6411
LPPEZ	1	0.033239	0.01761669	1.887	0.0625
LIMON	1	1.836130	0.35169833	5.221	0.0001

COLLINEARITY DIAGNOSTICS

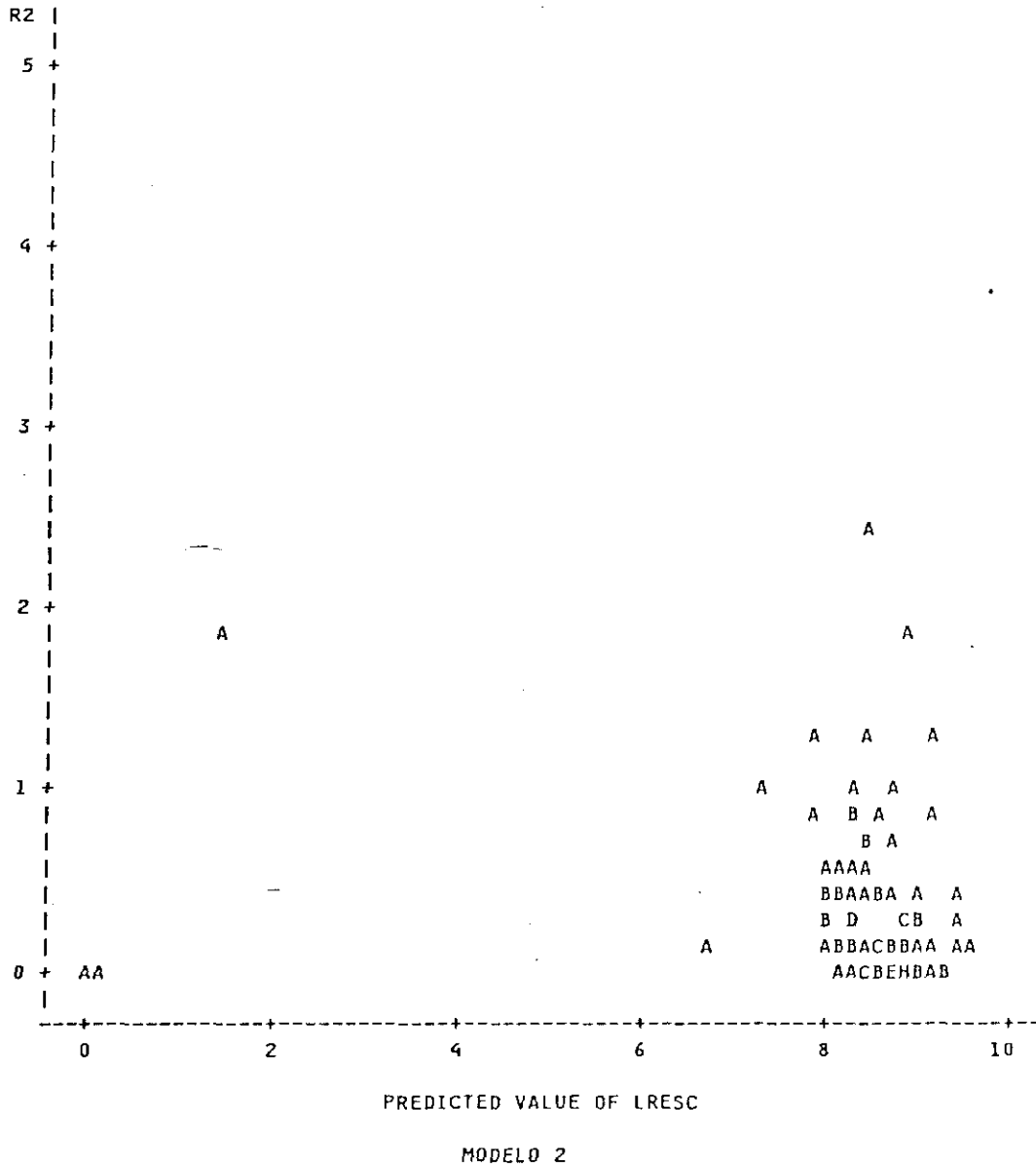
NUMBER	EIGENVALUE	CONDITION NUMBER	VAR PROP INTERCEP	VAR PROP LPRES	VAR PROP LPCERD	VAR PROP LPAVE	VAR PROP LPPEZ	VAR PROP LIMON
1	4.46313	1.00000	0.0000	0.0006	0.0151	0.0149	0.0141	0.0000
2	0.67179	2.57752	0.0001	0.0011	0.3398	0.3749	0.0140	0.0001
3	0.51164	2.95351	0.0000	0.0001	0.5767	0.5725	0.0278	0.0000
4	0.34441	3.59985	0.0001	0.0022	0.0638	0.0217	0.9184	0.0001
5	0.00872	22.62602	0.0096	0.9330	0.0021	0.0008	0.0083	0.0146
6	0.0003138	119.26813	0.9902	0.0631	0.0024	0.0152	0.0175	0.9852

PLOT OF R2*P. LEGEND: A = 1 OBS, B = 2 OBS, ETC.

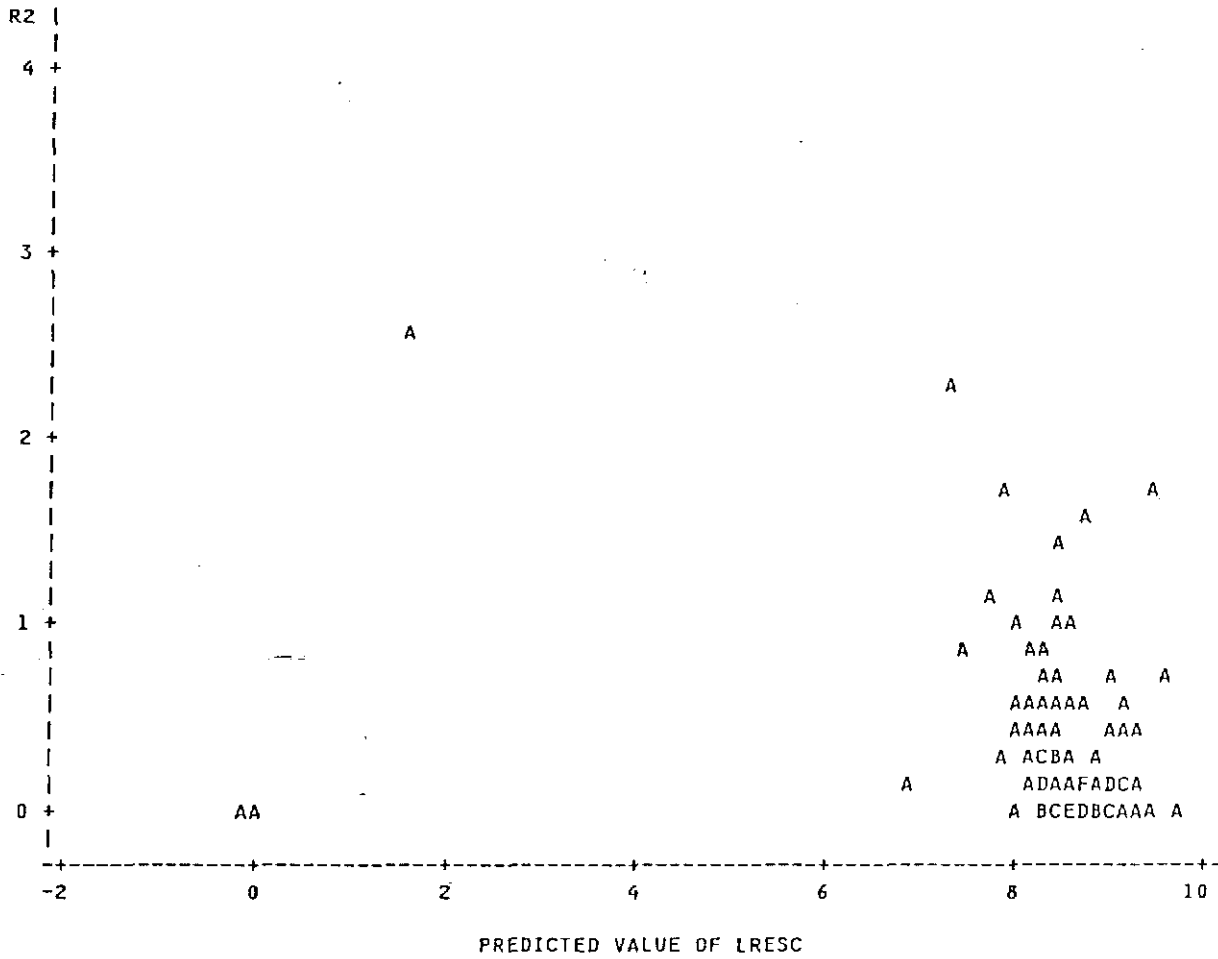


MODELO 1

PLOT OF R2*P. LEGEND: A = 1 OBS, B = 2 OBS, ETC.



PLOT OF R2*P. LEGEND: A = 1 OBS, B = 2 OBS, ETC.



MODELO 3