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COMPUTER PROGRAMS FOR MULTIVARIATE ANALYSIS OF THE AGRO-FOOD RELATED CHARACTERISTICS IN 50 AFRICAN COUNTRIES

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INTRODUCTION

This short report outlines the rationale and specifics of the statistical methodology and computer programs developed to assist in classifying the development patterns of the agro-related industries in fifty African countries. The report is divided into four parts. First, the rationale and methodologies used are discussed in a general way, in order to orient the reader. Second, the specific computer programs which were written are briefly discussed. Third, an example of the application of these techniques (to agro-machinery) is presented. Fourth, the actual programs themselves are reproduced in full.

The purpose of the statistical analysis was to develop a typology of the development experiences of the agro-machinery, food processing, pesticide and fertilizer industries of all fifty African countries. Here, as in previous work of UNIDO on the fishing industry, the objective has been to group countries according to certain shared characteristics; it is believed that identifying such common features and establishing such a typology can significantly strengthen the process of project selection, evaluation, and implementation. This contribution results from the saving of time and other resources in subsequent project work: if a sub-set of countries shares certain features, then it is very likely that the countries of the group share certain critical constraints to the development of their agro-industrial

sectors. Consequently, resources can be concentrated in those areas, thereby increasing the efficiency of UNIDO projects. In short, such typologies can assist in the design of modular technical assistance programmes.

Most UN agencies now classify countries either by geographical location (e.g., "North Africa", "Central Humid Africa", etc.) or by income per head (usually, per capita Gross Domestic Product: "Least developed countries; Upper-Middle Income Countries", etc.) The theoretical and programmatic disadvantages of either approach are well-known: countries in the same geographical region may have very different economic structures and problems (e.g., Nigeria and Benin), while "per capita income" is only one of a large set of variables which one might wish to consider in constructing a typology, especially if the purpose of the typology was to increase the efficiency of technical assistance programmes. A broader, more flexible methodolgy is required.

The technique used was cluster analysis. This technique "groups" N countries with M dimensions (e.g., "food imports per capita", "number of tractors locally manufactured", "number of foundries inoperative") into N - X (N>X>1) "clusters" or subsets of countries. In this method, the statistical association among the variables within clusters is "high", while that between clusters is "low". The initial set of programs written utilized eleven different definitions of statistical association. In

consultation with in-house experts, one method ("Ward's method") was utilized to explore the data more intensively. The programs make it very easy to vary the number of desired clusters from N to 1. By using the Chi-square hypothesis test, one can establish which variables are primarily responsible for generating the cluster. That is, the hypothesis test can identify the basis for the classification. Performing these tests required programs not only for the hypothesis test itself, but also to re-group country data into the clusters generated by the original analysis. Factor analysis described below, was also used to identify "dominant variables" in the typology.

There are several advantages to this methodology. First, rather than specifying a priori the critical variables in creating a typology (as is done, for example, in the usual per-capita income groupings), the data themselves are employed to create the typology. Consequently, much more information is utilized in creating the typologies, which accordingly rest on a firmer foundation. (Although there are numerous data deficiencies--discussed elsewhere--this is certainly equally true of income data). Second, the number of clusters can be varied. This is especially helpful in seeing whether the clusters generated by the statistical method appear reasonable to experienced observers and experts in the field. Indeed, a crucial aspect of the methodology is precisely to subject the clusters to the detailed scrutiny of such experts.

Cluster analysis was applied first to the entire data for a given agro-industrial sub-sector (e.g.,farm machinery). Next, the method was used to create clusters for sub-sets of the data, specifically, for "components" of the sub-sector. These components were derived from the systems analysis of the sub-sector. For example, for agro-machinery such components included "inputs", "metal working", and "trade". (See below for more detail.) By creating country clusters for such sub-sector components, this programming exercise should be especially useful in designing modular technical assistance programmes.

Initially, a very large number of variables were assembled and used in the preliminary cluster analysis. Subsequently, both quantitative and qualitative methods were used to limit the number of variables to those which showed the most exmplanatory power. The qualitative input came from in-house experts and from Dr. John Sender of Cambridge University, while the quantitative method used was factor analysis. Factor analysis provides a method of associating the variance of an explicit variable with certain "factors", which are unobservable, statistical constructs of the original variables. The coefficients of these variables, called "factor loadings" are similar to regression coefficients in regression analysis. In the work done here, only factors which explained at least 75% of the variance of a variable were included. As for the cluster analysis, factor analysis was applied both to the overall data set of the sub-sector, and then subsequently to the components of the individual sub-sectors.

After factor analysis and in-house and outside expertise selected a sub-set of variables, the cluster analysis was done again.

II. DESCRIPTION OF THE PROGRAMS

A. GENERAL CLUSTER ANALYSIS

Programs for cluster analysis have been written for the analysis of data from all fifty African countries for: 1) agro machinery, 2) food industrial systems, 3) pesticides, and 4) fertilizers. As of the conclusion of the consultancy, because of data deficiencies, the analysis had been actually carried out for the first two of these industrial sub-sectors.

Eleven statistical techniques for defining "statistical association", and, therefore, for creating clusters are available. These are: 1) Ward's Method, 2)Average Linkage Method (UPGMA), 3) Centroid Method, 4) Complete Linkage Method, 5) Single Linkage Method, 6) Two-Stage Density Linkage Method, 7) Density Linkage Method, 8) Median Method(WPGMA), 9) McQuitty Similarity Analysis, 10) EML or Maximum Likelihood Method, and 11) Flexible Beta Method.

There is little or no underlying statistical theoretical reason for preferring any one of these methods. However, the most commonly used and also most commonly encountered in the literature are the first two, Ward's Method and the Average Linkage Method. Ward's Method is commonly preferred because it tends to generate clusters of somewhat more even size than do other methods.

In the programs written for application to the entire data set for a specified sub-sector (e.g., agricultural machinery), all eleven methods would be applied to the data. It is also very easy to instruct the program to utilize any sub-set of these methods. The programs written to analyze the components of sub-sectors use only Ward's Method.

In keeping with programming practices, programs are labelled to assist users to remember their purpose. The programs for cluster analysis to be applied to the entire data set are:

1) AGCL--for agromachinery;

2) FDCL--for food industrial systems;

3) PSTCL--for pesticides;

4) FRTCL--for fertilizer.

These programs, together with a list of all of the variables used for agro-machinery and food industrial systems, are presented in full in Section IV of this report.

B. CLUSTER ANALYSIS BY COMPONENTS

An integral part of the MEPS methodology is the creation and use of the results of systems analysis of the sub-sectors. An example of this is the "Base Diagram" for the agro-machinery sub-sector. (Figure 1). On the basis of this diagram, seven "components" for this sub-sector were selected: 1) inputs, 2) raw materials, 3) metal working, 4) government policy, 5) distribution, 6) trade, and 7) demand. (One of the components suggested by the Base Diagram, "assembly", was dropped because of inadequate data).

Similarly, the components selected from the Base Diagram for food industrial systems (Figure 2) were as follows: 1) agro-ecological constraints, 2) potential land resources, 3) other inputs, 4) trade, 5) production, 6) concessional commitments to agriculture, and 7) consumption.

Programs were then written to take the variables pertaining to each component for all fifty countries and to create clusters by using Ward's Method. That is, the programs create clusters of countries, for example, for each of the seven components of the agro-machinery sub-sector. (See below, Section III, for a more

detailed discussion of the example of the application of this and other programs to the agro-machinery sub-sector).

The programs were:

1) AGCLCOM--for agro-machinery;

2) ARTCLCOM--for fertilizer;

3) PSTCLCOM--for pesticides;

4) FDCLCOM--for food industrial systems.

Each of these programs, together with a list of the variables utilized for each component of each sub-sector, is presented in full in Section IV of this report.

C. CHI-SQUARE SIGNIFICANCE TEST FOR CLUSTER ANALYSIS

In order to establish which variables were "important" in generating the clusters of countries when using the entire data set for a sub-sector, a program to utilize the Chi-square test of statistical significance was written. This program utilizes output of a subsidiary program which caluclates the standard deviation of the variable for the population of all fifty countries ("S") and the standard deviation for the same variable

for each cluster ("s"). (See below, Section II-G). The Chi-square program calculates the Chi-square statistic for s-squared/S-squared. A "low" value indicates that the difference among values for the variable within the cluster is low relative to that within the population as whole, and, therefore, is "significant" in creating the cluster. "Low" is defined as statistical significance at the 95% level.

The program was written for the agro-machinery subsector. It can easily be adapted to the other sub-sectors.

The program is AGCHI.

D. DATA PARTITION FOR CLUSTER ANALYSIS

In order to calculate the standard deviation for a variable within a cluster, the data set must first be rearranged so that all of the data for each country within a cluster appear sequentially. A program to regroup the data in this way was written for the agro-machinery industry, the only subsector for which a complete data set was available at the conclusion of this consultancy. However, the program could be easily modified for the other sub-sectors when their data sets are completed. The order of variables remains the same in this new data set as in the original one, but, of course, the order of countries is

changed.

This program is AGCL5.

E. FACTOR ANALYSIS FOR THE COMPLETE DATA SETS

This program applies factor analysis to the entire data set for each of the agro-industrial sub-sectors. There are two principal outputs of the program: 1) the percent of the total, unweighted variance of all variables which is explained by the first "factor" (the unobservable variable which is a linear combination of the actual variables), and 2) the"factor loadings",or the percent of the variance of a specific variable in the data set which is explained by the factor. As noted above in the introduction, this information is used to identify the dominant variables in the clusters.

The programs are:

1) AGFCALL--for agro-machinery;

2) FRTTCAL--for fertilizer;

3) PSTFCAL--for pesticides;

4) FDFCALL--for food industrial systems.

F. FACTOR ANALYSIS FOR DATA GROUPED BY SUB-SECTOR COMPONENT

These programs generate the same output as those listed in the previous section. They were written to be applied to the data grouped by component, and were used to clarify the contribution of specific variables within a component to the generation of clusters.

The programs are:

1) AFGFTCOM--for agro-machinery;

2) FRTFTCOM--for fertilizer;

3) PSTFCAL--for pesticides;

4) FDFCALL--for food industrial systems.

G. MISCELLANEOUS SUPPORT PROGRAMS

Four other programs were written to support the work above and/or to assist their future users:

1) TRYI--generates two-dimensional data plots;

2) MEANS--calculates means and standard deviations;

3) AL--a multiple regression program;

4) PRINTVAR--pulls data from mainframe tapes.

Finally, a short tutorial on "how to run a program on the UNIDO mainframe" was created.

III. AN EXAMPLE OF THE OUTPUTS OF THE PROGRAMS

This section illustrates the use of these computer programs by briefly discussing their use in the preliminary analysis of the agro-machinery sub-sector data. Using both in-house and visiting consultant expertise, these results have since been modified in keeping with the overall MEPS methodology: experts scrutinized the results, made suggestions on adding and deleting variables, and the programs were run again. (The results of this second phase were not available at this writing).

Figure 3 shows the output of the AGCL program: cluster analysis for agro-machinery for the entire data set. Using 33 variables, 5 country clusters were generated when using a semi-partial R-squared of 0.05: 1) Cape Verde to Ghana; 2) Madagascar

to Uganda, 3) Mauritania to Nigeria, 4) Algeria to Kenya, and 5) Egypt.

Figure 4 shows the output of the AGCHI program: the results of the Chi-square test of significance of variables in generating the clusters. The level of significance shown is 85%. Variables significant at that level are highlighted.

Figure 5 shows the results of the AGFCALL program: factor analysis on all of the variables. In the upper portion of the output ("Eigenvalues of the Correlation Matrix"), the row "Proportion" shows the percent of variance of the entire data set which is explained by each factor. In the lower section of the output, the factor loadings are shown. Dominant variables (at least 70% of whose variance is explained by the factor) are highlighted.

Figures 6-12 display the output of the AGCLCOM program: clustering by components. Each figure shows the clustering results for a specific component, such as metal-working, trade, distribution, government policy, etc.

It must be stressed that these results shown here are preliminary only and highly provisional. Further work is proceeding to refine the data set and variables utilized in the light of advice by experts in the field. The programs can (indeed, are being) simply re-run on these modified data sets.

BASE DIAGRAM: AGRICULTURAL MACHINERY

PRODUCT GROUPS 1 - 6

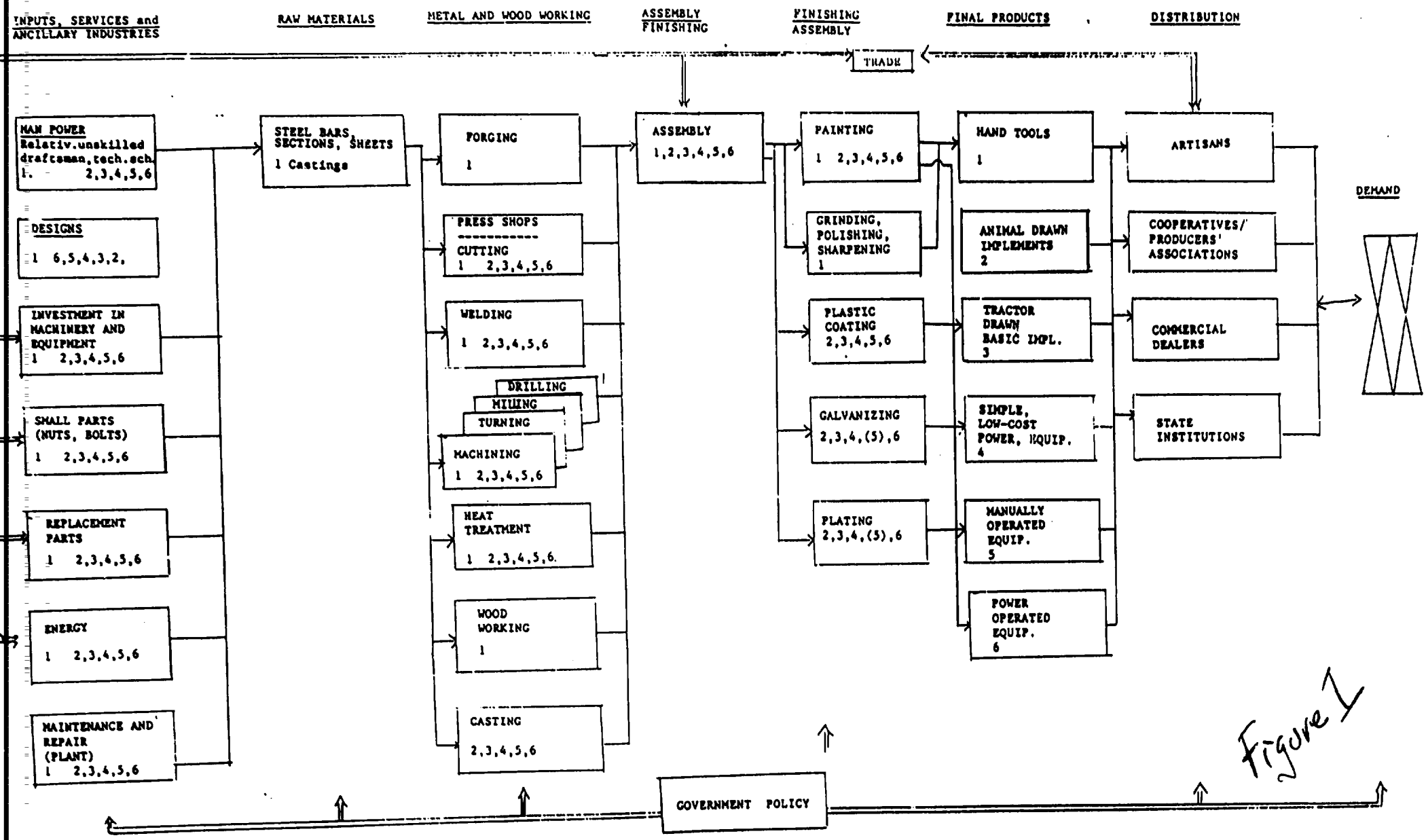


Figure 1

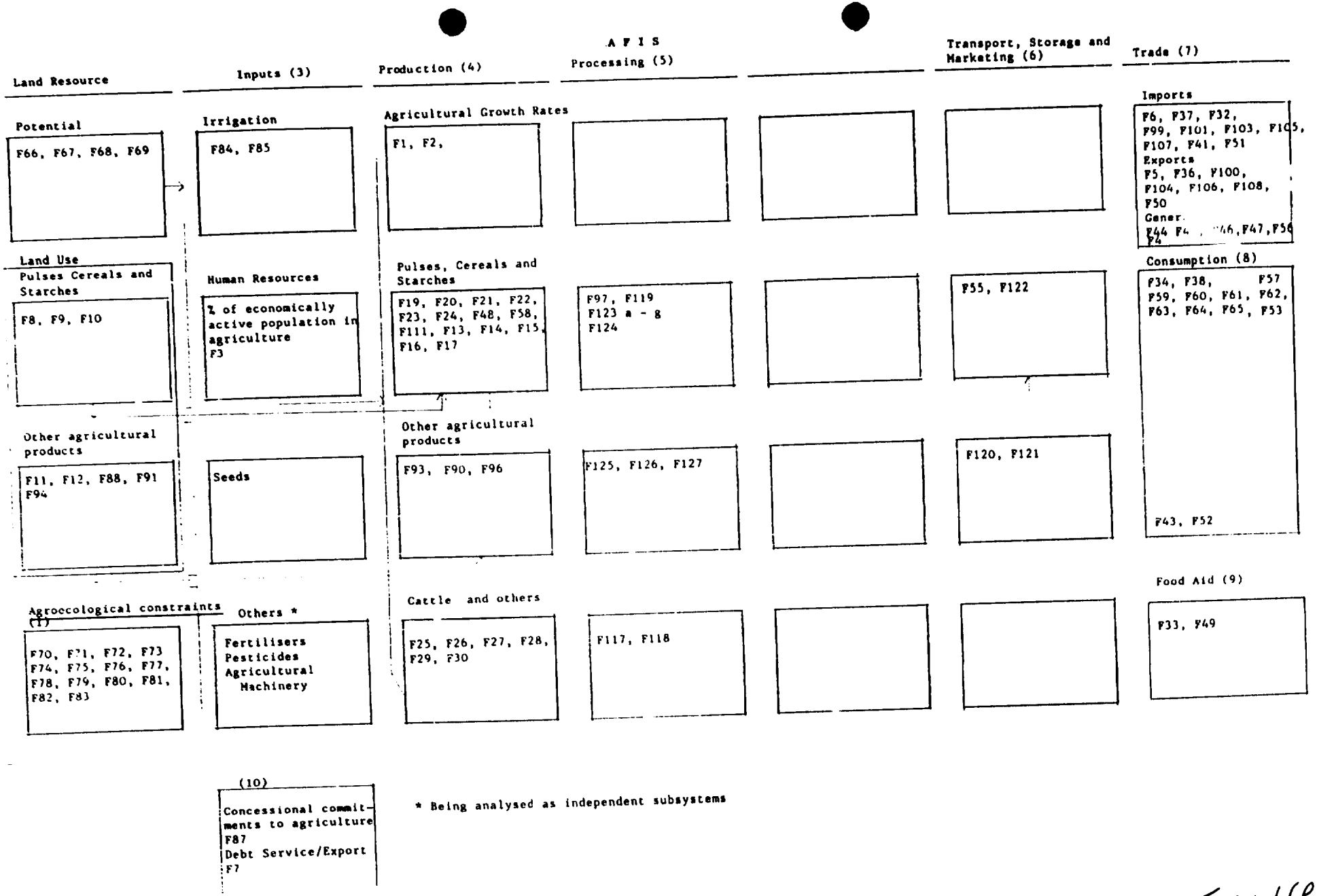

A F I S
Land Resource
Inputs (3)
Production (4)
Processing (5)
Transport, Storage and Marketing (6)
Trade (7)
Potential
F66, F67, F68, F69
Irrigation
F84, F85
Agricultural Growth Rates
F1, F2,
Imports
F6, F37, F32, F99, F101, F103, F105, F107, F41, F51
Exports
F5, F36, F100, F104, F106, F108, F50
Gener.
F44 F4 , F46,F47,F56 F4
Land Use
Pulses Cereals and Starches
F8, F9, F10
Human Resources
% of economically active population in agriculture
F3
Pulses, Cereals and Starches
F19, F20, F21, F22, F23, F24, F48, F58, F111, F13, F14, F15, F16, F17
F97, F119
F123 a - g
F124
F55, F122
Consumption (8)
F34, F38, F57
F59, F60, F61, F62, F63, F64, F65, F53
F43, F52
(2)
Other agricultural products
F11, F12, F88, F91 F94
Seeds
Other agricultural products
F93, F90, F96
F125, F126, F127
F120, F121
Food Aid (9)
F33, F49
Agroecological constraints (1)
F70, F71, F72, F73 F74, F75, F76, F77, F78, F79, F80, F81, F82, F83
Others *
Fertilisers
Pesticides
Agricultural Machinery
Cattle and others
F25, F26, F27, F28, F29, F30
F117, F118
(10)
Concessional commitments to agriculture
F87
Debt Service/Export
F7
* Being analysed as independent subsystems

Figure 2

WARD'S MINIMUM VARIANCE CLUSTER ANALYSIS

NAME OF OBSERVATION OR CLUSTER

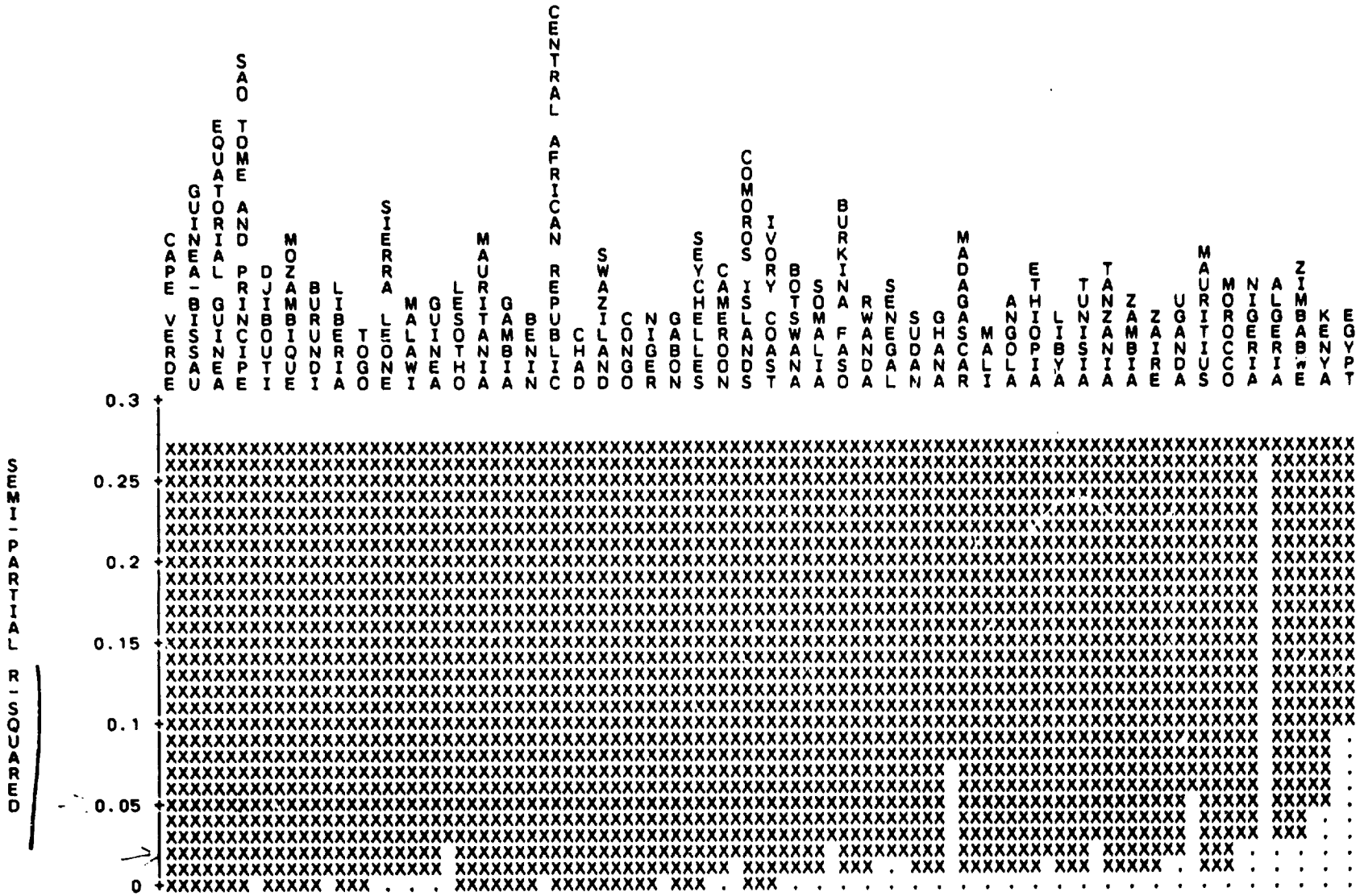


Figure 3

OBS	VARIABLE	CHI1	CHI2	CHI3	CHI4	CHI5
1	a0	0.69578	1.17470	.90361	1.90663	0.3012
2	a13	0.19626	0.65421	0.00000	3.11215	1.8692
3	a14	0.76547	2.23117	2.22271	2.13713	2.5646
4	a16	0.21793	0.29044	1.16570	1.64864	3.9252
5	a17	0.93750	2.08333	2.08333	2.08333	2.0833
6	a18	0.84000	1.60000	1.34000	2.00000	2.0000
7	a19	4.16667	4.16667	4.16667	8.33333	4.1667
8	a2	0.09494	0.46203	1.54035	1.66693	4.6519
9	a20	0.15152	1.11111	0.33333	2.02020	4.0404
10	a21	0.00000	0.00000	0.00000	3.70370	3.7037
11	a22	0.67901	1.72840	2.46914	1.64198	3.7037
12	a23	1.32743	1.32743	1.32743	4.86726	3.5398
13	a24	0.23864	0.51525	0.15797	2.66644	3.7288
14	a25	3.70370	3.70370	3.70370	7.40741	7.4074
15	a26	0.40909	0.90909	1.51818	1.51818	1.8182
16	a27	1.93734	1.00000	2.38418	1.85633	1.3924
17	a28	1.24755	1.22721	4.32468	2.36115	0.8415
18	a29	1.34288	0.92671	4.15586	1.57287	2.0219
19	a30	0.22570	-0.58904	0.52185	0.00457	0.6262
20	a31	7.14286	7.14286	7.14286	7.14286	14.2857
21	a32	1.14130	0.61957	1.11957	0.79348	0.1087
22	a33	0.10253	0.22871	0.73140	0.37148	7.0366
23	a34	0.44655	1.48908	1.42441	1.09986	3.4946
24	a35	0.34632	0.47307	0.16822	0.16365	6.1760
25	a36	-0.18039	-0.35111	0.48425	-0.95490	-0.2215
26	a4	0.50802	1.06489	2.07366	2.66794	0.5344
27	a5	0.26348	0.98424	2.19613	1.26923	2.5533
28	a6	1.18722	0.86588	2.38373	0.77783	2.1498
29	a7	0.00000	1.89189	0.00000	0.89189	0.0000
30	a8	3.70370	3.70370	3.70370	0.00000	0.0000
31	a9	5.00000	5.00000	5.00000	1.65000	5.0000

RESULTS OF HYPOTHESIS TESTING

Dominant Variables for [illegible]
[illegible] and the
list of variables and the [illegible]

Figure 4

INITIAL FACTOR METHOD: PRINCIPAL COMPONENTS

PRIOR COMMUNALITY ESTIMATES: ONE

EIGENVALUES OF THE CORRELATION MATRIX: TOTAL = 31 AVERAGE = 1

	1	2	3	4	5	6	7	8	9	10	11
EIGENVALUE	9.605718	3.649004	2.909673	2.396446	1.781719	1.569029	1.280981	1.185432	0.907413	0.802737	0.707288
DIFFERENCE	5.956713	0.739331	0.513227	0.614728	0.212690	0.288048	0.095549	0.278019	0.104676	0.095449	0.022254
PROPORTION	0.3099	0.1177	0.0939	0.0773	0.0575	0.0506	0.0413	0.0382	0.0293	0.0259	0.0228
CUMULATIVE	0.3099	0.4276	0.5214	0.5987	0.6562	0.7068	0.7481	0.7864	0.8157	0.8416	0.8644

	12	13	14	15	16	17	18	19	20	21	22
EIGENVALUE	0.685034	0.644623	0.525086	0.394829	0.382531	0.315304	0.280867	0.254316	0.193630	0.150772	0.127733
DIFFERENCE	0.040411	0.119537	0.130256	0.012298	0.067227	0.034437	0.026551	0.060686	0.042859	0.023038	0.022993
PROPORTION	0.0221	0.0208	0.0169	0.0127	0.0123	0.0102	0.0091	0.0082	0.0062	0.0049	0.0041
CUMULATIVE	0.8865	0.9073	0.9242	0.9369	0.9493	0.9594	0.9685	0.9767	0.9830	0.9878	0.9919

	23	24	25	26	27	28	29	30	31
EIGENVALUE	0.104741	0.065432	0.042251	0.033243	0.003546	0.000621	0.000000	0.000000	0.000000
DIFFERENCE	0.039309	0.023181	0.009009	0.029696	0.002925	0.000621	0.000000	0.000000	
PROPORTION	0.0034	0.0021	0.0014	0.0011	0.0001	0.0000	0.0000	0.0000	0.0000
CUMULATIVE	0.9953	0.9974	0.9988	0.9999	1.0000	1.0000	1.0000	1.0000	1.0000

7 FACTORS WILL BE RETAINED BY THE NFACTOR CRITERION

FACTOR PATTERN

	FACTOR1	FACTOR2	FACTOR3	FACTOR4	FACTOR5	FACTOR6	FACTOR7
A0	0.27336	-0.21133	0.56770	0.01334	0.50813	0.07652	0.01338
A36	-0.17802	0.40303	0.01102	0.13096	0.10929	-0.52177	0.44646
A30	-0.05487	0.22656	-0.27237	0.07271	0.45137	-0.52283	-0.32462
A13	0.66083	-0.43633	0.24327	-0.08777	0.34741	0.25569	-0.01986
A5	0.49420	0.36658	0.22393	0.28448	0.19122	-0.12325	-0.09544
A7	0.23332	-0.09422	0.47742	-0.07244	-0.53000	-0.05065	0.15654
A6	-0.00526	0.31604	-0.32549	0.31022	0.09327	0.30349	0.30826
A14	0.50541	0.03139	0.51750	0.06445	-0.10470	0.18161	-0.08992
A27	0.00501	-0.05270	-0.27875	0.40413	0.03396	0.17489	-0.49398
A28	0.22442	-0.04050	-0.14911	0.79335	-0.00264	0.29355	-0.02895
A29	0.16121	0.24235	-0.38245	0.75014	-0.10144	0.23487	-0.02396
A26	0.43576	0.11836	0.28068	0.33952	-0.11729	-0.04104	-0.08064
A25	0.90798	-0.23245	-0.23143	-0.10856	0.13951	-0.08127	0.06625
A24	0.78082	-0.14878	-0.19338	-0.16883	-0.28423	0.14809	0.00244
A23	0.79366	-0.43064	-0.33001	-0.03006	-0.07844	-0.04905	-0.01596
A22	0.53553	0.40779	0.34596	0.19358	-0.08098	-0.00596	0.36983
A8	-0.90798	0.23245	0.23143	0.10856	-0.13951	0.08127	-0.06625
A9	-0.61204	0.54024	0.34974	-0.13590	0.26848	0.19052	-0.04881
A17	0.39797	0.02000	0.44469	0.17664	-0.29527	-0.10059	-0.00984
A18	0.43669	0.09070	0.36463	0.04435	-0.11448	-0.17960	-0.27235
A19	0.70051	-0.61148	-0.12830	0.11548	0.12741	-0.22312	0.10787
A21	0.90798	-0.23245	-0.23143	-0.10856	0.13951	-0.08127	0.06625
A31	0.57120	0.58683	-0.23083	-0.40625	0.05421	0.22100	-0.05461
A33	0.65883	0.62148	-0.15158	-0.27506	0.08638	0.18237	-0.06117
A34	0.49107	0.49157	0.26862	0.12941	0.12460	-0.10127	-0.01802
A35	0.46376	0.57897	-0.12552	-0.39140	0.09307	0.13739	-0.24934
A32	-0.20556	-0.05316	-0.06416	0.09262	0.54527	0.24123	0.46358
A16	0.63110	0.36735	-0.29256	0.05603	-0.18847	-0.24357	0.16384
A2	0.76794	0.45189	-0.13920	0.10854	-0.10871	-0.20386	0.01342
A4	0.49029	-0.13609	0.49925	0.27483	0.32306	-0.15792	-0.15819
A20	0.73346	-0.02430	0.24173	-0.17877	-0.02700	0.40973	0.11128

FACTOR ANALYSIS

Dominant Variables for each FACTOR in all combinations.

Figures

KEY TO VARIABLES FOR THE CLASSIFICATION OF AFRICAN COUNRTIES ACCORDING TO THE DEVELOPMENT OF THEIR AGRO-INDUSTRIAL MACHINERY PRODUCTIVE SYSTEMS.

VARIABLES A0-A35

A0 = NUMBER OF TECHNOLOGY CENTERS

CATEGORIES OF AGRICULTURAL IMPLEMENTS IMPORTED PER ANNUN:

A2 = IAD

A4 = ISE

A5 = TRACTORS IN 19

AGRICULTURE MACHINERY INDUSTRY

A6 = VALUE ADDED IN AGRICULTURE IN 1986 IN $000,000 US (IIVA) DIVIDED BY RURAL POPULATION IN 000 (IIRP).

A7 = AGRICULTUAL MACHINERY DISTRIBUTED BY OUTLET TYPE

A8 = PRICE OF AGRICULTURAL MACHINERY SET BY GOVERNMENT (0) OR FREE MARKET (1).

A9 = GOVERNMENT SETS MINIMUM AND/OR MAXIMUM PRICE OF MECHANIZED AGRICULTURAL INPUTS. 0=YES, 1=NO.

Final Products Manufactured by Domestic Industry P. A.

A10 = ANIMAL-DRAWN EQUIPMENT

A11 = TRACTOR DRAWN EQUIPMENT

A12 = LARGE SCALE PRODUCERS OF DOMESTIC AGRICULTURAL MACHINERY.

A13 = MEDIUM SCALE PRODUCERS OF AGRICULTURAL MACHINERY.

Domestic Producers of Agricultural Machinery and Equipment

A14 = ARTISANAL AND BLACKSMITH PRODUCERS

A15 = NUMBER OF GRADUATES P. A. FROM TECHNICAL COLLEGES AND VOCATIONAL TRAINING INSTITUTES

A16 = VOCATIONAL TRAINING INSTITUTES

A17 = NUMBER OF FORGES

A18 = NUMBER OF STAMPING FACILITIES

A19 = PERCENTAGE OF CAPACITY UTILIZATION OF STAMPING FACILITIES

A20 = NUMBER OF RAW MATERIAL (SEE PAGE 2) DOMESTICALLY

A21 = ENTERPRISES WHICH LACK KNOWLEDGE OF MANUFACTURING PROCESSES: 2: NO MAJOR CONSTRAINT = 0, OTHERWISE = 1

A22 = NUMBER OF MACHINE SHOPS OPERATING (State of availability of facilities.)

A23 = % OF CAPACITY UTILIZATION OF MACHINE SHOPS

A24 = NUMBER OF FOUNDRIES

A25 = % OF FOUNDRIES NOT OPERATING 2 = + 60%. 1 = - 60%.

A26 = NUMBER OF MANUFACTURING DESIGN FACILITES

A27 = % OF IMPORT TAXES LEVIED ON RAW MATERIALS FOR AGRICULTURAL MACHINERY.

A28 = % OF IMPORT TAXES LEVIED ON UNFINISHED COMPONENT PARTS FOR AGRIGULTURAL MACHINERY

A29 = % OF IMPORT TAXES LEVIED ON ASSEMBLED AGRICULTURAL IMPLEMENTS

A30 = AVERAGE REAL RATE OF INTEREST FOR INVESTMENT LOANS TO AGRICULTURAL MACHINERY IN 1986.

A31 = DOES THE GOVERNMENT HAVE AN AGRICULTURAL MECHANISATION POLICY? Yes = 1, No = 0

A32 = FOREIGN INVESTMENT CLIMATE 2 = FAVOURABLE
1 = UNFAVOURABLE

AGRICULTURAL WORKERS

A33 = CADRES & TECHNICIANS

A34 = AUXILIARIES

A35 = VALUE OF FOOD AID IN $US '000 IN 1986

A36 = AVERAGE REAL ANNUAL CHANGE IN VALUE OF DOMESTIC CURRENCY DURING 1985-1986

OBS	COUNTRY	A0	A36	A30	A13	A5	A7	A6	A14	A27	A28	A29	A26	A25
1	ALGERIA	0	11.25	6.2	1	1300	1	245	500	35	35	35	2	2
2	ANGOLA	0	-6.19	6.2	0	700	1	98	2000	40	10	10	0	1
3	BENIN	2	-6.19	6.2	0	170	0	236	500	28	21	17	0	1
4	BOTSWANA	8	-18.00	1.0	0	280	0	588	200	28	21	17	0	1
5	BURKINA FASO	4	9.30	6.3	2	70	0	68	500	74	3	13	1	1
6	BURUNDI	1	2.30	6.2	0	40	0	138	200	25	25	22	0	1
7	CAMEROON	5	5.15	4.7	1	3010	0	377	200	40	25	32	1	1
8	CAPE VERDE	0	-6.19	6.2	0	5	0	147	200	28	21	17	0	1
9	CENTRAL AFRICAN REPUBLIC	1	13.50	9.8	0	70	0	210	200	37	12	25	0	1
10	CHAD	0	3.30	6.2	0	50	0	75	200	28	21	17	0	1
11	COMOROS ISLANDS	0	-6.19	6.2	0	5	0	502	200	28	21	17	0	1
12	CONGO	0	11.55	14.0	0	200	0	156	200	30	12	20	0	1
13	DJIBOUTI	0	-6.19	6.2	0	5	0	61	200	5	5	5	0	1
14	EGYPT	1	-6.19	9.6	2	2850	0	398	1000	22	12	24	2	2
15	EQUATORIAL GUINEA	0	-6.19	28.0	0	50	0	73	200	28	21	17	0	1
16	ETHIOPIA	7	0.40	17.0	0	1490	1	69	500	1	26	1	1	1
17	GABON	0	14.00	-28.0	0	250	0	384	200	28	21	17	0	1
18	GAMBIA	4	-6.60	6.2	0	50	0	36	50	28	21	17	0	1
19	GHANA	6	-98.30	-6.0	2	820	0	267	500	55	35	35	1	1
20	GUINEA	5	-6.19	6.2	0	20	0	163	500	10	7	7	1	1
21	GUINEA-BISSAU	0	-6.19	-2.0	0	5	0	21	200	28	21	17	0	1
22	IVORY COAST	2	12.00	8.3	0	790	0	430	500	22	1	1	0	1
23	KENYA	15	-1.30	10.0	5	2030	0	101	1000	16	26	1	2	2
24	LESOTHO	5	-16.30	1.0	0	170	0	95	200	28	21	17	0	1
25	LIBERIA	0	-1.20	-3.0	0	80	0	287	500	28	21	17	0	1
26	LIBYA	0	-6.19	-3.0	0	4700	0	190	500	1	1	7	1	1
27	MADAGASCAR	1	0.84	6.2	1	310	1	139	1000	11	15	5	1	1
28	MALAWI	7	-6.00	6.2	1	130	0	70	500	2	10	10	0	1

OBS	A24	A23	A22	A8	A9	A17	A18	A19	A21	A31	A33	A34	A35	A32	A16	A2	A4	A20	CLUS
1	55	55	2	0	0	1	1	10	1	1	9000	2681	4	0.1	724	56.4	39.0	2	4
2	1	15	1	1	1	1	1	5	0	1	400	1367	53	0.1	0	1.9	47.7	0	2
3	0	15	0	1	1	0	0	5	0	1	876	1367	11	0.1	166	0.7	2.4	0	1
4	1	15	0	1	1	0	1	5	0	1	800	283	49	0.1	0	0.7	13.4	2	1
5	3	15	1	1	1	1	1	5	0	1	1150	1304	109	0.1	5	0.7	2.0	0	1
6	1	15	1	1	1	1	1	5	0	1	433	3630	6	0.1	69	0.8	20.3	0	1
7	0	15	1	1	1	0	0	5	0	1	1045	1575	12	2.0	14	0.7	4.6	1	1
8	0	15	0	1	1	1	0	5	0	1	165	82	133	1.0	42	0.7	13.3	0	1
9	0	15	0	1	1	0	0	5	0	1	1508	21	11	2.0	5	0.7	4.6	0	1
10	0	15	0	1	1	0	0	5	0	1	563	481	74	2.0	0	0.7	2.0	0	1
11	1	15	0	1	1	0	1	5	0	1	137	476	145	0.1	0	0.7	14.6	0	1
12	0	15	0	1	1	0	1	5	0	1	1111	2367	133	2.0	65	0.7	4.6	0	1
13	0	15	0	1	1	1	1	5	0	1	77	100	130	0.1	0	0.7	13.5	0	1
14	55	40	3	0	1	1	1	5	1	2	108740	6144	1799	0.1	596	58.8	14.0	4	5
15	0	15	0	1	1	1	0	5	0	1	63	16	130	0.1	0	0.7	13.5	0	1
16	4	15	1	1	1	1	1	5	0	1	5452	5092	793	0.1	43	15.7	48.0	0	2
17	0	15	1	1	1	0	0	5	0	1	988	417	141	2.0	87	0.7	8.0	0	1
18	0	15	1	1	1	0	0	5	0	1	515	485	129	0.1	0	0.7	2.4	0	1
19	22	15	1	1	1	1	1	5	0	1	9000	2748	96	2.0	12	1.8	24.0	1	1
20	6	15	1	1	1	0	1	5	0	1	9200	77	55	2.0	463	0.3	2.4	0	1
21	0	15	0	1	1	1	0	5	0	1	165	421	128	2.0	0	0.7	13.5	0	1
22	2	15	1	1	1	0	1	5	0	1	1947	920	0	0.1	11	0.7	43.0	0	1
23	8	30	2	0	1	1	1	10	1	1	5163	3073	139	2.0	25	3.7	123.0	2	4
24	2	15	0	1	1	0	0	5	0	1	583	42	40	0.1	0	0.7	13.7	0	1
25	3	15	1	1	1	1	0	5	0	1	853	252	76	2.0	7	0.9	2.4	0	1
26	7	15	1	1	1	1	1	5	0	1	4193	727	0	0.1	51	16.5	9.0	0	2
27	1	15	1	1	1	1	0	5	0	1	4976	1693	65	2.0	18	2.0	24.0	1	2
28	10	15	1	1	1	1	1	5	0	1	3430	232	5	2.0	11	0.2	20.3	0	1

OBS	COUNTRY	A0	A36	A30	A13	A5	A7	A6	A14	A27	A28	A29	A26	A25
29	MALI	4	-6.19	12.0	0	180	1	77	200	28	21	17	1	1
30	MAURITANIA	1	-6.19	0.0	0	130	0	191	200	28	21	17	0	1
31	MAURITIUS	0	1.60	4.0	0	40	0	677	500	35	84	55	1	1
32	MOROCCO	1	3.00	5.0	0	2524	0	350	1000	30	55	60	1	1
33	MOZAMBIQUE	2	-6.19	-4.0	0	270	0	124	500	28	12	12	1	1
34	NIGER	4	5.30	6.2	0	790	0	166	200	28	21	17	0	1
35	NIGERIA	8	36.00	15.0	0	4790	0	297	1100	48	46	33	3	1
36	RWANDA	1	4.00	6.2	0	30	0	123	100	74	30	2	0	1
37	SAO TOME AND PRINCIPE	0	-6.19	2.6	0	5	0	101	200	28	21	17	3	1
38	SENEGAL	2	16.30	-6.0	0	190	0	156	200	45	25	25	6	1
39	SEYCHELLES	1	4.00	-15.0	0	10	0	916	200	28	21	17	0	1
40	SIERRA LEONE	4	62.00	12.0	0	40	0	219	200	15	1	1	0	1
41	SOMALIA	0	-87.00	6.2	0	280	0	383	500	10	5	5	0	1
42	SUDAN	1	-24.20	6.2	0	1380	0	181	1000	62	22	22	0	1
43	SWAZILAND	2	-18.00	6.2	0	200	0	166	200	28	21	17	0	1
44	TANZANIA	13	-24.40	-3.0	2	550	1	121	1000	20	15	7	1	1
45	TOGO	1	8.50	3.8	1	110	0	143	200	28	21	17	1	1
46	TUNISIA	2	3.10	3.3	0	1437	0	609	500	16	25	25	1	1
47	UGANDA	2	13.00	-76.0	0	660	1	184	1000	10	7	10	1	1
48	ZAIRE	5	1.50	-20.0	2	340	0	81	1000	11	20	6	1	1
49	ZAMBIA	5	-74.00	-33.0	2	619	1	35	1000	20	35	12	2	1
50	ZIMBABWE	4	-90.00	16.0	4	920	0	86	1000	37	40	20	1	2

OBS	A24	A23	A22	A8	A9	A17	A18	A19	A21	A31	A33	A34	A35	A32	A16	A2	A4	A20	CLUS
29	1	15	2	1	1	1	1	5	0	1	1458	1944	131	0.1	164	0.7	6.0	0	2
30	0	15	0	1	1	0	0	5	0	1	405	467	137	0.1	0	0.7	14.8	0	1
31	2	15	2	1	1	1	0	5	0	1	1229	846	5	2.0	2	0.7	1.0	0	3
32	1	15	2	1	1	1	1	5	0	1	11778	1544	142	0.1	380	19.3	28.0	0	3
33	1	15	1	1	1	1	1	5	0	1	196	150	252	0.1	1	2.3	47.7	0	1
34	0	15	0	1	1	0	1	5	0	1	1091	476	97	2.0	2	0.7	2.0	0	1
35	4	15	2	1	1	1	1	5	0	1	20901	5123	0	1.0	149	38.4	134.0	1	3
36	40	15	1	1	1	1	0	5	0	1	497	1650	25	0.1	3	0.8	20.3	1	1
37	0	15	0	1	1	1	0	5	0	1	165	414	0	0.1	0	0.7	13.4	0	1
38	2	15	1	1	1	1	1	5	0	1	1854	738	117	0.1	23	0.7	7.0	0	1
39	1	15	0	1	1	0	0	5	0	1	29	28	0	2.0	0	0.7	13.5	0	1
40	1	15	2	1	1	1	0	5	0	1	2055	981	49	2.0	17	0.7	2.4	0	1
41	20	15	1	1	1	0	0	5	0	1	3491	1966	126	0.1	0	0.7	20.3	0	1
42	0	15	0	1	1	0	1	5	0	1	5715	1150	904	2.0	80	11.8	30.0	0	1
43	0	15	0	1	1	0	0	5	0	1	1193	104	0	2.0	7	0.7	27.0	0	1
44	22	15	1	1	1	1	0	5	0	1	5779	2287	66	1.0	0	3.7	20.3	2	2
45	0	15	2	1	1	1	0	5	0	1	988	488	9	2.0	2	0.4	2.4	0	1
46	1	15	2	1	1	1	1	5	0	1	5424	8348	80	0.1	122	10.0	19.0	0	2
47	32	15	2	1	1	1	1	5	0	1	1442	880	7	0.1	7	3.7	20.3	2	2
48	2	15	2	1	1	1	1	5	0	1	4037	3827	101	2.0	32	2.1	37.0	3	2
49	5	15	1	1	1	1	1	5	0	1	2183	15	82	0.1	4	2.1	47.7	3	2
50	55	80	0	0	0	1	1	10	1	1	3059	47	0	0.1	2	3.1	47.7	2	4

WARD'S MINIMUM VARIANCE CLUSTER ANALYSIS

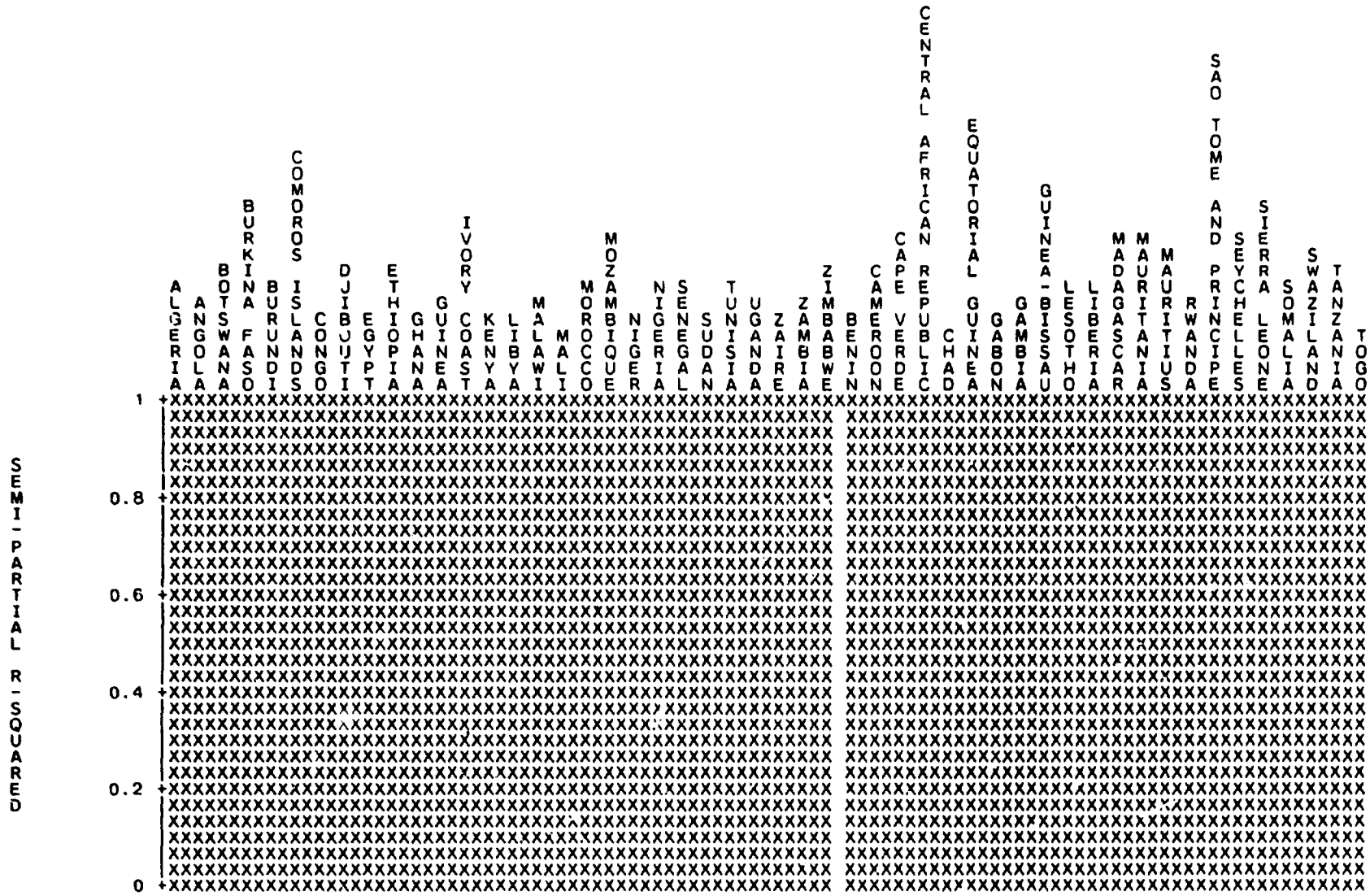
ROOT-MEAN-SQUARE TOTAL-SAMPLE STANDARD DEVIATION = 1
ROOT-MEAN-SQUARE DISTANCE BETWEEN OBSERVATIONS = 1.41421

NUMBER OF CLUSTERS	CLUSTERS JOINED		FREQUENCY OF NEW CLUSTER	SEMIPARTIAL R-SQUARED	R-SQUARED
49	ZAMBIA	ZIMBABWE	2	0.000000	1.000000
48	UGANDA	ZAIRE	2	0.000000	1.000000
47	CL48	CL49	4	0.000000	1.000000
46	SUDAN	TUNISIA	2	0.000000	1.000000
45	CL46	CL47	6	0.000000	1.000000
44	TANZANIA	TOGO	2	0.000000	1.000000
43	SWAZILAND	CL44	3	0.000000	1.000000
42	SOMALIA	CL43	4	0.000000	1.000000
41	SIERRA LEONE	CL42	5	0.000000	1.000000
40	SEYCHELLES	CL41	6	0.000000	1.000000
39	SAO TOME AND PRI	CL40	7	0.000000	1.000000
38	NIGERIA	SENEGAL	2	0.000000	1.000000
37	CL38	CL45	8	0.000000	1.000000
36	RWANDA	CL39	8	0.000000	1.000000
35	MAURITIUS	CL36	9	0.000000	1.000000
34	MOZAMBIQUE	NIGER	2	0.000000	1.000000
33	CL34	CL37	10	0.000000	1.000000
32	MALI	MOROCCO	2	0.000000	1.000000
31	CL32	CL33	12	0.000000	1.000000
30	MAURITANIA	CL35	10	0.000000	1.000000
29	MADAGASCAR	CL30	11	0.000000	1.000000
28	LIBYA	MALAWI	2	0.000000	1.000000
27	CL28	CL31	14	0.000000	1.000000
26	LIBERIA	CL29	12	0.000000	1.000000
25	LESOTHO	CL26	13	0.000000	1.000000
24	GUINEA-BISSAU	CL25	14	0.000000	1.000000
23	IVORY COAST	KENYA	2	0.000000	1.000000
22	CL23	CL27	16	0.000000	1.000000
21	GAMBIA	CL24	15	0.000000	1.000000
20	GHANA	GUINEA	2	0.000000	1.000000
19	CL20	CL22	18	0.000000	1.000000
18	EQUATORIAL GUINE	GABON	2	0.000000	1.000000
17	EGYPT	ETHIOPIA	2	0.000000	1.000000
16	CL17	CL19	20	0.000000	1.000000
15	CHAD	CL18	3	0.000000	1.000000
14	CONGO	DJIBOUTI	2	0.000000	1.000000
13	BURUNDI	COMOROS ISLANDS	2	0.000000	1.000000
12	CL13	CL14	4	0.000000	1.000000
11	CENTRAL AFRICAN	CL15	4	0.000000	1.000000
10	CAPE VERDE	CL11	5	0.000000	1.000000
9	CAMEROON	CL10	6	0.000000	1.000000
8	BENIN	CL9	7	0.000000	1.000000
7	BOTSWANA	BURKINA FASO	2	0.000000	1.000000
6	CL7	CL12	6	0.000000	1.000000
5	ALGERIA	ANGOLA	2	0.000000	1.000000
4	CL5	CL6	8	0.000000	1.000000
3	CL4	CL16	28	0.000000	1.000000
2	CL8	CL21	22	0.000000	1.000000
1	CL3	CL2	50	1.000000	0.000000

Figure 6

WARD'S MINIMUM VARIANCE CLUSTER ANALYSIS

NAME OF OBSERVATION OR CLUSTER



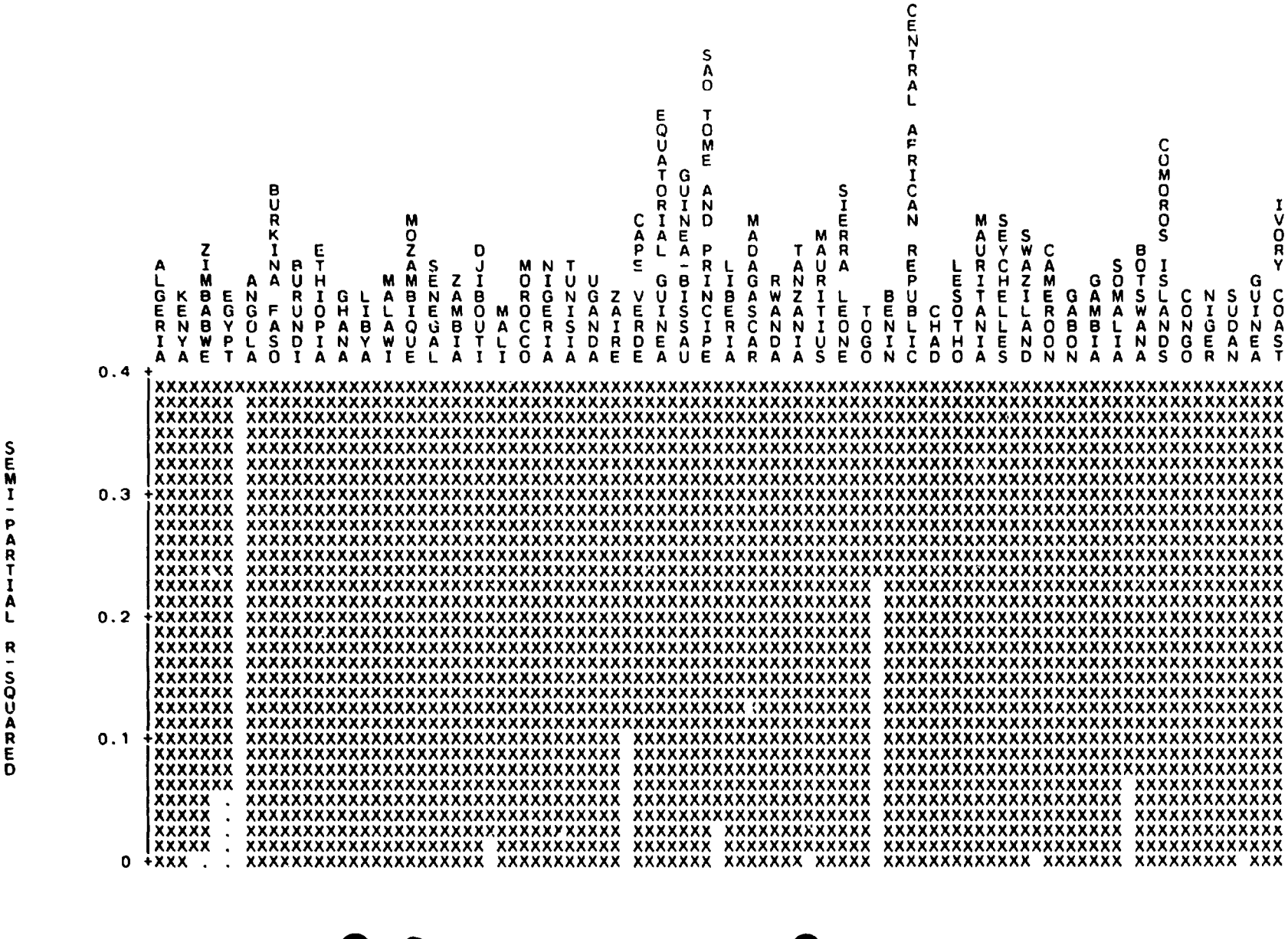
WARD'S MINIMUM VARIANCE CLUSTER ANALYSIS

ROOT-MEAN-SQUARE TOTAL-SAMPLE STANDARD DEVIATION = 1
ROOT-MEAN-SQUARE DISTANCE BETWEEN OBSERVATIONS = 3.16229

NUMBER OF CLUSTERS	CLUSTERS JOINED		FREQUENCY OF NEW CLUSTER	SEMIPARTIAL R-SQUARED	R-SQUARED
49	SENEGAL	ZAMBIA	2	0.000000	1.000000
48	UGANDA	ZAIRE	2	0.000000	1.000000
47	NIGERIA	TUNISIA	2	0.000000	1.000000
46	CL47	CL48	4	0.000000	1.000000
45	SIERRA LEONE	TOGO	2	0.000000	1.000000
44	RWANDA	TANZANIA	2	0.000000	1.000000
43	SEYCHELLES	SWAZILAND	2	0.000000	1.000000
42	NIGER	SUDAN	2	0.000000	1.000000
41	GAMBIA	SOMALIA	2	0.000000	1.000000
40	MAURITANIA	CL43	3	0.000000	1.000000
39	GUINEA-BISSAU	SAO TOME AND PRI	2	0.000000	1.000000
38	MALAWI	MOZAMBIQUE	2	0.000000	1.000000
37	CL38	CL49	4	0.000000	1.000000
36	MALI	MOROCCO	2	0.000000	1.000000
35	LESOTHO	CL40	4	0.000000	1.000000
34	LIBERIA	MADAGASCAR	2	0.000000	1.000000
33	CL34	CL44	4	0.000000	1.000000
32	GHANA	LIBYA	2	0.000000	1.000000
31	ALGERIA	KENYA	2	0.000000	1.000000
30	GUINEA	IVORY COAST	2	0.000000	1.000000
29	GABON	CL41	3	0.000000	1.000000
28	CAMEROON	CL29	4	0.000000	1.000000
27	BURUNDI	ETHIOPIA	2	0.000000	1.000000
26	CL27	CL32	4	0.000000	1.000000
25	CL26	CL37	8	0.000000	1.000000
24	CAPE VERDE	EQUATORIAL GUINE	2	0.000000	1.000000
23	CL24	CL39	4	0.000000	1.000000
22	COMOROS ISLANDS	CONGO	2	0.000000	1.000000
21	CL22	CL42	4	0.000000	1.000000
20	CENTRAL AFRICAN	CHAD	2	0.000000	1.000000
19	BENIN	CL20	3	0.000000	1.000000
18	ANGOLA	BURKINA FASO	2	0.000000	1.000000
17	MAURITIUS	CL45	3	0.000000	1.000000
16	CL36	CL46	6	0.000000	1.000000
15	CL18	CL25	10	0.000000	1.000000
14	CL19	CL35	7	0.000000	1.000000
13	BOTSWANA	CL21	5	0.000000	1.000000
12	CL15	DJIBOUTI	11	0.005594	0.994406
11	CL13	CL30	7	0.008791	0.985614
10	CL33	CL17	7	0.010549	0.975065
9	CL14	CL28	11	0.015664	0.959401
8	CL31	ZIMBABWE	3	0.016410	0.942990
7	CL12	CL16	17	0.028433	0.914558
6	CL23	CL10	11	0.031968	0.882590
5	CL8	EGYPT	4	0.066012	0.816578
4	CL9	CL11	18	0.069604	0.746973
3	CL7	CL6	28	0.114511	0.632462
2	CL3	CL4	46	0.242875	0.389587
1	CL5	CL2	50	0.389587	0.000000

WARD'S MINIMUM VARIANCE CLUSTER ANALYSIS

NAME OF OBSERVATION OR CLUSTER



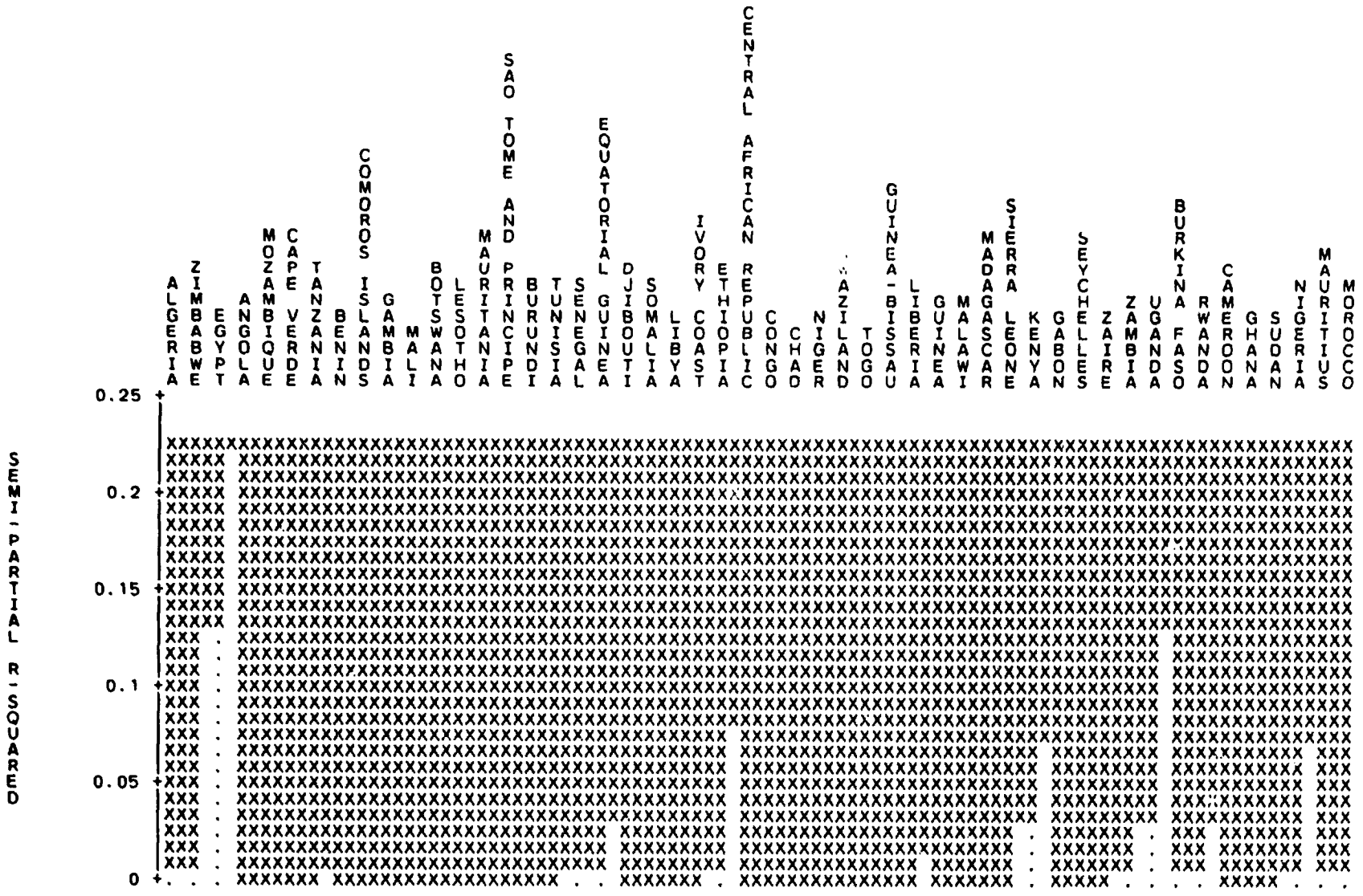
WARD'S MINIMUM VARIANCE CLUSTER ANALYSIS

ROOT-MEAN-SQUARE TOTAL-SAMPLE STANDARD DEVIATION = 1
ROOT-MEAN-SQUARE DISTANCE BETWEEN OBSERVATIONS = 4

NUMBER OF CLUSTERS	CLUSTERS JOINED		FREQUENCY OF NEW CLUSTER	SEMIPARTIAL R-SQUARED	R-SQUARED
49	NIGER	SWAZILAND	2	0.000000	1.000000
48	CHAD	CL49	3	0.000000	1.000000
47	BOTSWANA	LESOTHO	2	0.000000	1.000000
46	COMOROS ISLANDS	GAMBIA	2	0.000000	1.000000
45	BENIN	CL46	3	0.000000	1.000000
44	GUINEA-BISSAU	LIBERIA	2	0.000005	0.999995
43	CL47	MAURITANIA	3	0.000007	0.999987
42	CL43	SAO TOME AND PRI	4	0.000030	0.999957
41	CL48	TOGO	4	0.000047	0.999910
40	DJIBOUTI	SOMALIA	2	0.000128	0.999782
39	CL45	MALI	4	0.000274	0.999508
38	GUINEA	MALAWI	2	0.000465	0.999044
37	BURUNDI	TUNISIA	2	0.000541	0.998503
36	CENTRAL AFRICAN	CONGO	2	0.000572	0.997930
35	CL39	CL42	8	0.000918	0.997013
34	GABON	SEYCHELLES	2	0.000918	0.996095
33	CL41	CL44	6	0.000950	0.995145
32	CL38	MADAGASCAR	3	0.001034	0.994112
31	CL40	LIBYA	3	0.001083	0.993029
30	ANGOLA	MOZAMBIQUE	2	0.001362	0.991668
29	CAPE VERDE	TANZANIA	2	0.001918	0.989750
28	CL35	CL37	10	0.002467	0.987283
27	CAMEROON	GHANA	2	0.002480	0.984803
26	CL31	IVORY COAST	4	0.002708	0.982096
25	CL32	SIERRA LEONE	4	0.002835	0.979261
24	CL34	ZAIRE	3	0.003453	0.975808
23	CL27	SUDAN	3	0.003903	0.971904
22	CL30	CL29	4	0.004097	0.967807
21	CL36	CL33	8	0.004129	0.963678
20	ALGERIA	ZIMBABWE	2	0.004891	0.958787
19	CL28	SENEGAL	11	0.005116	0.953672
18	BURKINA FASO	RWANDA	2	0.005670	0.948002
17	CL19	EQUATORIAL GUINE	12	0.006040	0.941961
16	CL23	NIGERIA	4	0.007289	0.934673
15	CL22	CL17	16	0.007402	0.927271
14	CL26	ETHIOPIA	5	0.007453	0.919818
13	MAURITIUS	MOROCCO	2	0.011074	0.908745
12	CL24	ZAMBIA	4	0.011327	0.897417
11	CL21	CL25	12	0.019580	0.877838
10	CL12	UGANDA	5	0.032628	0.845209
9	CL18	CL16	6	0.034799	0.810410
8	CL15	CL14	21	0.036268	0.774142
7	CL11	KENYA	13	0.036561	0.737580
6	CL7	CL10	18	0.073395	0.664185
5	CL9	CL13	8	0.077656	0.586529
4	CL8	CL6	39	0.087211	0.499319
3	CL4	CL5	47	0.135121	0.364198
2	CL20	EGYPT	3	0.136882	0.227316
1	CL2	CL3	50	0.227316	0.000000

WARD'S MINIMUM VARIANCE CLUSTER ANALYSIS

NAME OF OBSERVATION OR CLUSTER



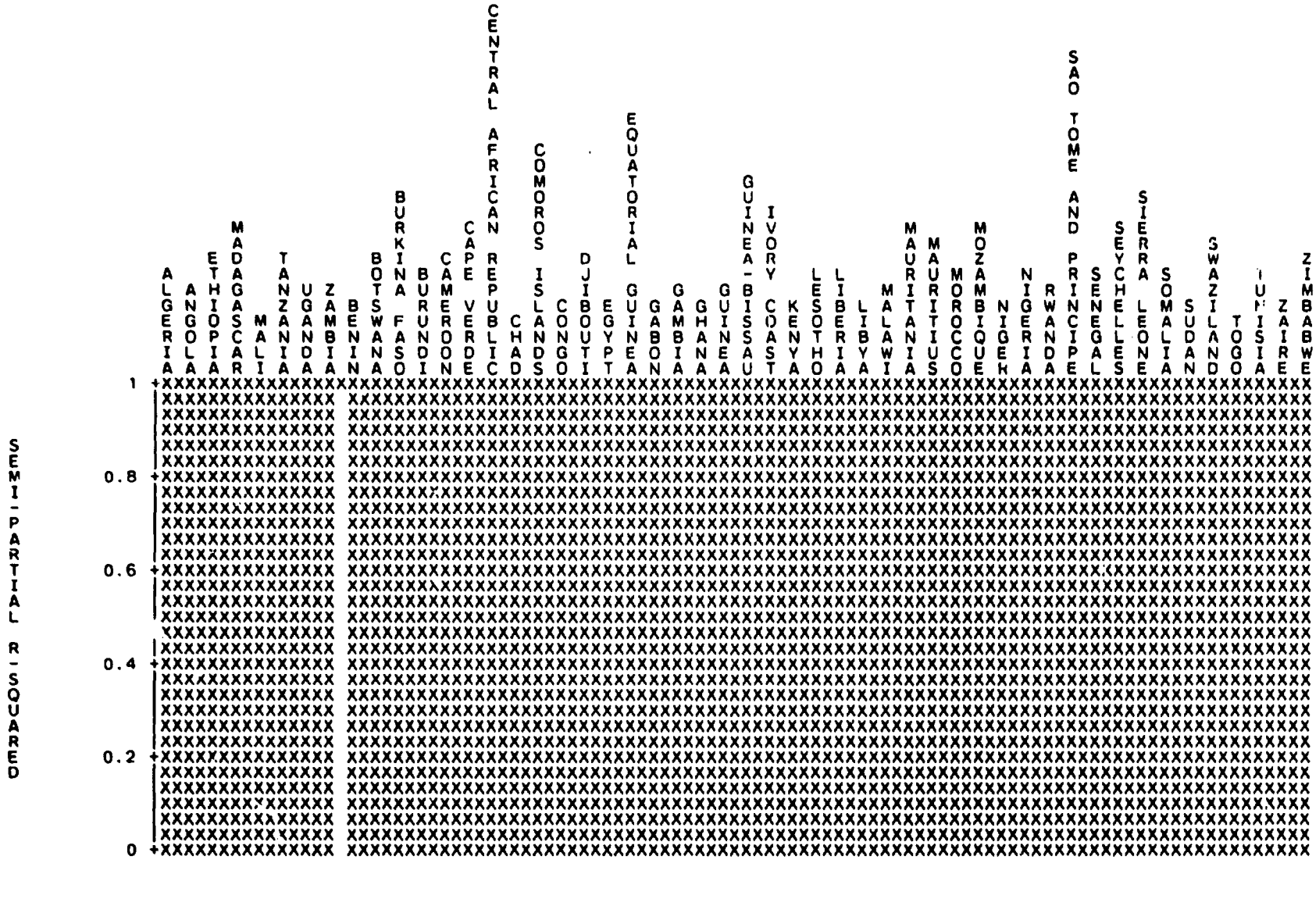
WARD'S MINIMUM VARIANCE CLUSTER ANALYSIS

ROOT-MEAN-SQUARE TOTAL-SAMPLE STANDARD DEVIATION = 1
ROOT-MEAN-SQUARE DISTANCE BETWEEN OBSERVATIONS = 1.41421

NUMBER OF CLUSTERS	CLUSTERS JOINED		FREQUENCY OF NEW CLUSTER	SEMIPARTIAL R-SQUARED	R-SQUARED
49	ZAIRE	ZIMBABWE	2	0.000000	1.000000
48	UGANDA	ZAMBIA	2	0.000000	1.000000
47	TUNISIA	CL49	3	0.000000	1.000000
46	TANZANIA	CL48	3	0.000000	1.000000
45	SWAZILAND	TOGO	2	0.000000	1.000000
44	MALI	CL46	4	0.000000	1.000000
43	SUDAN	CL45	3	0.000000	1.000000
42	CL43	CL47	6	0.000000	1.000000
41	SIERRA LEONE	SOMALIA	2	0.000000	1.000000
40	SEYCHELLES	CL41	3	0.000000	1.000000
39	SAO TOME AND PRI	SENEGAL	2	0.000000	1.000000
38	RWANDA	CL39	3	0.000000	1.000000
37	CL38	CL40	6	0.000000	1.000000
36	CL37	CL42	12	0.000000	1.000000
35	NIGER	NIGERIA	2	0.000000	1.000000
34	MOZAMBIQUE	CL35	3	0.000000	1.000000
33	MAURITIUS	MOROCCO	2	0.000000	1.000000
32	MAURITANIA	CL33	3	0.000000	1.000000
31	CL32	CL34	6	0.000000	1.000000
30	CL31	CL36	18	0.000000	1.000000
29	MADAGASCAR	CL44	5	0.000000	1.000000
28	LIBYA	MALAWI	2	0.000000	1.000000
27	ETHIOPIA	CL29	6	0.000000	1.000000
26	LIBERIA	CL28	3	0.000000	1.000000
25	KENYA	LESOTHO	2	0.000000	1.000000
24	IVORY COAST	CL25	3	0.000000	1.000000
23	CL24	CL26	6	0.000000	1.000000
22	CL23	CL30	24	0.000000	1.000000
21	GUINEA	GUINEA-BISSAU	2	0.000000	1.000000
20	GHANA	CL21	3	0.000000	1.000000
19	GABON	GAMBIA	2	0.000000	1.000000
18	EQUATORIAL GUINE	CL19	3	0.000000	1.000000
17	CL18	CL20	6	0.000000	1.000000
16	CL17	CL22	30	0.000000	1.000000
15	ANGOLA	CL27	7	0.000000	1.000000
14	DJIBOUTI	EGYPT	2	0.000000	1.000000
13	CONGO	CL14	3	0.000000	1.000000
12	CHAD	COMOROS ISLANDS	2	0.000000	1.000000
11	CENTRAL AFRICAN	CL12	3	0.000000	1.000000
10	CL11	CL13	6	0.000000	1.000000
9	CL10	CL16	36	0.000000	1.000000
8	CAMEROON	CAPE VERDE	2	0.000000	1.000000
7	BURUNDI	CL8	3	0.000000	1.000000
6	BOTSWANA	BURKINA FASO	2	0.000000	1.000000
5	BENIN	CL6	3	0.000000	1.000000
4	CL5	CL7	6	0.000000	1.000000
3	CL4	CL9	42	0.000000	1.000000
2	ALGERIA	CL15	8	0.000000	1.000000
1	CL2	CL3	50	1.000000	0.000000

WARD'S MINIMUM VARIANCE CLUSTER ANALYSIS

NAME OF OBSERVATION OR CLUSTER



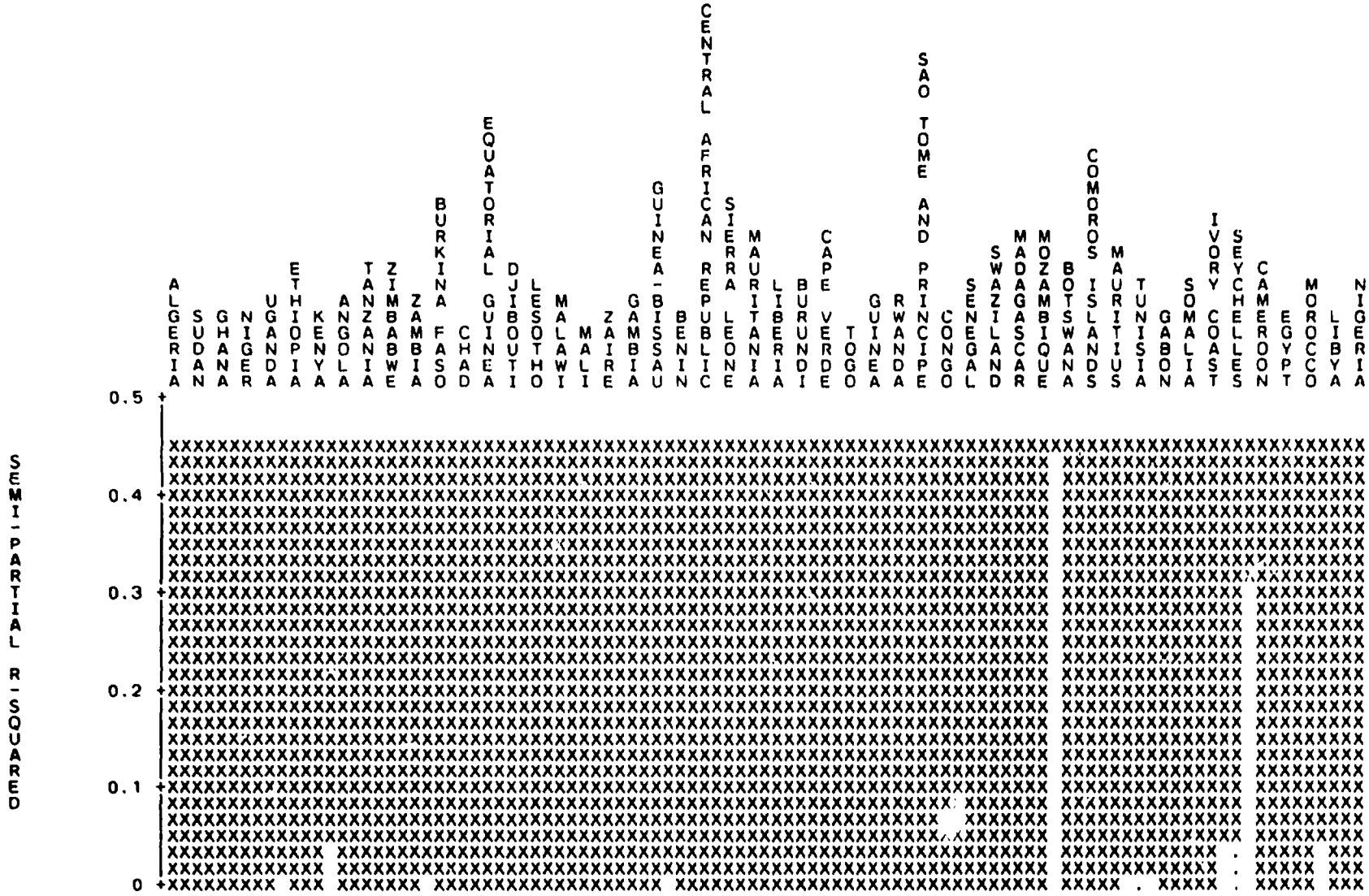
WARD'S MINIMUM VARIANCE CLUSTER ANALYSIS

ROOT-MEAN-SQUARE TOTAL-SAMPLE STANDARD DEVIATION = 1
ROOT-MEAN-SQUARE DISTANCE BETWEEN OBSERVATIONS = 2

NUMBER OF CLUSTERS	CLUSTERS JOINED		FREQUENCY OF NEW CLUSTER	SEMIPARTIAL R-SQUARED	R-SQUARED
49	CONGO	SENEGAL	2	0.000000	1.000000
48	CHAD	EQUATORIAL GUINE	2	0.000001	0.999999
47	GABON	SOMALIA	2	0.000004	0.999995
46	BURKINA FASO	CL48	3	0.000009	0.999986
45	CENTRAL AFRICAN	SIERRA LEONE	2	0.000016	0.999970
44	BURUNDI	CAPE VERDE	2	0.000017	0.999953
43	MALAWI	MALI	2	0.000018	0.999935
42	CL49	SWAZILAND	3	0.000020	0.999915
41	MADAGASCAR	MOZAMBIQUE	2	0.000040	0.999875
40	GAMBIA	GUINEA-BISSAU	2	0.000042	0.999834
39	CL44	TOGO	3	0.000042	0.999792
38	CL46	DJIBOUTI	4	0.000043	0.999748
37	RWANDA	SAO TOME AND PRI	2	0.000075	0.999674
36	LESOTHO	CL43	3	0.000093	0.999581
35	CL39	GUINEA	4	0.000098	0.999482
34	NIGER	UGANDA	2	0.000117	0.999365
33	CL45	MAURITANIA	3	0.000140	0.999225
32	CAMEROON	EGYPT	2	0.000170	0.999054
31	ANGOLA	TANZANIA	2	0.000171	0.998883
30	CL36	ZAIRE	4	0.000199	0.998684
29	BENIN	CL33	4	0.000242	0.998442
28	CL42	CL41	5	0.000362	0.998080
27	CL38	CL30	8	0.000505	0.997575
26	CL35	CL37	6	0.000515	0.997060
25	CL31	ZIMBABWE	3	0.000585	0.996475
24	ALGERIA	SUDAN	2	0.000636	0.995839
23	CL26	CL28	11	0.001009	0.994831
22	CL25	ZAMBIA	4	0.001059	0.993771
21	CL27	CL40	10	0.001153	0.992618
20	CL32	MOROCCO	3	0.001179	0.991439
19	CL29	LIBERIA	5	0.001273	0.990166
18	ETHIOPIA	KENYA	2	0.001347	0.988820
17	BOTSWANA	COMOROS ISLANDS	2	0.001411	0.987409
16	GHANA	CL34	3	0.001729	0.985680
15	LIBYA	NIGERIA	2	0.001738	0.983942
14	CL47	IVORY COAST	3	0.001934	0.982008
13	CL24	CL16	5	0.003364	0.978645
12	CL17	MAURITIUS	3	0.003516	0.975129
11	CL19	CL23	16	0.007794	0.967335
10	CL22	CL21	14	0.008525	0.958810
9	CL12	TUNISIA	4	0.010933	0.947876
8	CL13	CL18	7	0.013435	0.934441
7	CL9	CL14	7	0.019409	0.915033
6	CL10	CL11	30	0.022636	0.892397
5	CL20	CL15	5	0.043563	0.848834
4	CL7	SEYCHELLES	8	0.044180	0.804653
3	CL8	CL6	37	0.052574	0.752080
2	CL4	CL5	13	0.308381	0.443699
1	CL3	CL2	50	0.443699	0.000000

WARD'S MINIMUM VARIANCE CLUSTER ANALYSIS

NAME OF OBSERVATION OR CLUSTER



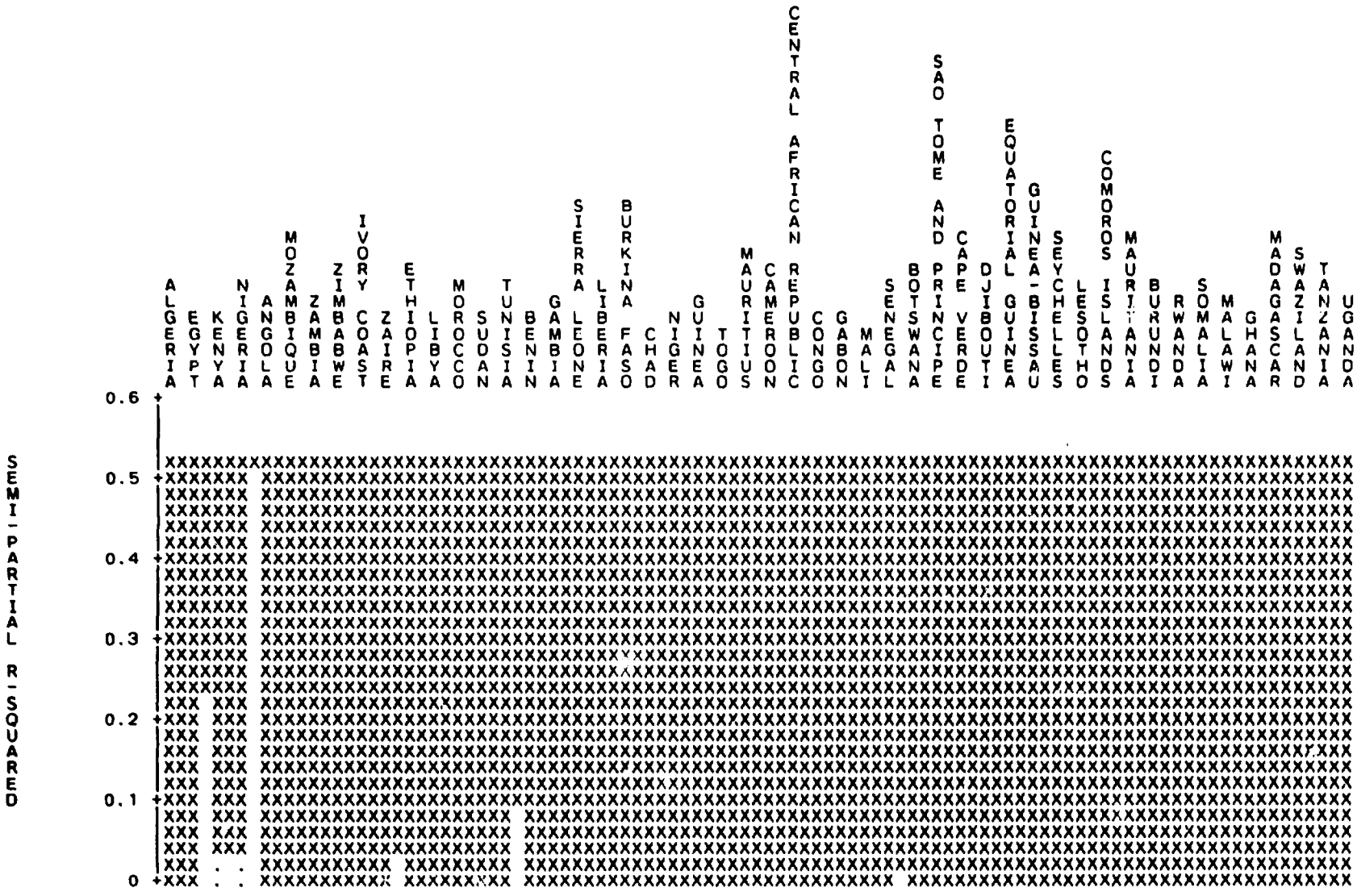
WARD'S MINIMUM VARIANCE CLUSTER ANALYSIS

ROOT-MEAN-SQUARE TOTAL-SAMPLE STANDARD DEVIATION = 1
ROOT-MEAN-SQUARE DISTANCE BETWEEN OBSERVATIONS = 2

NUMBER OF CLUSTERS	CLUSTERS JOINED		FREQUENCY OF NEW CLUSTER	SEMIPARTIAL R-SQUARED	R-SQUARED
49	TANZANIA	UGANDA	2	0.000000	1.000000
48	GAMBIA	SIERRA LEONE	2	0.000000	1.000000
47	GUINEA-BISSAU	SEYCHELLES	2	0.000000	1.000000
46	BOTSWANA	SAO TOME AND PRI	2	0.000000	1.000000
45	BURUNDI	RWANDA	2	0.000000	1.000000
44	CHAD	NIGER	2	0.000000	1.000000
43	EQUATORIAL GUINE	CL47	3	0.000000	1.000000
42	CENTRAL AFRICAN	CONGO	2	0.000000	1.000000
41	BENIN	CL48	3	0.000000	1.000000
40	BURKINA FASO	CL44	3	0.000000	1.000000
39	DJIBOUTI	CL43	4	0.000000	1.000000
38	CAMEROON	CL42	3	0.000000	1.000000
37	CL46	CAPE VERDE	3	0.000000	1.000000
36	COMOROS ISLANDS	MAURITANIA	2	0.000000	1.000000
35	GUINEA	TOGO	2	0.000000	0.999999
34	CL45	SOMALIA	3	0.000000	0.999999
33	CL37	CL39	7	0.000000	0.999998
32	CL33	LESOTHO	8	0.000001	0.999998
31	MOZAMBIQUE	ZAMBIA	2	0.000001	0.999996
30	GHANA	MADAGASCAR	2	0.000001	0.999995
29	CL41	LIBERIA	4	0.000002	0.999993
28	ANGOLA	CL31	3	0.000004	0.999989
27	CL29	CL40	7	0.000004	0.999985
26	MALI	SENEGAL	2	0.000007	0.999977
25	CL27	CL35	9	0.000015	0.999963
24	CL34	MALAWI	4	0.000015	0.999947
23	CL25	MAURITIUS	10	0.000022	0.999925
22	GABON	CL26	3	0.000022	0.999903
21	CL32	CL36	10	0.000036	0.999867
20	CL28	ZIMBABWE	4	0.000048	0.999820
19	CL38	CL22	6	0.000128	0.999691
18	CL30	SWAZILAND	3	0.000151	0.999541
17	IVORY COAST	ZAIRE	2	0.000330	0.999210
16	CL24	CL18	7	0.000647	0.998563
15	CL23	CL19	16	0.000747	0.997816
14	CL16	CL49	9	0.000819	0.996997
13	SUDAN	TUNISIA	2	0.001003	0.995994
12	CL20	CL17	6	0.001252	0.994742
11	LIBYA	MOROCCO	2	0.002934	0.991808
10	CL11	CL13	4	0.003667	0.988141
9	ALGERIA	EGYPT	2	0.004830	0.983310
8	CL21	CL14	19	0.004919	0.978391
7	ETHIOPIA	CL10	5	0.008439	0.969951
6	CL15	CL8	35	0.025668	0.944283
5	KENYA	NIGERIA	2	0.039380	0.904903
4	CL12	CL7	11	0.041421	0.863483
3	CL4	CL6	46	0.107022	0.756460
2	CL9	CL5	4	0.240073	0.516388
1	CL2	CL3	50	0.516388	0.000000

WARD'S MINIMUM VARIANCE CLUSTER ANALYSIS

NAME OF OBSERVATION OR CLUSTER



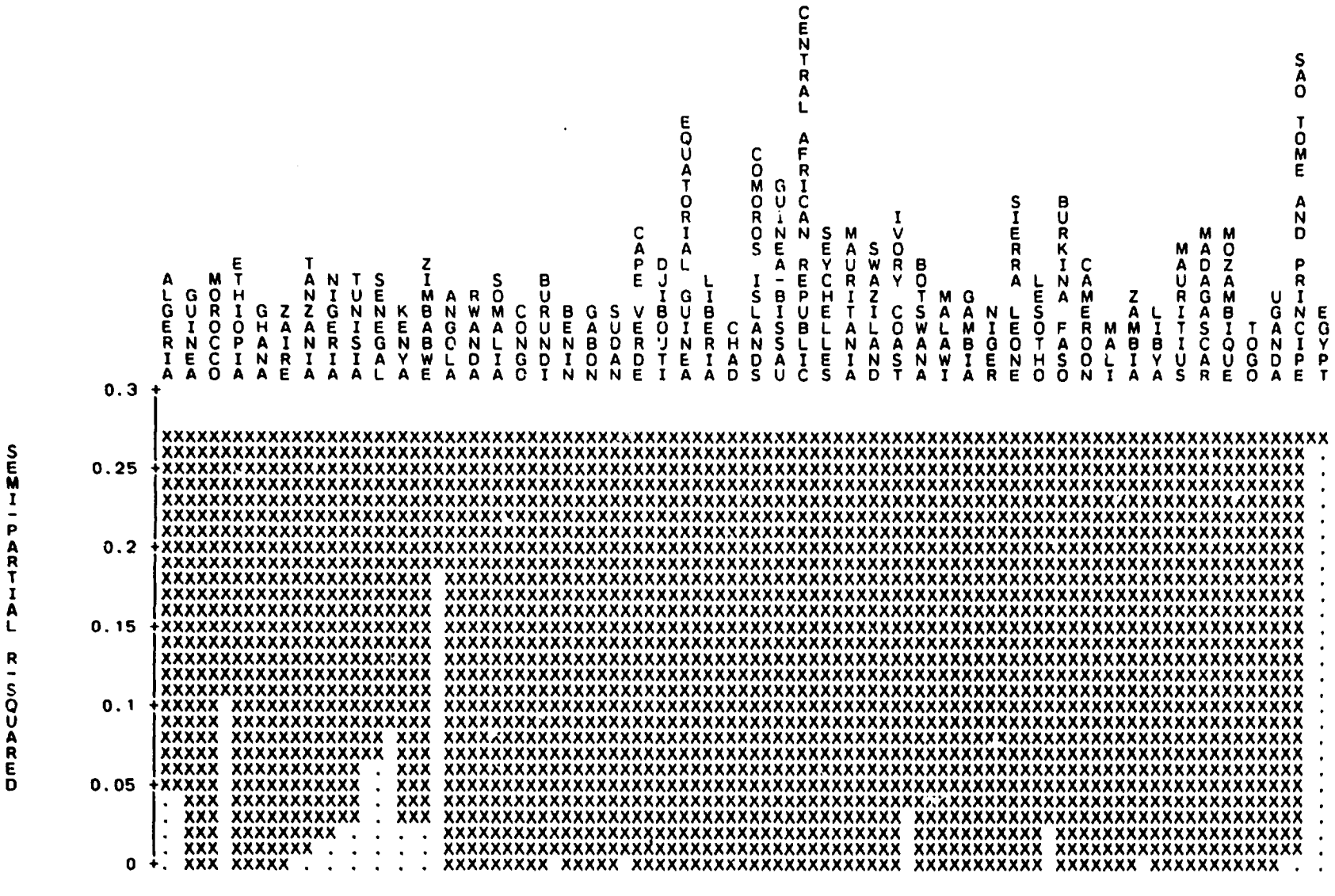
WARD'S MINIMUM VARIANCE CLUSTER ANALYSIS

ROOT-MEAN-SQUARE TOTAL-SAMPLE STANDARD DEVIATION = 1
ROOT-MEAN-SQUARE DISTANCE BETWEEN OBSERVATIONS = 3.4641

NUMBER OF CLUSTERS	CLUSTERS JOINED		FREQUENCY OF NEW CLUSTER	SEMIPARTIAL R-SQUARED	R-SQUARED
49	CHAD	COMOROS ISLANDS	2	0.000001	0.999999
48	GAMBIA	NIGER	2	0.000003	0.999996
47	CL49	GUINEA-BISSAU	3	0.000003	0.999993
46	DJIBOUTI	EQUATORIAL GUINE	2	0.000004	0.999989
45	CENTRAL AFRICAN	SEYCHELLES	2	0.000017	0.999972
44	CL46	LIBERIA	3	0.000038	0.999934
43	CL45	MAURITANIA	3	0.000146	0.999788
42	CAPE VERDE	CL44	4	0.000176	0.999612
41	ANGOLA	RWANDA	2	0.000199	0.999413
40	BURKINA FASO	CAMEROON	2	0.000201	0.999212
39	BOTSWANA	MALAWI	2	0.000214	0.998998
38	MOZAMBIQUE	TOGO	2	0.000222	0.998776
37	CL48	SIERRA LEONE	3	0.000224	0.998553
36	CL43	SWAZILAND	4	0.000242	0.998311
35	LIBYA	MAURITIUS	2	0.000247	0.998063
34	CL42	CL47	7	0.000265	0.997798
33	CL38	UGANDA	3	0.000292	0.997506
32	CL41	SOMALIA	3	0.000293	0.997213
31	CL37	LESOTHO	4	0.000543	0.996670
30	GABON	SUDAN	2	0.000613	0.996058
29	CL36	IVORY COAST	5	0.000677	0.995380
28	CL35	MADAGASCAR	3	0.000865	0.994516
27	CL32	CONGO	4	0.000892	0.993624
26	GHANA	ZAIRE	2	0.001000	0.992624
25	BENIN	CL30	3	0.001441	0.991184
24	CL28	CL33	6	0.001619	0.989565
23	CL34	CL29	12	0.001797	0.987768
22	CL40	MALI	3	0.002587	0.985181
21	ETHIOPIA	CL26	3	0.002906	0.982274
20	CL27	BURUNDI	5	0.003297	0.978978
19	GUINEA	MOROCCO	2	0.004210	0.974767
18	CL39	CL31	6	0.004454	0.970313
17	CL22	ZAMBIA	4	0.004662	0.965650
16	CL20	CL25	8	0.005250	0.960400
15	CL24	SAO TOME AND PRI	7	0.010060	0.950340
14	CL17	CL15	11	0.011524	0.938816
13	CL16	CL23	20	0.013292	0.925524
12	CL21	TANZANIA	4	0.013563	0.911961
11	CL12	NIGERIA	5	0.015731	0.896229
10	KENYA	ZIMBABWE	2	0.025192	0.871037
9	CL11	TUNISIA	6	0.028713	0.842324
8	CL18	CL14	17	0.030760	0.811564
7	CL13	CL8	37	0.038354	0.773210
6	ALGERIA	CL19	3	0.045497	0.727713
5	CL9	SENEGAL	7	0.072921	0.654792
4	CL5	CL10	9	0.087977	0.566815
3	CL6	CL4	12	0.105993	0.460822
2	CL3	CL7	49	0.192789	0.268033
1	CL2	EGYPT	50	0.268033	0.000000

WARD'S MINIMUM VARIANCE CLUSTER ANALYSIS

NAME OF OBSERVATION OR CLUSTER



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START                                                                          MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
    1  //U3DAGCHI JOB (Q5,T),D1867-THOMAS,MSGCLASS=X,CLASS=I,                  00010000
    1  //         TIME=(01,00),NOTIFY=U3D,MSGLEVEL=(1,1),REGION=3500K          00020000
    1  //*                                                                     *
    1  //*                                                                     *
    1  //*       Job Control for SAS-Batch                                     *
    1  //*                                                                     *
    1  //*                                                                     *
    1  /*JOBPARM COPIES=1                                                      *
    1  //STRUCC5  EXEC SAS,PARM='MACRO,PAGESIZE=65'                           *
    1  //FT11F001 DD SYSOUT=*,DEST=UNIDQ,DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA) *
    1  //FT12F001 DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)    *
    1  //FT02F001 DD SYSOUT=(Q,,XPLA),DCB=RECFM=UA,DEST=UNIDO                  *
    1  //SYSOUT   DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)    *
                                                                              *
    1  DATA AGCHI;                                                           *
    1  INPUT VARIABLE $ SALL SCL1 SCL2 SCL3 SCL4 SCL5;                       *
                                                                              *
    1  CHI1=SCL1/SALL;                                                       *
    1  CHI2=SCL2/SALL;                                                       *
    1  CHI3=SCL3/SALL;                                                       *
    1  CHI4=SCL4/SALL;                                                       *
    1  CHI5=SCL5/SALL;                                                       *
                                                                              *
    1  CARDS;                                                                *
    1  a0    3.32     2.31     3.9      3        6.33     1                  *
    1  a2    12.64    1.2      5.84     19.47    21.07    58.8               *
    1  a4    26.2     13.31    27.9     54.33    69.9     14                 *
    1  a5    1116.19  294.09   1098.6   2451.3   1416.7   2850               *
    1  a6    185.13   219.79   160.3    441.3    144      398                *
    1  a7    .37      0        .7       0        .33      0                  *
    1  a8    .27      1        1        1        0        0                  *
    1  a9    .2       1        1        1        .33      1                  *
    1  a13   1.07     .21      .7       0        3.33     2                  *
    1  a14   389.93   298.48   870      866.7    833.33   1000               *
    1  a16   151.84   33.09    44.1     177      250.33   596                *
    1  a17   .48      .45      1        1        1        1                  *
    1  a18   .5       .42      .8       .67      1        1                  *
    1  a19   1.2      5        5        5        10       5                  *
    1  a20   .99      .15      1.1      .33      2        4                  *
    1  a21   .27      0        0        0        1        1                  *
    1  a22   .81      .55      1.4      2        1.33     3                  *
    1  a23   11.3     15       15       15       55       40                 *
    1  a24   14.75    3.52     7.6      2.33     39.33    55                 *
    1  a25   .27      1        1        1        2        2                  *
    1  a26   1.1      .45      1        1.67     1.67     2                  *
    1  a27   15.8     30.61    15.8     37.67    29.33    22                 *
    1  a28   14.26    17.79    17.5     61.67    33.67    12                 *
    1  a29   11.87    15.94    11       49.33    18.67    24                 *
    1  a30   15.33    3.46     -9.03    8        .07      9.6                *
    1  a31   .14      1        1        1        1        2                  *
    1  a32   .92      1.05     .57      1.03     .73      .1                 *
    1  a33   15453.5  1584.48  3534.4   11302.7  5740.7   108740             *
    1  a34   1758.13  785.09   2618     2504.3   1933.7   6144               *
```

```
PROJECT:  UQ5LC          MEMBER:  AGCHI          DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.00          TIME: 11:22
TYPE:     SAS            USERID:  U3D            PAGE: 02 OF 02
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  a35   291.29   100.88   137.8   49        47.67     1799                        *
   1  a36   27.94    -5.04    -9.81   13.53     -26.68    -6.19                       *
   1  ;                                                                                *
   1  PROC SORT;                                                                       *
   1  BY VARIABLE;                                                                     *
                                                                                       *
   1  PROC PRINT;                                                                      *
   1  VAR VARIABLE CHI1 CHI2 CHI3 CHI4 CHI5;                                           *
                                                                                       *
   1  /*
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1 //U3DAGRO  JOB (Q5,T),D1867-THOMAS,MSGCLASS=X,CLASS=I,                    00010000
    1 //         TIME=(01,00),NOTIFY=U3C,MSGLEVEL=(1,1),REGION=3500K           00020000
    1 //*                                                                      *
    1 //*                                                                      *
    1 //*       Job Control for SAS-Batch                                      *
    1 //*                                                                      *
    1 //*                                                                      *
    1 /*JOBPARM COPIES=1                                                      *
    1 //STRUCC5  EXEC SAS,PARM='MACRO,PAGESIZE=65'                            *
    1 //FT11F001 DD SYSOUT=*,DEST=UNIDO,DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)  *
    1 //FT12F001 DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)     *
    1 //FT02F001 DD SYSOUT=(Q,,XPLA),DCB=RECFM=UA,DEST=UNIDO                  *
    1 //SYSOUT   DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)    *
                                                                             *
    1 OPTIONS DQUOTE PAGESIZE=65;                                            *
    1 GOPTIONS DEVICE=XEROX NOTEXT82 HSIZE=10.5 VSIZE=7.5 NOCHARACTERS;      *
    1 *;                                                                     *
    1 DATA AGMAC1;                                                           *
    6      Title 'Raw Data on Agro-Machinery';                               *
    1 INPUT  country $ 1-26 a0 28-32 a36 37-42 a30 44-47 a13 50-52;          *
                                                                             *
    1 CARDS;                                                                 *
    1 ALGERIA                    0       11.25   6.2    4                    *
    1 ANGOLA                     0       -6.19   6.2    2                    *
    1 BENIN                      2       -6.19   6.2    5.8                  *
    1 BURUNDI                    1       2.3     6.2    1                    *
    1 BOTSWANA                   8       -18     1      1                    *
    1 BURKINA FASO               4       9.3     6.3    5.8                  *
    1 CAMEROON                   5       5.15    4.7    5.8                  *
    1 CAPE VERDE                 0       -6.19   6.2    3                    *
    1 CENTRAL AFRICAN REPUBLIC   1       13.5    9.8    0                    *
    1 CHAD                       0       3.3     6.2    1                    *
    1 COMOROS ISLANDS            0       -6.19   6.2    5.8                  *
    1 CONGO                      0       11.55   14.5   0                    *
    1 DJIBOUTI                   0       -6.19   6.2    3                    *
    1 ETHIOPIA                   7       0.4     17     10                   *
    1 EGYPT                      1       -6.19   9.6    5.8                  *
    1 EQUATORIAL GUINEA          0       -6.19   28     5.8                  *
    1 GHANA                      6       -98.3   -6     5.8                  *
    1 GABON                      0       14      -28.5  0                    *
    1 GAMBIA                     4       -6.6    6.2    1                    *
    1 GUINEA                     5       -6.19   6.2    1                    *
    1 GUINEA-BISSAU              0       -6.19   -2.2   0                    *
    1 IVORY COAST                2       12      8.3    2                    *
    1 KENYA                      15      -1.3    10.3   33                   *
    1 LIBERIA                    0       -1.2    -3.6   5.8                  *
    1 LESOTHO                    5       -16.3   1      5.8                  *
    1 LIBYA                      0       -6.19   -3     5.8                  *
    1 MADAGASCAR                 1       .84     6.2    13                   *
    1 MOZAMBIQUE                 2       -6.19   -4     5.8                  *
    1 MALAWI                     7       -6      6.2    5.8                  *
    1 MALI                       4       -6.19   12.4   1                    *
    1 MAURITIUS                  0       1.6     4      2                    *
    1 MAURITANIA                 1       -6.19   -0.2   0                    *
```

```
START                                                                    MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
    1  MOROCCO                        1       3       5       6                      *
    1  NIGER                          4       5.3     6.2     5                      *
    1  NIGERIA                        8       36      15.1    3                      *
    1  RWANDA                         1       4       6.2     3                      *
    1  SAO TOME AND PRINCIPE          0       -6.19   2.6     0                      *
    1  SENEGAL                        2       16.3    -6.3    1                      *
    1  SIERRA LEONE                   4       62      12.8    2                      *
    1  SEYCHELLES                     1       4       -15.2   5.8                    *
    1  SOMALIA                        0       -87     6.2     0                      *
    1  SUDAN                          1       -24.2   6.2     0                      *
    1  SWAZILAND                      2       -18     6.2     1                      *
    1  TOGO                           1       8.5     3.8     5.8                    *
    1  TANZANIA                       13      -24.4   -3.5    4                      *
    1  TUNISIA                        2       3.1     3.37    4                      *
    1  UGANDA                         2       13      -76     17                     *
    1  ZAMBIA                         5       -74     -33.6   5                      *
    1  ZAIRE                          5       1.5     -20.7   5                      *
    1  ZIMBABWE                       4       -90     -16     5.8                    *
    1  ;                                                                            *
                                                                                    *
    1  DATA AGMAC2;                                                                 *
    1  INPUT  country $ 1-26 a5 28-32 a7 36-38 a6 40-45 a14 47-52;                  *
                                                                                    *
    1  CARDS;                                                                       *
    1  ALGERIA                        1300    1    245    500                      *
    1  ANGOLA                         700     1    98     2000                     *
    1  BENIN                          170     0    236    500                      *
    1  BURUNDI                        40      0    138    200                      *
    1  BOTSWANA                       280     0    588    200                      *
    1  BURKINA FASO                   70      0     68    500                      *
    1  CAMEROON                       3010    0    377    200                      *
    1  CAPE VERDE                     5       0    147    200                      *
    1  CENTRAL AFRICAN REPUBLIC       70      0    210    200                      *
    1  CHAD                           50      0    75     200                      *
    1  COMOROS ISLANDS                5       0    502    200                      *
    1  CONGO                          200     0    156    200                      *
    1  DJIBOUTI                       5       0    61     200                      *
    1  ETHIOPIA                       1490    1    69     500                      *
    1  EGYPT                          2850    0    398    1000                     *
    1  EQUATORIAL GUINEA              50      0    73     200                      *
    1  GHANA                          820     0    267    500                      *
    1  GABON                          250     0    384    200                      *
    1  GAMBIA                         50      0    36     50                       *
    1  GUINEA                         20      0    163    500                      *
    1  GUINEA-BISSAU                  5       0    21     200                      *
    1  IVORY COAST                    790     0    430    500                      *
    1  KENYA                          2030    0    101    1000                     *
    1  LIBERIA                        80      0    287    500                      *
    1  LESOTHO                        170     0     95    200                      *
    1  LIBYA                          4700    0    190    500                      *
    1  MADAGASCAR                     310     1    139    1000                     *
    1  MOZAMBIQUE                     270     0    124    500                      *
    1  MALAWI                         130     0     70    500                      *
    1  MALI                           180     1     77    200                      *
```

```
START                                                                    MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
    1  MAURITIUS                      40      0    677   500                          *
    1  MAURITANIA                     130     0    191   200                          *
    1  MOROCCO                        2524    0    350   1000                         *
    1  NIGER                          790     0    166   200                          *
    1  NIGERIA                        4790    0    297   1100                         *
    1  RWANDA                         30      0    123   100                          *
    1  SAO TOME AND PRINCIPE          5       0    101   200                          *
    1  SENEGAL                        190     0    156   200                          *
    1  SIERRA LEONE                   40      0    219   200                          *
    1  SEYCHELLES                     10      0    916   200                          *
    1  SOMALIA                        280     0    383   500                          *
    1  SUDAN                          1380    0    181   1000                         *
    1  SWAZILAND                      200     0    166   200                          *
    1  TOGO                           110     0    143   200                          *
    1  TANZANIA                       550     1    121   1000                         *
    1  TUNISIA                        1437    0    609   500                          *
    1  UGANDA                         660     1    184   1000                         *
    1  ZAMBIA                         619     1     35   1000                         *
    1  ZAIRE                          340     0     81   1000                         *
    1  ZIMBABWE                       920     0     86   1000                         *
    1  ;                                                                            *
                                                                                    *
    1  DATA AGMAC3;                                                                 *
    1  INPUT  country $ 1-26 a27 28-32 a28 36-38 a29 40-45 a26 47-52;               *
                                                                                    *
    1  CARDS;                                                                       *
    1  ALGERIA                        35      35   35    2                          *
    1  ANGOLA                         40      10   10    0                          *
    1  BENIN                          28      21   17    0                          *
    1  BURUNDI                        25      25   22    0                          *
    1  BOTSWANA                       28      21   17    0                          *
    1  BURKINA FASO                   74      3    13    1                          *
    1  CAMEROON                       40      25   32    1                          *
    1  CAPE VERDE                     28      21   17    0                          *
    1  CENTRAL AFRICAN REPUBLIC       37      12   25    0                          *
    1  CHAD                           28      21   17    0                          *
    1  COMOROS ISLANDS                28      21   17    0                          *
    1  CONGO                          30      12   20    0                          *
    1  DJIBOUTI                       5       5    5     0                          *
    1  ETHIOPIA                       1       26   1     1                          *
    1  EGYPT                          22      12   24    2                          *
    1  EQUATORIAL GUINEA              28      21   17    0                          *
    1  GHANA                          55      35   35    1                          *
    1  GABON                          28      21   17    0                          *
    1  GAMBIA                         28      21   17    0                          *
    1  GUINEA                         10      7    7     1                          *
    1  GUINEA-BISSAU                  28      21   17    0                          *
    1  IVORY COAST                    22      1    1     0                          *
    1  KENYA                          16      26   1     2                          *
    1  LIBERIA                        28      21   17    0                          *
    1  LESOTHO                        28      21   17    0                          *
    1  LIBYA                          1       1    7     1                          *
    1  MADAGASCAR                     11      15   15    1                          *
```

```
PROJECT:  UQ5LC          MEMBER:  AGCL                  DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.02                 TIME: 11:29
TYPE:     SAS            USERID:  U3D                   PAGE: 04 OF 11
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
   1   MOZAMBIQUE                  28      12   12    1                                  *
   1   MALAWI                      2       10   10    0                                  *
   1   MALI                        28      21   17    1                                  *
   1   MAURITIUS                   35      84   55    1                                  *
   1   MAURITANIA                  28      21   17    0                                  *
   1   MOROCCO                     30      55   60    1                                  *
   1   NIGER                       28      21   17    0                                  *
   1   NIGERIA                     48      46   33    3                                  *
   1   RWANDA                      74      30   2     0                                  *
   1   SAO TOME AND PRINCIPE       28      21   17    3                                  *
   1   SENEGAL                     45      25   25    6                                  *
   1   SIERRA LEONE                15      1    1     0                                  *
   1   SEYCHELLES                  28      21   17    0                                  *
   1   SOMALIA                     10      5    5     0                                  *
   1   SUDAN                       62      22   22    0                                  *
   1   SWAZILAND                   28      21   17    0                                  *
   1   TOGO                        28      21   17    1                                  *
   1   TANZANIA                    20      15   7     1                                  *
   1   TUNISIA                     16      25   25    1                                  *
   1   UGANDA                      10      7    10    1                                  *
   1   ZAMBIA                      20      35   12    2                                  *
   1   ZAIRE                       11      20   6     1                                  *
   1   ZIMBABWE                    37      40   20    1                                  *
   1   ;                                                                                 *
                                                                                         *
   1   DATA AGMAC4;                                                                      *
   1   INPUT  country $ 1-26 a25 28-32 a24 36-38 a23 40-45 a22 47-52;                   *
                                                                                         *
   1   CARDS;                                                                            *
   1   ALGERIA                     2       55   55    2                                  *
   1   ANGOLA                      1       1    15    1                                  *
   1   BENIN                       1       0    15    0                                  *
   1   BURUNDI                     1       1    15    1                                  *
   1   BOTSWANA                    1       1    15    0                                  *
   1   BURKINA FASO                1       3    15    1                                  *
   1   CAMEROON                    1       0    15    1                                  *
   1   CAPE VERDE                  1       0    15    0                                  *
   1   CENTRAL AFRICAN REPUBLIC    1       0    15    0                                  *
   1   CHAD                        1       0    15    0                                  *
   1   COMOROS ISLANDS             1       1    15    0                                  *
   1   CONGO                       1       0    15    0                                  *
   1   DJIBOUTI                    1       0    15    0                                  *
   1   ETHIOPIA                    1       4    15    1                                  *
   1   EGYPT                       2       55   40    3                                  *
   1   EQUATORIAL GUINEA           1       0    15    0                                  *
   1   GHANA                       1       22   15    1                                  *
   1   GABON                       1       0    15    1                                  *
   1   GAMBIA                      1       0    15    1                                  *
   1   GUINEA                      1       6    15    1                                  *
   1   GUINEA-BISSAU               1       0    15    0                                  *
   1   IVORY COAST                 1       2    15    1                                  *
   1   KENYA                       2       8    30    2                                  *
   1   LIBERIA                     1       3    15    1                                  *
```

```
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1   LESOTHO                        1       2    15    0                                *
   1   LIBYA                          1       7    15    1                                *
   1   MADAGASCAR                     1       1    15    1                                *
   1   MOZAMBIQUE                     1       1    15    1                                *
   1   MALAWI                         1       10   15    1                                *
   1   MALI                           1       1    15    2                                *
   1   MAURITIUS                      1       2    15    2                                *
   1   MAURITANIA                     1       0    15    0                                *
   1   MOROCCO                        1       1    15    2                                *
   1   NIGER                          1       0    15    0                                *
   1   NIGERIA                        1       4    15    2                                *
   1   RWANDA                         1       40   15    1                                *
   1   SAO TOME AND PRINCIPE          1       0    15    0                                *
   1   SENEGAL                        1       2    15    1                                *
   1   SIERRA LEONE                   1       1    15    2                                *
   1   SEYCHELLES                     1       1    15    0                                *
   1   SOMALIA                        1       20   15    1                                *
   1   SUDAN                          1       0    15    0                                *
   1   SWAZILAND                      1       0    15    0                                *
   1   TOGO                           1       0    15    2                                *
   1   TANZANIA                       1       22   15    1                                *
   1   TUNISIA                        1       1    15    2                                *
   1   UGANDA                         1       32   15    2                                *
   1   ZAMBIA                         1       5    15    1                                *
   1   ZAIRE                          1       2    15    2                                *
   1   ZIMBABWE                       2       55   80    0                                *
   1   ;                                                                                  *
   1   DATA AGMAC5;                                                                       *
   1   INPUT  country $ 1-26 a8  28-32 a9  36-38 a17 40-45 a18 47-52;                    *
                                                                                          *
   1   CARDS;                                                                             *
   1   ALGERIA                        0       0    1     1                                *
   1   ANGOLA                         1       1    1     1                                *
   1   BENIN                          1       1    0     0                                *
   1   BURUNDI                        1       1    1     1                                *
   1   BOTSWANA                       1       1    0     1                                *
   1   BURKINA FASO                   1       1    1     1                                *
   1   CAMEROON                       1       1    0     0                                *
   1   CAPE VERDE                     1       1    1     0                                *
   1   CENTRAL AFRICAN REPUBLIC       1       1    0     0                                *
   1   CHAD                           1       1    0     0                                *
   1   COMOROS ISLANDS                1       1    0     1                                *
   1   CONGO                          1       1    0     1                                *
   1   DJIBOUTI                       1       1    1     1                                *
   1   ETHIOPIA                       1       1    1     1                                *
   1   EGYPT                          0       1    1     1                                *
   1   EQUATORIAL GUINEA              1       1    1     0                                *
   1   GHANA                          1       1    1     1                                *
   1   GABON                          1       1    0     0                                *
   1   GAMBIA                         1       1    0     0                                *
   1   GUINEA                         1       1    0     1                                *
   1   GUINEA-BISSAU                  1       1    1     0                                *
   1   IVORY COAST                    1       1    0     1                                *
   1   KENYA                          0       1    1     1                                *
```

```
PROJECT:  UQ5LC          MEMBER:  AGCL                DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.02               TIME: 11:29
TYPE:     SAS            USERID:  U3D                 PAGE: 06 OF 11
```

```
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1   LIBERIA                        1       1    1    0                                  *
   1   LESOTHO                        1       1    0    0                                  *
   1   LIBYA                          1       1    1    1                                  *
   1   MADAGASCAR                     1       1    1    0                                  *
   1   MOZAMBIQUE                     1       1    1    1                                  *
   1   MALAWI                         1       1    1    1                                  *
   1   MALI                           1       1    1    1                                  *
   1   MAURITIUS                      1       1    1    0                                  *
   1   MAURITANIA                     1       1    0    0                                  *
   1   MOROCCO                        1       1    1    1                                  *
   1   NIGER                          1       1    0    1                                  *
   1   NIGERIA                        1       1    1    1                                  *
   1   RWANDA                         1       1    1    0                                  *
   1   SAO TOME AND PRINCIPE          1       1    1    0                                  *
   1   SENEGAL                        1       1    1    1                                  *
   1   SIERRA LEONE                   1       1    1    0                                  *
   1   SEYCHELLES                     1       1    0    0                                  *
   1   SOMALIA                        1       1    0    0                                  *
   1   SUDAN                          1       1    0    1                                  *
   1   SWAZILAND                      1       1    0    0                                  *
   1   TOGO                           1       1    1    0                                  *
   1   TANZANIA                       1       1    1    0                                  *
   1   TUNISIA                        1       1    1    1                                  *
   1   UGANDA                         1       1    1    1                                  *
   1   ZAMBIA                         1       1    1    1                                  *
   1   ZAIRE                          1       1    1    1                                  *
   1   ZIMBABWE                       0       0    1    1                                  *
   1   ;                                                                                   *
                                                                                           *
   1   DATA AGMAC6;                                                                        *
   1   INPUT  country $ 1-26 a19 28-32 a21 36-38 a31 40-45 a33 47-54;                     *
                                                                                           *
   1   CARDS;                                                                              *
   1   ALGERIA                        10      1    1    9000                               *
   1   ANGOLA                         5       0    1    400                                *
   1   BENIN                          5       0    1    876                                *
   1   BURUNDI                        5       0    1    433                                *
   1   BOTSWANA                       5       0    1    800                                *
   1   BURKINA FASO                   5       0    1    1150                               *
   1   CAMEROON                       5       0    1    1045                               *
   1   CAPE VERDE                     5       0    1    165                                *
   1   CENTRAL AFRICAN REPUBLIC       5       0    1    1508                               *
   1   CHAD                           5       0    1    563                                *
   1   COMOROS ISLANDS                5       0    1    137                                *
   1   CONGO                          5       0    1    1111                               *
   1   DJIBOUTI                       5       0    1    77                                 *
   1   ETHIOPIA                       5       0    1    5452                               *
   1   EGYPT                          5       1    2    108740                             *
   1   EQUATORIAL GUINEA              5       0    1    63                                 *
   1   GHANA                          5       0    1    9000                               *
   1   GABON                          5       0    1    988                                *
   1   GAMBIA                         5       0    1    515                                *
   1   GUINEA                         5       0    1    9200                               *
   1   GUINEA-BISSAU                  5       0    1    165                                *
```

```
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1   IVORY COAST                  5       0     1      1947                          *
   1   KENYA                        10      1     1      5163                          *
   1   LIBERIA                      5       0     1      853                           *
   1   LESOTHO                      5       0     1      583                           *
   1   LIBYA                        5       0     1      4193                          *
   1   MADAGASCAR                   5       0     1      4976                          *
   1   MOZAMBIQUE                   5       0     1      196                           *
   1   MALAWI                       5       0     1      3430                          *
   1   MALI                         5       0     1      1458                          *
   1   MAURITIUS                    5       0     1      1229                          *
   1   MAURITANIA                   5       0     1      405                           *
   1   MOROCCO                      5       0     1      11778                         *
   1   NIGER                        5       0     1      1091                          *
   1   NIGERIA                      5       0     1      20901                         *
   1   RWANDA                       5       0     1      497                           *
   1   SAO TOME AND PRINCIPE        5       0     1      165                           *
   1   SENEGAL                      5       0     1      1854                          *
   1   SIERRA LEONE                 5       0     1      2055                          *
   1   SEYCHELLES                   5       0     1      29                            *
   1   SOMALIA                      5       0     1      3491                          *
   1   SUDAN                        5       0     1      5715                          *
   1   SWAZILAND                    5       0     1      1193                          *
   1   TOGO                         5       0     1      988                           *
   1   TANZANIA                     5       0     1      5779                          *
   1   TUNISIA                      5       0     1      5424                          *
   1   UGANDA                       5       0     1      1442                          *
   1   ZAMBIA                       5       0     1      2183                          *
   1   ZAIRE                        5       0     1      4037                          *
   1   ZIMBABWE                     10      1     1      3059                          *
   1   ;                                                                               *
                                                                                       *
                                                                                       *
   1   DATA AGMAC7;                                                                    *
   1   INPUT  country $ 1-26 a34 28-32 a35 36-40 a32 42-45 a16 47-54;                 *
                                                                                       *
   1   CARDS;                                                                          *
   1   ALGERIA                      2681    4     .1     724                           *
   1   ANGOLA                       1367    53    .1     0                             *
   1   BENIN                        1367    11    .1     166                           *
   1   BURUNDI                      3630    6     .1     69                            *
   1   BOTSWANA                     283     49    .1     0                             *
   1   BURKINA FASO                 1304    109   .1     5                             *
   1   CAMEROON                     1575    12    2      14                            *
   1   CAPE VERDE                   82      133   1      42                            *
   1   CENTRAL AFRICAN REPUBLIC     21      11    2      5                             *
   1   CHAD                         481     74    2      0                             *
   1   COMOROS ISLANDS              476     145   .1     0                             *
   1   CONGO                        2367    133   2      65                            *
   1   DJIBOUTI                     100     130   .1     0                             *
   1   ETHIOPIA                     5092    793   .1     43                            *
   1   EGYPT                        6144    1799  .1     596                           *
   1   EQUATORIAL GUINEA            16      130   .1     0                             *
   1   GHANA                        2748    96    2      12                            *
   1   GABON                        417     141   2      87                            *
```

```
PROJECT:  UQ5LC          MEMBER:  AGCL                  DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.02                 TIME: 11:29
TYPE:     SAS            USERID:  U3D                   PAGE: 08 OF 11
```

```
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
   1   GAMBIA                        485     129   .1     0                            *
   1   GUINEA                        77      55    2      463                          *
   1   GUINEA-BISSAU                 421     128   2      0                            *
   1   IVORY COAST                   920     0     .1     11                           *
   1   KENYA                         3073    139   2      25                           *
   1   LIBERIA                       252     76    2      7                            *
   1   LESOTHO                       42      40    .1     0                            *
   1   LIBYA                         727     0     .1     51                           *
   1   MADAGASCAR                    1693    65    2      18                           *
   1   MOZAMBIQUE                    150     252   .1     1                            *
   1   MALAWI                        232     5     2      11                           *
   1   MALI                          1944    131   .1     164                          *
   1   MAURITIUS                     846     5     2      2                            *
   1   MAURITANIA                    467     137   .1     0                            *
   1   MOROCCO                       15442   142   .1     380                          *
   1   NIGER                         476     97    2      2                            *
   1   NIGERIA                       5123    0     1      149                          *
   1   RWANDA                        1650    25    .1     3                            *
   1   SAO TOME AND PRINCIPE         414     0     .1     0                            *
   1   SENEGAL                       738     117   .1     23                           *
   1   SIERRA LEONE                  981     49    2      17                           *
   1   SEYCHELLES                    28      0     2      0                            *
   1   SOMALIA                       1966    126   .1     0                            *
   1   SUDAN                         1150    904   2      80                           *
   1   SWAZILAND                     104     0     2      7                            *
   1   TOGO                          488     9     2      2                            *
   1   TANZANIA                      2287    66    1      0                            *
   1   TUNISIA                       8348    80    .1     122                          *
   1   UGANDA                        880     7     .1     7                            *
   1   ZAMBIA                        15      82    .1     4                            *
   1   ZAIRE                         3827    101   2      32                           *
   1   ZIMBABWE                      47      0     .1     2                            *
   1   ;                                                                               *
   1   DATA AGMAC8;                                                                    *
   1   INPUT  country $ 1-26 a2  28-32 a13 34-38 a4  40-45 a20 47-54;                 *
                                                                                       *
   1   CARDS;                                                                          *
   1   ALGERIA                       56.4  1       39.0   2                            *
   1   ANGOLA                        1.9   0       47.7   0                            *
   1   BENIN                         0.7   0       2.4    0                            *
   1   BURUNDI                       0.8   0       20.3   0                            *
   1   BOTSWANA                      0.7   0       13.4   2                            *
   1   BURKINA FASO                  0.7   2       2.0    0                            *
   1   CAMEROON                      0.7   1       4.6    1                            *
   1   CAPE VERDE                    0.7   0       13.3   0                            *
   1   CENTRAL AFRICAN REPUBLIC      0.7   0       4.6    0                            *
   1   CHAD                          0.7   0       2.0    0                            *
   1   COMOROS ISLANDS               0.7   0       14.6   0                            *
   1   CONGO                         0.7   0       4.6    0                            *
   1   DJIBOUTI                      0.7   0       13.5   0                            *
   1   ETHIOPIA                      15.7  0       48.0   0                            *
   1   EGYPT                         58.8  2       14.0   4                            *
   1   EQUATORIAL GUINEA             0.7   0       13.5   0                            *
   1   GHANA                         1.8   2       24.0   1                            *
```

```
START                                                                    MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
    1  GABON                          0.7  0       8.0   0                              *
    1  GAMBIA                         0.7  0       2.4   0                              *
    1  GUINEA                         0.3  0       2.4   0                              *
    1  GUINEA-BISSAU                  0.7  0       13.5  0                              *
    1  IVORY COAST                    0.7  0       43.0  0                              *
    1  KENYA                          3.7  5       123.0 2                              *
    1  LIBERIA                        0.9  0       2.4   0                              *
    1  LESOTHO                        0.7  0       13.7  0                              *
    1  LIBYA                          16.5 0       9.0   0                              *
    1  MADAGASCAR                     2.0  1       24.0  1                              *
    1  MOZAMBIQUE                     2.3  0       47.7  0                              *
    1  MALAWI                         0.2  1       20.3  0                              *
    1  MALI                           0.7  0       6.0   0                              *
    1  MAURITIUS                      0.7  0       1.0   0                              *
    1  MAURITANIA                     0.7  0       14.8  0                              *
    1  MOROCCO                        19.3 0       28.0  0                              *
    1  NIGER                          0.7  0       2.0   0                              *
    1  NIGERIA                        38.4 0       134.0 1                              *
    1  RWANDA                         .8   0       20.3  1                              *
    1  SAO TOME AND PRINCIPE          0.7  0       13.4  0                              *
    1  SENEGAL                        0.7  0       7.0   0                              *
    1  SIERRA LEONE                   0.7  0       2.4   0                              *
    1  SEYCHELLES                     0.7  0       13.5  0                              *
    1  SOMALIA                        0.7  0       20.3  0                              *
    1  SUDAN                          11.8 0       30.0  0                              *
    1  SWAZILAND                      0.7  0       27    0                              *
    1  TOGO                           0.4  1       2.4   0                              *
    1  TANZANIA                       3.7  2       20.3  2                              *
    1  TUNISIA                        10.0 0       19.0  0                              *
    1  UGANDA                         3.7  0       20.3  2                              *
    1  ZAMBIA                         2.1  2       47.7  3                              *
    1  ZAIRE                          2.1  2       37.0  3                              *
    1  ZIMBABWE                       3.1  4       47.7  2                              *
    1  ;                                                                                *
                                                                                        *
    1  PROC SORT DATA=AGMAC1;                                                           *
    6       BY COUNTRY;                                                                 *
    1  PROC SORT DATA=AGMAC2;                                                           *
    6       BY COUNTRY;                                                                 *
    1  PROC SORT DATA=AGMAC3;                                                           *
    6       BY COUNTRY;                                                                 *
    1  PROC SORT DATA=AGMAC4;                                                           *
    6       BY COUNTRY;                                                                 *
    1  PROC SORT DATA=AGMAC5;                                                           *
    6       BY COUNTRY;                                                                 *
    1  PROC SORT DATA=AGMAC6;                                                           *
    6       BY COUNTRY;                                                                 *
    1  PROC SORT DATA=AGMAC7;                                                           *
    6       BY COUNTRY;                                                                 *
    1  PROC SORT DATA=AGMAC8;                                                           *
    6       BY COUNTRY;                                                                 *
                                                                                        *
    1  DATA AG1;                                                                        *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1  MERGE AGMAC1 AGMAC2 AGMAC3 AGMAC4 AGMAC5 AGMAC6 AGMAC7 AGMAC8;                    *
  - 6       BY COUNTRY;                                                                 *
                                                                                        *
    1  ********************************************;                                   *
    1  *  ALL METHODS OF CLUSTER ANALYSIS          ;                                   *
    1  ********************************************;                                   *
                                                                                        *
    1  TITLE 'Average Linkage Method';                                                  *
    1  PROC CLUSTER METHOD=AVERAGE STD PSEUDO NOEIGEN OUTTREE=TREE;                     *
    1  ID country;                                                                      *
    1  VAR a13 a14 a17-a20 a22-a25;                                                     *
    1  PROC TREE;                                                                       *
                                                                                        *
    1  TITLE 'Ward's Method';                                                           *
    1  PROC CLUSTER METHOD=WARD    STD PSEUDO NOEIGEN OUTTREE=TREE;                     *
    1  ID country;                                                                      *
    1  VAR a0 a2 a4-a9 a13 a14 a16-a36;                                                 *
    1  PROC TREE;                                                                       *
                                                                                        *
    1  TITLE 'Centroid Method';                                                         *
    1  PROC CLUSTER METHOD=CEN     STD PSEUDO NOEIGEN OUTTREE=TREE;                     *
    1  ID country;                                                                      *
    1  VAR a0 a2 a4-a9 a13 a14 a16-a36;                                                 *
    1  PROC TREE;                                                                       *
                                                                                        *
    1  TITLE 'Complete Linkage Method';                                                 *
    1  PROC CLUSTER METHOD=COM     STD PSEUDO NOEIGEN OUTTREE=TREE;                     *
    1  ID country;                                                                      *
    1  VAR a0 a2 a4-a9 a13 a14 a16-a36;                                                 *
    1  PROC TREE;                                                                       *
    1  TITLE 'Density Linkage Method';                                                  *
    1  PROC CLUSTER METHOD=DEN K=2 STD PSEUDO NOEIGEN OUTTREE=TREE;                     *
    1  ID country;                                                                      *
    1  VAR a0 a2 a4-a9 a13 a14 a16-a36;                                                 *
    1  PROC TREE;                                                                       *
                                                                                        *
    1  TITLE 'Maximun Likleyhood Method';                                               *
    1  PROC CLUSTER METHOD=EML     STD PSEUDO NOEIGEN OUTTREE=TREE;                     *
    1  ID country;                                                                      *
    1  VAR a0 a2 a4-a9 a13 a14 a16-a36;                                                 *
    1  PROC TREE;                                                                       *
                                                                                        *
    1  TITLE 'Flexible Beta Method';                                                    *
    1  PROC CLUSTER METHOD=FLE     STD PSEUDO NOEIGEN OUTTREE=TREE;                     *
    1  ID country;                                                                      *
    1  VAR a0 a2 a4-a9 a13 a14 a16-a36;                                                 *
```

```
START                                                                    MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
    1  PROC TREE;                                                                     *
                                                                                      *
                                                                                      *
    1  TITLE 'McQuitty's Method';                                                     *
    1  PROC CLUSTER METHOD=MCQ     STD PSEUDO NOEIGEN OUTTREE=TREE;                   *
    1  ID country;                                                                    *
    1  VAR a0 a2 a4-a9 a13 a14 a16-a36;                                               *
    1  PROC TREE;                                                                     *
                                                                                      *
                                                                                      *
    1  TITLE 'Median Method';                                                         *
    1  PROC CLUSTER METHOD=MED     STD PSEUDO NOEIGEN OUTTREE=TREE;                   *
    1  ID country;                                                                    *
    1  VAR a0 a2 a4-a9 a13 a14 a16-a36;                                               *
    1  PROC TREE;                                                                     *
                                                                                      *
                                                                                      *
    1  TITLE 'Single Linkage Method';                                                 *
    1  PROC CLUSTER METHOD=SIN     STD PSEUDO NOEIGEN OUTTREE=TREE;                   *
    1  ID country;                                                                    *
    1  VAR a0 a2 a4-a9 a13 a14 a16-a36;                                               *
    1  PROC TREE;                                                                     *
                                                                                      *
                                                                                      *
    1  TITLE 'Two-Stage Method';                                                      *
    1  PROC CLUSTER METHOD=TWO K=2 STD PSEUDO NOEIGEN OUTTREE=TREE;                   *
    1  ID country;                                                                    *
    1  VAR a0 a2 a4-a9 a13 a14 a16-a36;                                               *
    1  PROC TREE;                                                                     *
                                                                                      *
    1  /*                                                                            *
```

```
        PROJECT:  UQ5LC                MEMBER:  AGCLCOM                DATE: 89/07/13
        GROUP:    PDSU                 LEVEL:   01.00                  TIME: 11:29
        TYPE:     SAS                  USERID:  U3D                    PAGE: 01 OF 11
START                                                                              MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
    1  //U3DAGCLC JOB (Q5,T),D1867-THOMAS,MSGCLASS=X,CLASS=I,                    00010000
    1  //          TIME=(01,00),NOTIFY=U3D,MSGLEVEL=(1,1),REGION=3500K           00020000
    1  //*                                                                      *
    1  //*                                                                      *
    1  //*        Job Control for SAS-Batch                                     *
    1  //*                                                                      *
    1  //*                                                                      *
    1  /*JOBPARM COPIES=1                                                       *
    1  //STRUCC5  EXEC SAS,PARM='MACRO,PAGESIZE=65'                            *
    1  //FT11F001 DD SYSOUT=*,DEST=UNIDQ,DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA) *
    1  //FT12F001 DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)    *
    1  //FT02F001 DD SYSOUT=(Q,,XPLA),DCB=RECFM=UA,DEST=UNIDO                  *
    1  //SYSOUT   DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)    *
                                                                              *
    1  OPTIONS DQUOTE PAGESIZE=65;                                           *
    1  GOPTIONS DEVICE=XEROX NOTEXT82 HSIZE=10.5 VSIZE=7.5 NOCHARACTERS;      *
    1  *;                                                                     *
    1  DATA AGMAC1;                                                          *
    6       Title 'Raw Data on Agro-Machinery';                              *
    1  INPUT  country $ 1-26 a0 28-32 a36 37-42 a30 44-47 a13 50-52;         *
                                                                              *
    1  CARDS;                                                                *
    1  ALGERIA                    0      11.25   6.2    4                    *
    1  ANGOLA                     0      -6.19   6.2    2                    *
    1  BENIN                      2      -6.19   6.2    5.8                  *
    1  BURUNDI                    1      2.3     6.2    1                    *
    1  BOTSWANA                   8      -18     1      1                    *
    1  BURKINA FASO               4      9.3     6.3    5.8                  *
    1  CAMEROON                   5      5.15    4.7    5.8                  *
    1  CAPE VERDE                 0      -6.19   6.2    3                    *
    1  CENTRAL AFRICAN REPUBLIC   1      13.5    9.8    0                    *
    1  CHAD                       0      3.3     6.2    1                    *
    1  COMOROS ISLANDS            0      -6.19   6.2    5.8                  *
    1  CONGO                      0      11.55   14.5   0                    *
    1  DJIBOUTI                   0      -6.19   6.2    3                    *
    1  ETHIOPIA                   7      0.4     17     10                   *
    1  EGYPT                      1      -6.19   9.6    5.8                  *
    1  EQUATORIAL GUINEA          0      -6.19   28     5.8                  *
    1  GHANA                      6      -98.3   -6     5.8                  *
    1  GABON                      0      14      -28.5  0                    *
    1  GAMBIA                     4      -6.6    6.2    1                    *
    1  GUINEA                     5      -6.19   6.2    1                    *
    1  GUINEA-BISSAU              0      -6.19   -2.2   0                    *
    1  IVORY COAST                2      12      8.3    2                    *
    1  KENYA                      15     -1.3    10.3   33                   *
    1  LIBERIA                    0      -1.2    -3.6   5.8                  *
    1  LESOTHO                    5      -16.3   1      5.8                  *
    1  LIBYA                      0      -6.19   -3     5.8                  *
    1  MADAGASCAR                 1      .84     6.2    13                   *
    1  MOZAMBIQUE                 2      -6.19   -4     5.8                  *
    1  MALAWI                     7      -6      6.2    5.8                  *
    1  MALI                       4      -6.19   12.4   1                    *
    1  MAURITIUS                  0      1.6     4      2                    *
    1  MAURITANIA                 1      -6.19   -0.2   0                    *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1 MOROCCO                        1       3       5       6                          *
    1 NIGER                          4       5.3     6.2     5                          *
    1 NIGERIA                        8       36      15.1    3                          *
    1 RWANDA                         1       4       6.2     3                          *
    1 SAO TOME AND PRINCIPE          0       -6.19   2.6     0                          *
    1 SENEGAL                        2       16.3    -6.3    1                          *
    1 SIERRA LEONE                   4       62      12.8    2                          *
    1 SEYCHELLES                     1       4       -15.2   5.8                        *
    1 SOMALIA                        0       -87     6.2     0                          *
    1 SUDAN                          1       -24.2   6.2     0                          *
    1 SWAZILAND                      2       -18     6.2     1                          *
    1 TOGO                           1       8.5     3.8     5.8                        *
    1 TANZANIA                       13      -24.4   -3.5    4                          *
    1 TUNISIA                        2       3.1     3.37    4                          *
    1 UGANDA                         2       13      -76     17                         *
    1 ZAMBIA                         5       -74     -33.6   5                          *
    1 ZAIRE                          5       1.5     -20.7   5                          *
    1 ZIMBABWE                       4       -90     -16     5.8                        *
    1 ;                                                                                 *
                                                                                        *
    1 DATA AGMAC2;                                                                      *
    1 INPUT  country $ 1-26 a5 28-32 a7 36-38 a6 40-45 a14 47-52;                       *
                                                                                        *
    1 CARDS;                                                                            *
    1 ALGERIA                        1300    1       245     500                        *
    1 ANGOLA                         700     1       98      2000                       *
    1 BENIN                          170     0       236     500                        *
    1 BURUNDI                        40      0       138     200                        *
    1 BOTSWANA                       280     0       588     200                        *
    1 BURKINA FASO                   70      0       68      500                        *
    1 CAMEROON                       3010    0       377     200                        *
    1 CAPE VERDE                     5       0       147     200                        *
    1 CENTRAL AFRICAN REPUBLIC       70      0       210     200                        *
    1 CHAD                           50      0       75      200                        *
    1 COMOROS ISLANDS                5       0       502     200                        *
    1 CONGO                          200     0       156     200                        *
    1 DJIBOUTI                       5       0       61      200                        *
    1 ETHIOPIA                       1490    1       69      500                        *
    1 EGYPT                          2850    0       398     1000                       *
    1 EQUATORIAL GUINEA              50      0       73      200                        *
    1 GHANA                          820     0       267     500                        *
    1 GABON                          250     0       384     200                        *
    1 GAMBIA                         50      0       36      50                         *
    1 GUINEA                         20      0       163     500                        *
    1 GUINEA-BISSAU                  5       0       21      200                        *
    1 IVORY COAST                    790     0       430     500                        *
    1 KENYA                          2030    0       101     1000                       *
    1 LIBERIA                        80      0       287     500                        *
    1 LESOTHO                        170     0       95      200                        *
    1 LIBYA                          4700    0       190     500                        *
    1 MADAGASCAR                     310     1       139     1000                       *
    1 MOZAMBIQUE                     270     0       124     500                        *
    1 MALAWI                         130     0       70      500                        *
    1 MALI                           180     1       77      200                        *
```

```
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1   MAURITIUS                    40      0    677   500                              *
   1   MAURITANIA                   130     0    191   200                              *
   1   MOROCCO                      2524    0    350   1000                             *
   1   NIGER                        790     0    166   200                              *
   1   NIGERIA                      4790    0    297   1100                             *
   1   RWANDA                       30      0    123   100                              *
   1   SAO TOME AND PRINCIPE        5       0    101   200                              *
   1   SENEGAL                      190     0    156   200                              *
   1   SIERRA LEONE                 40      0    219   200                              *
   1   SEYCHELLES                   10      0    916   200                              *
   1   SOMALIA                      280     0    383   500                              *
   1   SUDAN                        1380    0    131   1000                             *
   1   SWAZILAND                    200     0    166   200                              *
   1   TOGO                         110     0    143   200                              *
   1   TANZANIA                     550     1    121   1000                             *
   1   TUNISIA                      1437    0    609   500                              *
   1   UGANDA                       660     1    184   1000                             *
   1   ZAMBIA                       619     1     35   1000                             *
   1   ZAIRE                        340     0     81   1000                             *
   1   ZIMBABWE                     920     0     86   1000                             *
   1   ;                                                                                *
                                                                                        *
                                                                                        *
   1   DATA AGMAC3;                                                                     *
   1   INPUT  country $ 1-26 a27 28-32 a28 36-38 a29 40-45 a2[illegible] 47-52;                *
                                                                                        *
   1   CARDS;                                                                           *
   1   ALGERIA                      35      35   35    2                                *
   1   ANGOLA                       40      10   10    0                                *
   1   BENIN                        28      21   17    0                                *
   1   BURUNDI                      25      25   22    0                                *
   1   BOTSWANA                     28      21   17    0                                *
   1   BURKINA FASO                 74      3    13    1                                *
   1   CAMEROON                     40      25   32    1                                *
   1   CAPE VERDE                   28      21   17    0                                *
   1   CENTRAL AFRICAN REPUBLIC     37      12   25    0                                *
   1   CHAD                         28      21   17    0                                *
   1   COMOROS ISLANDS              28      21   17    0                                *
   1   CONGO                        30      12   20    0                                *
   1   DJIBOUTI                     5       5    5     0                                *
   1   ETHIOPIA                     1       26   1     1                                *
   1   EGYPT                        22      12   24    2                                *
   1   EQUATORIAL GUINEA            28      21   17    0                                *
   1   GHANA                        55      35   35    1                                *
   1   GABON                        28      21   17    0                                *
   1   GAMBIA                       28      21   17    0                                *
   1   GUINEA                       10      7    7     1                                *
   1   GUINEA-BISSAU                28      21   17    0                                *
   1   IVORY COAST                  22      1    1     0                                *
   1   KENYA                        16      26   1     2                                *
   1   LIBERIA                      28      21   17    0                                *
   1   LESOTHO                      28      21   17    0                                *
   1   LIBYA                        1       1    7     1                                *
   1   MADAGASCAR                   11      15   15    1                                *
```

```
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1   MOZAMBIQUE                    28      12   12    1                                 *
   1   MALAWI                        2       10   10    0                                 *
   1   MALI                          28      21   17    1                                 *
   1   MAURITIUS                     35      84   55    1                                 *
   1   MAURITANIA                    28      21   17    0                                 *
   1   MOROCCO                       30      55   60    1                                 *
   1   NIGER                         28      21   17    0                                 *
   1   NIGERIA                       48      46   33    3                                 *
   1   RWANDA                        74      30   2     0                                 *
   1   SAO TOME AND PRINCIPE         28      21   17    3                                 *
   1   SENEGAL                       45      25   25    6                                 *
   1   SIERRA LEONE                  15      1    1     0                                 *
   1   SEYCHELLES                    28      21   17    0                                 *
   1   SOMALIA                       10      5    5     0                                 *
   1   SUDAN                         62      22   22    0                                 *
   1   SWAZILAND                     28      21   17    0                                 *
   1   TOGO                          28      21   17    1                                 *
   1   TANZANIA                      20      15   7     1                                 *
   1   TUNISIA                       16      25   25    1                                 *
   1   UGANDA                        10      7    10    1                                 *
   1   ZAMBIA                        20      35   12    2                                 *
   1   ZAIRE                         11      20   6     1                                 *
   1   ZIMBABWE                      37      40   20    1                                 *
   1   ;                                                                                  *
                                                                                          *
                                                                                          *
   1   DATA AGMAC4;                                                                       *
   1   INPUT  country $ 1-26 a25 28-32 a24 36-38 a23 40-45 a22 47-52;                    *
                                                                                          *
   1   CARDS;                                                                             *
   1   ALGERIA                       2       55   55    2                                 *
   1   ANGOLA                        1       1    15    1                                 *
   1   BENIN                         1       0    15    0                                 *
   1   BURUNDI                       1       1    15    1                                 *
   1   BOTSWANA                      1       1    15    0                                 *
   1   BURKINA FASO                  1       3    15    1                                 *
   1   CAMEROON                      1       0    15    1                                 *
   1   CAPE VERDE                    1       0    15    0                                 *
   1   CENTRAL AFRICAN REPUBLIC      1       0    15    0                                 *
   1   CHAD                          1       0    15    0                                 *
   1   COMOROS ISLANDS               1       1    15    0                                 *
   1   CONGO                         1       0    15    0                                 *
   1   DJIBOUTI                      1       0    15    0                                 *
   1   ETHIOPIA                      1       4    15    1                                 *
   1   EGYPT                         2       55   40    3                                 *
   1   EQUATORIAL GUINEA             1       0    15    0                                 *
   1   GHANA                         1       22   15    1                                 *
   1   GABON                         1       0    15    1                                 *
   1   GAMBIA                        1       0    15    1                                 *
   1   GUINEA                        1       6    15    1                                 *
   1   GUINEA-BISSAU                 1       0    15    0                                 *
   1   IVORY COAST                   1       2    15    1                                 *
   1   KENYA                         2       8    30    2                                 *
   1   LIBERIA                       1       3    15    1                                 *
```

```
PROJECT:  UQ5LC          MEMBER:  AGCLCOM          DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.00            TIME: 11:29
TYPE:     SAS            USERID:  U3D              PAGE: 05 OF 11
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
   1  LESOTHO                        1       2     15     0                                *
   1  LIBYA                          1       7     15     1                                *
   1  MADAGASCAR                     1       1     15     1                                *
   1  MOZAMBIQUE                     1       1     15     1                                *
   1  MALAWI                         1      10     15     1                                *
   1  MALI                           1       1     15     2                                *
   1  MAURITIUS                      1       2     15     2                                *
   1  MAURITANIA                     1       0     15     0                                *
   1  MOROCCO                        1       1     15     2                                *
   1  NIGER                          1       0     15     0                                *
   1  NIGERIA                        1       4     15     2                                *
   1  RWANDA                         1      40     15     1                                *
   1  SAO TOME AND PRINCIPE          1       0     15     0                                *
   1  SENEGAL                        1       2     15     1                                *
   1  SIERRA LEONE                   1       1     15     2                                *
   1  SEYCHELLES                     1       1     15     0                                *
   1  SOMALIA                        1      20     15     1                                *
   1  SUDAN                          1       0     15     0                                *
   1  SWAZILAND                      1       0     15     0                                *
   1  TOGO                           1       0     15     2                                *
   1  TANZANIA                       1      22     15     1                                *
   1  TUNISIA                        1       1     15     2                                *
   1  UGANDA                         1      32     15     2                                *
   1  ZAMBIA                         1       5     15     1                                *
   1  ZAIRE                          1       2     15     2                                *
   1  ZIMBABWE                       2      55     80     0                                *
   1  ;                                                                                    *
   1  DATA AGMAC5;                                                                         *
   1  INPUT  country $ 1-26 a8  28-32 a9  36-38 a17 40-45 a18 47-52;                      *
   1  CARDS;                                                                               *
   1  ALGERIA                        0       0     1      1                                *
   1  ANGOLA                         1       1     1      1                                *
   1  BENIN                          1       1     0      0                                *
   1  BURUNDI                        1       1     1      1                                *
   1  BOTSWANA                       1       1     0      1                                *
   1  BURKINA FASO                   1       1     1      1                                *
   1  CAMEROON                       1       1     0      0                                *
   1  CAPE VERDE                     1       1     1      0                                *
   1  CENTRAL AFRICAN REPUBLIC       1       1     0      0                                *
   1  CHAD                           1       1     0      0                                *
   1  COMOROS ISLANDS                1       1     0      1                                *
   1  CONGO                          1       1     0      1                                *
   1  DJIBOUTI                       1       1     1      1                                *
   1  ETHIOPIA                       1       1     1      1                                *
   1  EGYPT                          0       1     1      1                                *
   1  EQUATORIAL GUINEA              1       1     1      0                                *
   1  GHANA                          1       1     1      1                                *
   1  GABON                          1       1     0      0                                *
   1  GAMBIA                         1       1     0      0                                *
   1  GUINEA                         1       1     0      1                                *
   1  GUINEA-BISSAU                  1       1     1      0                                *
   1  IVORY COAST                    1       1     0      1                                *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1  KENYA                          0       1    1    1                              *
    1  LIBERIA                        1       1    1    0                              *
    1  LESOTHO                        1       1    0    0                              *
    1  LIBYA                          1       1    1    1                              *
    1  MADAGASCAR                     1       1    1    0                              *
    1  MOZAMBIQUE                     1       1    1    1                              *
    1  MALAWI                         1       1    1    1                              *
    1  MALI                           1       1    1    1                              *
    1  MAURITIUS                      1       1    1    0                              *
    1  MAURITANIA                     1       1    0    0                              *
    1  MOROCCO                        1       1    1    1                              *
    1  NIGER                          1       1    0    1                              *
    1  NIGERIA                        1       1    1    1                              *
    1  RWANDA                         1       1    1    0                              *
    1  SAO TOME AND PRINCIPE          1       1    1    0                              *
    1  SENEGAL                        1       1    1    1                              *
    1  SIERRA LEONE                   1       1    1    0                              *
    1  SEYCHELLES                     1       1    0    0                              *
    1  SOMALIA                        1       1    0    0                              *
    1  SUDAN                          1       1    0    1                              *
    1  SWAZILAND                      1       1    0    0                              *
    1  TOGO                           1       1    1    0                              *
    1  TANZANIA                       1       1    1    0                              *
    1  TUNISIA                        1       1    1    1                              *
    1  UGANDA                         1       1    1    1                              *
    1  ZAMBIA                         1       1    1    1                              *
    1  ZAIRE                          1       1    1    1                              *
    1  ZIMBABWE                       0       0    1    1                              *
    1  ;                                                                                 *
                                                                                         *
    1  DATA AGMAC3;                                                                      *
    1  INPUT  country $ 1-26 a19 28-32 a21 36-38 a31 40-45 a33 47-54;                    *
                                                                                         *
    1  CARDS;                                                                            *
    1  ALGERIA                        10      1    1    9000                           *
    1  ANGOLA                         5       0    1    400                            *
    1  BENIN                          5       0    1    876                            *
    1  BURUNDI                        5       0    1    433                            *
    1  BOTSWANA                       5       0    1    800                            *
    1  BURKINA FASO                   5       0    1    1150                           *
    1  CAMEROON                       5       0    1    1045                           *
    1  CAPE VERDE                     5       0    1    165                            *
    1  CENTRAL AFRICAN REPUBLIC       5       0    1    1508                           *
    1  CHAD                           5       0    1    563                            *
    1  COMOROS ISLANDS                5       0    1    137                            *
    1  CONGO                          5       0    1    1111                           *
    1  DJIBOUTI                       5       0    1    77                             *
    1  ETHIOPIA                       5       0    1    5452                           *
    1  EGYPT                          5       1    2    108740                         *
    1  EQUATORIAL GUINEA              5       0    1    63                             *
    1  GHANA                          5       0    1    9000                           *
    1  GABON                          5       0    1    988                            *
    1  GAMBIA                         5       0    1    515                            *
    1  GUINEA                         5       0    1    9200                           *
```

```
PROJECT:  UQ5LC          MEMBER:  AGCLCOM          DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.00            TIME: 11:29
TYPE:     SAS            USERID:  U3D              PAGE: 07 OF 11
```

```
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1   GUINEA-BISSAU                5       0     1     165                                *
   1   IVORY COAST                  5       0     1     1947                               *
   1   KENYA                        10      1     1     5163                               *
   1   LIBERIA                      5       0     1     853                                *
   1   LESOTHO                      5       0     1     583                                *
   1   LIBYA                        5       0     1     4193                               *
   1   MADAGASCAR                   5       0     1     4976                               *
   1   MOZAMBIQUE                   5       0     1     196                                *
   1   MALAWI                       5       0     1     3430                               *
   1   MALI                         5       0     1     1458                               *
   1   MAURITIUS                    5       0     1     1229                               *
   1   MAURITANIA                   5       0     1     405                                *
   1   MOROCCO                      5       0     1     11778                              *
   1   NIGER                        5       0     1     1091                               *
   1   NIGERIA                      5       0     1     20901                              *
   1   RWANDA                       5       0     1     497                                *
   1   SAO TOME AND PRINCIPE        5       0     1     165                                *
   1   SENEGAL                      5       0     1     1854                               *
   1   SIERRA LEONE                 5       0     1     2055                               *
   1   SEYCHELLES                   5       0     1     29                                 *
   1   SOMALIA                      5       0     1     3491                               *
   1   SUDAN                        5       0     1     5715                               *
   1   SWAZILAND                    5       0     1     1193                               *
   1   TOGO                         5       0     1     988                                *
   1   TANZANIA                     5       0     1     5779                               *
   1   TUNISIA                      5       0     1     5424                               *
   1   UGANDA                       5       0     1     1442                               *
   1   ZAMBIA                       5       0     1     2183                               *
   1   ZAIRE                        5       0     1     4037                               *
   1   ZIMBABWE                     10      1     1     3059                               *
   1   ;                                                                                   *
                                                                                           *
                                                                                           *
   1   DATA AGMAC7;                                                                        *
   1   INPUT  country $ 1-26 a34 28-32 a35 36-40 a32 42-45 a16 47-54;                      *
                                                                                           *
   1   CARDS;                                                                              *
   1   ALGERIA                      2681    4     .1    724                                *
   1   ANGOLA                       1367    53    .1    0                                  *
   1   BENIN                        1367    11    .1    166                                *
   1   BURUNDI                      3630    6     .1    69                                 *
   1   BOTSWANA                     283     49    .1    0                                  *
   1   BURKINA FASO                 1304    109   .1    5                                  *
   1   CAMEROON                     1575    12    2     14                                 *
   1   CAPE VERDE                   82      133   1     42                                 *
   1   CENTRAL AFRICAN REPUBLIC     21      11    2     5                                  *
   1   CHAD                         481     74    2     0                                  *
   1   COMOROS ISLANDS              476     145   .1    0                                  *
   1   CONGO                        2367    133   2     65                                 *
   1   DJIBOUTI                     100     130   .1    0                                  *
   1   ETHIOPIA                     5092    793   .1    43                                 *
   1   EGYPT                        6144    1799  .1    596                                *
   1   EQUATORIAL GUINEA            16      130   .1    0                                  *
   1   GHANA                        2748    96    2     12                                 *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1 GABON                          417     141  2     87                              *
    1 GAMBIA                         485     129  .1    0                               *
    1 GUINEA                         77      55   2     463                             *
    1 GUINEA-BISSAU                  421     128  2     0                               *
    1 IVORY COAST                    920     0    .1    11                              *
    1 KENYA                          3073    139  2     25                              *
    1 LIBERIA                        252     76   2     7                               *
    1 LESOTHO                        42      40   .1    0                               *
    1 LIBYA                          727     0    .1    51                              *
    1 MADAGASCAR                     1693    65   2     18                              *
    1 MOZAMBIQUE                     150     252  .1    1                               *
    1 MALAWI                         232     5    2     11                              *
    1 MALI                           1944    131  .1    164                             *
    1 MAURITIUS                      846     5    2     2                               *
    1 MAURITANIA                     467     137  .1    0                               *
    1 MOROCCO                        15442   142  .1    380                             *
    1 NIGER                          476     97   2     2                               *
    1 NIGERIA                        5123    0    1     149                             *
    1 RWANDA                         1650    25   .1    3                               *
    1 SAO TOME AND PRINCIPE          414     0    .1    0                               *
    1 SENEGAL                        738     117  .1    23                              *
    1 SIERRA LEONE                   981     49   2     17                              *
    1 SEYCHELLES                     28      0    2     0                               *
    1 SOMALIA                        1966    126  .1    0                               *
    1 SUDAN                          1150    904  2     80                              *
    1 SWAZILAND                      104     0    2     7                               *
    1 TOGO                           488     9    2     2                               *
    1 TANZANIA                       2287    66   1     0                               *
    1 TUNISIA                        8348    80   .1    122                             *
    1 UGANDA                         880     7    .1    7                               *
    1 ZAMBIA                         15      82   .1    4                               *
    1 ZAIRE                          3627    101  2     32                              *
    1 ZIMBABWE                       47      0    .1    2                               *
    1 ;                                                                                  *
    1 DATA AGMAC8;                                                                       *
    1 INPUT  country $ 1-26 a2 28-32 a13 34-38 a4 40-45 a20 47-54 clus 56;               *
                                                                                         *
    1 CARDS;                                                                             *
    1 ALGERIA                        56.4 1       39.0  2       4                       *
    1 ANGOLA                         1.9  0       47.7  0       2                       *
    1 BENIN                          0.7  0       2.4   0       1                       *
    1 BURUNDI                        0.8  0       20.3  0       1                       *
    1 BOTSWANA                       0.7  0       13.4  2       1                       *
    1 BURKINA FASO                   0.7  2       2.0   0       1                       *
    1 CAMEROON                       0.7  1       4.6   1       1                       *
    1 CAPE VERDE                     0.7  0       13.3  0       1                       *
    1 CENTRAL AFRICAN REPUBLIC       0.7  0       4.6   0       1                       *
    1 CHAD                           0.7  0       2.0   0       1                       *
    1 COMOROS ISLANDS                0.7  0       14.6  0       1                       *
    1 CONGO                          0.7  0       4.6   0       1                       *
    1 DJIBOUTI                       0.7  0       13.5  0       1                       *
    1 ETHIOPIA                       15.7 0       48.0  0       2                       *
    1 EGYPT                          58.8 2       14.0  4       5                       *
    1 EQUATORIAL GUINEA              0.7  0       13.5  0       1                       *
```

PROJECT: UQ5LC
GROUP: PDSU
TYPE: SAS

MEMBER: AGCLCOM
LEVEL: 01.00
USERID: U3D

DATE: 89/07/13
TIME: 11:29
PAGE: 09 OF 11

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1  GHANA                          1.8  2       24.0  1       1                        *
    1  GABON                          0.7  0       8.0   0       1                        *
    1  GAMBIA                         0.7  0       2.4   0       1                        *
    1  GUINEA                         0.3  0       2.4   0       1                        *
    1  GUINEA-BISSAU                  0.7  0       13.5  0       1                        *
    1  IVORY COAST                    0.7  0       43.0  0       1                        *
    1  KENYA                          3.7  5       123.0 2       4                        *
    1  LIBERIA                        0.9  0       2.4   0       1                        *
    1  LESOTHO                        0.7  0       13.7  0       1                        *
    1  LIBYA                          16.5 0       9.0   0       2                        *
    1  MADAGASCAR                     2.0  1       24.0  1       2                        *
    1  MOZAMBIQUE                     2.3  0       47.7  0       1                        *
    1  MALAWI                         0.2  1       20.3  0       1                        *
    1  MALI                           0.7  0       6.0   0       2                        *
    1  MAURITIUS                      0.7  0       1.0   0       3                        *
    1  MAURITANIA                     0.7  0       14.8  0       1                        *
    1  MOROCCO                        19.3 0       28.0  0       3                        *
    1  NIGER                          0.7  0       2.0   0       1                        *
    1  NIGERIA                        38.4 0       134.0 1       3                        *
    1  RWANDA                         .8   0       20.3  1       1                        *
    1  SAO TOME AND PRINCIPE          0.7  0       13.4  0       1                        *
    1  SENEGAL                        0.7  0       7.0   0       1                        *
    1  SIERRA LEONE                   0.7  0       2.4   0       1                        *
    1  SEYCHELLES                     0.7  0       13.5  0       1                        *
    1  SOMALIA                        0.7  0       20.3  0       1                        *
    1  SUDAN                          11.8 0       30.0  0       1                        *
    1  SWAZILAND                      0.7  0       27    0       1                        *
    1  TOGO                           0.4  1       2.4   0       1                        *
    1  TANZANIA                       3.7  2       20.3  2       2                        *
    1  TUNISIA                        10.0 0       19.0  0       2                        *
    1  UGANDA                         3.7  0       20.3  2       2                        *
    1  ZAMBIA                         2.1  2       47.7  3       2                        *
    1  ZAIRE                          2.1  2       37.0  3       2                        *
    1  ZIMBABWE                       3.1  4       47.7  2       4                        *
    1  ;                                                                                  *


    1  PROC SORT DATA=AGMAC1;                                                             *
    6       BY COUNTRY;                                                                   *
    1  PROC SORT DATA=AGMAC2;                                                             *
    6       BY COUNTRY;                                                                   *
    1  PROC SORT DATA=AGMAC3;                                                             *
    6       BY COUNTRY;                                                                   *
    1  PROC SORT DATA=AGMAC4;                                                             *
    6       BY COUNTRY;                                                                   *
    1  PROC SORT DATA=AGMAC5;                                                             *
    6       BY COUNTRY;                                                                   *
    1  PROC SORT DATA=AGMAC6;                                                             *
    6       BY COUNTRY;                                                                   *
    1  PROC SORT DATA=AGMAC7;                                                             *
    6       BY COUNTRY;                                                                   *
    1  PROC SORT DATA=AGMAC8;                                                             *
    6       BY COUNTRY;                                                                   *
```

```
        PROJECT:  UQ5LC              MEMBER:  AGCLCOM              DATE: 89/07/13
        GROUP:    PDSU               LEVEL:   01.00                TIME: 11:29
        TYPE:     SAS                USERID:  U3D                  PAGE: 11 OF 11
START                                                                        MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  TITLE 'INPUT';                                                          *
   1  PROC TREE;                                                              *
                                                                              *
                                                                              *
   1  /*                                                                      *
```

PROJECT: UQ5LC MEMBER: AGCLCOM DATE: 89/07/13
GROUP: PDSU LEVEL: 01.00 TIME: 11:29
TYPE: SAS USERID: U3D PAGE: 10 OF 11

```
START                                                                    MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
    1  DATA AG1;                                                                      *
    1  MERGE AGMAC1 AGMAC2 AGMAC3 AGMAC4 AGMAC5 AGMAC6 AGMAC7 AGMAC8;                 *
    6        BY COUNTRY;                                                             *
                                                                                     *
    1  ************************************************;                            *
    1  *          PRINT ALL VARIABLES                   ;                            *
    1  ************************************************;                            *
                                                                                     *
    1  PROC PRINT;                                                                   *
                                                                                     *
                                                                                     *
    2   ************************************************;                           *
    2   * CLUSTER ANALYSIS ON EACH COMPONENT            ;                           *
    2   ************************************************;                           *
                                                                                     *
    1  PROC CLUSTER METHOD=WARD STD NOEIGEN OUTTREE=TREE;                            *
    1  ID country;                                                                   *
    1  VAR a18;                                                                      *
    1  TITLE 'RAW MATERIALS';                                                        *
    1  PROC TREE;                                                                    *
                                                                                     *
    1  PROC CLUSTER DATA=AG1 METHOD=WARD STD NOEIGEN OUTTREE=TREE;                   *
    1  ID country;                                                                   *
    1  VAR a17-a19 a22 a25;                                                          *
    1  TITLE 'METAL WORKINGS';                                                       *
    1  PROC TREE;                                                                    *
                                                                                     *
    1  PROC CLUSTER DATA=AG1 METHOD=WARD STD NOEIGEN OUTTREE=TREE;                   *
    1  ID country;                                                                   *
    1  VAR a8 a9 a27-a32;                                                            *
    1  TITLE 'GOVERNMENT POLICY';                                                    *
    1  PROC TREE;                                                                    *
                                                                                     *
    1  PROC CLUSTER DATA=AG1 METHOD=WARD STD NOEIGEN OUTTREE=TREE;                   *
    1  VAR a7;                                                                       *
    1  ID country;                                                                   *
    1  TITLE 'DISTRIBUTION';                                                         *
    1  PROC TREE;                                                                    *
                                                                                     *
    1  PROC CLUSTER DATA=AG1 METHOD=WARD STD NOEIGEN OUTTREE=TREE;                   *
    1  ID country;                                                                   *
    1  VAR a5 a6;                                                                    *
    1  TITLE 'DEMAND';                                                               *
    1  PROC TREE;                                                                    *
                                                                                     *
    1  PROC CLUSTER DATA=AG1 METHOD=WARD STD NOEIGEN OUTTREE=TREE;                   *
    1  ID country;                                                                   *
    1  VAR a2 a4;                                                                    *
    1  TITLE 'TRADE';                                                                *
    1  PROC TREE;                                                                    *
                                                                                     *
    1  PROC CLUSTER DATA=AG1 METHOD=WARD STD NOEIGEN OUTTREE=TREE;                   *
    1  ID country;                                                                   *
    1  VAR a0 a16 a21 a26 a33 a34;                                                   *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1 //U3DACL5  JOB (Q5,T),D1867-THOMAS,MSGCLASS=X,CLASS=I,                          00010000
    1 //         TIME=(01,00),NOTIFY=U3D,MSGLEVEL=(1,1),REGION=3500K                 00020000
    1 //*                                                                                    *
    1 //*                                                                                    *
    1 //*        Job Control for SAS-Batch                                                   *
    1 //*                                                                                    *
    1 //*                                                                                    *
    1 /*JOBPARM COPIES=1                                                                     *
    1 //STRUCC5  EXEC SAS,PARM='MACRO,PAGESIZE=65'                                         *
    1 //FT11F001 DD SYSOUT=*,DEST=UNIDO,DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)              *
    1 //FT12F001 DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)                 *
    1 //FT02F001 DD SYSOUT=(Q,,XPLA),DCB=RECFM=UA,DEST=UNIDO                             *
    1 //SYSOUT   DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)               *
                                                                                         *
    1 OPTIONS DQUOTE PAGESIZE=65;                                                        *
    1 GOPTIONS DEVICE=XEROX NOTEXT82 HSIZE=10.5 VSIZE=7.5 NOCHARACTERS;                  *
    1 *;                                                                                 *
    1 DATA AGMAC1;                                                                       *
    6       Title 'Raw Data on Agro-Machinery';                                          *
    1 INPUT  country $ 1-26 a0 28-32 a36 37-42 a30 44-47 a13 50-52;                      *
                                                                                         *
    1 CARDS;                                                                             *
    1 ALGERIA                    0       11.25   6.2     4                               *
    1 ANGOLA                     0       -6.19   6.2     2                               *
    1 BENIN                      2       -6.19   6.2     5.8                             *
    1 BURUNDI                    1       2,3     6.2     1                               *
    1 BOTSWANA                   8       -18     1       1                               *
    1 BURKINA FASO               4       9.3     6.3     5.8                             *
    1 CAMEROON                   5       5.15    4.7     5.8                             *
    1 CAPE VERDE                 0       -6.19   6.2     3                               *
    1 CENTRAL AFRICAN REPUBLIC   1       13.5    9.8     0                               *
    1 CHAD                       0       3.3     6.2     1                               *
    1 COMOROS ISLANDS            0       -6.19   6.2     5.8                             *
    1 CONGO                      0       11.55   14.5    0                               *
    1 DJIBOUTI                   0       -6.19   6.2     3                               *
    1 ETHIOPIA                   7       0.4     17      10                              *
    1 EGYPT                      1       -6.19   9.6     5.8                             *
    1 EQUATORIAL GUINEA          0       -6.19   28      5.8                             *
    1 GHANA                      6       -98.3   -6      5.8                             *
    1 GABON                      0       14      -28.5   0                               *
    1 GAMBIA                     4       -6.6    6.2     1                               *
    1 GUINEA                     5       -6.19   6.2     1                               *
    1 GUINEA-BISSAU              0       -6.19   -2.2    0                               *
    1 IVORY COAST                2       12      8.3     2                               *
    1 KENYA                      15      -1.3    10.3    33                              *
    1 LIBERIA                    0       -1.2    -3.6    5.8                             *
    1 LESOTHO                    5       -16.3   1       5.8                             *
    1 LIBYA                      0       -6.19   -3      5.8                             *
    1 MADAGASCAR                 1       .84     6.2     13                              *
    1 MOZAMBIQUE                 2       -6.19   -4      5.8                             *
    1 MALAWI                     7       -6      6.2     5.8                             *
    1 MALI                       4       -6.19   12.4    1                               *
    1 MAURITIUS                  0       1.6     4       2                               *
    1 MAURITANIA                 1       -6.19   -0.2    0                               *
```

```
PROJECT:  UQ5LC          MEMBER:  AGCL5          DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.00          TIME: 11:29
TYPE:     SAS            USERID:  U3D            PAGE: 02 OF 11
```

```
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
   1   MOROCCO                      1       3       5       6                          *
   1   NIGER                        4       5.3     6.2     5                          *
   1   NIGERIA                      8       36      15.1    3                          *
   1   RWANDA                       1       4       6.2     3                          *
   1   SAO TOME AND PRINCIPE        0       -6.19   2.6     0                          *
   1   SENEGAL                      2       16.3    -6.3    1                          *
   1   SIERRA LEONE                 4       62      12.8    2                          *
   1   SEYCHELLES                   1       4       -15.2   5.8                        *
   1   SOMALIA                      0       -87     6.2     0                          *
   1   SUDAN                        1       -24.2   6.2     0                          *
   1   SWAZILAND                    2       -18     6.2     1                          *
   1   TOGO                         1       8.5     3.8     5.8                        *
   1   TANZANIA                     13      -24.4   -3.5    4                          *
   1   TUNISIA                      2       3.1     3.37    4                          *
   1   UGANDA                       2       13      -76     17                         *
   1   ZAMBIA                       5       -74     -33.6   5                          *
   1   ZAIRE                        5       1.5     -20.7   5                          *
   1   ZIMBABWE                     4       -90     -16     5.8                        *
   1   ;                                                                               *
                                                                                       *
   1   DATA AGMAC2;                                                                    *
   1   INPUT  country $ 1-26 a5 28-32 a7 36-38 a6 40-45 a14 47-52;                    *
                                                                                       *
   1   CARDS;                                                                          *
   1   ALGERIA                      1300    1     245    500                           *
   1   ANGOLA                       700     1     98     2000                          *
   1   BENIN                        170     0     236    500                           *
   1   BURUNDI                      40      0     138    200                           *
   1   BOTSWANA                     280     0     588    200                           *
   1   BURKINA FASO                 70      0      68    500                           *
   1   CAMEROON                     3010    0     377    200                           *
   1   CAPE VERDE                   5       0     147    200                           *
   1   CENTRAL AFRICAN REPUBLIC     70      0     210    200                           *
   1   CHAD                         50      0     75     200                           *
   1   COMOROS ISLANDS              5       0     502    200                           *
   1   CONGO                        200     0     156    200                           *
   1   DJIBOUTI                     5       0     61     200                           *
   1   ETHIOPIA                     1490    1     69     500                           *
   1   EGYPT                        2850    0     398    1000                          *
   1   EQUATORIAL GUINEA            50      0     73     200                           *
   1   GHANA                        820     0     267    500                           *
   1   GABON                        250     0     384    200                           *
   1   GAMBIA                       50      0     36     50                            *
   1   GUINEA                       20      0     163    500                           *
   1   GUINEA-BISSAU                5       0     21     200                           *
   1   IVORY COAST                  790     0     430    500                           *
   1   KENYA                        2030    0     101    1000                          *
   1   LIBERIA                      80      0     287    500                           *
   1   LESOTHO                      170     0      95    200                           *
   1   LIBYA                        4700    0     190    500                           *
   1   MADAGASCAR                   310     1     139    1000                          *
   1   MOZAMBIQUE                   270     0     124    500                           *
   1   MALAWI                       130     0      70    500                           *
   1   MALI                         180     1      77    200                           *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  MAURITIUS                    40      0    677   500                              *
   1  MAURITANIA                   130     0    191   200                              *
   1  MOROCCO                      2524    0    350   1000                             *
   1  NIGER                        790     0    166   200                              *
   1  NIGERIA                      4790    0    297   1100                             *
   1  RWANDA                       30      0    123   100                              *
   1  SAO TOME AND PRINCIPE        5       0    101   200                              *
   1  SENEGAL                      190     0    156   200                              *
   1  SIERRA LEONE                 40      0    219   200                              *
   1  SEYCHELLES                   10      0    916   200                              *
   1  SOMALIA                      280     0    383   500                              *
   1  SUDAN                        1380    0    181   1000                             *
   1  SWAZILAND                    200     0    166   200                              *
   1  TOGO                         110     0    143   200                              *
   1  TANZANIA                     550     1    121   1000                             *
   1  TUNISIA                      1437    0    609   500                              *
   1  UGANDA                       660     1    184   1000                             *
   1  ZAMBIA                       619     1     35   1000                             *
   1  ZAIRE                        340     0     81   1000                             *
   1  ZIMBABWE                     920     0     86   1000                             *
   1  ;                                                                                *
                                                                                       *
                                                                                       *
   1  DATA AGMAC3;                                                                     *
   1  INPUT  country $ 1-26 a27 28-32 a28 36-38 a29 40-45 a26 47-52;                  *
                                                                                       *
   1  CARDS;                                                                           *
   1  ALGERIA                      35      35   35    2                                *
   1  ANGOLA                       40      10   10    0                                *
   1  BENIN                        28      21   17    0                                *
   1  BURUNDI                      25      25   22    0                                *
   1  BOTSWANA                     28      21   17    0                                *
   1  BURKINA FASO                 74      3    13    1                                *
   1  CAMEROON                     40      25   32    1                                *
   1  CAPE VERDE                   28      21   17    0                                *
   1  CENTRAL AFRICAN REPUBLIC     37      12   25    0                                *
   1  CHAD                         28      21   17    0                                *
   1  COMOROS ISLANDS              28      21   17    0                                *
   1  CONGO                        30      12   20    0                                *
   1  DJIBOUTI                     5       5    5     0                                *
   1  ETHIOPIA                     1       26   1     1                                *
   1  EGYPT                        22      12   24    2                                *
   1  EQUATORIAL GUINEA            28      21   17    0                                *
   1  GHANA                        55      35   35    1                                *
   1  GABON                        28      21   17    0                                *
   1  GAMBIA                       28      21   17    0                                *
   1  GUINEA                       10      7    7     1                                *
   1  GUINEA-BISSAU                28      21   17    0                                *
   1  IVORY COAST                  22      1    1     0                                *
   1  KENYA                        16      26   1     2                                *
   1  LIBERIA                      28      21   17    0                                *
   1  LESOTHO                      28      21   17    0                                *
   1  LIBYA                        1       1    7     1                                *
   1  MADAGASCAR                   11      15   15    1                                *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1  MOZAMBIQUE                    28      12      12      1                          *
    1  MALAWI                        2       10      10      0                          *
    1  MALI                          28      21      17      1                          *
    1  MAURITIUS                     35      84      55      1                          *
    1  MAURITANIA                    28      21      17      0                          *
    1  MOROCCO                       30      55      60      1                          *
    1  NIGER                         28      21      17      0                          *
    1  NIGERIA                       48      46      33      3                          *
    1  RWANDA                        74      30      2       0                          *
    1  SAO TOME AND PRINCIPE         28      21      17      3                          *
    1  SENEGAL                       45      25      25      6                          *
    1  SIERRA LEONE                  15      1       1       0                          *
    1  SEYCHELLES                    28      21      17      0                          *
    1  SOMALIA                       10      5       5       0                          *
    1  SUDAN                         62      22      22      0                          *
    1  SWAZILAND                     28      21      17      0                          *
    1  TOGO                          28      21      17      1                          *
    1  TANZANIA                      20      15      7       1                          *
    1  TUNISIA                       16      25      25      1                          *
    1  UGANDA                        10      7       10      1                          *
    1  ZAMBIA                        20      35      12      2                          *
    1  ZAIRE                         11      20      6       1                          *
    1  ZIMBABWE                      37      40      20      1                          *
    1  ;                                                                                *
                                                                                        *
    1  DATA AGMAC4;                                                                     *
    1  INPUT  country $ 1-26 a25 28-32 a24 36-38 a23 40-45 a22 47-52;                   *
                                                                                        *
    1  CARDS;                                                                           *
    1  ALGERIA                       2       55      55      2                          *
    1  ANGOLA                        1       1       15      1                          *
    1  BENIN                         1       0       15      0                          *
    1  BURUNDI                       1       1       15      1                          *
    1  BOTSWANA                      1       1       15      0                          *
    1  BURKINA FASO                  1       3       15      1                          *
    1  CAMEROON                      1       0       15      1                          *
    1  CAPE VERDE                    1       0       15      0                          *
    1  CENTRAL AFRICAN REPUBLIC      1       0       15      0                          *
    1  CHAD                          1       0       15      0                          *
    1  COMOROS ISLANDS               1       1       15      0                          *
    1  CONGO                         1       0       15      0                          *
    1  DJIBOUTI                      1       0       15      0                          *
    1  ETHIOPIA                      1       4       15      1                          *
    1  EGYPT                         2       55      40      3                          *
    1  EQUATORIAL GUINEA             1       0       15      0                          *
    1  GHANA                         1       22      15      1                          *
    1  GABON                         1       0       15      1                          *
    1  GAMBIA                        1       0       15      1                          *
    1  GUINEA                        1       6       15      1                          *
    1  GUINEA-BISSAU                 1       0       15      0                          *
    1  IVORY COAST                   1       2       15      1                          *
    1  KENYA                         2       8       30      2                          *
    1  LIBERIA                       1       3       15      1                          *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  LESOTHO                        1       2    15    0                              *
   1  LIBYA                          1       7    15    1                              *
   1  MADAGASCAR                     1       1    15    1                              *
   1  MOZAMBIQUE                     1       1    15    1                              *
   1  MALAWI                         1       10   15    1                              *
   1  MALI                           1       1    15    2                              *
   1  MAURITIUS                      1       2    15    2                              *
   1  MAURITANIA                     1       0    15    0                              *
   1  MOROCCO                        1       1    15    2                              *
   1  NIGER                          1       0    15    0                              *
   1  NIGERIA                        1       4    15    2                              *
   1  RWANDA                         1       40   15    1                              *
   1  SAO TOME AND PRINCIPE          1       0    15    0                              *
   1  SENEGAL                        1       2    15    1                              *
   1  SIERRA LEONE                   1       1    15    2                              *
   1  SEYCHELLES                     1       1    15    0                              *
   1  SOMALIA                        1       20   15    1                              *
   1  SUDAN                          1       0    15    0                              *
   1  SWAZILAND                      1       0    15    0                              *
   1  TOGO                           1       0    15    2                              *
   1  TANZANIA                       1       22   15    1                              *
   1  TUNISIA                        1       1    15    2                              *
   1  UGANDA                         1       32   15    2                              *
   1  ZAMBIA                         1       5    15    1                              *
   1  ZAIRE                          1       2    15    2                              *
   1  ZIMBABWE                       2       55   80    0                              *
   1  ;                                                                                 *
   1  DATA AGMAC5;                                                                      *
   1  INPUT  country $ 1-26 a8  28-32 a9  36-38 a17 40-45 a18 47-52;                   *
                                                                                        *
   1  CARDS;                                                                            *
   1  ALGERIA                        0       0    1     1                              *
   1  ANGOLA                         1       1    1     1                              *
   1  BENIN                          1       1    0     0                              *
   1  BURUNDI                        1       1    1     1                              *
   1  BOTSWANA                       1       1    0     1                              *
   1  BURKINA FASO                   1       1    1     1                              *
   1  CAMEROON                       1       1    0     0                              *
   1  CAPE VERDE                     1       1    1     0                              *
   1  CENTRAL AFRICAN REPUBLIC       1       1    0     0                              *
   1  CHAD                           1       1    0     0                              *
   1  COMOROS ISLANDS                1       1    0     1                              *
   1  CONGO                          1       1    0     1                              *
   1  DJIBOUTI                       1       1    1     1                              *
   1  ETHIOPIA                       1       1    1     1                              *
   1  EGYPT                          0       1    1     1                              *
   1  EQUATORIAL GUINEA              1       1    1     0                              *
   1  GHANA                          1       1    1     1                              *
   1  GABON                          1       1    0     0                              *
   1  GAMBIA                         1       1    0     0                              *
   1  GUINEA                         1       1    0     1                              *
   1  GUINEA-BISSAU                  1       1    1     0                              *
   1  IVORY COAST                    1       1    0     1                              *
   1  KENYA                          0       1    1     1                              *
```

```
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1   LIBERIA                      1       1    1     0                                *
   1   LESOTHO                      1       1    0     0                                *
   1   LIBYA                        1       1    1     1                                *
   1   MADAGASCAR                   1       1    1     0                                *
   1   MOZAMBIQUE                   1       1    1     1                                *
   1   MALAWI                       1       1    1     1                                *
   1   MALI                         1       1    1     1                                *
   1   MAURITIUS                    1       1    1     0                                *
   1   MAURITANIA                   1       1    0     0                                *
   1   MOROCCO                      1       1    1     1                                *
   1   NIGER                        1       1    0     1                                *
   1   NIGERIA                      1       1    1     1                                *
   1   RWANDA                       1       1    1     0                                *
   1   SAO TOME AND PRINCIPE        1       1    1     0                                *
   1   SENEGAL                      1       1    1     1                                *
   1   SIERRA LEONE                 1       1    1     0                                *
   1   SEYCHELLES                   1       1    0     0                                *
   1   SOMALIA                      1       1    0     0                                *
   1   SUDAN                        1       1    0     1                                *
   1   SWAZILAND                    1       1    0     0                                *
   1   TOGO                         1       1    1     0                                *
   1   TANZANIA                     1       1    1     0                                *
   1   TUNISIA                      1       1    1     1                                *
   1   UGANDA                       1       1    1     1                                *
   1   ZAMBIA                       1       1    1     1                                *
   1   ZAIRE                        1       1    1     1                                *
   1   ZIMBABWE                     0       0    1     1                                *
   1   ;                                                                                *
                                                                                        *
   1   DATA AGMAC6;                                                                     *
   1   INPUT  country $ 1-26 a19 28-32 a21 36-38 a31 40-45 a33 47-54;                  *
                                                                                        *
   1   CARDS;                                                                           *
   1   ALGERIA                      10      1    1     9000                             *
   1   ANGOLA                       5       0    1     400                              *
   1   BENIN                        5       0    1     876                              *
   1   BURUNDI                      5       0    1     433                              *
   1   BOTSWANA                     5       0    1     800                              *
   1   BURKINA FASO                 5       0    1     1150                             *
   1   CAMEROON                     5       0    1     1045                             *
   1   CAPE VERDE                   5       0    1     165                              *
   1   CENTRAL AFRICAN REPUBLIC     5       0    1     1508                             *
   1   CHAD                         5       0    1     563                              *
   1   COMOROS ISLANDS              5       0    1     137                              *
   1   CONGO                        5       0    1     1111                             *
   1   DJIBOUTI                     5       0    1     77                               *
   1   ETHIOPIA                     5       0    1     5452                             *
   1   EGYPT                        5       1    2     108740                           *
   1   EQUATORIAL GUINEA            5       0    1     63                               *
   1   GHANA                        5       0    1     9000                             *
   1   GABON                        5       0    1     988                              *
   1   GAMBIA                       5       0    1     515                              *
   1   GUINEA                       5       0    1     9200                             *
   1   GUINEA-BISSAU                5       0    1     165                              *
```

```
START                                                                    MOD
 COL  ----+----1----+----2----+----3--  +----4----+----5----+----6----+----7----+----8  FLAGS
    1  IVORY COAST                    5       0    1      1947                          *
    1  KENYA                          10      1    1      5163                          *
    1  LIBERIA                        5       0    1      852                           *
    1  LESOTHO                        5       0    1      583                           *
    1  LIBYA                          5       0    1      4193                          *
    1  MADAGASCAR                     5       0    1      4976                          *
    1  MOZAMBIQUE                     5       0    1      196                           *
    1  MALAWI                         5       0    1      3430                          *
    1  MALI                           5       0    1      1458                          *
    1  MAURITIUS                      5       0    1      1229                          *
    1  MAURITANIA                     5       0    1      405                           *
    1  MOROCCO                        5       0    1      11778                         *
    1  NIGER                          5       0    1      1091                          *
    1  NIGERIA                        5       0    1      20901                         *
    1  RWANDA                         5       0    1      497                           *
    1  SAO TOME AND PRINCIPE          5       0    1      165                           *
    1  SENEGAL                        5       0    1      1854                          *
    1  SIERRA LEONE                   5       0    1      2055                          *
    1  SEYCHELLES                     5       0    1      29                            *
    1  SOMALIA                        5       0    1      3491                          *
    1  SUDAN                          5       0    1      5715                          *
    1  SWAZILAND                      5       0    1      1193                          *
    1  TOGO                           5       0    1      988                           *
    1  TANZANIA                       5       0    1      5779                          *
    1  TUNISIA                        5       0    1      5424                          *
    1  UGANDA                         5       0    1      1442                          *
    1  ZAMBIA                         5       0    1      2183                          *
    1  ZAIRE                          5       0    1      4037                          *
    1  ZIMBABWE                       10      1    1      3059                          *
    1  ;                                                                                *
                                                                                        *
    1  DATA AGMAC7;                                                                     *
    1  INPUT  country $ 1-26 a34 28-32 a35 36-40 a32 42-45 a16 47-54;                   *
                                                                                        *
    1  CARDS;                                                                           *
    1  ALGERIA                        2681    4    .1     724                           *
    1  ANGOLA                         1567    53   .1     0                             *
    1  BENIN                          1367    11   .1     166                           *
    1  BURUNDI                        3630    6             69                          *
    1  BOTSWANA                       283     49   .1     0                             *
    1  BURKINA FASO                   1304    109  .1     5                             *
    1  CAMEROON                       1575    12   2      14                            *
    1  CAPE VERDE                     82      133  1      42                            *
    1  CENTRAL AFRICAN REPUBLIC       21      11   2      5                             *
    1  CHAD                           481     74   2      0                             *
    1  COMOROS ISLANDS                476     145  .1     0                             *
    1  CONGO                          2367    133  2      65                            *
    1  DJIBOUTI                       100     130  .1     0                             *
    1  ETHIOPIA                       5092    793  .1     43                            *
    1  EGYPT                          6144    1799 .1     596                           *
    1  EQUATORIAL GUINEA              16      130  .1     0                             *
    1  GHANA                          2748    96   2      12                            *
    1  GABON                          417     141  2      87                            *
```

```
PROJECT:  UQ5LC          MEMBER:  AGCL5          DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.00          TIME: 11:29
TYPE:     SAS            USERID:  U3D            PAGE: 08 OF 11
```

```
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
   1   GAMBIA                        485     129   .1    0                                 *
   1   GUINEA                        77      55    2     463                               *
   1   GUINEA-BISSAU                 421     128   2     0                                 *
   1   IVORY COAST                   920     0     .1    11                                *
   1   KENYA                         3073    139   2     25                                *
   1   LIBERIA                       252     76    2     7                                 *
   1   LESOTHO                       42      40    .1    0                                 *
   1   LIBYA                         727     0     .1    51                                *
   1   MADAGASCAR                    1693    65    2     18                                *
   1   MOZAMBIQUE                    150     252   .1    1                                 *
   1   MALAWI                        232     5     2     11                                *
   1   MALI                          1944    131   .1    164                               *
   1   MAURITIUS                     846     5     2     2                                 *
   1   MAURITANIA                    467     137   .1    0                                 *
   1   MOROCCO                       15442   142   .1    380                               *
   1   NIGER                         476     97    2     2                                 *
   1   NIGERIA                       5123    0     1     149                               *
   1   RWANDA                        1650    25    .1    3                                 *
   1   SAO TOME AND PRINCIPE         414     0     .1    0                                 *
   1   SENEGAL                       738     117   .1    23                                *
   1   SIERRA LEONE                  981     49    2     17                                *
   1   SEYCHELLES                    28      0     2     0                                 *
   1   SOMALIA                       1966    126   .1    0                                 *
   1   SUDAN                         1150    904   2     80                                *
   1   SWAZILAND                     104     0     2     7                                 *
   1   TOGO                          488     9     2     2                                 *
   1   TANZANIA                      2287    66    1     0                                 *
   1   TUNISIA                       8348    80    .1    122                               *
   1   UGANDA                        880     7     .1    7                                 *
   1   ZAMBIA                        15      82    .1    4                                 *
   1   ZAIRE                         3827    101   2     32                                *
   1   ZIMBABWE                      47      0     .1    2                                 *
   1   ;                                                                                   *
   1   DATA AGMAC8;                                                                        *
   1   INPUT  country $ 1-26 a2 28-32 a13 34-38 a4 40-45 a20 47-54 clus 56;               *
                                                                                           *
   1   CARDS;                                                                              *
   1   ALGERIA                       56.4 1        39.0  2       4                         *
   1   ANGOLA                        1.9  0        47.7  0       2                         *
   1   BENIN                         0.7  0        2.4   0       1                         *
   1   BURUNDI                       0.8  0        20.3  0       1                         *
   1   BOTSWANA                      0.7  0        13.4  2       1                         *
   1   BURKINA FASO                  0.7  2        2.0   0       1                         *
   1   CAMEROON                      0.7  1        4.6   1       1                         *
   1   CAPE VERDE                    0.7  0        13.3  0       1                         *
   1   CENTRAL AFRICAN REPUBLIC      0.7  0        4.6   0       1                         *
   1   CHAD                          0.7  0        2.0   0       1                         *
   1   COMOROS ISLANDS               0.7  0        14.6  0       1                         *
   1   CONGO                         0.7  0        4.6   0       1                         *
   1   DJIBOUTI                      0.7  0        13.5  0       1                         *
   1   ETHIOPIA                      15.7 0        48.0  0       2                         *
   1   EGYPT                         58.8 2        14.0  4       5                         *
   1   EQUATORIAL GUINEA             0.7  0        13.5  0       1                         *
   1   GHANA                         1.8  2        24.0  1       1                         *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1  GABON                          0.7  0       8.0   0       1                        *
    1  GAMBIA                         0.7  0       2.4   0       1                        *
    1  GUINEA                         0.3  0       2.4   0       1                        *
    1  GUINEA-BISSAU                  0.7  0       13.5  0       1                        *
    1  IVORY COAST                    0.7  0       43.0  0       1                        *
    1  KENYA                          3.7  5       123.0 2       4                        *
    1  LIBERIA                        0.9  0       2.4   0       1                        *
    1  LESOTHO                        0.7  0       13.7  0       1                        *
    1  LIBYA                          16.5 0       9.0   0       2                        *
    1  MADAGASCAR                     2.0  1       24.0  1       2                        *
    1  MOZAMBIQUE                     2.3  0       47.7  0       1                        *
    1  MALAWI                         0.2  1       20.3  0       1                        *
    1  MALI                           0.7  0       6.0   0       2                        *
    1  MAURITIUS                      0.7  0       1.0   0       3                        *
    1  MAURITANIA                     0.7  0       14.8  0       1                        *
    1  MOROCCO                        19.3 0       28.0  0       3                        *
    1  NIGER                          0.7  0       2.0   0       1                        *
    1  NIGERIA                        38.4 0       134.0 1       3                        *
    1  RWANDA                         .8   0       20.3  1       1                        *
    1  SAO TOME AND PRINCIPE          0.7  0       13.4  0       1                        *
    1  SENEGAL                        0.7  0       7.0   0       1                        *
    1  SIERRA LEONE                   0.7  0       2.4   0       1                        *
    1  SEYCHELLES                     0.7  0       13.5  0       1                        *
    1  SOMALIA                        0.7  0       20.3  0       1                        *
    1  SUDAN                          11.8 0       30.0  0       1                        *
    1  SWAZILAND                      0.7  0       27    0       1                        *
    1  TOGO                           0.4  1       2.4   0       1                        *
    1  TANZANIA                       3.7  2       20.3  2       2                        *
    1  TUNISIA                        10.0 0       19.0  0       2                        *
    1  UGANDA                         3.7  0       20.3  2       2                        *
    1  ZAMBIA                         2.1  2       47.7  3       2                        *
    1  ZAIRE                          2.1  2       37.0  3       2                        *
    1  ZIMBABWE                       3.1  4       47.7  2       4                        *
    1  ;                                                                                  *
                                                                                          *
    1  PROC SORT DATA=AGMAC1;                                                             *
    6       BY COUNTRY;                                                                   *
    1  PROC SORT DATA=AGMAC2;                                                             *
    6       BY COUNTRY;                                                                   *
    1  PROC SORT DATA=AGMAC3;                                                             *
    6       BY COUNTRY;                                                                   *
    1  PROC SORT DATA=AGMAC4;                                                             *
    6       BY COUNTRY;                                                                   *
    1  PROC SORT DATA=AGMAC5;                                                             *
    6       BY COUNTRY;                                                                   *
    1  PROC SORT DATA=AGMAC6;                                                             *
    6       BY COUNTRY;                                                                   *
    1  PROC SORT DATA=AGMAC7;                                                             *
    6       BY COUNTRY;                                                                   *
    1  PROC SORT DATA=AGMAC8;                                                             *
    6       BY COUNTRY;                                                                   *
                                                                                          *
    1  DATA AG1;                                                                          *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
   1  MERGE AGMAC1 AGMAC2 AGMAC3 AGMAC4 AGMAC5 AGMAC6 AGMAC7 AGMAC8;                    *
   6       BY COUNTRY;                                                                 *
                                                                                       *
   1  PROC MEANS DATA=AG1;                                                             *
   1  ****************************************************;                           *
   1  *       SELECT CLUSTER 1                           *;                           *
   1  ****************************************************;                           *
                                                                                       *
   1  DATA CLUS1;                                                                      *
   1  SET AG1;                                                                         *
   1  IF clus='1' THEN OUTPUT;                                                         *
                                                                                       *
   1  TITLE   'CLUSTER 1';                                                             *
   1  PROC PRINT;                                                                      *
   1  PROC MEANS;                                                                      *
                                                                                       *
   1  ********************************************;                                   *
   1  *   SELECT CLUSTER 2                       *;                                   *
   1  ********************************************;                                   *
                                                                                       *
   1  DATA CLUS2;                                                                      *
   1  SET AG1;                                                                         *
   1  IF clus='2' THEN OUTPUT;                                                         *
                                                                                       *
   1  TITLE 'CLUSTER 2';                                                               *
   1  PROC PRINT;                                                                      *
   1  PROC MEANS;                                                                      *
                                                                                       *
   1  ********************************************;                                   *
   1  *  SELECT CLUSTER 3                        *;                                   *
   1  ********************************************;                                   *
                                                                                       *
   1  DATA CLUS3;                                                                      *
   1  SET AG1;                                                                         *
   1  IF clus='3' THEN OUTPUT;                                                         *
                                                                                       *
   1  TITLE 'CLUSTER 3';                                                               *
   1  PROC PRINT;                                                                      *
   1  PROC MEANS;                                                                      *
                                                                                       *
   1  ************************************;                                           *
   1  *  SELECT CLUSTER 4                *;                                           *
   1  ************************************;                                           *
                                                                                       *
   1  DATA CLUS4;                                                                      *
   1  SET AG1;                                                                         *
   1  IF clus='4' THEN OUTPUT;                                                         *
```

PROJECT: UQ5LC MEMBER: AGCL5 DATE: 89/07/13
GROUP: PDSU LEVEL: 01.00 TIME: 11:29
TYPE: SAS USERID: U3D PAGE: 11 OF 11

```
START                                                                    MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
                                                                                      *
    1  TITLE 'CLUSTER 4';                                                             *
    1  PROC PRINT;                                                                    *
    1  PROC MEANS;                                                                    *
                                                                                      *
                                                                                      *
    1  ************************************;                                          *
    1  *    SELECT CLUSTER 5              *;                                         *
    1  ************************************;                                          *
                                                                                      *
    1  DATA CLUS5;                                                                    *
    1  SET AG1;                                                                       *
    1  IF clus='5' THEN OUTPUT;                                                       *
                                                                                      *
    1  TITLE 'CLUSTER 5';                                                             *
    1  PROC PRINT;                                                                    *
    1  PROC MEANS;                                                                    *
                                                                                      *
                                                                                      *
                                                                                      *
    1  /*                                                                            *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS

    1 //U3DAFAL  JOB (Q5,T),D1867-THOMAS,MSGCLASS=X,CLASS=I,                  00010000
    1 //         TIME=(01,00),NOTIFY=U3D,MSGLEVEL=(1,1),REGION=3500K          00020000
    1 //*                                                                     *
    1 //*                                                                     *
    1 //*       Job Control for SAS-Batch                                     *
    1 //*                                                                     *
    1 //*                                                                     *
    1 /*JOBPARM COPIES=1                                                     *
    1 //STRUCC5  EXEC SAS,PARM='MACRO,PAGESIZE=65'                           *
    1 //FT11F001 DD SYSOUT=*,DEST=UNIDO,DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA) *
    1 //FT12F001 DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)    *
    1 //FT02F001 DD SYSOUT=(Q,,XPLA),DCB=RECFM=UA,DEST=UNIDO                 *
    1 //SYSOUT   DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)   *
                                                                            *
    1 OPTIONS DQUOTE PAGESIZE=65;                                           *
    1 GOPTIONS DEVICE=XEROX NOTEXT82 HSIZE=10.5 VSIZE=7.5 NOCHARACTERS;     *
    1 *;                                                                    *
    1 DATA AGMAC1;                                                          *
    6       Title 'Raw Data on Agro-Machinery';                             *
    1 INPUT  country $ 1-26 a0 28-32 a36 37-42 a30 44-47 a13 50-52;         *
                                                                            *
    1 CARDS;                                                                *
    1 ALGERIA                    0       11.25   6.2     4                  *
    1 ANGOLA                     0       -6.19   6.2     2                  *
    1 BENIN                      2       -6.19   6.2     5.8                *
    1 BURUNDI                    1       2.3     6.2     1                  *
    1 BOTSWANA                   8       -18     1       1                  *
    1 BURKINA FASO               4       9.3     6.3     5.8                *
    1 CAMEROON                   5       5.15    4.7     5.8                *
    1 CAPE VERDE                 0       -6.19   6.2     3                  *
    1 CENTRAL AFRICAN REPUBLIC   1       13.5    9.8     0                  *
    1 CHAD                       0       3.3     6.2     1                  *
    1 COMOROS ISLANDS            0       -6.19   6.2     5.8                *
    1 CONGO                      0       11.55   14.5    0                  *
    1 DJIBOUTI                   0       -6.19   6.2     3                  *
    1 ETHIOPIA                   7       0.4     17      10                 *
    1 EGYPT                      1       -6.19   9.6     5.8                *
    1 EQUATORIAL GUINEA          0       -6.19   28      5.8                *
    1 GHANA                      6       -98.3   -6      5.8                *
    1 GABON                      0       14      -28.5   0                  *
    1 GAMBIA                     4       -6.6    6.2     1                  *
    1 GUINEA                     5       -6.19   6.2     1                  *
    1 GUINEA-BISSAU              0       -6.19   -2.2    0                  *
    1 IVORY COAST                2       12      8.3     2                  *
    1 KENYA                     15       -1.3    10.3    33                 *
    1 LIBERIA                    0       -1.2    -3.6    5.8                *
    1 LESOTHO                    5       -16.3   1       5.8                *
    1 LIBYA                      0       -6.19   -3      5.8                *
    1 MADAGASCAR                 1       .84     6.2     13                 *
    1 MOZAMBIQUE                 2       -6.19   -4      5.8                *
    1 MALAWI                     7       -6      6.2     5.8                *
    1 MALI                       4       -6.19   12.4    1                  *
    1 MAURITIUS                  0       1.6     4       2                  *
    1 MAURITANIA                 1       -6.19   -0.2    0                  *
```

```
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1   MOROCCO                        1       3       5       6                        *
   1   NIGER                          4       5.3     6.2     5                        *
   1   NIGERIA                        8       36      15.1    3                        *
   1   RWANDA                         1       4       6.2     3                        *
   1   SAO TOME AND PRINCIPE          0       -6.19   2.6     0                        *
   1   SENEGAL                        2       16.3    -6.3    1                        *
   1   SIERRA LEONE                   4       62      12.8    2                        *
   1   SEYCHELLES                     1       4       -15.2   5.8                      *
   1   SOMALIA                        0       -87     6.2     0                        *
   1   SUDAN                          1       -24.2   6.2     0                        *
   1   SWAZILAND                      2       -18     6.2     1                        *
   1   TOGO                           1       8.5     3.8     5.8                      *
   1   TANZANIA                       13      -24.4   -3.5    4                        *
   1   TUNISIA                        2       3.1     3.37    4                        *
   1   UGANDA                         2       13      -76     17                       *
   1   ZAMBIA                         5       -74     -33.6   5                        *
   1   ZAIRE                          5       1.5     -20.7   5                        *
   1   ZIMBABWE                       4       -90     -16     5.8                      *
   1   ;                                                                               *
                                                                                       *
   1   DATA AGMAC2;                                                                    *
   1   INPUT  country $ 1-26 a5 28-32 a7 36-38 a6 40-45 a14 47-52;                    *
                                                                                       *
   1   CARDS;                                                                          *
   1   ALGERIA                        1300    1     245    500                         *
   1   ANGOLA                         700     1     98     2000                        *
   1   BENIN                          170     0     236    500                         *
   1   BURUNDI                        40      0     138    200                         *
   1   BOTSWANA                       280     0     588    200                         *
   1   BURKINA FASO                   70      0      68    500                         *
   1   CAMEROON                       3010    0     377    200                         *
   1   CAPE VERDE                     5       0     147    200                         *
   1   CENTRAL AFRICAN REPUBLIC       70      0     210    200                         *
   1   CHAD                           50      0     75     200                         *
   1   COMOROS ISLANDS                5       0     502    200                         *
   1   CONGO                          200     0     156    200                         *
   1   DJIBOUTI                       5       0     61     200                         *
   1   ETHIOPIA                       1490    1     69     500                         *
   1   EGYPT                          2850    0     398    1000                        *
   1   EQUATORIAL GUINEA              50      0     73     200                         *
   1   GHANA                          820     0     267    500                         *
   1   GABON                          250     0     384    200                         *
   1   GAMBIA                         50      0     36     50                          *
   1   GUINEA                         20      0     163    500                         *
   1   GUINEA-BISSAU                  5       0     21     200                         *
   1   IVORY COAST                    790     0     430    500                         *
   1   KENYA                          2030    0     101    1000                        *
   1   LIBERIA                        80      0     287    500                         *
   1   LESOTHO                        170     0      95    200                         *
   1   LIBYA                          4700    0     190    500                         *
   1   MADAGASCAR                     310     1     139    1000                        *
   1   MOZAMBIQUE                     270     0     124    500                         *
   1   MALAWI                         130     0      70    500                         *
   1   MALI                           180     1      77    200                         *
```

```
PROJECT:  UQ5LC          MEMBER:  AGFCALL          DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.03            TIME: 11:29
TYPE:     SAS            USERID:  U3D              PAGE: 03 OF 10
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
   1   MAURITIUS                    40      0    677   500                                  *
   1   MAURITANIA                   130     0    191   200                                  *
   1   MOROCCO                      2524    0    350   1000                                 *
   1   NIGER                        790     0    166   200                                  *
   1   NIGERIA                      4790    0    297   1100                                 *
   1   RWANDA                       30      0    123   100                                  *
   1   SAO TOME AND PRINCIPE        5       0    101   200                                  *
   1   SENEGAL                      190     0    156   200                                  *
   1   SIERRA LEONE                 40      0    219   200                                  *
   1   SEYCHELLES                   10      0    916   200                                  *
   1   SOMALIA                      280     0    383   500                                  *
   1   SUDAN                        1380    0    181   1000                                 *
   1   SWAZILAND                    200     0    166   200                                  *
   1   TOGO                         110     0    143   200                                  *
   1   TANZANIA                     550     1    121   1000                                 *
   1   TUNISIA                      1437    0    609   500                                  *
   1   UGANDA                       660     1    184   1000                                 *
   1   ZAMBIA                       619     1     35   1000                                 *
   1   ZAIRE                        340     0     81   1000                                 *
   1   ZIMBABWE                     920     0     86   1000                                 *
   1   ;                                                                                    *
                                                                                            *
   1   DATA AGMAC3;                                                                         *
   1   INPUT  country $ 1-26 a27 28-32 a28 36-38 a29 40-45 a26 47-52;                      *
                                                                                            *
   1   CARDS;                                                                               *
   1   ALGERIA                      35      35   35    2                                    *
   1   ANGOLA                       40      10   10    0                                    *
   1   BENIN                        28      21   17    0                                    *
   1   BURUNDI                      25      25   22    0                                    *
   1   BOTSWANA                     28      21   17    0                                    *
   1   BURKINA FASO                 74      3    13    1                                    *
   1   CAMEROON                     40      25   32    1                                    *
   1   CAPE VERDE                   28      21   17    0                                    *
   1   CENTRAL AFRICAN REPUBLIC     37      12   25    0                                    *
   1   CHAD                         28      21   17    0                                    *
   1   COMOROS ISLANDS              28      21   17    0                                    *
   1   CONGO                        30      12   20    0                                    *
   1   DJIBOUTI                     5       5    5     0                                    *
   1   ETHIOPIA                     1       26   1     1                                    *
   1   EGYPT                        22      12   24    2                                    *
   1   EQUATORIAL GUINEA            28      21   17    0                                    *
   1   GHANA                        55      35   35    1                                    *
   1   GABON                        28      21   17    0                                    *
   1   GAMBIA                       28      21   17    0                                    *
   1   GUINEA                       10      7    7     1                                    *
   1   GUINEA-BISSAU                28      21   17    0                                    *
   1   IVORY COAST                  22      1    1     0                                    *
   1   KENYA                        16      26   1     2                                    *
   1   LIBERIA                      28      21   17    0                                    *
   1   LESOTHO                      28      21   17    0                                    *
   1   LIBYA                        1       1    7     1                                    *
   1   MADAGASCAR                   11      15   15    1                                    *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  MOZAMBIQUE                    28      12   12    1                                *
   1  MALAWI                        2       10   10    0                                *
   1  MALI                          28      21   17    1                                *
   1  MAURITIUS                     35      84   55    1                                *
   1  MAURITANIA                    28      21   17    0                                *
   1  MOROCCO                       30      55   60    1                                *
   1  NIGER                         28      21   17    0                                *
   1  NIGERIA                       48      46   33    3                                *
   1  RWANDA                        74      30   2     0                                *
   1  SAO TOME AND PRINCIPE         28      21   17    3                                *
   1  SENEGAL                       45      25   25    6                                *
   1  SIERRA LEONE                  15      1    1     0                                *
   1  SEYCHELLES                    28      21   17    0                                *
   1  SOMALIA                       10      5    5     0                                *
   1  SUDAN                         62      22   22    0                                *
   1  SWAZILAND                     28      21   17    0                                *
   1  TOGO                          28      21   17    1                                *
   1  TANZANIA                      20      15   7     1                                *
   1  TUNISIA                       16      25   25    1                                *
   1  UGANDA                        10      7    10    1                                *
   1  ZAMBIA                        20      35   12    2                                *
   1  ZAIRE                         11      20   6     1                                *
   1  ZIMBABWE                      37      40   20    1                                *
   1  ;                                                                                 *
                                                                                        *
                                                                                        *
   1  DATA AGMAC4;                                                                      *
   1  INPUT  country $ 1-26 a25 28-32 a24 36-38 a23 40-45 a22 47-52;                   *
                                                                                        *
   1  CARDS;                                                                            *
   1  ALGERIA                       2       55   55    2                                *
   1  ANGOLA                        1       1    15    1                                *
   1  BENIN                         1       0    15    0                                *
   1  BURUNDI                       1       1    15    1                                *
   1  BOTSWANA                      1       1    15    0                                *
   1  BURKINA FASO                  1       3    15    1                                *
   1  CAMEROON                      1       0    15    1                                *
   1  CAPE VERDE                    1       0    15    0                                *
   1  CENTRAL AFRICAN REPUBLIC      1       0    15    0                                *
   1  CHAD                          1       0    15    0                                *
   1  COMOROS ISLANDS               1       1    15    0                                *
   1  CONGO                         1       0    15    0                                *
   1  DJIBOUTI                      1       0    15    0                                *
   1  ETHIOPIA                      1       4    15    1                                *
   1  EGYPT                         2       55   40    3                                *
   1  EQUATORIAL GUINEA             1       0    15    0                                *
   1  GHANA                         1       22   15    1                                *
   1  GABON                         1       0    15    1                                *
   1  GAMBIA                        1       0    15    1                                *
   1  GUINEA                        1       6    15    1                                *
   1  GUINEA-BISSAU                 1       0    15    0                                *
   1  IVORY COAST                   1       2    15    1                                *
   1  KENYA                         2       8    30    2                                *
   1  LIBERIA                       1       3    15    1                                *
```

```
PROJECT:  UQ5LC          MEMBER:  AGFCALL          DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.03            TIME: 11:29
TYPE:     SAS            USERID:  U3D              PAGE: 05 OF 10
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
   1  LESOTHO                      1       2    15    0                                 *
   1  LIBYA                        1       7    15    1                                 *
   1  MADAGASCAR                   1       1    15    1                                 *
   1  MOZAMBIQUE                   1       1    15    1                                 *
   1  MALAWI                       1      10    15    1                                 *
   1  MALI                         1       1    15    2                                 *
   1  MAURITIUS                    1       2    15    2                                 *
   1  MAURITANIA                   1       0    15    0                                 *
   1  MOROCCO                      1       1    15    2                                 *
   1  NIGER                        1       0    15    0                                 *
   1  NIGERIA                      1       4    15    2                                 *
   1  RWANDA                       1      40    15    1                                 *
   1  SAO TOME AND PRINCIPE        1       0    15    0                                 *
   1  SENEGAL                      1       2    15    1                                 *
   1  SIERRA LEONE                 1       1    15    2                                 *
   1  SEYCHELLES                   1       1    15    0                                 *
   1  SOMALIA                      1      20    15    1                                 *
   1  SUDAN                        1       0    15    0                                 *
   1  SWAZILAND                    1       0    15    0                                 *
   1  TOGO                         1       0    15    2                                 *
   1  TANZANIA                     1      22    15    1                                 *
   1  TUNISIA                      1       1    15    2                                 *
   1  UGANDA                       1      32    15    2                                 *
   1  ZAMBIA                       1       5    15    1                                 *
   1  ZAIRE                        1       2    15    2                                 *
   1  ZIMBABWE                     2      55    80    0                                 *
   1  ;                                                                                 *
   1  DATA AGMAC5;                                                                      *
   1  INPUT  country $ 1-26 a8  28-32 a9  36-38 a17 40-45 a18 47-52;                   *
                                                                                        *
   1  CARDS;                                                                            *
   1  ALGERIA                      0       0    .     1                                 *
   1  ANGOLA                       1       1    1     1                                 *
   1  BENIN                        1       1    0     0                                 *
   1  BURUNDI                      1       1    1     1                                 *
   1  BOTSWANA                     1       1    0     1                                 *
   1  BURKINA FASO                 1       1    1     1                                 *
   1  CAMEROON                     1       1    0     0                                 *
   1  CAPE VERDE                   1       1    1     0                                 *
   1  CENTRAL AFRICAN REPUBLIC     1       1    0     0                                 *
   1  CHAD                         1       1    0     0                                 *
   1  COMOROS ISLANDS              1       1    0     1                                 *
   1  CONGO                        1       1    0     1                                 *
   1  DJIBOUTI                     1       1    1     1                                 *
   1  ETHIOPIA                     1       1    1     1                                 *
   1  EGYPT                        0       1    1     1                                 *
   1  EQUATORIAL GUINEA            1       1    1     0                                 *
   1  GHANA                        1       1    1     1                                 *
   1  GABON                        1       1    0     0                                 *
   1  GAMBIA                       1       1    0     0                                 *
   1  GUINEA                       1       1    0     1                                 *
   1  GUINEA-BISSAU                1       1    1     0                                 *
   1  IVORY COAST                  1       1    0     1                                 *
   1  KENYA                        0       1    1     1                                 *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  LIBERIA                      1       1    1     0                                 *
   1  LESOTHO                      1       1    0     0                                 *
   1  LIBYA                        1       1    1     1                                 *
   1  MADAGASCAR                   1       1    1     0                                 *
   1  MOZAMBIQUE                   1       1    1     1                                 *
   1  MALAWI                       1       1    1     1                                 *
   1  MALI                         1       1    1     1                                 *
   1  MAURITIUS                    1       1    1     0                                 *
   1  MAURITANIA                   1       1    0     0                                 *
   1  MOROCCO                      1       1    1     1                                 *
   1  NIGER                        1       1    0     1                                 *
   1  NIGERIA                      1       1    1     1                                 *
   1  RWANDA                       1       1    1     0                                 *
   1  SAO TOME AND PRINCIPE        1       1    1     0                                 *
   1  SENEGAL                      1       1    1     1                                 *
   1  SIERRA LEONE                 1       1    1     0                                 *
   1  SEYCHELLES                   1       1    0     0                                 *
   1  SOMALIA                      1       1    0     0                                 *
   1  SUDAN                        1       1    0     1                                 *
   1  SWAZILAND                    1       1    0     0                                 *
   1  TOGO                         1       1    1     0                                 *
   1  TANZANIA                     1       1    1     0                                 *
   1  TUNISIA                      1       1    1     1                                 *
   1  UGANDA                       1       1    1     1                                 *
   1  ZAMBIA                       1       1    1     1                                 *
   1  ZAIRE                        1       1    1     1                                 *
   1  ZIMBABWE                     0       0    1     1                                 *
   1  ;                                                                                 *
                                                                                        *
   1  DATA AGMAC6;                                                                      *
   1  INPUT  country $ 1-26 a19 28-32 a21 36-38 a31 40-45 a33 47-54;                    *
                                                                                        *
   1  CARDS;                                                                            *
   1  ALGERIA                      10      1    1     9000                              *
   1  ANGOLA                       5       0    1     400                               *
   1  BENIN                        5       0    1     876                               *
   1  BURUNDI                      5       0    1     433                               *
   1  BOTSWANA                     5       0    1     800                               *
   1  BURKINA FASO                 5       0    1     1150                              *
   1  CAMEROON                     5       0    1     1045                              *
   1  CAPE VERDE                   5       0    1     165                               *
   1  CENTRAL AFRICAN REPUBLIC     5       0    1     1508                              *
   1  CHAD                         5       0    1     563                               *
   1  COMOROS ISLANDS              5       0    1     137                               *
   1  CONGO                        5       0    1     1111                              *
   1  DJIBOUTI                     5       0    1     77                                *
   1  ETHIOPIA                     5       0    1     5452                              *
   1  EGYPT                        5       1    2     108740                            *
   1  EQUATORIAL GUINEA            5       0    1     63                                *
   1  GHANA                        5       0    1     9000                              *
   1  GABON                        5       0    1     988                               *
   1  GAMBIA                       5       0    1     515                               *
   1  GUINEA                       5       0    1     9200                              *
   1  GUINEA-BISSAU                5       0    1     165                               *
```

```
PROJECT:  UQ5LC          MEMBER:  AGFCALL          DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.03            TIME: 11:29
TYPE:     SAS            USERID:  U3D              PAGE: 07 OF 10
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
   1  IVORY COAST                  5       0     1     1947                                *
   1  KENYA                        10      1     1     5163                                *
   1  LIBERIA                      5       0     1     853                                 *
   1  LESOTHO                      5       0     1     583                                 *
   1  LIBYA                        5       0     1     4193                                *
   1  MADAGASCAR                   5       0     1     4976                                *
   1  MOZAMBIQUE                   5       0     1     196                                 *
   1  MALAWI                       5       0     1     3430                                *
   1  MALI                         5       0     1     1458                                *
   1  MAURITIUS                    5       0     1     1229                                *
   1  MAURITANIA                   5       0     1     405                                 *
   1  MOROCCO                      5       0     1     11778                               *
   1  NIGER                        5       0     1     1091                                *
   1  NIGERIA                      5       0     1     20901                               *
   1  RWANDA                       5       0     1     497                                 *
   1  SAO TOME AND PRINCIPE        5       0     1     165                                 *
   1  SENEGAL                      5       0     1     1854                                *
   1  SIERRA LEONE                 5       0     1     2055                                *
   1  SEYCHELLES                   5       0     1     29                                  *
   1  SOMALIA                      5       0     1     3491                                *
   1  SUDAN                        5       0     1     5715                                *
   1  SWAZILAND                    5       0     1     1193                                *
   1  TOGO                         5       0     1     988                                 *
   1  TANZANIA                     5       0     1     5779                                *
   1  TUNISIA                      5       0     1     5424                                *
   1  UGANDA                       5       0     1     1442                                *
   1  ZAMBIA                       5       0     1     2183                                *
   1  ZAIRE                        5       0     1     4037                                *
   1  ZIMBABWE                     10      1     1     3059                                *
   1  ;                                                                                   *
                                                                                          *
   1  DATA AGMAC7;                                                                        *
   1  INPUT  country $ 1-26 a34 28-32 a35 36-40 a32 42-45 a16 47-54;                      *
                                                                                          *
   1  CARDS;                                                                              *
   1  ALGERIA                      2681    4     .1    724                                 *
   1  ANGOLA                       1367    53    .1    0                                   *
   1  BENIN                        1367    11    .1    166                                 *
   1  BURUNDI                      3630    6     .1    69                                  *
   1  BOTSWANA                     283     49    .1    0                                   *
   1  BURKINA FASO                 1304    109   .1    5                                   *
   1  CAMEROON                     1575    12    2     14                                  *
   1  CAPE VERDE                   82      133   1     42                                  *
   1  CENTRAL AFRICAN REPUBLIC     21      11    2     5                                   *
   1  CHAD                         481     74    2     0                                   *
   1  COMOROS ISLANDS              476     145   .1    0                                   *
   1  CONGO                        2367    133   2     65                                  *
   1  DJIBOUTI                     100     130   .1    0                                   *
   1  ETHICPIA                     5092    793   .1    43                                  *
   1  EGYPT                        6144    1799  .1    596                                 *
   1  EQUATORIAL GUINEA            16      130   .1    0                                   *
   1  GHANA                        2748    96    2     12                                  *
   1  GABON                        417     141   2     87                                  *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  GAMBIA                        485     129  .1    0                                *
   1  GUINEA                        77      55   2     463                              *
   1  GUINEA-BISSAU                 421     128  2     0                                *
   1  IVORY COAST                   920     0    .1    11                               *
   1  KENYA                         3073    139  2     25                               *
   1  LIBERIA                       252     76   2     7                                *
   1  LESOTHO                       42      40   .1    0                                *
   1  LIBYA                         727     0    .1    51                               *
   1  MADAGASCAR                    1693    65   2     18                               *
   1  MOZAMBIQUE                    150     252  .1    1                                *
   1  MALAWI                        232     5    2     11                               *
   1  MALI                          1944    131  .1    164                              *
   1  MAURITIUS                     846     5    2     2                                *
   1  MAURITANIA                    467     137  .1    0                                *
   1  MOROCCO                       15442   142  .1    380                              *
   1  NIGER                         476     97   2     2                                *
   1  NIGERIA                       5123    0    1     149                              *
   1  RWANDA                        1650    25   .1    3                                *
   1  SAO TOME AND PRINCIPE         414     0    .1    0                                *
   1  SENEGAL                       738     117  .1    23                               *
   1  SIERRA LEONE                  981     49   2     17                               *
   1  SEYCHELLES                    28      0    2     0                                *
   1  SOMALIA                       1966    126  .1    0                                *
   1  SUDAN                         1150    904  2     80                               *
   1  SWAZILAND                     104     0    2     7                                *
   1  TOGO                          488     9    2     2                                *
   1  TANZANIA                      2287    66   1     0                                *
   1  TUNISIA                       8348    80   .1    122                              *
   1  UGANDA                        880     7    .1    7                                *
   1  ZAMBIA                        15      82   .1    4                                *
   1  ZAIRE                         3827    101  2     32                               *
   1  ZIMBABWE                      47      0    .1    2                                *
   1  ;                                                                                 *
   1  DATA AGMAC8;                                                                      *
   1  INPUT  country $ 1-26 a2  23-32 a13 34-38 a4  40-45 a20 47-54;                    *
                                                                                        *
   1  CARDS;                                                                            *
   1  ALGERIA                       56.4 1       39.0  2                                *
   1  ANGOLA                        1.9  0       47.7  0                                *
   1  BENIN                         0.7  0       2.4   0                                *
   1  BURUNDI                       0.8  0       20.3  0                                *
   1  BOTSWANA                      0.7  0       13.4  2                                *
   1  BURKINA FASO                  0.7  2       2.0   0                                *
   1  CAMEROON                      0.7  1       4.6   1                                *
   1  CAPE VERDE                    0.7  0       13.3  0                                *
   1  CENTRAL AFRICAN REPUBLIC      0.7  0       4.6   0                                *
   1  CHAD                          0.7  0       2.0   0                                *
   1  COMOROS ISLANDS               0.7  0       14.6  0                                *
   1  CONGO                         0.7  0       4.6   0                                *
   1  DJIBOUTI                      0.7  0       13.5  0                                *
   1  ETHIOPIA                      15.7 0       48.0  0                                *
   1  EGYPT                         58.8 2       14.0  4                                *
   1  EQUATORIAL GUINEA             0.7  0       13.5  0                                *
   1  GHANA                         1.8  2       24.0  1                                *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1  GABON                          0.7  0       8.0   0                              *
    1  GAMBIA                         0.7  0       2.4   0                              *
    1  GUINEA                         0.3  0       2.4   0                              *
    1  GUINEA-BISSAU                  0.7  0       13.5  0                              *
    1  IVORY COAST                    0.7  0       43.0  0                              *
    1  KENYA                          3.7  5       123.0 2                              *
    1  LIBERIA                        0.9  0       2.4   0                              *
    1  LESOTHO                        0.7  0       13.7  0                              *
    1  LIBYA                          16.5 0       9.0   0                              *
    1  MADAGASCAR                     2.0  1       24.0  1                              *
    1  MOZAMBIQUE                     2.3  0       47.7  0                              *
    1  MALAWI                         0.2  1       20.3  0                              *
    1  MALI                           0.7  0       6.0   0                              *
    1  MAURITIUS                      0.7  0       1.0   0                              *
    1  MAURITANIA                     0.7  0       14.8  0                              *
    1  MOROCCO                        19.3 0       28.0  0                              *
    1  NIGER                          0.7  0       2.0   0                              *
    1  NIGERIA                        38.4 0       134,0 1                              *
    1  RWANDA                         .8   0       20.3  1                              *
    1  SAO TOME AND PRINCIPE          0.7  0       13.4  0                              *
    1  SENEGAL                        0.7  0       7.0   0                              *
    1  SIERRA LEONE                   0.7  0       2.4   0                              *
    1  SEYCHELLES                     0.7  0       13.5  0                              *
    1  SOMALIA                        0.7  0       20.3  0                              *
    1  SUDAN                          11.8 0       30.0  0                              *
    1  SWAZILAND                      0.7  0       27    0                              *
    1  TOGO                           0.4  1       2.4   0                              *
    1  TANZANIA                       3.7  2       20.3  2                              *
    1  TUNISIA                        10.0 0       19.0  0                              *
    1  UGANDA                         3.7  0       20.3  2                              *
    1  ZAMBIA                         2.1  2       47.7  3                              *
    1  ZAIRE                          2.1  2       37.0  3                              *
    1  ZIMBABWE                       3.1  4       47.7  2                              *
    1  ;                                                                                 *
                                                                                         *
    1  PROC SORT DATA=AGMAC1;                                                            *
    6       BY COUNTRY;                                                                  *
    1  PROC SORT DATA=AGMAC2;                                                            *
    6       BY COUNTRY;                                                                  *
    1  PROC SORT DATA=AGMAC3;                                                            *
    6       BY COUNTRY;                                                                  *
    1  PROC SORT DATA=AGMAC4;                                                            *
    6       BY COUNTRY;                                                                  *
    1  PROC SORT DATA=AGMAC5;                                                            *
    6       BY COUNTRY;                                                                  *
    1  PROC SORT DATA=AGMAC6;                                                            *
    6       BY COUNTRY;                                                                  *
    1  PROC SORT DATA=AGMAC7;                                                            *
    6       BY COUNTRY;                                                                  *
    1  PROC SORT DATA=AGMAC8;                                                            *
    6       BY COUNTRY;                                                                  *
                                                                                         *
    1  DATA AG1;                                                                         *
```

```
START                                                                    MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

    1  MERGE AGMAC1 AGMAC2 AGMAC3 AGMAC4 AGMAC5 AGMAC6 AGMAC7 AGMAC8;                    *
    6        BY COUNTRY;                                                               *
                                                                                       *
                                                                                       *
    1  ************************************************;                              *
    1  *       FACTOR ANALYSIS ON ALL COMPONENTS        *;                             *
    1  ************************************************;                              *
                                                                                       *
    1  TITLE 'FACTOR ANALYSIS ON ALL VARIABLES';                                       *
    1  PROC FACTOR DATA=AG1 NFACTORS=7 OUT=AGRO SIMPLE;                                *
                                                                                       *
                                                                                       *
    1  /*                                                                            *
```

PROJECT: UQ5LC MEMBER: AGFTCOM DATE: 89/07/13
GROUP: PDSU LEVEL: 01.02 TIME: 11:29
TYPE: SAS USERID: U3D PAGE: 01 OF 10

```
START                                                                          MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
    1 //U3DAGFC  JOB (Q5,T),D1867-THOMAS,MSGCLASS=X,CLASS=I,                  00010000
    1 //         TIME=(01,00),NOTIFY=U3D,MSGLEVEL=(1,1),REGION=3500K          00020000
    1 //*                                                                            *
    1 //*                                                                            *
    1 //*       Job Control for SAS-Batch                                            *
    1 //*                                                                            *
    1 //*                                                                            *
    1 /*JOBPARM COPIES=1                                                           *
    1 //STRUCC5  EXEC SAS,PARM='MACRO,PAGESIZE=65'                                 *
    1 //FT11F001 DD SYSOUT=*,DEST=UNIDO,DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)      *
    1 //FT12F001 DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)         *
    1 //FT02F001 DD SYSOUT=(Q,,XPLA),DCB=RECFM=UA,DEST=UNIDO                       *
    1 //SYSOUT   DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)         *
                                                                                   *
    1 OPTIONS DQUOTE PAGESIZE=65;                                                  *
    1 OPTIONS DEVICE=XEROX NOTEXT82 HSIZE=10.5 VSIZE=7.5 NOCHARACTERS;             *
    1 *;                                                                           *
    1 DATA AGMAC1;                                                                 *
    6       Title 'Raw Data on Agro-Machinery';                                    *
    1 INPUT  country $ 1-26 a0 28-32 a36 37-42 a30 44-47 a13 50-52;                *
                                                                                   *
    1 CARDS;                                                                       *
    1 ALGERIA                    0      11.25   6.2    4                          *
    1 ANGOLA                     0      -6.19   6.2    2                          *
    1 BENIN                      2      -6.19   6.2    5.8                        *
    1 BURUNDI                    1      2.3     6.2    1                          *
    1 BOTSWANA                   8      -18     1      1                          *
    1 BURKINA FASO               4      9.3     6.3    5.8                        *
    1 CAMEROON                   5      5.15    4.7    5.8                        *
    1 CAPE VERDE                 0      -6.19   6.2    3                          *
    1 CENTRAL AFRICAN REPUBLIC   1      13.5    9.8    0                          *
    1 CHAD                       0      3.3     6.2    1                          *
    1 COMOROS ISLANDS            0      -6.19   6.2    5.8                        *
    1 CONGO                      0      11.55   14.5   0                          *
    1 DJIBOUTI                   0      -6.19   6.2    3                          *
    1 ETHIOPIA                   7      0.4     17     10                         *
    1 EGYPT                      1      -6.19   9.6    5.8                        *
    1 EQUATORIAL GUINEA          0      -6.19   28     5.8                        *
    1 GHANA                      6      -98.3   -6     5.8                        *
    1 GABON                      0      14      -28.5  0                          *
    1 GAMBIA                     4      -6.6    6.2    1                          *
    1 GUINEA                     5      -6.19   6.2    1                          *
    1 GUINEA-BISSAU              0      -6.19   -2.2   0                          *
    1 IVORY COAST                2      12      8.3    2                          *
    1 KENYA                     15      -1.3    10.3   33                         *
    1 LIBERIA                    0      -1.2    -3.6   5.8                        *
    1 LESOTHO                    5      -16.3   1      5.6                        *
    1 LIBYA                      0      -6.19   -3     5.8                        *
    1 MADAGASCAR                 1      .84     6.2    13                         *
    1 MOZAMBIQUE                 2      -6.19   -4     5.8                        *
    1 MALAWI                     7      -6      6.2    5.8                        *
    1 MALI                       4      -6.19   12.4   1                          *
    1 MAURITIUS                  0      1.6     4      2                          *
    1 MAURITANIA                 1      -6.19   -0.2   0                          *
```

```
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1   MOROCCO                        1       3       5       6                        *
   1   NIGER                          4       5.3     6.2     5                        *
   1   NIGERIA                        8       36      15.1    3                        *
   1   RWANDA                         1       4       6.2     3                        *
   1   SAO TOME AND PRINCIPE          0       -6.19   2.6     0                        *
   1   SENEGAL                        2       16.3    -6.3    1                        *
   1   SIERRA LEONE                   4       62      12.8    2                        *
   1   SEYCHELLES                     1       4       -15.2   5.8                      *
   1   SOMALIA                        0       -87     6.2     0                        *
   1   SUDAN                          1       -24.2   6.2     0                        *
   1   SWAZILAND                      2       -18     6.2     1                        *
   1   TOGO                           1       8.5     3.8     5.8                      *
   1   TANZANIA                       13      -24.4   -3.5    4                        *
   1   TUNISIA                        2       3.1     3.37    4                        *
   1   UGANDA                         2       13      -76     17                       *
   1   ZAMBIA                         5       -74     -33.6   5                        *
   1   ZAIRE                          5       1.5     -20.7   5                        *
   1   ZIMBABWE                       4       -90     -16     5.8                      *
   1   ;                                                                               *
                                                                                       *
   1   DATA AGMAC2;                                                                    *
   1   INPUT  country $ 1-26 a5 28-32 a7 36-38 a6 40-45 a14 47-52;                    *
                                                                                       *
   1   CARDS;                                                                          *
   1   ALGERIA                        1300    1     245    500                         *
   1   ANGOLA                         700     1     98     2000                        *
   1   BENIN                          170     0     236    500                         *
   1   BURUNDI                        40      0     138    200                         *
   1   BOTSWANA                       280     0     588    200                         *
   1   BURKINA FASO                   70      0      68    500                         *
   1   CAMEROON                       3010    0     377    200                         *
   1   CAPE VERDE                     5       0     147    200                         *
   1   CENTRAL AFRICAN REPUBLIC       70      0     210    200                         *
   1   CHAD                           50      0     75     200                         *
   1   COMOROS ISLANDS                5       0     502    200                         *
   1   CONGO                          200     0     156    200                         *
   1   DJIBOUTI                       5       0     61     200                         *
   1   ETHIOPIA                       1490    1     69     500                         *
   1   EGYPT                          2850    0     398    1000                        *
   1   EQUATORIAL GUINEA              50      0     73     200                         *
   1   GHANA                          820     0     267    500                         *
   1   GABON                          250     0     384    200                         *
   1   GAMBIA                         50      0     36     50                          *
   1   GUINEA                         20      0     163    500                         *
   1   GUINEA-BISSAU                  5       0     21     200                         *
   1   IVORY COAST                    790     0     430    500                         *
   1   KENYA                          2030    0     101    1000                        *
   1   LIBERIA                        80      0     287    500                         *
   1   LESOTHO                        170     0      95    200                         *
   1   LIBYA                          4700    0     190    500                         *
   1   MADAGASCAR                     310     1     139    1000                        *
   1   MOZAMBIQUE                     270     0     124    500                         *
   1   MALAWI                         130     0      70    500                         *
   1   MALI                           180     1      77    200                         *
```

```
PROJECT:  UQ5LC          MEMBER:  AGFTCOM          DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.02            TIME: 11:29
TYPE:     SAS            USERID:  U3D              PAGE: 03 OF 10
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
   1  MAURITIUS                    40      0    677   500                              *
   1  MAURITANIA                   130     0    191   200                              *
   1  MOROCCO                      2524    0    350   1000                             *
   1  NIGER                        790     0    166   200                              *
   1  NIGERIA                      4790    0    297   1100                             *
   1  RWANDA                       30      0    123   100                              *
   1  SAO TOME AND PRINCIPE        5       0    101   200                              *
   1  SENEGAL                      190     0    156   200                              *
   1  SIERRA LEONE                 40      0    219   200                              *
   1  SEYCHELLES                   10      0    916   200                              *
   1  SOMALIA                      280     0    383   500                              *
   1  SUDAN                        1380    0    181   1000                             *
   1  SWAZILAND                    200     0    166   200                              *
   1  TOGO                         110     0    143   200                              *
   1  TANZANIA                     550     1    121   1000                             *
   1  TUNISIA                      1437    0    609   500                              *
   1  UGANDA                       660     1    184   1000                             *
   1  ZAMBIA                       619     1     35   1000                             *
   1  ZAIRE                        340     0     81   1000                             *
   1  ZIMBABWE                     920     0     86   1000                             *
   1  ;                                                                                *
                                                                                       *
   1  DATA AGMAC3;                                                                     *
   1  INPUT  country $ 1-26 a27 28-32 a28 36-38 a29 40-45 a26 47-52;                  *
                                                                                       *
   1  CARDS;                                                                           *
   1  ALGERIA                      35      35   35    2                                *
   1  ANGOLA                       40      10   10    0                                *
   1  BENIN                        28      21   17    0                                *
   1  BURUNDI                      25      25   22    0                                *
   1  BOTSWANA                     28      21   17    0                                *
   1  BURKINA FASO                 74      3    13    1                                *
   1  CAMEROON                     40      25   32    1                                *
   1  CAPE VERDE                   28      21   17    0                                *
   1  CENTRAL AFRICAN REPUBLIC     37      12   25    0                                *
   1  CHAD                         28      21   17    0                                *
   1  COMOROS ISLANDS              28      21   17    0                                *
   1  CONGO                        30      12   20    0                                *
   1  DJIBOUTI                     5       5    5     0                                *
   1  ETHIOPIA                     1       26   1     1                                *
   1  EGYPT                        22      12   24    2                                *
   1  EQUATORIAL GUINEA            28      21   17    0                                *
   1  GHANA                        55      35   35    1                                *
   1  GABON                        28      21   17    0                                *
   1  GAMBIA                       28      21   17    0                                *
   1  GUINEA                       10      7    7     1                                *
   1  GUINEA-BISSAU                28      21   17    0                                *
   1  IVORY COAST                  22      1    1     0                                *
   1  KENYA                        16      26   1     2                                *
   1  LIBERIA                      28      21   17    0                                *
   1  LESOTHO                      28      21   17    0                                *
   1  LIBYA                        1       1    7     1                                *
   1  MADAGASCAR                   11      15   15    1                                *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1  MOZAMBIQUE                  28       12   12    1                                *
    1  MALAWI                      2        10   10    0                                *
    1  MALI                        28       21   17    1                                *
    1  MAURITIUS                   35       84   55    1                                *
    1  MAURITANIA                  28       21   17    0                                *
    1  MOROCCO                     30       55   60    1                                *
    1  NIGER                       28       21   17    0                                *
    1  NIGERIA                     48       46   33    3                                *
    1  RWANDA                      74       30   2     0                                *
    1  SAO TOME AND PRINCIPE       28       21   17    3                                *
    1  SENEGAL                     45       25   25    6                                *
    1  SIERRA LEONE                15       1    1     0                                *
    1  SEYCHELLES                  28       21   17    0                                *
    1  SOMALIA                     10       5    5     0                                *
    1  SUDAN                       62       22   22    0                                *
    1  SWAZILAND                   28       21   17    0                                *
    1  TOGO                        28       21   17    1                                *
    1  TANZANIA                    20       15   7     1                                *
    1  TUNISIA                     16       25   25    1                                *
    1  UGANDA                      10       7    10    1                                *
    1  ZAMBIA                      20       35   12    2                                *
    1  ZAIRE                       11       20   6     1                                *
    1  ZIMBABWE                    37       40   20    1                                *
    1  ;                                                                                *
                                                                                        *
    1  DATA AGMAC4;                                                                     *
    1  INPUT  country $ 1-26 a25 28-32 a24 36-38 a23 40-45 a22 47-52;                   *
                                                                                        *
    1  CARDS;                                                                           *
    1  ALGERIA                     2        55   55    2                                *
    1  ANGOLA                      1        1    15    1                                *
    1  BENIN                       1        0    15    0                                *
    1  BURUNDI                     1        1    15    1                                *
    1  BOTSWANA                    1        1    15    0                                *
    1  BURKINA FASO                1        3    15    1                                *
    1  CAMEROON                    1        0    15    1                                *
    1  CAPE VERDE                  1        0    15    0                                *
    1  CENTRAL AFRICAN REPUBLIC    1        0    15    0                                *
    1  CHAD                        1        0    15    0                                *
    1  COMOROS ISLANDS             1        1    15    0                                *
    1  CONGO                       1        0    15    0                                *
    1  DJIBOUTI                    1        0    15    0                                *
    1  ETHIOPIA                    1        4    15    1                                *
    1  EGYPT                       2        55   40    3                                *
    1  EQUATORIAL GUINEA           1        0    15    0                                *
    1  GHANA                       1        22   15    1                                *
    1  GABON                       1        0    15    1                                *
    1  GAMBIA                      1        0    15    1                                *
    1  GUINEA                      1        6    15    1                                *
    1  GUINEA-BISSAU               1        0    15    0                                *
    1  IVORY COAST                 1        2    15    1                                *
    1  KENYA                       2        8    30    2                                *
    1  LIBERIA                     1        3    15    1                                *
```

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```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  LESOTHO                      1       2    15    0                                  *
   1  LIBYA                        1       7    15    1                                  *
   1  MADAGASCAR                   1       1    15    1                                  *
   1  MOZAMBIQUE                   1       1    15    1                                  *
   1  MALAWI                       1      10    15    1                                  *
   1  MALI                         1       1    15    2                                  *
   1  MAURITIUS                    1       2    15    2                                  *
   1  MAURITANIA                   1       0    15    0                                  *
   1  MOROCCO                      1       1    15    2                                  *
   1  NIGER                        1       0    15    0                                  *
   1  NIGERIA                      1       4    15    2                                  *
   1  RWANDA                       1      40    15    1                                  *
   1  SAO TOME AND PRINCIPE        1       0    15    0                                  *
   1  SENEGAL                      1       2    15    1                                  *
   1  SIERRA LEONE                 1       1    15    2                                  *
   1  SEYCHELLES                   1       1    15    0                                  *
   1  SOMALIA                      1      20    15    1                                  *
   1  SUDAN                        1       0    15    0                                  *
   1  SWAZILAND                    1       0    15    0                                  *
   1  TOGO                         1       0    15    2                                  *
   1  TANZANIA                     1      22    15    1                                  *
   1  TUNISIA                      1       1    15    2                                  *
   1  UGANDA                       1      32    15    2                                  *
   1  ZAMBIA                       1       5    15    1                                  *
   1  ZAIRE                        1       2    15    2                                  *
   1  ZIMBABWE                     2      55    80    0                                  *
   1  ;                                                                                  *
   1  DATA AGMAC5;                                                                       *
   1  INPUT  country $ 1-26 a8  28-32 a9  36-38 a17 40-45 a18 47-52;                    *
                                                                                         *
   1  CARDS;                                                                             *
   1  ALGERIA                      0       0     1    1                                  *
   1  ANGOLA                       1       1     1    1                                  *
   1  BENIN                        1       1     0    0                                  *
   1  BURUNDI                      1       1     1    1                                  *
   1  BOTSWANA                     1       1     0    1                                  *
   1  BURKINA FASO                 1       1     1    1                                  *
   1  CAMEROON                     1       1     0    0                                  *
   1  CAPE VERDE                   1       1     1    0                                  *
   1  CENTRAL AFRICAN REPUBLIC     1       1     0    0                                  *
   1  CHAD                         1       1     0    0                                  *
   1  COMOROS ISLANDS              1       1     0    1                                  *
   1  CONGO                        1       1     0    1                                  *
   1  DJIBOUTI                     1       1     1    1                                  *
   1  ETHIOPIA                     1       1     1    1                                  *
   1  EGYPT                        0       1     1    1                                  *
   1  EQUATORIAL GUINEA            1       1     1    0                                  *
   1  GHANA                        1       1     1    1                                  *
   1  GABON                        1       1     0    0                                  *
   1  GAMBIA                       1       1     0    0                                  *
   1  GUINEA                       1       1     0    1                                  *
   1  GUINEA-BISSAU                1       1     1    0                                  *
   1  IVORY COAST                  1       1     0    1                                  *
   1  KENYA                        0       1     1    1                                  *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  LIBERIA                        1       1    1     0                                *
   1  LESOTHO                        1       1    0     0                                *
   1  LIBYA                          1       1    1     1                                *
   1  MADAGASCAR                     1       1    1     0                                *
   1  MOZAMBIQUE                     1       1    1     1                                *
   1  MALAWI                         1       1    1     1                                *
   1  MALI                           1       1    1     1                                *
   1  MAURITIUS                      1       1    1     0                                *
   1  MAURITANIA                     1       1    0     0                                *
   1  MOROCCO                        1       1    1     1                                *
   1  NIGER                          1       1    0     1                                *
   1  NIGERIA                        1       1    1     1                                *
   1  RWANDA                         1       1    1     0                                *
   1  SAO TOME AND PRINCIPE          1       1    1     0                                *
   1  SENEGAL                        1       1    1     1                                *
   1  SIERRA LEONE                   1       1    1     0                                *
   1  SEYCHELLES                     1       1    0     0                                *
   1  SOMALIA                        1       1    0     0                                *
   1  SUDAN                          1       1    0     1                                *
   1  SWAZILAND                      1       1    0     0                                *
   1  TOGO                           1       1    1     0                                *
   1  TANZANIA                       1       1    1     0                                *
   1  TUNISIA                        1       1    1     1                                *
   1  UGANDA                         1       1    1     1                                *
   1  ZAMBIA                         1       1    1     1                                *
   1  ZAIRE                          1       1    1     1                                *
   1  ZIMBABWE                       0       0    1     1                                *
   1  ;                                                                                  *
                                                                                         *
   1  DATA AGMAC6;                                                                       *
   1  INPUT  country $ 1-26 a19 28-32 a21 36-38 a31 40-45 a33 47-54;                     *
                                                                                         *
   1  CARDS;                                                                             *
   1  ALGERIA                        10      1    1     9000                             *
   1  ANGOLA                         5       0    1     400                              *
   1  BENIN                          5       0    1     876                              *
   1  BURUNDI                        5       0    1     433                              *
   1  BOTSWANA                       5       0    1     800                              *
   1  BURKINA FASO                   5       0    1     1150                             *
   1  CAMEROON                       5       0    1     1045                             *
   1  CAPE VERDE                     5       0    1     165                              *
   1  CENTRAL AFRICAN REPUBLIC       5       0    1     1508                             *
   1  CHAD                           5       0    1     563                              *
   1  COMOROS ISLANDS                5       0    1     137                              *
   1  CONGO                          5       0    1     1111                             *
   1  DJIBOUTI                       5       0    1     77                               *
   1  ETHIOPIA                       5       0    1     5452                             *
   1  EGYPT                          5       1    2     108740                           *
   1  EQUATORIAL GUINEA              5       0    1     63                               *
   1  GHANA                          5       0    1     9000                             *
   1  GABON                          5       0    1     988                              *
   1  GAMBIA                         5       0    1     515                              *
   1  GUINEA                         5       0    1     9200                             *
   1  GUINEA-BISSAU                  5       0    1     165                              *
```

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START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  IVORY COAST                  5       0     1     1947                                  *
   1  KENYA                       10       1     1     5163                                  *
   1  LIBERIA                      5       0     1     853                                   *
   1  LESOTHO                      5       0     1     583                                   *
   1  LIBYA                        5       0     1     4193                                  *
   1  MADAGASCAR                   5       0     1     4976                                  *
   1  MOZAMBIQUE                   5       0     1     196                                   *
   1  MALAWI                       5       0     1     3430                                  *
   1  MALI                         5       0     1     1458                                  *
   1  MAURITIUS                    5       0     1     1229                                  *
   1  MAURITANIA                   5       0     1     405                                   *
   1  MOROCCO                      5       0     1     11778                                 *
   1  NIGER                        5       0     1     1091                                  *
   1  NIGERIA                      5       0     1     20901                                 *
   1  RWANDA                       5       0     1     497                                   *
   1  SAO TOME AND PRINCIPE        5       0     1     165                                   *
   1  SENEGAL                      5       0     1     1854                                  *
   1  SIERRA LEONE                 5       0     1     2055                                  *
   1  SEYCHELLES                   5       0     1     29                                    *
   1  SOMALIA                      5       0     1     3491                                  *
   1  SUDAN                        5       0     1     5715                                  *
   1  SWAZILAND                    5       0     1     1193                                  *
   1  TOGO                         5       0     1     988                                   *
   1  TANZANIA                     5       0     1     5779                                  *
   1  TUNISIA                      5       0     1     5424                                  *
   1  UGANDA                       5       0     1     1442                                  *
   1  ZAMBIA                       5       0     1     2183                                  *
   1  ZAIRE                        5       0     1     4037                                  *
   1  ZIMBABWE                     10      1     1     3059                                  *
   1  ;                                                                                      *
                                                                                            *
   1  DATA AGMAC7;                                                                           *
   1  INPUT  country $ 1-26 a34 28-32 a35 36-40 a32 42-45 a16 47-54;                        *
                                                                                            *
   1  CARDS;                                                                                 *
   1  ALGERIA                      2681    4     .1    724                                   *
   1  ANGOLA                       1367    53    .1    0                                     *
   1  BENIN                        1367    11    .1    166                                   *
   1  BURUNDI                      3630    6     .1    69                                    *
   1  BOTSWANA                     283     49    .1    0                                     *
   1  BURKINA FASO                 1304    109   .1    5                                     *
   1  CAMEROON                     1575    12    2     14                                    *
   1  CAPE VERDE                   82      133   1     42                                    *
   1  CENTRAL AFRICAN REPUBLIC     21      11    2     5                                     *
   1  CHAD                         481     74    2     0                                     *
   1  COMOROS ISLANDS              476     145   .1    0                                     *
   1  CONGO                        2367    133   2     65                                    *
   1  DJIBOUTI                     100     130   .1    0                                     *
   1  ETHIOPIA                     5092    793   .1    43                                    *
   1  EGYPT                        6144    1799  .1    596                                   *
   1  EQUATORIAL GUINEA            16      130   .1    0                                     *
   1  GHANA                        2748    96    2     12                                    *
   1  GABON                        417     141   2     87                                    *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  GAMBIA                        485     129  .1    0                                 *
   1  GUINEA                        77      55   2     463                               *
   1  GUINEA-BISSAU                 421     128  2     0                                 *
   1  IVORY COAST                   920     0    .1    11                                *
   1  KENYA                         3073    139  2     25                                *
   1  LIBERIA                       252     76   2     7                                 *
   1  LESOTHO                       42      40   .1    0                                 *
   1  LIBYA                         727     0    .1    51                                *
   1  MADAGASCAR                    1693    65   2     18                                *
   1  MOZAMBIQUE                    150     252  .1    1                                 *
   1  MALAWI                        232     5    2     11                                *
   1  MALI                          1944    131  .1    164                               *
   1  MAURITIUS                     846     5    2     2                                 *
   1  MAURITANIA                    467     137  .1    0                                 *
   1  MOROCCO                       15442   142  .1    380                               *
   1  NIGER                         476     97   2     2                                 *
   1  NIGERIA                       5123    0    1     149                               *
   1  RWANDA                        1650    25   .1    3                                 *
   1  SAO TOME AND PRINCIPE         414     0    .1    0                                 *
   1  SENEGAL                       738     117  .1    23                                *
   1  SIERRA LEONE                  981     49   2     17                                *
   1  SEYCHELLES                    28      0    2     0                                 *
   1  SOMALIA                       1966    126  .1    0                                 *
   1  SUDAN                         1150    904  2     80                                *
   1  SWAZILAND                     104     0    2     7                                 *
   1  TOGO                          488     9    2     2                                 *
   1  TANZANIA                      2287    66   1     0                                 *
   1  TUNISIA                       8348    80   .1    122                               *
   1  UGANDA                        880     7    .1    7                                 *
   1  ZAMBIA                        15      82   .1    4                                 *
   1  ZAIRE                         3827    101  2     32                                *
   1  ZIMBABWE                      47      0    .1    2                                 *
   1  ;                                                                                  *
   1  DATA AGMAC8;                                                                       *
   1  INPUT  country $ 1-26 a2  28-32 a13 34-38 a4  40-45 a20 47-54;                     *
                                                                                         *
   1  CARDS;                                                                             *
   1  ALGERIA                       56.4 1       39.0  2                                 *
   1  ANGOLA                        1.9  0       47.7  0                                 *
   1  BENIN                         0.7  0       2.4   0                                 *
   1  BURUNDI                       0.8  0       20.3  0                                 *
   1  BOTSWANA                      0.7  0       13.4  2                                 *
   1  BURKINA FASO                  0.7  2       2.0   0                                 *
   1  CAMEROON                      0.7  1       4.6   1                                 *
   1  CAPE VERDE                    0.7  0       13.3  0                                 *
   1  CENTRAL AFRICAN REPUBLIC      0.7  0       4.6   0                                 *
   1  CHAD                          0.7  0       2.0   0                                 *
   1  COMOROS ISLANDS               0.7  0       14.6  0                                 *
   1  CONGO                         0.7  0       4.6   0                                 *
   1  DJIBOUTI                      0.7  0       13.5  0                                 *
   1  ETHIOPIA                      15.7 0       48.0  0                                 *
   1  EGYPT                         58.8 2       14.0  4                                 *
   1  EQUATORIAL GUINEA             0.7  0       13.5  0                                 *
   1  GHANA                         1.8  2       24.0  1                                 *
```

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PROJECT:  UQ5LC          MEMBER:  AGFTCOM          DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.02            TIME: 11:29
TYPE:     SAS            USERID:  U3D              PAGE: 09 OF 10
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
   1  GABON                          0.7  0       8.0   0                              *
   1  GAMBIA                         0.7  0       2.4   0                              *
   1  GUINEA                         0.3  0       2.4   0                              *
   1  GUINEA-BISSAU                  0.7  0       13.5  0                              *
   1  IVORY COAST                    0.7  0       43.0  0                              *
   1  KENYA                          3.7  5       123.0 2                              *
   1  LIBERIA                        0.9  0       2.4   0                              *
   1  LESOTHO                        0.7  0       13.7  0                              *
   1  LIBYA                          16.5 0       9.0   0                              *
   1  MADAGASCAR                     2.0  1       24.0  1                              *
   1  MOZAMBIQUE                     2.3  0       47.7  0                              *
   1  MALAWI                         0.2  1       20.3  0                              *
   1  MALI                           0.7  0       6.0   0                              *
   1  MAURITIUS                      0.7  0       1.0   0                              *
   1  MAURITANIA                     0.7  0       14.8  0                              *
   1  MOROCCO                        19.3 0       28.0  0                              *
   1  NIGER                          0.7  0       2.0   0                              *
   1  NIGERIA                        38.4 0       134.0 1                              *
   1  RWANDA                         .8   0       20.3  1                              *
   1  SAO TOME AND PRINCIPE          0.7  0       13.4  0                              *
   1  SENEGAL                        0.7  0       7.0   0                              *
   1  SIERRA LEONE                   0.7  0       2.4   0                              *
   1  SEYCHELLES                     0.7  0       13.5  0                              *
   1  SOMALIA                        0.7  0       20.3  0                              *
   1  SUDAN                          11.8 0       30.0  0                              *
   1  SWAZILAND                      0.7  0       27    0                              *
   1  TOGO                           0.4  1       2.4   0                              *
   1  TANZANIA                       3.7  2       20.3  2                              *
   1  TUNISIA                        10.0 0       19.0  0                              *
   1  UGANDA                         3.7  0       20.3  2                              *
   1  ZAMBIA                         2.1  2       47.7  3                              *
   1  ZAIRE                          2.1  2       37.0  3                              *
   1  ZIMBABWE                       3.1  4       47.7  2                              *
   1  ;                                                                                 *
                                                                                        *
                                                                                        *
   1  PROC SORT DATA=AGMAC1;                                                            *
   6       BY COUNTRY;                                                                  *
   1  PROC SORT DATA=AGMAC2;                                                            *
   6       BY COUNTRY;                                                                  *
   1  PROC SORT DATA=AGMAC3;                                                            *
   6       BY COUNTRY;                                                                  *
   1  PROC SORT DATA=AGMAC4;                                                            *
   6       BY COUNTRY;                                                                  *
   1  PROC SORT DATA=AGMAC5;                                                            *
   6       BY COUNTRY;                                                                  *
   1  PROC SORT DATA=AGMAC6;                                                            *
   6       BY COUNTRY;                                                                  *
   1  PROC SORT DATA=AGMAC7;                                                            *
   6       BY COUNTRY;                                                                  *
   1  PROC SORT DATA=AGMAC8;                                                            *
   6       BY COUNTRY;                                                                  *
                                                                                        *
   1  DATA AG1;                                                                         *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1  MERGE AGMAC1 AGMAC2 AGMAC3 AGMAC4 AGMAC5 AGMAC6 AGMAC7 AGMAC8;                    *
    6        BY COUNTRY;                                                               *
                                                                                       *
    1  ******************************************************;                        *
    1  *       FACTOR ANALYSIS ON EACH COMPONENT             *;                        *
    1  ******************************************************;                        *
                                                                                       *
    1  TITLE 'INPUT';                                                                  *
    1  PROC FACTOR DATA=AG1 NFACTORS=5 OUT=INPUT SIMPLE;                               *
    1  VAR a0 a16 a21 a26 a33 a34;                                                     *
                                                                                       *
    1  TITLE 'TRADE';                                                                  *
    1  PROC FACTOR DATA=AG1 NFACTORS=5 OUT=TRADE SIMPLE;                               *
    1  VAR a2 a4;                                                                      *
                                                                                       *
    1  TITLE 'DEMAND';                                                                 *
    1  PROC FACTOR DATA=AG1 NFACTORS=5 OUT=DEMAND SIMPLE;                              *
    1  VAR a5 a6;                                                                      *
                                                                                       *
    1  TITLE 'DISTRIBUTION';                                                           *
    1  PROC FACTOR DATA=AG1 NFACTORS=5 OUT=DISTR SIMPLE;                               *
    1  VAR a7;                                                                         *
                                                                                       *
    1  TITLE 'GOVERNMENT POLICY';                                                      *
    1  PROC FACTOR DATA=AG1 NFACTORS=5 OUT=GOVPOL SIMPLE;                              *
    1  VAR a8 a9 a27-a32;                                                              *
                                                                                       *
    1  TITLE 'METAL WORKINGS';                                                         *
    1  PROC FACTOR DATA=AG1 NFACTORS=5 OUT=METWORK SIMPLE;                             *
    1  VAR a17-a19 a22-a25;                                                            *
                                                                                       *
    1  TITLE 'RAW MATERIALS';                                                          *
    1  PROC FACTOR DATA=AG1 NFACTORS=5 OUT=RAWMAT SIMPLE;                              *
    1  VAR a18;                                                                        *
                                                                                       *
    6        /*                                                                        *
```

```
PROJECT:  UQ5LC          MEMBER:  FDCL                  DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.00                 TIME: 11:29
TYPE:     SAS            USERID:  U3D                   PAGE: 01 OF 02
START                                                                                MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

  1  //U3DFOOD  JOB (Q5,T),D1867-THOMAS,MSGCLASS=X,CLASS=I,                  00010000
  1  //         TIME=(01,00),NOTIFY=U3C,MSGLEVEL=(1,1),REGION=3500K           00020000
  1  //*                                                                              *
  1  //*                                                                              *
  1  //*       Job Control for SAS-Batch                                              *
  1  //*                                                                              *
  1  //*                                                                              *
  1  /*JOBPARM COPIES=1                                                              *
  1  //STRUCC5  EXEC SAS,PARM='MACRO,PAGESIZE=65'                                    *
  1  //FT11F001 DD SYSOUT=*,DEST=UNIDO,DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)         *
  1  //FT12F001 DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)            *
  1  //FT02F001 DD SYSOUT=(Q,,XPLA),DCB=RECFM=UA,DEST=UNIDO                          *
  1  //SYSOUT   DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)            *
                                                                                     *
  1  OPTIONS DQUOTE PAGESIZE=65;                                                     *
  1  GOPTIONS DEVICE=XEROX NOTEXT82 HSIZE=10.5 VSIZE=7.5 NOCHARACTERS;               *
  1  *;                                                                              *
                                                                                     *
  1  *   Place data for AFIS here*;                                                  *
                                                                                     *
                                                                                     *
                                                                                     *
                                                                                     *
  1  ********************************************;                                    *
  1  *  ALL METHODS OF CLUSTER ANALYSIS          ;                                    *
  1  ********************************************;                                    *
                                                                                     *
  1  TITLE 'Average Linkage Method';                                                 *
  1  PROC CLUSTER METHOD=AVERAGE STD PSEUDO NOEIGEN OUTTREE=TREE;                    *
  1  ID country;                                                                     *
  1  VAR f1-  ;                                                                      *
  1  PROC TREE;                                                                      *
                                                                                     *
  1  TITLE 'Ward's Method';                                                          *
  1  PROC CLUSTER METHOD=WARD    STD PSEUDO NOEIGEN OUTTREE=TREE;                    *
  1  ID country;                                                                     *
  1  VAR f1-  ;                                                                      *
  1  PROC TREE;                                                                      *
                                                                                     *
  1  TITLE 'Centroid Method';                                                        *
  1  PROC CLUSTER METHOD=CEN     STD PSEUDO NOEIGEN OUTTREE=TREE;                    *
  1  ID country;                                                                     *
  1  VAR f1-   ;                                                                     *
  1  PROC TREE;                                                                      *
                                                                                     *
  1  TITLE 'Complete Linkage Method';                                                *
  1  PROC CLUSTER METHOD=COM     STD PSEUDO NOEIGEN OUTTREE=TREE;                    *
  1  ID country;                                                                     *
```

```
START                                                                    MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
    1  VAR f1-    ;                                                                    *
    1  PROC TREE;                                                                      *
                                                                                       *
    1  TITLE 'Density Linkage Method';                                                 *
    1  PROC CLUSTER METHOD=DEN K=2 STD PSEUDO NOEIGEN OUTTREE=TREE;                    *
    1  ID country;                                                                     *
    1  VAR f1-     ;                                                                   *
    1  PROC TREE;                                                                      *
                                                                                       *
                                                                                       *
    1  TITLE 'Maximun Likleyhood Method';                                              *
    1  PROC CLUSTER METHOD=EML      STD PSEUDO NOEIGEN OUTTREE=TREE;                   *
    1  ID country;                                                                     *
    1  VAR f1-    ;                                                                    *
    1  PROC TREE;                                                                      *
                                                                                       *
                                                                                       *
    1  TITLE 'Flexible Beta Method';                                                   *
    1  PROC CLUSTER METHOD=FLE      STD PSEUDO NOEIGEN OUTTREE=TREE;                   *
    1  ID country;                                                                     *
    1  VAR f1-     ;                                                                   *
    1  PROC TREE;                                                                      *
                                                                                       *
                                                                                       *
    1  TITLE 'McQuitty's Method';                                                      *
    1  PROC CLUSTER METHOD=MCQ      STD PSEUDO NOEIGEN OUTTREE=TREE;                   *
    1  ID country;                                                                     *
    1  VAR f1-     ;                                                                   *
    1  PROC TREE;                                                                      *
                                                                                       *
                                                                                       *
    1  TITLE 'Median Method';                                                          *
    1  PROC CLUSTER METHOD=MED      STD PSEUDO NOEIGEN OUTTREE=TREE;                   *
    1  ID country;                                                                     *
    1  VAR f1-    ;                                                                    *
    1  PROC TREE;                                                                      *
                                                                                       *
                                                                                       *
    1  TITLE 'Single Linkage Method';                                                  *
    1  PROC CLUSTER METHOD=SIN      STD PSEUDO NOEIGEN OUTTREE=TREE;                   *
    1  ID country;                                                                     *
    1  VAR f1-     ;                                                                   *
    1  PROC TREE;                                                                      *
                                                                                       *
                                                                                       *
    1  TITLE 'Two-Stage Method';                                                       *
    1  PROC CLUSTER METHOD=TWO K=2 STD PSEUDO NOEIGEN OUTTREE=TREE;                    *
    1  ID country;                                                                     *
    1  VAR f1-    ;                                                                    *
    1  PROC TREE;                                                                      *
                                                                                       *
    1  /*                                                                             *
```

```
        PROJECT:  UQ5LC                MEMBER:  FDCLCOM                DATE: 89/07/13
        GROUP:    PDSU                 LEVEL:   01.03                  TIME: 11:29
        TYPE:     SAS                  USERID:  U3D                    PAGE: 01 OF 36
                                                                                    MOD
START                                                                               FLAGS
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
    1  //U3C=DCLC JOB (Q5,T),D1867-THOMAS,MSGCLASS=X,CLASS=I,                    00010000
    1  //          TIME=(02,30),NOTIFY=U3C,MSGLEVEL=(1,1),REGION=3500K           00020000
    1  //*                                                                              *
    1  //*                                                                              *
    1  //*       Job Control for SAS-Batch                                              *
    1  //*                                                                              *
    1  //*                                                                              *
    1  /*JOBPARM COPIES=1                                                              *
    1  //STRUCC5  EXEC SAS,PARM='MACRO,PAGESIZE=65'                                    *
    1  //FT11F001 DD SYSOUT=*,DEST=UNIDO,DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)         *
    1  //FT12F001 DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)           *
    1  //FT02F001 DD SYSOU1=(Q,,XPLA),DCB=RECFM=UA,DEST=UNIDO                        *
    1  //SYSOUT   DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)          *
                                                                                    *
    1  OPTIONS DQUOTE PAGESIZE=65;                                                  *
    1  GOPTIONS DEVICE=XEROX NOTEXT82 HSIZE=10.5 VSIZE=7.5 NOCHARACTERS;            *
    1  *;                                                                           *
    1  DATA FOOD1;                                                                  *
    1  INPUT  country $ 1-26 f1 28-32 f2  37-42 f3  44-47 f4  50-52;                *
                                                                                    *
    1  CARDS;                                                                       *
    1  ALGERIA                    4.3     4.0     31      0                        *
    1  ANGOLA                     -0.1    0.6     74      1                        *
    1  BENIN                      6.4     4.6     70      79                       *
    1  BURUNDI                    2.8     2.7     93      85                       *
    1  BOTSWANA                   -0.9    -0.9    70      3                        *
    1  BURKINA FASO               6.9     5.8     87      92                       *
    1  CAMEROON                   1.7     1.7     70      33                       *
    1  CAPE VERDE                 4.1     4.2     52      20                       *
    1  CENTRAL AFRICAN REPUBLIC   2.0     0       72      27                       *
    1  CHAD                       1.4     1.2     83      69                       *
    1  COMOROS ISLANDS            1.8     1.6     83      45                       *
    1  CONGO                      1.4     1.6     62      1                        *
    1  DJIBOUTI                   2.3     2.1     71      30                       *
    1  ETHIOPIA                   0.4     0.7     80      65                       *
    1  EGYPT                      3.2     4.0     46      17                       *
    1  EQUATORIAL GUINEA          0.8     0.5     66      30                       *
    1  GHANA                      3.5     3.5     56      62                       *
    1  GABON                      0.8     0.7     75      0                        *
    1  GAMBIA                     1.9     2.0     84      57                       *
    1  GUINEA                     0.7     0.6     81      6                        *
    1  GUINEA-BISSAU              5.1     5.1     82      47                       *
    1  IVORY COAST                4.3     5.6     65      59                       *
    1  KENYA                      2.2     1.8     81      68                       *
    1  LIBERIA                    2.1     1.9     74      28                       *
    1  LESOTHO                    0.4     0.2     86      37                       *
    1  LIBYA                      5.5     5.7     18      0                        *
    1  MADAGASCAR                 1.8     1.8     81      88                       *
    1  MOZAMBIQUE                 -1.3    -1.1    85      58                       *
    1  MALAWI                     1.0     0.3     83      89                       *
    1  MALI                       1.8     1.2     86      53                       *
    1  MAURITIUS                  3.3     3.1     28      38                       *
    1  MAURITANIA                 -0.3    -0.3    69      7                        *
    1  MOROCCO                    4.2     4.2     46      16                       *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1  NIGER                          -1.1      -1.1     91      19
    1  NIGERIA                         2.8       2.8     68       3
    1  RWANDA                          0.5      -0.1     93      98
    1  SAO TOME AND PRINCIPE          -3.5      -3.5     71      48
    1  SENEGAL                         4.1       4.2     81      12
    1  SIERRA LEONE                    0.8       0.4     70      28
    1  SEYCHELLES                      1.8       1.6     71       3
    1  SOMALIA                         2.8       2.8     76      82
    1  SUDAN                           1.3       0.9     71      97
    1  SWAZILAND                       1.8       2.1     74      64
    1  TOGO                            3         1.3     73      43
    1  TANZANIA                        2.6       2.9     86      74
    1  TUNISIA                         3.2       3.2     35       9
    1  UGANDA                          1.4       1.1     86      62
    1  ZAMBIA                          2.9       2.8     73       5
    1  ZAIRE                           2.5       2.4     72      20
    1  ZIMBABWE                        2.0       0.2     73      58
    1  ;

    1  DATA FOOD2;
    1  INPUT  country $ 1-26 f5 28-32 f6  37-42 f7  44-47;

    1  CARDS;
    1  ALGERIA                       204       2056    33.1
    1  ANGOLA                         92        256    14.5
    1  BENIN                          65        106    14.5
    1  BURUNDI                        95         28    14.5
    1  BOTSWANA                       58        104     2.9
    1  BURKINA FASO                   64         82    14.5
    1  CAMEROON                      565        115    11.1
    1  CAPE VERDE                      1         25    14.5
    1  CENTRAL AFRICAN REPUBLIC       52         26    11.3
    1  CHAD                          118         20      .6
    1  COMOROS ISLANDS                13         11    14.5
    1  CONGO                          14         77    20.5
    1  DJIBOUTI                        .         80    14.5
    1  ETHIOPIA                      364        169    11.8
    1  EGYPT                         686       3597    27.5
    1  EQUATORIAL GUINEA              17          5    14.5
    1  GHANA                         289        158    20.9
    1  GABON                           7        120     9.4
    1  GAMBIA                         28         43    14.5
    1  GUINEA                         23         70    14.5
    1  GUINEA-BISSAU                  11         16    14.5
    1  IVORY COAST                  1780        371    31.6
    1  KENYA                         721        251    20.3
    1  LIBERIA                       110        108     6.6
    1  LESOTHO                        58        121     4.6
    1  LIBYA                          64       1296    14.5
    1  MADAGASCAR                    260         67    14.5
    1  MOZAMBIQUE                     47        151    14.5
    1  MALAWI                        308         19    14.5
    1  MALI                          196        138     6.0
```

90 03 22
AD 90 12
CAL 800

K T393

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1  MAURITIUS                      212      118     16.3                              *
    1  MAURITANIA                     36       122     10                                *
    1  MOROCCO                        310      904     38.2                              *
    1  NIGER                          62       65      19.5                              *
    1  NIGERIA                        328      1929    18.6                              *
    1  RWANDA                         68       43      2.6                               *
    1  SAO TOME AND PRINCIPE          10       5       14.5                              *
    1  SENEGAL                        161      296     14.5                              *
    1  SIERRA LEONE                   44       51      7.3                               *
    1  SEYCHELLES                     2        19      4.0                               *
    1  SOMALIA                        110      169     13.2                              *
    1  SUDAN                          519      236     11.2                              *
    1  SWAZILAND                      157      38      4.6                               *
    1  TOGO                           58       112     12.3                              *
    1  TANZANIA                       382      134     14.5                              *
    1  TUNISIA                        134      498     23.1                              *
    1  UGANDA                         375      18      14.5                              *
    1  ZAMBIA                         15       68      11.6                              *
    1  ZAIRE                          210      166     7.7                               *
    1  ZIMBABWE                       468      89      31.6                              *
    1  ;                                                                                *
                                                                                        *
    1  DATA FOOD3;                                                                      *
    1  INPUT  country $ 1-26 f8 28-32 f9  37-42 f10 44-48 f11 50-55;                    *
                                                                                        *
    1  CARDS;                                                                           *
    1  ALGERIA                        2868     119     167     438                      *
    1  ANGOLA                         708      155     110     305                      *
    1  BENIN                          591      185     89      141                      *
    1  BURUNDI                        400      179     392     365                      *
    1  BOTSWANA                       90       1       30      4                        *
    1  BURKINA FASO                   2412     18      482     254                      *
    1  CAMEROON                       928      906     217     1495                     *
    1  CAPE VERDE                     19       5       19      4                        *
    1  CENTRAL AFRICAN REPUBLIC       144      180     13      212                      *
    1  CHAD                           1167     111     138     162                      *
    1  COMOROS ISLANDS                20       35      7       23                       *
    1  CONGO                          15       103     11      97                       *
    1  DJIBOUTI                       5        .8      7       0                        *
    1  ETHIOPIA                       4668     445     933     1395                     *
    1  EGYPT                          1939     82      173     899                      *
    1  EQUATORIAL GUINEA              14       1       .2      0                        *
    1  GHANA                          993      646     125     1623                     *
    1  GABON                          7        61      0       46                       *
    1  GAMBIA                         106      2       15      88                       *
    1  GUINEA                         759      94      65      654                      *
    1  GUINEA-BISSAU                  225      7       3       59                       *
    1  IVORY COAST                    1200     777     12      3199                     *
    1  KENYA                          1847     172     487     701                      *
    1  LIBERIA                        231      53      6       96                       *
    1  LESOTHO                        233      0       15      0                        *
    1  LIBYA                          415      16      10      70                       *
    1  MADAGASCAR                     1340     488     61      478                      *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  MOZAMBIQUE                  871      589     125     252                          *
   1  MALAWI                      1276     128     372     344                          *
   1  MALI                        1953     16      55      99                           *
   1  MAURITIUS                   1        1       2       84                           *
   1  MAURITANIA                  167      3       74      3                            *
   1  MOROCCO                     5027     46      515     620                          *
   1  NIGER                       4293     34      1614    131                          *
   1  NIGERIA                     9753     3133    1937    2012                         *
   1  RWANDA                      270      216     329     335                          *
   1  SAO TOME AND PRINCIPE       0        1       0       32                           *
   1  SENEGAL                     1314     16      104     776                          *
   1  SIERRA LEONE                387      44      55      111                          *
   1  SEYCHELLES                  0        0       0       3                            *
   1  SOMALIA                     702      4       41      137                          *
   1  SUDAN                       6136     81      92      1751                         *
   1  SWAZILAND                   68       5       5       35                           *
   1  TOGO                        472      96      126     144                          *
   1  TANZANIA                    3277     568     781     1023                         *
   1  TUNISIA                     1554     15      124     1534                         *
   1  UGANDA                      822      729     487     1889                         *
   1  ZAMBIA                      679      65      17      120                          *
   1  ZAIRE                       1299     2325    200     1361                         *
   1  ZIMBABWE                    1762     22      69      357                          *
   1  ;                                                                                 *
                                                                                        *
                                                                                        *
   1  DATA FOOD4;                                                                       *
   1  INPUT  country $ 1-26 f12 28-32 ff12 37-42 g1  44-48;                             *
                                                                                        *
   1  CARDS;                                                                            *
   1  ALGERIA                     0        3       3595                                 *
   1  ANGOLA                      182      63      1341                                 *
   1  BENIN                       5        87      1093                                 *
   1  BURUNDI                     41       9       1345                                 *
   1  BOTSWANA                    0        1       126                                  *
   1  BURKINA FASO                0        133     3299                                 *
   1  CAMEROON                    791      115     3661                                 *
   1  CAPE VERDE                  1        0       47                                   *
   1  CENTRAL AFRICAN REPUBLIC    49       77      626                                  *
   1  CHAD                        0        156     1734                                 *
   1  COMOROS ISLANDS             1        0       85                                   *
   1  CONGO                       8        2       228                                  *
   1  DJIBOUTI                    0        2       .                                    *
   1  ETHIOPIA                    743      58      7499                                 *
   1  EGYPT                       0        432     3525                                 *
   1  EQUATORIAL GUINEA           .52      .19     .                                    *
   1  GHANA                       1143     18      3405                                 *
   1  GABON                       25       0       114                                  *
   1  GAMBIA                      0        4       .                                    *
   1  GUINEA                      60       3       1575                                 *
   1  GUINEA-BISSAU               0        2       295                                  *
   1  IVORY COAST                 1176     193     5381                                 *
   1  KENYA                       225      177     3384                                 *
   1  LIBERIA                     47       100     486                                  *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  LESOTHO                      0        0       248                                  *
   1  LIBYA                        0        0       511                                  *
   1  MADAGASCAR                   232      33      2400                                 *
   1  MOZAMBIQUE                   17       82      1919                                 *
   1  MALAWI                       23       143     2263                                 *
   1  MALI                         0        157     2280                                 *
   1  MAURITIUS                    4        1       89                                   *
   1  MAURITANIA                   0        0       247                                  *
   1  MOROCCO                      0        20      6228                                 *
   1  NIGER                        0        6       6078                                 *
   1  NIGERIA                      706      323     17158                                *
   1  RWANDA                       49       2       1152                                 *
   1  SAO TOME AND PRINCIPE        31       0       33                                   *
   1  SENEGAL                      0        31      2241                                 *
   1  SIERRA LEONE                 79       1       598                                  *
   1  SEYCHELLES                   0        0       0                                    *
   1  SOMALIA                      1        13      897                                  *
   1  SUDAN                        0        348     8408                                 *
   1  SWAZILAND                    1        24      137                                  *
   1  TOGO                         66       62      900                                  *
   1  TANZANIA                     130      458     6107                                 *
   1  TUNISIA                      0        5       3232                                 *
   1  UGANDA                       229      532     4459                                 *
   1  ZAMBIA                       1        48      929                                  *
   1  ZAIRE                        310      260     5445                                 *
   1  ZIMBABWE                     15       206     2416                                 *
   1  ;                                                                                  *
                                                                                         *
   1  DATA FOOD5;                                                                        *
   1  INPUT country $ 1-26 f13 28-32 f14 37-42 f15 45-48 f16 50-54;                      *
                                                                                         *
   1  CARDS;                                                                             *
   1  ALGERIA                      3.49     0.51    0       1.46                         *
   1  ANGOLA                       1.11     0.46    0.64    0                            *
   1  BENIN                        1.21     0.82    .59     .78                          *
   1  BURUNDI                      3.13     1.20    .94     1.17                         *
   1  BOTSWANA                     0        .25     .13     .23                          *
   1  BURKINA FASO                 1.47     0.92    .60     .77                          *
   1  CAMEROON                     4.89     .85     .90     0                            *
   1  CAPE VERDE                   0        0.62    0       0                            *
   1  CENTRAL AFRICAN REPUBLIC     1.00     .80     .78     0                            *
   1  CHAD                         0.76     0.67    .56     0                            *
   1  COMOROS ISLANDS              1.12     1.02    0       0                            *
   1  CONGO                        0.58     .73     0       0                            *
   1  DJIBOUTI                     1.65     1.01    .48     0                            *
   1  ETHIOPIA                     0        1.81    .81     1.09                         *
   1  EGYPT                        5.75     4.27    3.80    0                            *
   1  EQUATORIAL GUINEA            1.23     1.04    .41     0                            *
   1  GHANA                        0.96     1.07    .56     .76                          *
   1  GABON                        2.46     1.43    0       0                            *
   1  GAMBIA                       1.59     1.71    1.17    0                            *
   1  GUINEA                       0.86     1.05    0       .63                          *
   1  GUINEA-BISSAU                1.23     1.05    .68     .58                          *
   1  IVORY COAST                  1.16     0.73    .63     .63                          *
```

```
START                                                                    MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
    1  KENYA                          2.19      1.71      1.05      .77                *
    1  LIBERIA                        1.24      0         0         0                  *
    1  LESOTHO                        0         .68       0         .58                *
    1  LIBYA                          0         1.20      1.42      0                  *
    1  MADAGASCAR                     1.87      1.06      0         .6                 *
    1  MOZAMBIQUE                     0.81      .53       .25       .82                *
    1  MALAWI                         1.42      1.09      .48       .61                *
    1  MALI                           1.21      1.46      .77       0                  *
    1  MAURITIUS                      5.16      4.25      0         0                  *
    1  MAURITANIA                     2.81      1.05      .43       0                  *
    1  MOROCCO                        4.85      0.76      .76       .59                *
    1  NIGER                          2.53      0.71      .41       .31                *
    1  NIGERIA                        2.04      2.09      .95       1.09               *
    1  RWANDA                         2.33      1.33      .61       1.02               *
    1  SAO TOME AND PRINCIPE          0         1.56      0         0                  *
    1  SENEGAL                        1.92      1.25      .70       0                  *
    1  SIERRA LEONE                   1.36      0.77      1.18      2.42               *
    1  SEYCHELLES                     0         0         0         0                  *
    1  SOMALIA                        3.25      1.22      0         .52                *
    1  SUDAN                          1.04      0.56      .20       .59                *
    1  SWAZILAND                      7.50      1.39      0         .75                *
    1  TOGO                           1.05      .78       .73       .79                *
    1  TANZANIA                       1.63      1.21      .85       .79                *
    1  TUNISIA                        0         0         0         .42                *
    1  UGANDA                         1.29      1.08      1.39      1.5                *
    1  ZAMBIA                         1.03      1.87      .73       .69                *
    1  ZAIRE                          0.89      .87       .8        .89                *
    1  ZIMBABWE                       2.53      1.64      .52       .60                *
    1  ;                                                                              *
                                                                                      *
    1  DATA FOUD6;                                                                    *
    1  INPUT  country $ 1-26 f17 28-32 f18 37-42 f19 44-47 f20 50-52;                 *
                                                                                      *
    1  CARDS;                                                                         *
    1  ALGERIA                        0         0         2         4                  *
    1  ANGOLA                         15.1      0         21        277                *
    1  BENIN                          6.73      3.51      8         362                *
    1  BURUNDI                        11.12     4.3       21        102                *
    1  BOTSWANA                       0         5.38      0         2                  *
    1  BURKINA FASO                   5.25      4.80      34        144                *
    1  CAMEROON                       1.6       2.75      113       359                *
    1  CAPE VERDE                     10        1.74      0         12                 *
    1  CENTRAL AFRICAN REPUBLIC       5.07      3.25      11        46                 *
    1  CHAD                           4.35      .86       16        42                 *
    1  COMOROS ISLANDS                2.86      0         16        6                  *
    1  CONGO                          6.56      6.63      2         8                  *
    1  DJIBOUTI                       5.58      .74       .         .                  *
    1  ETHIOPIA                       0         2.57      0         1452               *
    1  EGYPT                          0         3.43      2362      3412               *
    1  EQUATORIAL GUINEA              6.34      6.51      .         .                  *
    1  GHANA                          8.09      5.28      83        481                *
    1  GABON                          6.02      6.75      1         10                 *
    1  GAMBIA                         3         0         39        28                 *
    1  GUINEA                         6.94      5.43      488       46                 *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  GUINEA-BISSAU                0        0.15     132     26                        *
   1  IVORY COAST                  5.56     1.28     566     438                       *
   1  KENYA                        9.8      0        31      2526                      *
   1  LIBERIA                      6.33     7.88     286     0                         *
   1  LESOTHO                      0        15       0       91                        *
   1  LIBYA                        0        0        0       1                         *
   1  MADAGASCAR                   6.6      6.41     2235    150                       *
   1  MOZAMBIQUE                   5.76     5        57      320                       *
   1  MALAWI                       3.94     0        33      1292                      *
   1  MALI                         9.13     0        223     192                       *
   1  MAURITIUS                    16.47    9.96     0       6                         *
   1  MAURITANIA                   0        0        16      10                        *
   1  MOROCCO                      0        0        22      289                       *
   1  NIGER                        7.28     0        64      6                         *
   1  NIGERIA                      11.11    5.03     1460    1299                      *
   1  RWANDA                       9.8      8.69     6       112                       *
   1  SAO TOME AND PRINCIPE        11.67    14.31    0       1                         *
   1  SENEGAL                      3.78     0        144     123                       *
   1  SIERRA LEONE                 3.41     4.85     469     12                        *
   1  SEYCHELLES                   5        0        0       0                         *
   1  SOMALIA                      10.72    0        10      301                       *
   1  SUDAN                        2.31     0        2       26                        *
   1  SWAZILAND                    0        0        3       91                        *
   1  TOGO                         7.59     4.92     19      160                       *
   1  TANZANIA                     12.22    0        522     2164                      *
   1  TUNISIA                      0        0        0       0                         *
   1  UGANDA                       7.58     0        19      320                       *
   1  ZAMBIA                       3.55     0        10      1099                      *
   1  ZAIRE                        7.14     5.41     300     745                       *
   1  ZIMBABWE                     4.16     0        0       2062                      *
   1  ;                                                                                *
                                                                                       *
   1  DATA FOOD7;                                                                      *
   1  INPUT  country $ 1-26 f21 28-32 f22 37-42 f23 44-47 f24 50-52;                   *
                                                                                       *
   1  CARDS;                                                                           *
   1  ALGERIA                      0        1        0       0                         *
   1  ANGOLA                       55       0        1963    7                         *
   1  BENIN                        17       85       666     2                         *
   1  BURUNDI                      58       210      538     123                       *
   1  BOTSWANA                     1        16       0       7                         *
   1  BURKINA FASO                 635      886      32      5                         *
   1  CAMEROON                     431      0        673     817                       *
   1  CAPE VERDE                   0        0        3       3                         *
   1  CENTRAL AFRICAN REPUBLIC     59       0        607     59                        *
   1  CHAD                         556      0        295     9                         *
   1  COMOROS ISLANDS              0        0        93      0                         *
   1  CONGO                        0        0        620     23                        *
   1  DJIBOUTI                     .        .        .       .                         *
   1  ETHIOPIA                     186      982      0       897                       *
   1  EGYPT                        568      0        0       103                       *
   1  EQUATORIAL GUINEA            .        .        .       .                         *
   1  GHANA                        127      175      2965    650                       *
   1  GABON                        0        0        255     55                        *
```

```
PROJECT:  UQ5LC          MEMBER:  FDCLCOM          DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.03            TIME: 11:29
TYPE:     SAS            USERID:  U3D              PAGE: 08 OF 36
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  GAMBIA                        75        0        6        0                      *
   1  GUINEA                        0         4        500      32                     *
   1  GUINEA-BISSAU                 21        29       0        40                     *
   1  IVORY COAST                   41        23       1500     255                    *
   1  KENYA                         62        123      497      0                      *
   1  LIBERIA                       0         0        299      17                     *
   1  LESOTHO                       0         40       0        6                      *
   1  LIBYA                         5         0        0        0                      *
   1  MADAGASCAR                    0         1        2247     93                     *
   1  MOZAMBIQUE                    5         147      330      5                      *
   1  MALAWI                        14        23       188      0                      *
   1  MALI                          1228      0        73       0                      *
   1  MAURITIUS                     0         0        0        0                      *
   1  MAURITANIA                    66        0        0        0                      *
   1  MOROCCO                       3         16       0        0                      *
   1  NIGER                         1284      349      200      0                      *
   1  NIGERIA                       3567      4964     14067    1727                   *
   1  RWANDA                        1         179      443      55                     *
   1  SAO TOME AND PRINCIPE         0         1        0        0                      *
   1  SENEGAL                       795       0        53       0                      *
   1  SIERRA LEONE                  19        19       113      22                     *
   1  SEYCHELLES                    0         0        0        0                      *
   1  SOMALIA                       0         234      41       0                      *
   1  SUDAN                         278       2708     83       0                      *
   1  SWAZILAND                     0         2        0        0                      *
   1  TOGO                          75        108      413      9                      *
   1  TANZANIA                      277       633      5500     0                      *
   1  TUNISIA                       0         6        0        0                      *
   1  UGANDA                        19        320      434      292                    *
   1  ZAMBIA                        20        30       220      0                      *
   1  ZAIRE                         33        34       15720    66                     *
   1  ZIMBABWE                      149       104      84       0                      *
   1  ;                                                                                *
                                                                                       *
   1  DATA FOOD8;                                                                      *
   1  INPUT  country $ 1-26 f25 28-32 f26 37-42 f27 45-50 f28 52-57;                   *
                                                                                       *
   1  CARDS;                                                                           *
   1  ALGERIA                       1523      5        14300    3500                   *
   1  ANGOLA                        3390      475      260      970                    *
   1  BENIN                         950       620      1200     1120                   *
   1  BURUNDI                       479       77       329      723                    *
   1  BOTSWANA                      2300      9        215      1050                   *
   1  BURKINA FASO                  3170      206      2300     3430                   *
   1  CAMEROON                      4400      1200     2500     2450                   *
   1  CAPE VERDE                    13        50       1        65                     *
   1  CENTRAL AFRICAN REPUBLIC      2224      371      116      1135                   *
   1  CHAD                          5148      12       2700     2700                   *
   1  COMOROS ISLANDS               85        732      9        95                     *
   1  CONGO                         71        45       64       185                    *
   1  DJIBOUTI                      70        .        412      500                    *
   1  ETHIOPIA                      30000     19       23200    17300                  *
   1  EGYPT                         1900      15       1160     1600                   *
   1  EQUATORIAL GUINEA             5         5        35       8                      *
```

```
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1   GHANA                          1248     703     2400    2800                    *
   1   GABON                          9        153     83      63                      *
   1   GAMBIA                         300      13      195     200                     *
   1   GUINEA                         1800     50      460     460                     *
   1   GUINEA-BISSAU                  340      290     205     210                     *
   1   IVORY COAST                    965      450     1500    1500                    *
   1   KENYA                          9500     100     7200    8300                    *
   1   LIBERIA                        42       140     240     235                     *
   1   LESOTHO                        520      70      1430    1020                    *
   1   LIBYA                          212      134     5700    960                     *
   1   MADAGASCAR                     10565    1361    611     1050                    *
   1   MOZAMBIQUE                     1350     155     117     370                     *
   1   MALAWI                         940      200     200     900                     *
   1   MALI                           4476     59      5700    5500                    *
   1   MAURITIUS                      32       10      7       95                      *
   1   MAURITANIA                     1200     768     4000    3150                    *
   1   MOROCCO                        3178     9       14700   5280                    *
   1   NIGER                          3400     37      3500    7500                    *
   1   NIGERIA                        12200    1300    13200   26000                   *
   1   RWANDA                         650      90      350     1000                    *
   1   SAO TOME AND PRINCIPE          3        3       2       4                       *
   1   SENEGAL                        2500     450     3700    1130                    *
   1   SIERRA LEONE                   330      50      330     180                     *
   1   SEYCHELLES                     2        15      2       4                       *
   1   SOMALIA                        4770     10      13195   19705                   *
   1   SUDAN                          22400    5096    19000   14000                   *
   1   SWAZILAND                      655      19      32      315                     *
   1   TOGO                           290      300     900     880                     *
   1   TANZANIA                       13000    182     45000   6550                    *
   1   TUNISIA                        610      4       5800    1113                    *
   1   UGANDA                         3905     470     1683    2502                    *
   1   ZAMBIA                         2850     200     75      390                     *
   1   ZAIRE                          1420     790     775     2940                    *
   1   ZIMBABWE                       5567     180     570     1600                    *
   1   ;                                                                               *
                                                                                       *
                                                                                       *
   1   DATA FOOD9;                                                                     *
   1   INPUT  country $ 1-26 f29 28-32 f30 37-42 f31 45-50 f32 52-57;                  *
                                                                                       *
   1   CARDS;                                                                          *
   1   ALGERIA                        185      130     920     1488                    *
   1   ANGOLA                         970      1       148     285                     *
   1   BENIN                          1120     6       20      11                      *
   1   BURUNDI                        12       .       36      26                      *
   1   BOTSWANA                       25       .       99      41                      *
   1   BURKINA FASO                   70       6       98      77                      *
   1   CAMEROON                       2450     24      47      48                      *
   1   CAPE VERDE                     1        .       2       19                      *
   1   CENTRAL AFRICAN REPUBLIC       903      .       5       6                       *
   1   CHAD                           150      606     149     31                      *
   1   COMOROS ISLANDS                1        .       4       4                       *
   1   CONGO                          83       .       3       23                      *
   1   DJIBOUTI                       .        56      .       .                       *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  ETHIOPIA                    1600     1050     918     235                        *
   1  EGYPT                       9        70       2331    552                        *
   1  EQUATORIAL GUINEA           .        .        .       .                          *
   1  GHANA                       4        .        9       44                         *
   1  GABON                       40       .        0       21                         *
   1  GAMBIA                      6        .        5       19                         *
   1  GUINEA                      1        .        47      15                         *
   1  GUINEA-BISSAU               1        .        13      3                          *
   1  IVORY COAST                 1        .        17      187                        *
   1  KENYA                       2        780      990     65                         *
   1  LIBERIA                     26       .        3       29                         *
   1  LESOTHO                     118      .        22      43                         *
   1  LIBYA                       45       180      128     313                        *
   1  MADAGASCAR                  1        .        41      26                         *
   1  MOZAMBIQUE                  92       .        73      64                         *
   1  MALAWI                      102      .        43      16                         *
   1  MALI                        62       249      151     44                         *
   1  MAURITIUS                   1        .        25      83                         *
   1  MAURITANIA                  16       800      254     109                        *
   1  MOROCCO                     180      52       902     111                        *
   1  NIGER                       294      416      255     36                         *
   1  NIGERIA                     250      18       348     354                        *
   1  RWANDA                      15       .        86      33                         *
   1  SAO TOME AND PRINCIPE       2        .        0       1                          *
   1  SENEGAL                     208      8        97      190                        *
   1  SIERRA LEONE                42       .        17      17                         *
   1  SEYCHELLES                  1        .        0       5                          *
   1  SOMALIA                     1        6601     835     110                        *
   1  SUDAN                       21       3000     2928    157                        *
   1  SWAZILAND                   2        .        38      5                          *
   1  TOGO                        1        .        7       7                          *
   1  TANZANIA                    3228     .        46      80                         *
   1  TUNISIA                     55       182      332     219                        *
   1  UGANDA                      61       .        362     20                         *
   1  ZAMBIA                      166      .        73      8                          *
   1  ZAIRE                       1335     .        7       83                         *
   1  ZIMBABWE                    22       .        210     17                         *
   1  ;                                                                                *
                                                                                       *
                                                                                       *
   1  DATA FOOD10;                                                                     *
   1  INPUT  country $ 1-26 f33 28-32 f34 37-42 f35 45-50 f36 52-57;                   *
                                                                                       *
   1  CARDS;                                                                           *
   1  ALGERIA                     2        2389     196     0                          *
   1  ANGOLA                      5        423      80      0                          *
   1  BENIN                       1        31       48      0                          *
   1  BURUNDI                     2        61       19      0                          *
   1  BOTSWANA                    3        105      41      25                         *
   1  BURKINA FASO                6        168      66      7                          *
   1  CAMEROON                    0        92       100     1                          *
   1  CAPE VERDE                  2        20       2       0                          *
   1  CENTRAL AFRICAN REPUBLIC    0        11       48      0                          *
   1  CHAD                        4        163      82      23                         *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  COMOROS ISLANDS              0        7       3       0                          *
   1  CONGO                        0        26      7       0                          *
   1  DJIBOUTI                     0        .       .       0                          *
   1  ETHIOPIA                     23       1112    454     4                          *
   1  EGYPT                        23       2235    563     0                          *
   1  EQUATORIAL GUINEA            0        .       .       0                          *
   1  GHANA                        4        53      48      0                          *
   1  GABON                        0        22      5       0                          *
   1  GAMBIA                       1        23      6       0                          *
   1  GUINEA                       0        60      39      2                          *
   1  GUINEA-BISSAU                0        15      13      0                          *
   1  IVORY COAST                  0        200     68      0                          *
   1  KENYA                        4        905     214     8                          *
   1  LIBERIA                      0        32      10      0                          *
   1  LESOTHO                      3        64      25      3                          *
   1  LIBYA                        0        432     102     0                          *
   1  MADAGASCAR                   2        64      251     2                          *
   1  MOZAMBIQUE                   3        134     67      0                          *
   1  MALAWI                       0        56      40      0                          *
   1  MALI                         2        190     156     43                         *
   1  MAURITIUS                    1        106     7       0                          *
   1  MAURITANIA                   6        350     42      14                         *
   1  MOROCCO                      7        759     312     0                          *
   1  NIGER                        4        275     120     19                         *
   1  NIGERIA                      0        565     697     0                          *
   1  RWANDA                       4        114     24      0                          *
   1  SAO TOME AND PRINCIPE        0        1       0       0                          *
   1  SENEGAL                      7        282     69      0                          *
   1  SIERRA LEONE                 2        17      13      0                          *
   1  SEYCHELLES                   0        5       1       0                          *
   1  SOMALIA                      9        801     146     16                         *
   1  SUDAN                        6        2942    482     10                         *
   1  SWAZILAND                    0        37      17      2                          *
   1  TOGO                         2        14      15      0                          *
   1  TANZANIA                     5        552     213     0                          *
   1  TUNISIA                      7        480     107     0                          *
   1  UGANDA                       2        364     145     0                          *
   1  ZAMBIA                       1        69      58      0                          *
   1  ZAIRE                        0        89      76      0                          *
   1  ZIMBABWE                     2        173     92      26                         *
   1  ;                                                                                *
                                                                                       *
                                                                                       *
                                                                                       *
   1  DATA FOOD11;                                                                     *
   1  INPUT  country $ 1-26 f37 28-32 f38 37-42 f39 45-50 f40 52-57;                   *
                                                                                       *
                                                                                       *
   1  CARDS;                                                                           *
   1  ALGERIA                      43       239     75000   62644                      *
   1  ANGOLA                       34       115     62666   8000                       *
   1  BENIN                        4        53      3600    16400                      *
   1  BURUNDI                      0        19      0       12000                      *
   1  BOTSWANA                     34       115     0       1500                       *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  BURKINA FASO                0        59       0       7000                      *
   1  CAMEROON                    12       111      32458   20000                     *
   1  CAPE VERDE                  0        2        9320    7000                      *
   1  CENTRAL AFRICAN REPUBLIC    12       111      0       13000                     *
   1  CHAD                        0        59       0       110000                    *
   1  COMOROS ISLANDS             1        4        4000    1307                      *
   1  CONGO                       10       17       19297   12000                     *
   1  DJIBOUTI                    .8       .        426     .                         *
   1  ETHIOPIA                    1        450      400     35                        *
   1  EGYPT                       254      817      26146   112336                    *
   1  EQUATORIAL GUINEA           .5       .        3600    400                       *
   1  GHANA                       3        50       198424  40000                     *
   1  GABON                       23       25       50005   2633                      *
   1  GAMBIA                      0        7        9182    35                        *
   1  GUINEA                      2        38       17453   1000                      *
   1  GUINEA-BISSAU               3        13       2696    2251                      *
   1  IVORY COAST                 47       115      65691   18000                     *
   1  KENYA                       0        206      5984    83904                     *
   1  LIBERIA                     6        15       10650   4000                      *
   1  LESOTHO                     0        22       0       12                        *
   1  LIBYA                       59       319      7800    9802                      *
   1  MADAGASCAR                  0        248      13500   42500                     *
   1  MOZAMBIQUE                  1        68       37440   5000                      *
   1  MALAWI                      0        40       0       65064                     *
   1  MALI                        1        114      0       54000                     *
   1  MAURITIUS                   7        13       10312   24                        *
   1  MAURITANIA                  0        28       44000   11000                     *
   1  MOROCCO                     7        319      466130  1320                      *
   1  NIGER                       0        101      0       6840                      *
   1  NIGERIA                     59       755      190265  183490                    *
   1  RWANDA                      0        24       0       786                       *
   1  SAO TOME AND PRINCIPE       0        1        4289    310                       *
   1  SENEGAL                     8        77       222552  19061                     *
   1  SIERRA LEONE                3        16       36000   16500                     *
   1  SEYCHELLES                  1        1        3854    177                       *
   1  SOMALIA                     0        130      15300   14704                     *
   1  SUDAN                       1        472      4450    25050                     *
   1  SWAZILAND                   5        21       0       44                        *
   1  TOGO                        12       28       13897   650                       *
   1  TANZANIA                    0        213      31200   231600                    *
   1  TUNISIA                     25       124      74944   20150                     *
   1  UGANDA                      2        147      0       212200                    *
   1  ZAMBIA                      0        58       0       64621                     *
   1  ZAIRE                       45       121      1000    10000                     *
   1  ZIMBABWE                    3        70       0       16409                     *
   1  ;                                                                               *
                                                                                      *
                                                                                      *
   1  DATA FOOD12;                                                                    *
   1  INPUT  country $ 1-26 f41 28-32 f42 37-42 f43 45-50 f44 52-57;                  *
                                                                                      *
   1  CARDS;                                                                          *
   1  ALGERIA                     .8       .4       2       17.5                      *
   1  ANGOLA                      22       20       8.9     14.6                      *
```

PROJECT: UQ5LC
GROUP: PDSU
TYPE: SAS

MEMBER: FDCLCOM
LEVEL: 01.03
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```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD
                                                                                        FLAGS
  1  BENIN                          7        .1       8.5     4.4                        *
  1  BURUNDI                        .5       0        3.1     13.3                       *
  1  BOTSWANA                       3        0        1.5     12.9                       *
  1  BURKINA FASO                   3.5      0        1.5     17.7                       *
  1  CAMEROON                       17.7     2.7      10.7    7.2                        *
  1  CAPE VERDE                     .5       1.2      23.7    28                         *
  1  CENTRAL AFRICAN REPUBLIC       .4       0        5.7     17                         *
  1  CHAD                           .4       9.7      13.4    15.4                       *
  1  COMOROS ISLANDS                1        1.1      10.9    34.5                       *
  1  CONGO                          20.7     .8       28.3    7.6                        *
  1  DJIBOUTI                       .        .        6.2     22.2                       *
  1  ETHIOPIA                       124      119      .1      12.5                       *
  1  EGYPT                          68.6     .5       4.8     28.7                       *
  1  EQUATORIAL GUINEA              1.9      .        13.2    12.4                       *
  1  GHANA                          35.7     34       19      15                         *
  1  GABON                          12.5     1.5      20      11.7                       *
  1  GAMBIA                         16.3     18       23.2    26.1                       *
  1  GUINEA                         12       0        6.1     13.8                       *
  1  GUINEA-BISSAU                  .4       .8       5.1     31.8                       *
  1  IVORY COAST                    123.4    42.6     19.5    17.8                       *
  1  KENYA                          1.4      2.4      3       9.7                        *
  1  LIBERIA                        20.7     .8       16.1    22.6                       *
  1  LESOTHO                        4        0        3       20.3                       *
  1  LIBYA                          18.6     8.5      7.7     13.6                       *
  1  MADAGASCAR                     .1       4.6      5.2     19.8                       *
  1  MOZAMBIQUE                     7.6      3.9      3.2     18.4                       *
  1  MALAWI                         .6       5        8.6     5.1                        *
  1  MALI                           .5       4        9.5     25                         *
  1  MAURITIUS                      12.4     2.6      15.9    21.9                       *
  1  MAURITANIA                     76.5     50.7     16.2    44.7                       *
  1  MOROCCO                        61       113.4    5.6     16.8                       *
  1  NIGER                          17       3.3      1       13.4                       *
  1  NIGERIA                        795.3    .7       16.3    11.9                       *
  1  RWANDA                         .2       0        .2      11.4                       *
  1  SAO TOME AND PRINCIPE          .2       2.5      20.4    21.9                       *
  1  SENEGAL                        16.7     91.6     24.7    21                         *
  1  SIERRA LEONE                   12.2     0        18      30.4                       *
  1  SEYCHELLES                     .1       .5       71.1    15.9                       *
  1  SOMALIA                        .1       2.2      1.8     29.4                       *
  1  SUDAN                          .6       .8       1.5     14.3                       *
  1  SWAZILAND                      2        0        .1      6.5                        *
  1  TOGO                           20.3     1.4      10.9    20.7                       *
  1  TANZANIA                       .9       .4       11.5    11                         *
  1  TUNISIA                        .4       7.2      7.8     11.4                       *
  1  UGANDA                         43       0        12.5    6                          *
  1  ZAMBIA                         5.2      0        8.7     6.6                        *
  1  ZAIRE                          64.5     0        5.9     19.8                       *
  1  ZIMBABWE                       2        .1       2       3.1                        *
  1  ;                                                                                   *
                                                                                        *
                                                                                        *
                                                                                        *
  1  DATA FOOD13;                                                                        *
  1  INPUT  country $ 1-26 f45 28-32 f46 37-42 f47 45-50 f48 52-57;
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
                                                                                        *
   1  CARDS;                                                                            *
   1  ALGERIA                    2918     53.1     3839.5 2470                          *
   1  ANGOLA                     336      69.3     1083.9 332                           *
   1  BENIN                      38       52.6     59.4   502                           *
   1  BURUNDI                    24       87.5     51.1   413                           *
   1  BOTSWANA                   74       71.6     142.3  15                            *
   1  BURKINA FASO               99       85.9     159.7  1509                          *
   1  CAMEROON                   102      67.6     32.2   828                           *
   1  CAPE VERDE                 29       75.9     231.3  5                             *
   1  CENTRAL AFRICAN REPUBLIC   19       47.4     55.9   125                           *
   1  CHAD                       37       91.9     37.4   586                           *
   1  COMOROS ISLANDS            14       78.6     192.8  17                            *
   1  CONGO                      67       50.7     670    9                             *
   1  DJIBOUTI                   0        0        231.3  .                             *
   1  ETHIOPIA                   263      85.9     210.4  5047                          *
   1  EGYPT                      2447     63.3     870.8  7865                          *
   1  EQUATORIAL GUINEA          0        0        511.5  .                             *
   1  GHANA                      88       73.9     37.1   772                           *
   1  GABON                      84       32.1     2100   10                            *
   1  GAMBIA                     47       66       204.3  104                           *
   1  GUINEA                     58       81       446.2  403                           *
   1  GUINEA-BISSAU              11       90.9     183.3  145                           *
   1  IVORY COAST                398      67.1     32.5   896                           *
   1  KENYA                      205      49.8     57.7   2575                          *
   1  LIBERIA                    60       76.7     87     196                           *
   1  LESOTHO                    77       72.7     1283.3 144                           *
   1  LIBYA                      683      54.6     1447.2 256                           *
   1  MADAGASCAR                 105      90.5     120.7  1580                          *
   1  MOZAMBIQUE                 151      70.2     604    571                           *
   1  MALAWI                     17       82.4     8      1525                          *
   1  MALI                       106      89.6     478.6  1460                          *
   1  MAURITIUS                  131      67.9     119.1  6                             *
   1  MAURITANIA                 134      85.1     186    70                            *
   1  MOROCCO                    1007     38.5     637.3  5540                          *
   1  NIGER                      80       62.5     186    1567                          *
   1  NIGERIA                    833      61.3     378.6  10771                         *
   1  RWANDA                     41       65.9     71.9   299                           *
   1  SAO TOME AND PRINCIPE      4        75       80     1                             *
   1  SENEGAL                    366      69.9     305    909                           *
   1  SIERRA LEONE               51       76.5     221.7  377                           *
   1  SEYCHELLES                 9        55.6     900    0                             *
   1  SOMALIA                    169      74       433.3  593                           *
   1  SUDAN                      267      76.8     91.8   3107                          *
   1  SWAZILAND                  29       44.8     27.9   113                           *
   1  TOGO                       56       37.5     91.8   386                           *
   1  TANZANIA                   108      88       76.6   3401                          *
   1  TUNISIA                    578      48.6     441.2  1269                          *
   1  UGANDA                     23       73.9     11.9   798                           *
   1  ZAMBIA                     53       69.8     481.8  1169                          *
   1  ZAIRE                      198      56.6     131.1  1116                          *
   1  ZIMBABWE                   50       76       12.6   2610                          *
   1  ;                                                                                 *
```

PROJECT: UQ5LC
GROUP: PDSU
TYPE: SAS

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```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

  1   DATA FOOD14;                                                                     *
  1   INPUT country $ 1-26 f49 28-32 f50 37-42 f51 45-50 f52 52-57 f53 59-64;         *
                                                                                       *
  1   CARDS;                                                                           *
  1   ALGERIA                      3       0       4619    2044    4378                *
  1   ANGOLA                       68      0       388     51      676                 *
  1   BENIN                        13      0       64      180     358                 *
  1   BURUNDI                      8       0       32      51      404                 *
  1   BOTSWANA                     44      4       217     26      191                 *
  1   BURKINA FASO                 89      0       188     169     1244                *
  1   CAMEROON                     10      45      251     125     1046                *
  1   CAPE VERDE                   53      0       68      21      55                  *
  1   CENTRAL AFRICAN REPUBLIC     9       0       31      15      117                 *
  1   CHAD                         91      0       90      128     510                 *
  1   COMOROS ISLANDS              8       0       29      5       41                  *
  1   CONGO                        1       0       129     3       135                 *
  1   DJIBOUTI                     17      0       .       .       .                   *
  1   ETHIOPIA                     746     0       581     504     5590                *
  1   EGYPT                        1909    1260    8505    5203    11030               *
  1   EQUATORIAL GUINEA            5       0       .       .       .                   *
  1   GHANA                        86      0       208     157     816                 *
  1   GABON                        0       0       79      9       77                  *
  1   GAMBIA                       18      0       74      38      113                 *
  1   GUINEA                       66      0       162     73      484                 *
  1   GUINEA-BISSAU                10      0       31      16      154                 *
  1   IVORY COAST                  0       7       632     298     1190                *
  1   KENYA                        195     2800    438     413     3157                *
  1   LIBERIA                      33      0       106     37      272                 *
  1   LESOTHO                      48      0       223     53      324                 *
  1   LIBYA                        0       0       1310    884     711                 *
  1   MADAGASCAR                   92      75      280     398     1457                *
  1   MOZAMBIQUE                   328     0       406     73      905                 *
  1   MALAWI                       7       5       30      330     1371                *
  1   MALI                         142     0       282     197     1535                *
  1   MAURITIUS                    10      55      182     10      180                 *
  1   MAURITANIA                   101     0       245     17      245                 *
  1   MOROCCO                      424     4       2187    1863    5380                *
  1   NIGER                        113     0       184     375     1441                *
  1   NIGERIA                      0       0       1765    2305    10211               *
  1   RWANDA                       25      0       40      51      282                 *
  1   SAO TOME AND PRINCIPE        8       0       9       1       10                  *
  1   SENEGAL                      109     0       583     189     1299                *
  1   SIERRA LEONE                 37      0       109     73      433                 *
  1   SEYCHELLES                   1       0       9       0       10                  *
  1   SOMALIA                      182     0       296     403     466                 *
  1   SUDAN                        881     5430    706     338     2465                *
  1   SWAZILAND                    1       0       78      89      100                 *
  1   TOGO                         13      10      95      90      388                 *
  1   TANZANIA                     82      1140    274     732     3006                *
  1   TUNISIA                      223     0       1047    755     1519                *
  1   UGANDA                       18      0       24      186     1075                *
  1   ZAMBIA                       105     0       218     218     1308                *
  1   ZAIRE                        98      0       375     142     1404                *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  ZIMBABWE                    56       3600     197     670      1566                  *
   1  ;                                                                                    *
                                                                                           *
   1  DATA FOOD15;                                                                         *
   1  INPUT  country $ 1-26 f54 28-32 f55 37-42 f56 45-50 f57 52-57;                       *
                                                                                           *
   1  CARDS;                                                                               *
   1  ALGERIA                     1232     519      85      0                              *
   1  ANGOLA                      354      14       96      8.5                            *
   1  BENIN                       213      174      34      0                              *
   1  BURUNDI                     287      97       22      4.5                            *
   1  BOTSWANA                    22       9        93      1                              *
   1  BURKINA FASO                1147     74       59      6.8                            *
   1  CAMEROON                    670      211      50      0                              *
   1  CAPE VERDE                  8        3        95      .3                             *
   1  CENTRAL AFRICAN REPUBLIC    81       17       47      0                              *
   1  CHAD                        521      115      12      4.9                            *
   1  COMOROS ISLANDS             13       2        94      0                              *
   1  CONGO                       9        3        96      0                              *
   1  DJIBOUTI                    .        .        65      0                              *
   1  ETHIOPIA                    4386     1022     22      35.4                           *
   1  EGYPT                       4686     3409     64      0                              *
   1  EQUATORIAL GUINEA           .        .        75      0                              *
   1  GHANA                       522      202      55      0                              *
   1  GABON                       14       3        94      0                              *
   1  GAMBIA                      71       5        92      0                              *
   1  GUINEA                      470      14       93      0                              *
   1  GUINEA-BISSAU               54       13       75      0                              *
   1  IVORY COAST                 780      95       88      0                              *
   1  KENYA                       2076     425      43      19.8                           *
   1  LIBERIA                     230      16       90      0                              *
   1  LESOTHO                     191      30       84      1.5                            *
   1  LIBYA                       39       139      86      0                              *
   1  MADAGASCAR                  2022     159      64      0                              *
   1  MOZAMBIQUE                  411      91       83      13.7                           *
   1  MALAWI                      1170     232      17      0                              *
   1  MALI                        1147     97       48      7.8                            *
   1  MAURITIUS                   .        0        100     0                              *
   1  MAURITANIA                  53       1        99      1.8                            *
   1  MOROCCO                     2951     1095     65      22.8                           *
   1  NIGER                       1517     140      35      5.9                            *
   1  NIGERIA                     5903     3604     40      0                              *
   1  RWANDA                      142      120      16      5.9                            *
   1  SAO TOME AND PRINCIPE       1        3        94      0                              *
   1  SENEGAL                     776      54       92      6.3                            *
   1  SIERRA LEONE                529      43       76      0                              *
   1  SEYCHELLES                  .        0        46      0                              *
   1  SOMALIA                     286      14       96      5.4                            *
   1  SUDAN                       2208     857      23      20.9                           *
   1  SWAZILAND                   81       23       71      0                              *
   1  TOGO                        232      72       49      0                              *
   1  TANZANIA                    2039     954      23      21.7                           *
   1  TUNISIA                     660      403      69      0                              *
   1  UGANDA                      893      367      10      0                              *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+---6----+----7----+----8  FLAGS

   1  ZAMBIA                        1021     194     65     0                          *
   1  ZAIRE                         737      203     70     0                          *
   1  ZIMBABWE                      956      1142    5      8.5                        *
   1  ;                                                                                *
                                                                                       *
   1  DATA FOOD16;                                                                     *
   1  INPUT  country $ 1-26 f58 28-32 f59 37-42 f60 45-50 f61 52-57;                   *
                                                                                       *
   1  CARDS;                                                                           *
   1  ALGERIA                       28.58    2818    56.0   2.2                        *
   1  ANGOLA                        9.84     1957    32.4   31.6                       *
   1  BENIN                         11.87    2080    34.6   37.1                       *
   1  BURUNDI                       8.29     2229    25.3   35.4                       *
   1  BOTSWANA                      67.55    1939    53.1   1                          *
   1  BURKINA FASO                  11.12    2032    71     2.1                        *
   1  CAMEROON                      10.48    2042    35.3   20.3                       *
   1  CAPE VERDE                    73.36    1994    60.7   4.7                        *
   1  CENTRAL AFRICAN REPUBLIC      6.90     2067    15.9   52                         *
   1  CHAD                          19.49    1441    53.6   11.9                       *
   1  COMOROS ISLANDS               4.98     2190    39.9   32.5                       *
   1  CONGO                         39.54    2527    15.2   49.8                       *
   1  DJIBOUTI                      26.84    .       .      .                          *
   1  ETHIOPIA                      13.89    1695    68.5   3.5                        *
   1  EGYPT                         3.25     3227    62.1   1.5                        *
   1  EQUATORIAL GUINEA             12.38    .       .      .                          *
   1  GHANA                         18.89    1859    34.5   37.5                       *
   1  GABON                         8.24     2483    16     37.5                       *
   1  GAMBIA                        24.13    2181    63.4   1.2                        *
   1  GUINEA                        9.18     1880    42.5   19.7                       *
   1  GUINEA-BISSAU                 27.87    2123    43.6   25.7                       *
   1  IVORY COAST                   7.44     2559    43.2   25                         *
   1  KENYA                         13.97    1810    56.4   8.4                        *
   1  LIBERIA                       5.41     2260    49.5   22.3                       *
   1  LESOTHO                       29.72    2338    76.8   0.6                        *
   1  LIBYA                         30.18    3695    40.3   1.5                        *
   1  MADAGASCAR                    3.30     2413    60     17.1                       *
   1  MOZAMBIQUE                    11.94    1637    39.4   36.3                       *
   1  MALAWI                        10.44    2438    69.3   2.3                        *
   1  MALI                          13.42    1852    73.5   2.5                        *
   1  MAURITIUS                     42.62    2801    49.9   1.1                        *
   1  MAURITANIA                    39.73    2221    57.2   0.5                        *
   1  MOROCCO                       23.07    2686    63     1.3                        *
   1  NIGER                         19.87    1968    68.7   4.1                        *
   1  NIGERIA                       7.[illegible]    2088    44.6   24.1                       *
   1  RWANDA                        8[illegible]     1990    10.4   41.9                       *
   1  SAO TOME AND PRINCIPE         3.[illegible]    2255    44.3   12.3                       *
   1  SENEGAL                       25.11    2455    68.1   0.6                        *
   1  SIERRA LEONE                  9.45     1876    56.8   5.1                        *
   1  SEYCHELLES                    13.55    2190    42.6   19.8                       *
   1  SOMALIA                       16.85    2068    56.9   .9                         *
   1  SUDAN                         25.32    1735    51.7   1.8                        *
   1  SWAZILAND                     24.72    2578    55     2.2                        *
   1  TOGO                          12.09    2388    42.8   34.5                       *
   1  TANZANIA                      11.9     2247    36.1   29.9                       *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  TUNISIA                      26.27    2943    54.9    1.2                        *
   1  UGANDA                       13.24    2394    30.4    18.4                       *
   1  ZAMBIA                       27.31    1968    71.5    4.5                        *
   1  ZAIRE                        5.54     2154    16.2    57.2                       *
   1  ZIMBABWE                     29.36    1843    62.8    1.2                        *
   1  ;                                                                                *
                                                                                       *
                                                                                       *
                                                                                       *
   1  DATA FOOD17;                                                                     *
   1  INPUT  country $ 1-26 f62 28-32 f63 37-42 f64 45-50 f65 52-57;                   *
                                                                                       *
   1  CARDS;                                                                           *
   1  ALGERIA                      2.2      10.6    11.7    16.5                       *
   1  ANGOLA                       3.6      6       5.9     20.5                       *
   1  BENIN                        8.90     3.8     .8      14.8                       *
   1  BURUNDI                      17.6     2.9     .8      18                         *
   1  BOTSWANA                     8        18      9.6     10.3                       *
   1  BURKINA FASO                 14.2     4.3     2.1     6.3                        *
   1  CAMEROON                     12       5 1     3.2     24.1                       *
   1  CAPE VFRDE                   7.6      8.5     9.7     8.8                        *
   1  CENTRAL AFRICAN REPUBLIC     12       5.4     1.6     13.1                       *
   1  CHAD                         5        4.9     3.6     21                         *
   1  COMOROS ISLANDS              10.1     4.9     2.8     9.4                        *
   1  CONGO                        4.8      5.3     45.     20.4                       *
   1  DJIBOUTI                     .        .       .       .                          *
   1  ETHIOPIA                     11.9     5.2     2.2     8.7                        *
   1  EGYPT                        2.7      6.4     9.8     17.5                       *
   1  EQUATORIAL GUINEA            .        .       .       .                          *
   1  GHANA                        3.6      5.1     2.1     17.2                       *
   1  GABON                        .1       3.9     5.3     37.2                       *
   1  GAMBIA                       6.6      6.5     7.3     15.                        *
   1  GUINEA                       5.1      3.1     2.6     26.2                       *
   1  GUINEA-BISSAU                5        4.5     2.8     18.4                       *
   1  IVORY COAST                  2.7      6.6     3.5     19                         *
   1  KENYA                        5.7      10.1    9.6     9.8                        *
   1  LIBERIA                      2        4.9     2.5     18.8                       *
   1  LESOTHO                      3.2      6.9     7.6     4.9                        *
   1  LIBYA                        4.2      15.3    11.2    27.5                       *
   1  MADAGASCAR                   2.7      7       4.7     8.5                        *
   1  MOZAMBIQUE                   3.9      3.1     5.8     11.5                       *
   1  MALAWI                       13.1     4.1     3.4     7.8                        *
   1  MALI                         6.8      8.2     2.9     6.1                        *
   1  MAURITIUS                    3.4      11.2    15.1    19.3                       *
   1  MAURITANIA                   5.9      22.3    7.4     6.7                        *
   1  MOROCCO                      2.6      7       12.6    13.5                       *
   1  NIGER                        5.9      22.3    7.4     6.7                        *
   1  NIGERIA                      5.9      4.3     4.3     16.8                       *
   1  RWANDA                       18.2     2.1     .7      26.7                       *
   1  SAO TOME AND PRINCIPE        19.6     6.4     5.8     11.6                       *
   1  SENEGAL                      5.5      7       5.7     13.1                       *
   1  SIERRA LEONE                 5.7      4.5     3.4     24.5                       *
   1  SEYCHELLES                   10.4     6.4     4.8     15.9                       *
   1  SOMALIA                      1.8      26.2    5.8     8.4                        *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1  SUDAN                          4.6       12.5      10.5      18.9                  *
    1  SWAZILAND                      2.6       13.4      17.4      9.4                   *
    1  TOGO                           6.3       3.5       3         9.9                   *
    1  TANZANIA                       6.5       7         3.9       16.6                  *
    1  TUNISIA                        4.1       8.5       9         22.3                  *
    1  UGANDA                         14        7.5       2.9       26.8                  *
    1  ZAMBIA                         2.4       5.3       7.9       8.4                   *
    1  ZAIRE                          6.3       2.7       1.1       16.5                  *
    1  ZIMBABWE                       7.6       7.3       9.6       11.5                  *
    1  ;                                                                                  *
                                                                                          *
                                                                                          *
    1  DATA FOOD18;                                                                       *
    1  INPUT  country $ 1-26 f66 28-32 f67 37-42 f68 45-50 f69 52-57;                     *
                                                                                          *
    1  CARDS;                                                                             *
    1  ALGERIA                        .4        7.5       7.6       .3                    *
    1  ANGOLA                         10.01     77.3      4.5       72.8                  *
    1  BENIN                          1.83      6.3       3         3.3                   *
    1  BURUNDI                        .25       1         1         0                     *
    1  BOTSWANA                       1.85      1.7       1.4       .3                    *
    1  BURKINA FASO                   1.73      10.7      6.7       4                     *
    1  CAMEROON                       3.69      31.5      7.7       23.8                  *
    1  CAPE VERDE                     .13       .2        .03       0                     *
    1  CENTRAL AFRICAN REPUBLIC       15.65     35.8      4.8       31                    *
    1  CHAD                           3.81      17        7.6       9.4                   *
    1  COMOROS ISLANDS                .26       .1        .09       0                     *
    1  CONGO                          14.16     21.7      .7        21                    *
    1  DJIBOUTI                       .         .         .17       .                     *
    1  ETHIOPIA                       .78       24.9      14.5      10.5                  *
    1  EGYPT                          .03       .9        2.8       .1                    *
    1  EQUATORIAL GUINEA              5.25      .2        .19       .                     *
    1  GHANA                          .96       11        4.5       6.5                   *
    1  GABON                          11.99     12.9      .4        12.5                  *
    1  GAMBIA                         .92       .5        .3        .2                    *
    1  GUINEA                         1.55      7.5       4.2       3.3                   *
    1  GUINEA-BISSAU                  2.5       .3        .09       0                     *
    1  IVORY COAST                    1.71      14.1      7         7.1                   *
    1  KENYA                          .4        6.7       4.4       2.3                   *
    1  LIBERIA                        2.8       5.2       .7        3.5                   *
    1  LESOTHO                        .26       .3        .3        .1                    *
    1  LIBYA                          .67       2         2         .2                    *
    1  MADAGASCAR                     3.76      32.8      3.1       29.7                  *
    1  MOZAMBIQUE                     3.43      41.4      5.6       35.8                  *
    1  MALAWI                         .69       4.1       2.5       1.6                   *
    1  MALI                           2.4       16.8      8         8.8                   *
    1  MAURITIUS                      .11       .1        .1        0                     *
    1  MAURITANIA                     .86       1.4       .9        .6                    *
    1  MOROCCO                        .37       7.4       7.4       .3                    *
    1  NIGER                          2.21      11.8      11        .8                    *
    1  NIGERIA                        .59       47.9      32.3      15.6                  *
    1  RWANDA                         .17       .9        .8        0                     *
    1  SAO TOME AND PRINCIPE          .68       .05       .003      0                     *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  SENEGAL                      1.7      9.7      5.2     4.5                        *
   1  SIERRA LEONE                 .79      2.6      1.8     .8                         *
   1  SEYCHELLES                   .08      .2       .002    0                          *
   1  SOMALIA                      .38      1.7      1.1     .7                         *
   1  SUDAN                        3.01     63.5     14.7    48.8                       *
   1  SWAZILAND                    1.54     .9       .2      .6                         *
   1  TOGO                         .84      2.1      1.9     .2                         *
   1  TANZANIA                     1.94     36.6     9.2     27.4                       *
   1  TUNISIA                      .7       4.5      4.4     .2                         *
   1  UGANDA                       .82      10.7     5.3     5.5                        *
   1  ZAMBIA                       9.04     51.1     5.3     45.8                       *
   1  ZAIRE                        6.23     177.7    13.7    164                        *
   1  ZIMBABWE                     2.16     15.9     4.1     11.8                       *
   1  ;                                                                                 *
                                                                                        *
                                                                                        *
                                                                                        *
   1  DATA FOOD19;                                                                      *
   1  INPUT  country $ 1-26 f70 28-32 f71 37-42 f72 45-50 f73 52-57;                    *
                                                                                        *
   1  CARDS;                                                                            *
   1  ALGERIA                      2        2        1       1                          *
   1  ANGOLA                       0        1        1       1                          *
   1  BENIN                        1        2        0       0                          *
   1  BURUNDI                      2        2        0       0                          *
   1  BOTSWANA                     1        2        2       2                          *
   1  BURKINA FASO                 2        2        2       1                          *
   1  CAMEROON                     2        2        1       0                          *
   1  CAPE VERDE                   0        2        2       1                          *
   1  CENTRAL AFRICAN REPUBLIC     1        2        0       0                          *
   1  CHAD                         1        2        3       2                          *
   1  COMOROS ISLANDS              2        1        0       0                          *
   1  CONGO                        0        2        0       0                          *
   1  DJIBOUTI                     0        1        2       1                          *
   1  ETHIOPIA                     2        2        1       1                          *
   1  EGYPT                        0        0        2       1                          *
   1  EQUATORIAL GUINEA            0        1        0       0                          *
   1  GHANA                        1        2        0       0                          *
   1  GABON                        0        1        0       0                          *
   1  GAMBIA                       1        1        0       0                          *
   1  GUINEA                       0        2        0       0                          *
   1  GUINEA-BISSAU                0        1        0       0                          *
   1  IVORY COAST                  1        2        0       0                          *
   1  KENYA                        1        2        1       2                          *
   1  LIBERIA                      0        1        0       0                          *
   1  LESOTHO                      2        2        0       0                          *
   1  LIBYA                        0        0        2       1                          *
   1  MADAGASCAR                   3        2        1       0                          *
   1  MOZAMBIQUE                   1        1        0       0                          *
   1  MALAWI                       1        2        0       0                          *
   1  MALI                         1        2        2       1                          *
   1  MAURITIUS                    1        1        0       0                          *
   1  MAURITANIA                   2        2        3       3                          *
   1  MOROCCO                      2        2        1       0                          *
```

```
PROJECT:  UQ5LC          MEMBER:  FDCLCOM          DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.03            TIME: 11:29
TYPE:     SAS            USERID:  U3D              PAGE: 21 OF 36
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  NIGER                        2        2        2        2                        *
   1  NIGERIA                      2        2        1        1                        *
   1  RWANDA                       2        2        0        0                        *
   1  SAO TOME AND PRINCIPE        0        1        0        0                        *
   1  SENEGAL                      1        2        1        0                        *
   1  SIERRA LEONE                 0        1        0        0                        *
   1  SEYCHELLES                   0        1        0        0                        *
   1  SOMALIA                      2        2        2        2                        *
   1  SUDAN                        0        2        2        1                        *
   1  SWAZILAND                    2        2        0        0                        *
   1  TOGO                         1        2        0        0                        *
   1  TANZANIA                     1        1        0        0                        *
   1  TUNISIA                      2        1        1        1                        *
   1  UGANDA                       1        2        0        0                        *
   1  ZAMBIA                       1        2        0        0                        *
   1  ZAIRE                        1        2        0        0                        *
   1  ZIMBABWE                     1        2        0        0                        *
   1  ;                                                                                *
                                                                                       *
                                                                                       *
                                                                                       *
                                                                                       *
   1  DATA FOOD20;                                                                     *
   1  INPUT  country $ 1-26 f77 28-32 f78 37-42 f79 45-50 f80 52-57 f81 59-62;        *
                                                                                       *
   1  CARDS;                                                                           *
   1  ALGERIA                      0        0        0        0        0               *
   1  ANGOLA                       1        0        1        1        0               *
   1  BENIN                        1        1        0        0        1               *
   1  BURUNDI                      1        0        0        0        0               *
   1  BOTSWANA                     0        0        0        0        0               *
   1  BURKINA FASO                 1        1        1        0        0               *
   1  CAMEROON                     1        0        1        1        0               *
   1  CAPE VERDE                   0        0        0        0        0               *
   1  CENTRAL AFRICAN REPUBLIC     1        1        0        0        0               *
   1  CHAD                         0        0        1        1        0               *
   1  COMOROS ISLANDS              0        0        0        0        0               *
   1  CONGO                        1        0        0        0        0               *
   1  DJIBOUTI                     0        0        0        0        0               *
   1  ETHIOPIA                     0        1        1        1        1               *
   1  EGYPT                        0        1        0        1        1               *
   1  EQUATORIAL GUINEA            0        0        0        0        0               *
   1  GHANA                        1        1        1        1        0               *
   1  GABON                        1        0        0        1        0               *
   1  GAMBIA                       0        0        0        1        0               *
   1  GUINEA                       1        0        1        1        0               *
   1  GUINEA-BISSAU                1        0        0        0        0               *
   1  IVORY COAST                  1        1        1        1        0               *
   1  KENYA                        0        0        1        1        1               *
   1  LIBERIA                      1        0        1        0        0               *
   1  LESOTHO                      0        0        0        0        0               *
   1  LIBYA                        0        0        0        0        0               *
   1  MADAGASCAR                   0        0        0        1        0               *
   1  MOZAMBIQUE                   1        0        0        0        0               *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS

   1  MALAWI                        1        0        0        1        1                  *
   1  MALI                          0        1        1        0        0                  *
   1  MAURITIUS                     0        0        0        1        0                  *
   1  MAURITANIA                    0        1        1        1        0                  *
   1  MOROCCO                       0        0        0        1        0                  *
   1  NIGER                         0        1        1        1        0                  *
   1  NIGERIA                       1        1        1        1        1                  *
   1  RWANDA                        1        0        0        0        0                  *
   1  SAO TOME AND PRINCIPE         0        0        0        0        0                  *
   1  SENEGAL                       0        0        0        1        0                  *
   1  SIERRA LEONE                  1        0        1        1        0                  *
   1  SEYCHELLES                    0        0        0        0        0                  *
   1  SOMALIA                       0        0        1        0        1                  *
   1  SUDAN                         0        1        1        1        1                  *
   1  SWAZILAND                     0        0        0        0        0                  *
   1  TOGO                          1        1        0        1        0                  *
   1  TANZANIA                      1        1        0        1        1                  *
   1  TUNISIA                       0        0        0        0        0                  *
   1  UGANDA                        1        1        1        1        1                  *
   1  ZAMBIA                        1        0        0        1        1                  *
   1  ZAIRE                         1        0        1        1        1                  *
   1  ZIMBABWE                      0        0        0        1        1                  *
   1  ;                                                                                    *
                                                                                           *
   1  DATA FOOD21;                                                                         *
   1  INPUT  country $ 1-26 f82 28-32 f83 37-42 f84 45-50 f85 52-57;                       *
                                                                                           *
   1  CARDS;                                                                               *
   1  ALGERIA                       0        0        83.19   9.9                          *
   1  ANGOLA                        3        0        77.7    6.7                          *
   1  BENIN                         3        1        31.82   1                            *
   1  BURUNDI                       3        0        49.88   9.9                          *
   1  BOTSWANA                      0        2        77.73   1                            *
   1  BURKINA FASO                  2        1        33.33   1                            *
   1  CAMEROON                      3        0        100     1                            *
   1  CAPE VERDE                    1        0        100     6.4                          *
   1  CENTRAL AFRICAN REPUBLIC      0        0        83.33   1                            *
   1  CHAD                          1        1        20      1                            *
   1  COMOROS ISLANDS               1        0        49.88   10.9                         *
   1  CONGO                         0        0        100     1                            *
   1  DJIBOUTI                      0        0        .       .                            *
   1  ETHIOPIA                      2        2        94.25   1                            *
   1  EGYPT                         0        0        100     101                          *
   1  EQUATORIAL GUINEA             0        0        .       .                            *
   1  GHANA                         4        1        100     1                            *
   1  GABON                         1        0        33.33   1                            *
   1  GAMBIA                        2        0        33.33   9.9                          *
   1  GUINEA                        2        1        100     1                            *
   1  GUINEA-BISSAU                 0        0        70.09   1.5                          *
   1  IVORY COAST                   4        1        100     1                            *
   1  KENYA                         3        2        42.86   4.9                          *
   1  LIBERIA                       2        0        100     1                            *
   1  LESOTHO                       0        0        100     1                            *
```

```
PROJECT:  UQ5LC          MEMBER:  FDCLCOM          DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.03            TIME: 11:29
TYPE:     SAS            USERID:  U3D              PAGE: 23 OF 36
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```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

  1  LIBYA                          0        0        68.03  4.9                        *
  1  MADAGASCAR                     1        1        16.67  35                         *
  1  MOZAMBIQUE                     2        1        94.29  4.9                        *
  1  MALAWI                         2        0        80     1.                         *
  1  MALI                           3        2        62.5   4.9                        *
  1  MAURITIUS                      1        0        64.29  19.9                       *
  1  MAURITANIA                     0        1        20     4.9                        *
  1  MOROCCO                        1        0        53.75  35                         *
  1  NIGER                          2        2        33.33  1                          *
  1  NIGERIA                        4        1        5.88   4.9                        *
  1  RWANDA                         4        0        6.25   4.9                        *
  1  SAO TOME AND PRINCIPE          0        0        83.33  1                          *
  1  SENEGAL                        2        1        30     4.9                        *
  1  SIERRA LEONE                   3        0        100    1.                         *
  1  SEYCHELLES                     1        0        49.88  10.9                       *
  1  SOMALIA                        1        0        50     9.9                        *
  1  SUDAN                          3        1        97.14  19.9                       *
  1  SWAZILAND                      1        0        91.67  35                         *
  1  TOGO                           4        0        23.08  1                          *
  1  TANZANIA                       4        3        17.99  4.9                        *
  1  TUNISIA                        0        0        10.81  4.9                        *
  1  UGANDA                         4        1        75     1                          *
  1  ZAMBIA                         2        1        62.5   1                          *
  1  ZAIRE                          4        0        100.   1                          *
  1  ZIMBABWE                       2        2        97.69  4.9                        *
  1  ;                                                                                  *
                                                                                        *
                                                                                        *
  1  DATA FOOD22;                                                                       *
  1  INPUT country $ 1-26 f86 28-32 f87 37-42 f88 45-50 f89 52-57 f90 59-63;            *
                                                                                        *
  1  CARDS;                                                                             *
  1  ALGERIA                        32.7     5.1      0      0      0                   *
  1  ANGOLA                         14.2     15.7     180    89     16                  *
  1  BENIN                          .3       33       5      700    4                   *
  1  BURUNDI                        .2       15       39     872    34                  *
  1  BOTSWANA                       6.6      13.5     0      0      0                   *
  1  BURKINA FASO                   .1       45.9     0      0      0                   *
  1  CAMEROON                       .5       83.7     350    291    102                 *
  1  CAPE VERDE                     3.4      7.3      2      600    1.2                 *
  1  CENTRAL AFRICAN REPUBLIC       .4       19.4     54     388    21                  *
  1  CHAD                           .2       2.8      0      0      0                   *
  1  COMOROS ISLANDS                .        14.1     1      145    .1                  *
  1  CONGO                          4.1      8.1      4      526    2                   *
  1  DJIBOUTI                       .        13.8     0      0      0                   *
  1  ETHIOPIA                       1.3      92.7     745    239    178                 *
  1  EGYPT                          86.8     33.2     0      0      0                   *
  1  EQUATORIAL GUINEA              3        7.2      19     394    7                   *
  1  GHANA                          13.1     148.5    10     200    2                   *
  1  GABON                          17.8     23.2     4      289    1                   *
  1  GAMBIA                         1.1      30.7     0      0      0                   *
  1  GUINEA                         .4       22.2     45     333    15                  *
  1  GUINEA-BISSAU                  .4       18.8     0      0      0                   *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  IVORY COAST                  4.7      21.7     1160    224     260                  *
   1  KENYA                        14       84.7     138     790     109                  *
   1  LIBERIA                      9.7      20       27      370     10                   *
   1  LESOTHO                      20.1     13.6     0       0       0                    *
   1  LIBYA                        45.3     5.26     0       0       0                    *
   1  MADAGASCAR                   4.3      47.5     226     367     83                   *
   1  MOZAMBIQUE                   8.2      36.6     1       714     1                    *
   1  MALAWI                       2.2      32.9     2       2500    5                    *
   1  MALI                         1.7      120.8    0       0       0                    *
   1  MAURITIUS                    13.4     5.7      0       0       0                    *
   1  MAURITANIA                   6        36.3     0       0       0                    *
   1  MOROCCO                      15.8     96.8     0       0       0                    *
   1  NIGER                        .2       51.9     0       0       0                    *
   1  NIGERIA                      1.3      12.7     7       571     4                    *
   1  RWANDA                       .5       16.4     42      976     41                   *
   1  SAO TOME AND PRINCIPE        .        5.4      1       120     .1                   *
   1  SENEGAL                      .4       84.4     0       0       0                    *
   1  SIERRA LEONE                 .9       28.7     30      510     15                   *
   1  SEYCHELLES                   .        .3       0       0       0                    *
   1  SOMALIA                      6.5      27.1     0       0       0                    *
   1  SUDAN                        3.9      159.9    0       0       0                    *
   1  SWAZILAND                    86.3     12.6     0       0       0                    *
   1  TOGO                         .7       13.3     30      367     11                   *
   1  TANZANIA                     18.2     89.5     110     464     51                   *
   1  TUNISIA                      51.9     52.5     0       0       0                    *
   1  UGANDA                       2.1      42.3     235     872     205                  *
   1  ZAMBIA                       3.7      103.1    1       933     1                    *
   1  ZAIRE                        1.4      45.8     286     356     102                  *
   1  ZIMBABWE                     38.3     26.7     12      1124    13                   *
   1  ;                                                                                   *
                                                                                          *
                                                                                          *
   1  DATA FOOD23;                                                                        *
   1  INPUT  country $ 1-26 f91 28-32 f92 37-42 f93 45-50 f94 52-57 f95 59-61             *
   8         f96 64-66;                                                                   *
   1  CARDS;                                                                              *
   1  ALGERIA                      0        0        0       3       1033 3               *
   1  ANGOLA                       2        56       .1      6       500  3               *
   1  BENIN                        0        0        0       1       529  .5              *
   1  BURUNDI                      0        0        0       3       1167 4               *
   1  BOTSWANA                     0        0        0       0       0    0               *
   1  BURKINA FASO                 0        0        0       2       600  1               *
   1  CAMEROON                     450      267      120     3       1667 5               *
   1  CAPE VERDE                   0        0        0       0       0    0               *
   1  CENTRAL AFRICAN REPUBLIC     1        38       .04     1       944  1               *
   1  CHAD                         0        0        0       1       1422 1.4             *
   1  COMOROS ISLANDS              7        319      2.2     0       0    0               *
   1  CONGO                        4        49       2       2       300  .6              *
   1  DJIBOUTI                     0        0        0       0       0    0               *
   1  ETHIOPIA                     0        0        0       5       660  2               *
   1  EGYPT                        0        0        0       0       0    0               *
   1  EQUATORIAL GUINEA            76       86       7       0       0    0               *
   1  GHANA                        1200     175      210     4       500  2               *
   1  GABON                        21       95       2       0       0    0               *
```

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PROJECT:  UQ5LC          MEMBER:  FDCLCOM                DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.03                  TIME: 11:29
TYPE:     SAS            USERID:  U3D                    PAGE: 25 OF 36
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```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
   1  GAMBIA                      0       0       0       0       0    0                *
   1  GUINEA                      15      267     4       2       900  2                *
   1  GUINEA-BISSAU               0       0       0       0       0    0                *
   1  IVORY COAST                 1050    543     570     10      200  3                *
   1  KENYA                       0       0       0       4       1182 5                *
   1  LIBERIA                     25      160     4       0       0    0                *
   1  LESOTHO                     0       0       0       0       0    0                *
   1  LIBYA                       0       0       0       .4      2444 1                *
   1  MADAGASCAR                  6       429     2       4       1027 4                *
   1  MOZAMBIQUE                  0       0       0       3       1111 3                *
   1  MALAWI                      0       0       0       90      778  70               *
   1  MALI                        0       0       0       1       917  1                *
   1  MAURITIUS                   0       0       0       1       1424 1                *
   1  MAURITANIA                  0       0       0       0       0    0                *
   1  MOROCCO                     0       0       0       7       1743 12               *
   1  NIGER                       0       0       0       1       740  1                *
   1  NIGERIA                     700     186     130     21      571  12               *
   1  RWANDA                      0       0       0       2       1550 3                *
   1  SAO TOME AND PRINCIPE       30      117     4       0       0    0                *
   1  SENEGAL                     0       0       0       0       0    0                *
   1  SIERRA LEONE                50      210     11      1       1083 1                *
   1  SEYCHELLES                  0       0       0       0       0    0                *
   1  SOMALIA                     0       0       0       1       400  .4               *
   1  SUDAN                       0       0       0       0       0    0                *
   1  SWAZILAND                   0       0       0       1       476  .5               *
   1  TOGO                        36      341     1[illegible]    4       500  2                *
   1  TANZANIA                    2       1000    2       29      621  18               *
   1  TUNISIA                     0       0       0       5       961  5                *
   1  UGANDA                      3       120     .4      8       500  4                *
   1  ZAMBIA                      0       0       0       4       1143 4                *
   1  ZAIRE                       22      223     5       16      475  4                *
   1  ZIMBABWE                    0       0       0       70      1829 128              *
   1  ;                                                                                 *
                                                                                        *
   1  DATA FOOD24;                                                                      *
   1  INPUT  country $ 1-26 f97 28-32 f98 37-42 f99 44-50 f100 52-56;                   *
                                                                                        *
   1  CARDS;                                                                            *
   1  ALGERIA                     0       0       19924   419                           *
   1  ANGOLA                      11      0       2679    0                             *
   1  BENIN                       40      1       10024   .4                            *
   1  BURUNDI                     2       0       67      0                             *
   1  BOTSWANA                    1       2       15      0                             *
   1  BURKINA FASO                63      1       550     0                             *
   1  CAMEROON                    45      0       4987    57                            *
   1  CAPE VERDE                  0       0       306     0                             *
   1  CENTRAL AFRICAN REPUBLIC    14      0       231     0                             *
   1  CHAD                        38      1       11      0                             *
   1  COMOROS ISLANDS             0       0       144     0                             *
   1  CONGO                       5       0       1895    0                             *
   1  DJIBOUTI                    0       0       .       .                             *
   1  ETHIOPIA                    20      2       57      0                             *
   1  EGYPT                       403     0       10803   577                           *
   1  EQUATORIAL GUINEA           0       0       234     .6                            *
```

```
START                                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1   GHANA                          1        1       229     0                                    *
   1   GABON                          0        0       3287    0                                    *
   1   GAMBIA                         1        0       3596    0                                    *
   1   GUINEA                         0        1       356     0                                    *
   1   GUINEA-BISSAU                  2        0       249     0                                    *
   1   IVORY COAST                    91       1       10740   62                                   *
   1   KENYA                          12       2       21      182                                  *
   1   LIBERIA                        5        0       1037    0                                    *
   1   LESOTHO                        0        0       488     0                                    *
   1   LIBYA                          0        0       38931   0                                    *
   1   MADAGASCAR                     15       1       3       24                                   *
   1   MOZAMBIQUE                     17       1       157     30                                   *
   1   MALAWI                         11       0       18      78                                   *
   1   MALI                           78       2       574     0                                    *
   1   MAURITIUS                      0        0       391     0                                    *
   1   MAURITANIA                     0        1       4917    0                                    *
   1   MOROCCO                        9        0       25      34885                                *
   1   NIGER                          1        2       2715    0                                    *
   1   NIGERIA                        27       1       18687   63                                   *
   1   RWANDA                         0        0       3.4     0                                    *
   1   SAO TOME AND PRINCIPE          0        0       34      0                                    *
   1   SENEGAL                        11       1       5872    0                                    *
   1   SIERRA LEONE                   9        0       2742    18                                   *
   1   SEYCHELLES                     0        0       187     .4                                   *
   1   SOMALIA                        2        0       46      0                                    *
   1   SUDAN                          174      1       8925    0                                    *
   1   SWAZILAND                      11       0       191     0                                    *
   1   TOGO                           33       0       7739    72                                   *
   1   TANZANIA                       50       3       58      15                                   *
   1   TUNISIA                        0        0       1174    554                                  *
   1   UGANDA                         11       1       2476    .1                                   *
   1   ZAMBIA                         21       1       .5      0                                    *
   1   ZAIRE                          26       0       3175    .1                                   *
   1   ZIMBABWE                       105      2       4.4     0                                    *
   1   ;                                                                                           *
                                                                                                   *
   1   DATA FOOD25;                                                                                *
   1   INPUT  country $ 1-26 f101 28-32 f102 37-42 f103 44-50 f104 52-56;                          *
                                                                                                   *
   1   CARDS;                                                                                      *
   1   ALGERIA                        4.8      0       .1      0                                    *
   1   ANGOLA                         595      0       3800    0                                    *
   1   BENIN                          628      .2      2710    0                                    *
   1   BURUNDI                        119      0       76      0                                    *
   1   BOTSWANA                       81       0       0       0                                    *
   1   BURKINA FASO                   431      0       117     0                                    *
   1   CAMEROON                       3778     30      1588    .9                                   *
   1   CAPE VERDE                     .2       42      180     0                                    *
   1   CENTRAL AFRICAN REPUBLIC       184      0       20      0                                    *
   1   CHAD                           468      0       .3      0                                    *
   1   COMOROS ISLANDS                844      0       0       0                                    *
   1   CONGO                          4999     0       1004    0                                    *
   1   DJIBOUTI                       .        .       .       .                                    *
   1   ETHIOPIA                       1.6      0       1062    0                                    *
```

```
PROJECT:  UQ5LC          MEMBER:  FDCLCOM          DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.03            TIME: 11:29
TYPE:     SAS            USERID:  U3D              PAGE: 27 OF 36
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

  1  EGYPT                        11106    217     9181    .2                          *
  1  EQUATORIAL GUINEA            265      0       0       0                           *
  1  GHANA                        103      1126    119     0                           *
  1  GABON                        3660     0       293     0                           *
  1  GAMBIA                       116      .9      237     0                           *
  1  GUINEA                       210      .1      26      .3                          *
  1  GUINEA-BISSAU                86       0       203     0                           *
  1  IVORY COAST                  2876     18738   52      745                         *
  1  KENYA                        66       6       .1      197                         *
  1  LIBERIA                      1828     0       585     0                           *
  1  LESOTHO                      110      0       0       0                           *
  1  LIBYA                        6257     0       624     0                           *
  1  MADAGASCAR                   26       0       82      1                           *
  1  MOZAMBIQUE                   1115     0       17      0                           *
  1  MALAWI                       171      0       78      0                           *
  1  MALI                         433      0       68      0                           *
  1  MAURITIUS                    1792     1418    291     1                           *
  1  MAURITANIA                   157      26      6005    0                           *
  1  MOROCCO                      .9       44611   2       0                           *
  1  NIGER                        122      .3      177     0                           *
  1  NIGERIA                      85374    568     11729   17                          *
  1  RWANDA                       124      0       97      0                           *
  1  SAO TOME AND PRINCIPE        101      0       0       0                           *
  1  SENEGAL                      256      11405   129     0                           *
  1  SIERRA LEONE                 484      1.3     689     23                          *
  1  SEYCHELLES                   4.9      0       350     0                           *
  1  SOMALIA                      21       7       .4      20                          *
  1  SUDAN                        1046     0       362     0                           *
  1  SWAZILAND                    43       0       0       0                           *
  1  TOGO                         58       7       411     0                           *
  1  TANZANIA                     13       0       3       0                           *
  1  TUNISIA                      1.3      75      0       0                           *
  1  UGANDA                       337      0       337     0                           *
  1  ZAMBIA                       0        0       0       0                           *
  1  ZAIRE                        3330     0       95      .1                          *
  1  ZIMBABWE                     23       0       0       0                           *
  1  ;                                                                                 *
                                                                                       *
                                                                                       *
                                                                                       *
  1  DATA FOOD26;                                                                      *
  1  INPUT  country $ 1-26 f105 28-33 f106 37-42 f107 44-50 f108 52-56                 *
 18                  f109 58-63;                                                       *
                                                                                       *
  1  CARDS;                                                                            *
  1  ALGERIA                      244251   .1      241960  0       182                 *
  1  ANGOLA                       29100    0       52350   0       21988               *
  1  BENIN                        7908     9251    1307    0       .                   *
  1  BURUNDI                      1028     18      4488    0       .                   *
  1  BOTSWANA                     2824     0       5718    0       .                   *
  1  BURKINA FASO                 8905     2007    4259    0       28000               *
  1  CAMEROON                     7151     12873   604     6289    62350               *
  1  CAPE VERDE                   491      0       5521    0       .                   *
  1  CENTRAL AFRICAN REPUBLIC     58       0       1818    0       .                   *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  CHAD                          06      454     681     0      17480                 *
   1  COMOROS ISLANDS                39      0       2306    0      .                     *
   1  CONGO                        3654     466     10262   0      9844                  *
   1  DJIBOUTI                     .        .       .       .      .                     *
   1  ETHIOPIA                     3510     0       60      10200  158240                *
   1  EGYPT                        221378   0       973460  2      3487000               *
   1  EQUATORIAL GUINEA            105      0       34      0      .                     *
   1  GHANA                        2531     .5      25475   0      .                     *
   1  GABON                        17133    252     3       799    14000                 *
   1  GAMBIA                       695      7618    25116   213    .                     *
   1  GUINEA                       2115     406     2822    .5     20240                 *
   1  GUINEA-BISSAU                1440     0       1062    0      .                     *
   1  IVORY COAST                  971      90174   6018    3008   80000                 *
   1  KENYA                        98780    157     2216    1      318000                *
   1  LIBERIA                      4210     6043    4141    1      4600                  *
   1  LESOTHO                      3846     0       7788    0                            *
   1  LIBYA                        51493    0       122204  0      0                     *
   1  MADAGASCAR                   12160    0       4       10517  70672                 *
   1  MOZAMBIQUE                   8858     3143    .4      26299  89453                 *
   1  MALAWI                       795      305     68      17667  56088                 *
   1  MALI                         856      8075    15878   0      6000                  *
   1  MAURITIUS                    15381    496     3       6262   41000                 *
   1  MAURITANIA                   6005     0       54545   0      0                     *
   1  MOROCCO                      197482   0       6012    .1     602641                *
   1  NIGER                        5859     .1      5077    .1     0                     *
   1  NIGERIA                      193382   38304   814904  4512   46000                 *
   1  RWANDA                       857      0       2352    0      1696                  *
   1  SAO TOME AND PRINCIPE        270      0       547     0      .                     *
   1  SENEGAL                      53732    142021  7274    0      44000                 *
   1  SIERRA LEONE                 2374     97      9873    153    165                   *
   1  SEYCHELLES                   902      605     2987    0      66                    *
   1  SOMALIA                      14475    1681    10377   150    31400                 *
   1  SUDAN                        6957     17177   75650   0      307000                *
   1  SWAZILAND                    1509     0       3055    0      .                     *
   1  TOGO                         150      75      26577   1163   .                     *
   1  TANZANIA                     9569     0       4963    0      105273                *
   1  TUNISIA                      59517    58466   132347  508    36000                 *
   1  UGANDA                       257      0       5       0      27600                 *
   1  ZAMBIA                       17704    17      50      0      92000                 *
   1  ZAIRE                        458      17728   7583    0      58420                 *
   1  ZIMBABWE                     5.9      0       0       29163  185680                *
   1  ;                                                                                  *
                                                                                         *
                                                                                         *
   1  DATA FOOD27;                                                                       *
   1  INPUT  country $ 1-26 f110 28-33  f111 37-43 f112 45-50 f113 52-57;                *
                                                                                         *
                                                                                         *
   1  CARDS;                                                                             *
   1  ALGERIA                      .04295   3       4048    14                           *
   1  ANGOLA                       .02150   63      .       .                            *
   1  BENIN                        .00225   87      105     10.9                         *
   1  BURUNDI                      .        9       57      -2                           *
   1  BOTSWANA                     .00214   1       .       .                            *
```

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PROJECT:  UQ5LC          MEMBER:  FDCLCOM          DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.03            TIME: 11:29
TYPE:     SAS            USERID:  U3D              PAGE: 29 OF 36
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```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
   1  BURKINA FASO                .00282   133     187     5.1                          *
   1  CAMEROON                    .00219   115     163     15                           *
   1  CAPE VERDE                  .00024   0       .       .                            *
   1  CENTRAL AFRICAN REPUBLIC    .00060   77      20.6    19                           *
   1  CHAD                        .        156     .       .                            *
   1  COMOROS ISLANDS             .        .       .       .                            *
   1  CONGO                       .00114   2       31      14.6                         *
   1  DJIBOUTI                    .        .       .       .                            *
   1  ETHIOPIA                    .01532   58      320     2.2                          *
   1  EGYPT                       .13700   432     6680.8  23.8                         *
   1  EQUATORIAL GUINEA           .00017   .       .       .                            *
   1  GHANA                       .01199   18      15.8    -19                          *
   1  GABON                       .00225   0       102     16.5                         *
   1  GAMBIA                      .00090   .       .       .                            *
   1  GUINEA                      .        3       .       .                            *
   1  GUINEA-BISSAU               .        2       .       .                            *
   1  IVORY COAST                 .01887   193     1526    18.5                         *
   1  KENYA                       .03570   177     2127.7  14.7                         *
   1  LIBERIA                     .00066   100     .       .                            *
   1  LESOTHO                     .00169   0       .       .                            *
   1  LIBYA                       .00346   0       383.91  13.6                         *
   1  MADAGASCAR                  .00952   33      67      -8.3                         *
   1  MOZAMBIQUE                  .04164   82      .       .                            *
   1  MALAWI                      .01551   143     58.48   2.5                          *
   1  MALI                        .00300   157                                          *
   1  MAURITIUS                   .00978   1                                            *
   1  MAURITANIA                  .        0                                            *
   1  MOROCCO                     .03069   20                                           *
   1  NIGER                       .00012   6                                            *
   1  NIGERIA                     .04116   323                                          *
   1  RWANDA                      .00282   2                                            *
   1  SAO TOME AND PRINCIPE       .        .                                            *
   1  SENEGAL                     .01609   31      7274    0       44000                *
   1  SIERRA LEONE                .00236   1       9873    153     165                  *
   1  SEYCHELLES                  .00035   0       2987    0       66                   *
   1  SOMALIA                     .00378   13      10377   150     31400                *
   1  SUDAN                       .01568   348     75650   0       307000               *
   1  SWAZILAND                   .00407   24      .       .       .                    *
   1  TOGO                        .00051   62      26577   1163    .                    *
   1  TANZANIA                    .02086   458                                          *
   1  TUNISIA                     .01443   5       132347  508     36000                *
   1  UGANDA                      .01448   532     5       0       27600                *
   1  ZAMBIA                      .02086   48      50      0       92000                *
   1  ZAIRE                       .01166   260     7583    0       58420                *
   1  ZIMBABWE                    .02397   206     0       29163   185680               *
   1  ;                                                                                 *
                                                                                        *
                                                                                        *
   1  DATA FOOD28;                                                                      *
   1  INPUT  country $ 1-26 f114 28-33  f115 37-43 f116 45-50 f117 52-57;               *
                                                                                        *
                                                                                        *
   1  CARDS;                                                                            *
   1  ALGERIA                     23                                                    *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  ANGOLA                        8.9                                                  *
   1  BENIN                         3.8      xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx            *
   1  BURUNDI                       4.8                                                  *
   1  BOTSWANA                      1.2      xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx            *
   1  BURKINA FASO                  8                                                    *
   1  CAMEROON                      10.5                                                 *
   1  CAPE VERDE                    .3       0        .        .                         *
   1  CENTRAL AFRICAN REPUBLIC      2.7      77       20.6     19                        *
   1  CHAD                          4.5      156      .        .                         *
   1  COMOROS ISLANDS               .5       .        .        .                         *
   1  CONGO                         2        2        31       14.6                      *
   1  DJIBOUTI                      .4       .        .        .                         *
   1  ETHIOPIA                      46       58       320      2.2                       *
   1  EGYPT                         50       432      6680.8   23.8                      *
   1  EQUATORIAL GUINEA             .3       .        .        .                         *
   1  GHANA                         12.2     18       15.8     -19                       *
   1  GABON                         1        0        102      16.5                      *
   1  GAMBIA                        .7       .        .        .                         *
   1  GUINEA                        5.8      3        .        .                         *
   1  GUINEA-BISSAU                 .8       2        .        .                         *
   1  IVORY COAST                   10.2     193      1526     18.5                      *
   1  KENYA                         21.6     177      2127.7   14.7                      *
   1  LIBERIA                       2        100      .        .                         *
   1  LESOTHO                       1.6      0        .        .                         *
   1  LIBYA                         3.6      0        383.91   13.6                      *
   1  MADAGASCAR                    10.3     33       67       -8.3                      *
   1  MOZAMBIQUE                    13.4     82       .        .                         *
   1  MALAWI                        7.1      143      58.48    2.5                       *
   1  MALI                          7.5      157                                         *
   1  MAURITIUS                     1        1                                           *
   1  MAURITANIA                    1.3      0                                           *
   1  MOROCCO                       22.8     20                                          *
   1  NIGER                         6.2      6                                           *
   1  NIGERIA                       100      323                                         *
   1  RWANDA                        6.3      2                                           *
   1  SAO TOME AND PRINCIPE         .1       .                                           *
   1  SENEGAL                       7        31       7274     0        44000            *
   1  SIERRA LEONE                  3.7      1        9873     153      165              *
   1  SEYCHELLES                    .06      0        2987     0        66               *
   1  SOMALIA                       5.4      13       10377    150      31400            *
   1  SUDAN                         21.1     348      75650    0        307000           *
   1  SWAZILAND                     .6       24       .        .        .                *
   1  TOGO                          3        62       26577    1163     .                *
   1  TANZANIA                      21.7     458                                         *
   1  TUNISIA                       7.4      5        132347   508      36000            *
   1  UGANDA                        15.9     532      5        0        27600            *
   1  ZAMBIA                        7        48       50       0        92000            *
   1  ZAIRE                         32       260      7583     0        58420            *
   1  ZIMBABWE                      8.8      206      0        29163    185680           *
   1  ;                                                                                  *
                                                                                         *
                                                                                         *
   1  PROC SORT DATA=FOOD1;                                                              *
   6       BY COUNTRY;                                                                   *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1 PROC SORT DATA=FOOD2;                                                            *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD3;                                                            *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD4;                                                            *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD5;                                                            *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD6;                                                            *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD7;                                                            *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD8;                                                            *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD9;                                                            *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD10;                                                           *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD11;                                                           *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD12;                                                           *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD13;                                                           *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD14;                                                           *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD15;                                                           *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD16;                                                           *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD17;                                                           *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD18;                                                           *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD19;                                                           *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD20;                                                           *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD21;                                                           *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD22;                                                           *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD23;                                                           *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD24;                                                           *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD25;                                                           *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD26;                                                           *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD27;                                                           *
    6      BY COUNTRY;                                                                 *
    1 PROC SORT DATA=FOOD28;                                                           *
    6      BY COUNTRY;                                                                 *
```

```
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   3    ****************************************;
   3    *        MERGE DATA                    *;
   3    ****************************************;
   1   DATA FOO1;
   1   MERGE FOOD1 FOOD2 FOOD3 FOOD4 FOOD5 FOOD6 FOOD7 FOOD8 FOOD9 FOOD10;
   6        BY COUNTRY;

   1   DATA FOO2;
   1   MERGE FOOD11 FOOD12 FOOD13 FOOD14 FOOD15 FOOD16 FOOD17 FOOD18 FOOD19;
   6        BY COUNTRY;

   1   DATA FOO3;
   1   MERGE FOOD20 FOOD21 FOOD22 FOOD23 FOOD24 FOOD25 FOOD26 FOOD27 FOOD28;
   6        BY COUNTRY;

   1   ************** FINAL DATA SET FOR AGRO FOODS ************;

   1   DATA FO1;
   1   MERGE FOO1 FOO2 FOO3;
   6        BY COUNTRY;

   3    ****************************************;
   3    *      Per Capitalization               ;
   3    ****************************************;

   2    f31=f31/f114;
   2    f32=f32/f114;
   2    f33=f33/f114;
   2    f34=f34/f114;
   2    f38=f38/f114;
   2    f48=f39/f114;
   2    f49=f49/f114;
   2    f53=f53/f114;
   2    f67=f67/f114;
   2    f68=f68/f114;
   2    f69=f69/f114;
   2    f57=f57/114;
   2    ****************************************;

   2    ****************************************;
   2    *        PRINT DATA                    *;
   2    ****************************************;
   2    PROC PRINT;
   2    TITLE 'Raw Data on Agro-Foods Industry';

   2    ****************************************;
   2    *    MEANS AND STANDARD DEVIATIONS      ;
   2    ****************************************;

   2    PROC MEANS;
   2    TITLE 'Means of Variables for all observations';
```

```
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   2    ****************************************;                                        *
   2    *      CLUSTERING BY COMPONENTS         *;                                       *
   2    ****************************************;                                        *
                                                                                        *
   1    PROC CLUSTER METHOD=AVERAGE STD PSEUDO NOEIGEN OUTTREE=TREE;                     *
   1    ID country;                                                                      *
   1    VAR f70-f83;                                                                     *
   1    PROC TREE;                                                                       *
   1    TITLE 'Agro-Ecological Constraints';                                             *
                                                                                        *
   1    PROC CLUSTER METHOD=WARD STD PSEUDO NOEIGEN OUTTREE=TREE;                        *
   1    ID country;                                                                      *
   1    VAR f70-f83;                                                                     *
   1    PROC TREE;                                                                       *
   1    TITLE 'Agro-Ecological Constraints';                                             *
                                                                                        *
   1    PROC CLUSTER METHOD=AVERAGE STD PSEUDO NOEIGEN OUTTREE=TREE;                     *
   1    ID country;                                                                      *
   1    VAR f8-f12 f66-f69 f88 f91 f94;                                                  *
   1    PROC TREE;                                                                       *
   1    TITLE 'Land Resources Component';                                                *
                                                                                        *
   1    PROC CLUSTER METHOD=WARD STD PSEUDO NOEIGEN OUTTREE=TREE;                        *
   1    ID country;                                                                      *
   1    VAR f8-f12 f66-f69 f88 f91 f94;                                                  *
   1    PROC TREE;                                                                       *
   1    TITLE 'Land Resources Component';                                                *
                                                                                        *
   1    PROC CLUSTER METHOD=AVERAGE STD PSEUDO NOEIGEN OUTTREE=TREE;                     *
   1    ID country;                                                                      *
   1    VAR f84 f85 f3;                                                                  *
   1    PROC TREE;                                                                       *
   1    TITLE 'Other Inputs: Irrigation & Pop in Agriculture';                           *
                                                                                        *
   1    PROC CLUSTER METHOD=WARD STD PSEUDO NOEIGEN OUTTREE=TREE;                        *
   1    ID country;                                                                      *
   1    VAR f84 f85 f3;                                                                  *
   1    PROC TREE;                                                                       *
   1    TITLE 'Other Inputs: Irrigation & Pop in Agriculture';                           *
                                                                                        *
   1    PROC CLUSTER METHOD=AVERAGE STD PSEUDO NOEIGEN OUTTREE=TREE;                     *
   1    ID country;                                                                      *
   1    VAR f1 f2 f13-f17 f19-f30 f39 f40 f48 f58 f93 f97 f111;                          *
   1    PROC TREE;                                                                       *
   1    TITLE 'Production Component';                                                    *
                                                                                        *
   1    PROC CLUSTER METHOD=WARD STD PSEUDO NOEIGEN OUTTREE=TREE;                        *
   1    ID country;                                                                      *
   1    VAR f1 f2 f13-f17 f19-f30 f39 f40 f48 f58 f93 f97 f111;                          *
   1    PROC TREE;                                                                       *
```

```
START                                                                    MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
    1  TITLE 'Production Component';


    1  PROC CLUSTER METHOD=AVERAGE STD PSEUDO NOEIGEN OUTTREE=TREE;
    1  ID country;
    1  VAR f5 f6 f36 f37 f32 f44-f47 f50 f51 f56 f99-f108 f41 f42;
    1  PROC TREE;
    1  TITLE 'Trade Component';

    1  PROC CLUSTER METHOD=WARD STD PSEUDO NOEIGEN OUTTREE=TREE;
    1  ID country;
    1  VAR f5 f6 f36 f37 f32 f44-f47 f50 f51 f56 f99-f108 f41 f42;
    1  PROC TREE;
    1  TITLE 'Trade Component';

    1  PROC CLUSTER METHOD=AVERAGE STD PSEUDO NOEIGEN OUTTREE=TREE;
    1  ID country;
    1  VAR f34 f38 f43 f52 f57 f59-f65;
    1  PROC TREE;
    1  TITLE 'Consumption Component';

    1  PROC CLUSTER METHOD=WARD STD PSEUDO NOEIGEN OUTTREE=TREE;
    1  ID country;
    1  VAR f34 f38 f43 f52 f57 f59-f65;
    1  PROC TREE;
    1  TITLE 'Consumption Component';

    1  PROC CLUSTER METHOD=AVERAGE STD PSEUDO NOEIGEN OUTTREE=TREE;
    1  ID country;
    1  VAR f33 f49;
    1  PROC TREE;
    1  TITLE 'Food Aid Component';

    1  PROC CLUSTER METHOD=WARD STD PSEUDO NOEIGEN OUTTREE=TREE;
    1  ID country;
    1  VAR f33 f49;
    1  PROC TREE;
    1  TITLE 'Food Aid Component';

    1  PROC CLUSTER METHOD=AVERAGE STD PSEUDO NOEIGEN OUTTREE=TREE;
    1  ID country;
    1  VAR f7 f87;
    1  PROC TREE;
    1  TITLE 'Concessionel Commitments to Agriculture';

    1  PROC CLUSTER METHOD=WARD STD PSEUDO NOEIGEN OUTTREE=TREE;
    1  ID country;
    1  VAR f7 f87;
    1  PROC TREE;
    1  TITLE 'Concessionel Commitments to Agriculture';
```

```
START
COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
   1  /*
   1  PROC CLUSTER METHOD=CEN      STD PSEUDO NOEIGEN OUTTREE=TREE;
   1  ID country;
   1  VAR f1-f29 f31-f42 f44-f53 f55-f73 f77-f86 f89-f90 f92-f93 f95-f108
   5      ff12;
   1  PROC TREE;

   1  PROC CLUSTER METHOD=COM      STD PSEUDO NOEIGEN OUTTREE=TREE;
   1  ID country;
   1  VAR f1-f29 f31-f42 f44-f53 f55-f73 f77-f86 f89-f90 f92-f93 f95-f108
   5      ff12;
   1  PROC TREE;

   1  PROC CLUSTER METHOD=DEN K=7 STD PSEUDO NOEIGEN OUTTREE=TREE;
   1  ID country;
   1  VAR f1-f29 f31-f42 f44-f53 f55-f73 f77-f86 f89-f90 f92-f93 f95-f108
   5      ff12;
   1  PROC TREE;


   1  PROC CLUSTER METHOD=EML      STD PSEUDO NOEIGEN OUTTREE=TREE;
   1  ID country;
   1  VAR f1-f29 f31-f42 f44-f53 f55-f73 f77-f86 f89-f90 f92-f93 f95-f108
   5      ff12;
   1  PROC TREE;

   1  PROC CLUSTER METHOD=FLE      STD PSEUDO NOEIGEN OUTTREE=TREE;
   1  ID country;
   1  VAR f1-f29 f31-f42 f44-f53 f55-f73 f77-f86 f89-f90 f92-f93 f95-f108
   5      ff12;
   1  PROC TREE;

   1  PROC CLUSTER METHOD=MCQ      STD PSEUDO NOEIGEN OUTTREE=TREE;
   1  ID country;
   1  VAR f1-f29 f31-f42 f44-f53 f55-f73 f77-f86 f89-f90 f92-f93 f95-f108
   5      ff12;
   1  PROC TREE;

   1  PROC CLUSTER METHOD=MED      STD PSEUDO NOEIGEN OUTTREE=TREE;
   1  ID country;
   1  VAR f1-f29 f31-f42 f44-f53 f55-f73 f77-f86 f89-f90 f92-f93 f95-f108
   5      ff12;
   1  PROC TREE;

   1  PROC CLUSTER METHOD=SIN      STD PSEUDO NOEIGEN OUTTREE=TREE;
   1  ID country;
   1  VAR f1-f29 f31-f42 f44-f53 f55-f73 f77-f86 f89-f90 f92-f93 f95-f108
   5      ff12;
   1  PROC TREE;
```

PROJECT: UQ5LC MEMBER: FDCLCOM DATE: 89/07/13
GROUP: PDSU LEVEL: 01.03 TIME: 11:29
TYPE: SAS USERID: U3D PAGE: 36 OF 36

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1  PROC CLUSTER METHOD=TWO K=7 STD PSEUDO NOEIGEN OUTTREE=TREE;                        *
    1  ID country;                                                                        *
    1  VAR f1-f29 f31-f42 f44-f53 f55-f73 f77-f86 f89-f90 f92-f93 f95-f108                *
    5      ff12;                                                                          *
    1  PROC TREE;                                                                         *


    1  /*                                                                                 *
```

PROJECT: UQ5LC MEMBER: FDFTCOM DATE: 89/07/13
GROUP: PDSU LEVEL: 01.05 TIME: 11:29
TYPE: SAS USERID: U3D PAGE: 01 OF 35

```
START                                                                    MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
    1 //U3DFDFC  JOB (Q5,T),D1867-THOMAS,MSGCLASS=X,CLASS=I,                 00010000
    1 //         TIME=(01,00),NOTIFY=U3C,MSGLEVEL=(1,1),REGION=3500K         00020000
    1 //*                                                                    *
    1 //*                                                                    *
    1 //*       Job Control for SAS-Batch                                    *
    1 //*                                                                    *
    1 //*                                                                    *
    1 /*JOBPARM COPIES=1                                                     *
    1 //STRUCC5  EXEC SAS,PARM='MACRO,PAGESIZE=65'                          *
    1 //FT11F001 DD SYSOUT=*,DEST=UNIDO,DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)*
    1 //FT12F001 DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)   *
    1 //FT02F001 DD SYSOUT=(Q,,XPLA),DCB=RECFM=UA,DEST=UNIDO                 *
    1 //SYSOUT   DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)   *
    1                                                                        *
    1 OPTIONS DQUOTE PAGESIZE=65;                                            *
    1 GOPTIONS DEVICE=XEROX NOTEXT82 HSIZE=10.5 VSIZE=7.5 NOCHARACTERS;      *
    1 *;                                                                     *
    1 DATA FOOD1;                                                            *
    1 INPUT  country $ 1-26 f1 28-32 f2  37-42 f3  44-47 f4  50-52;          *
    1                                                                        *
    1 CARDS;                                                                 *
    1 ALGERIA                    4.3      4.0      31      0                 *
    1 ANGOLA                    -0.1      0.6      74      1                 *
    1 BENIN                      6.4      4.6      70     79                 *
    1 BURUNDI                    2.8      2.7      93     85                 *
    1 BOTSWANA                  -0.9     -0.9      70      3                 *
    1 BURKINA FASO               6.9      5.8      87     92                 *
    1 CAMEROON                   1.7      1.7      70     33                 *
    1 CAPE VERDE                 4.1      4.2      52     20                 *
    1 CENTRAL AFRICAN REPUBLIC   2.0        0      72     27                 *
    1 CHAD                       1.4      1.2      83     69                 *
    1 COMOROS ISLANDS            1.8      1.6      83     45                 *
    1 CONGO                      1.4      1.6      62      1                 *
    1 DJIBOUTI                   2.3      2.1      71     30                 *
    1 ETHIOPIA                   0.4      0.7      80     65                 *
    1 EGYPT                      3.2      4.0      46     17                 *
    1 EQUATORIAL GUINEA          0.8      0.5      66     30                 *
    1 GHANA                      3.5      3.5      56     62                 *
    1 GABON                      0.8      0.7      75      0                 *
    1 GAMBIA                     1.9      2.0      84     57                 *
    1 GUINEA                     0.7      0.6      81      6                 *
    1 GUINEA-BISSAU              5.1      5.1      82     47                 *
    1 IVORY COAST                4.3      5.6      65     59                 *
    1 KENYA                      2.2      1.8      81     68                 *
    1 LIBERIA                    2.1      1.9      74     28                 *
    1 LESOTHO                    0.4      0.2      86     37                 *
    1 LIBYA                      5.5      5.7      18      0                 *
    1 MADAGASCAR                 1.8      1.8      81     88                 *
    1 MOZAMBIQUE                -1.3     -1.1      85     58                 *
    1 MALAWI                     1.0      0.3      83     89                 *
    1 MALI                       1.8      1.2      86     53                 *
    1 MAURITIUS                  3.3      3.1      28     38                 *
    1 MAURITANIA                -0.3     -0.3      69      7                 *
    1 MOROCCO                    4.2      4.2      46     16                 *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1  NIGER                          -1.1      -1.1     91      19                        *
    1  NIGERIA                         2.8       2.8     68       3                        *
    1  RWANDA                          0.5      -0.1     93      98                        *
    1  SAO TOME AND PRINCIPE          -3.5      -3.5     71      48                        *
    1  SENEGAL                         4.1       4.2     81      12                        *
    1  SIERRA LEONE                    0.8       0.4     70      28                        *
    1  SEYCHELLES                      1.8       1.6     71       3                        *
    1  SOMALIA                         2.8       2.8     76      82                        *
    1  SUDAN                           1.3       0.9     71      97                        *
    1  SWAZILAND                       1.8       2.1     74      64                        *
    1  TOGO                            3         1.3     73      43                        *
    1  TANZANIA                        2.6       2.9     86      74                        *
    1  TUNISIA                         3.2       3.2     35       9                        *
    1  UGANDA                          1.4       1.1     86      62                        *
    1  ZAMBIA                          2.9       2.9     73       5                        *
    1  ZAIRE                           2.5       2.4     72      20                        *
    1  ZIMBABWE                        2.0       0.2     73      58                        *
    1  ;                                                                                   *
                                                                                           *
    1  DATA FOOD2;                                                                         *
    1  INPUT  country $ 1-26 f5 28-32 f6  37-42 f7  44-47;                                 *
                                                                                           *
    1  CARDS;                                                                              *
    1  ALGERIA                        204       2056    33.1                              *
    1  ANGOLA                          92        256    14.5                              *
    1  BENIN                           65        106    14.5                              *
    1  BURUNDI                         95         28    14.5                              *
    1  BOTSWANA                        58        104     2.9                              *
    1  BURKINA FASO                    64         82    14.5                              *
    1  CAMEROON                       565        115    11.1                              *
    1  CAPE VERDE                       1         25    14.5                              *
    1  CENTRAL AFRICAN REPUBLIC        52         26    11.3                              *
    1  CHAD                           118         20      .6                              *
    1  COMOROS ISLANDS                 13         11    14.5                              *
    1  CONGO                           14         77    20.5                              *
    1  DJIBOUTI                         .         80    14.5                              *
    1  ETHIOPIA                       364        169    11.8                              *
    1  EGYPT                          686       3597    27.5                              *
    1  EQUATORIAL GUINEA               17          5    14.5                              *
    1  GHANA                          289        158    20.9                              *
    1  GABON                            7        120     9.4                              *
    1  GAMBIA                          28         43    14.5                              *
    1  GUINEA                          23         70    14.5                              *
    1  GUINEA-BISSAU                   11         16    14.5                              *
    1  IVORY COAST                   1780        371    31.6                              *
    1  KENYA                          721        251    20.3                              *
    1  LIBERIA                        110        108     6.6                              *
    1  LESOTHO                         58        121     4.6                              *
    1  LIBYA                           64       1296    14.5                              *
    1  MADAGASCAR                     260         67    14 5                              *
    1  MOZAMBIQUE                      47        151    14.5                              *
    1  MALAWI                         308         19    14.5                              *
    1  MALI                           196        138     6.0                              *
```

```
PROJECT:  UQ5LC          MEMBER:  FDFTCOM          DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.05            TIME: 11:29
TYPE:     SAS            USERID:  U3D              PAGE: 03 OF 35
```

```
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
                                                                                        *
   1   MAURITIUS                    212      118     16.3                                *
   1   MAURITANIA                   36       122     10                                  *
   1   MOROCCO                      310      904     38.2                                *
   1   NIGER                        62       65      19.5                                *
   1   NIGERIA                      328      1929    18.6                                *
   1   RWANDA                       68       43      2.6                                 *
   1   SAO TOME AND PRINCIPE        10       5       14.5                                *
   1   SENEGAL                      161      296     14.5                                *
   1   SIERRA LEONE                 44       51      7.3                                 *
   1   SEYCHELLES                   2        19      4.0                                 *
   1   SOMALIA                      110      169     13.2                                *
   1   SUDAN                        519      236     11.2                                *
   1   SWAZILAND                    157      38      4.6                                 *
   1   TOGO                         58       112     12.3                                *
   1   TANZANIA                     382      134     14.5                                *
   1   TUNISIA                      134      498     23.1                                *
   1   UGANDA                       375      18      14.5                                *
   1   ZAMBIA                       15       68      11.6                                *
   1   ZAIRE                        210      166     7.7                                 *
   1   ZIMBABWE                     468      89      31.6                                *
   1   ;                                                                                *
                                                                                        *
   1   DATA FOOD3;                                                                      *
   1   INPUT  country $ 1-26 f8 28-32 f9  37-42 f10 44-48 f11 50-55;                    *
                                                                                        *
                                                                                        *
   1   CARDS;                                                                           *
   1   ALGERIA                      2868     119     167     438                         *
   1   ANGOLA                       708      155     110     305                         *
   1   BENIN                        591      185     89      141                         *
   1   BURUNDI                      400      179     392     365                         *
   1   BOTSWANA                     90       1       30      4                           *
   1   BURKINA FASO                 2412     18      482     254                         *
   1   CAMEROON                     928      906     217     1495                        *
   1   CAPE VERDE                   19       5       19      4                           *
   1   CENTRAL AFRICAN REPUBLIC     144      180     13      212                         *
   1   CHAD                         1167     111     138     162                         *
   1   COMOROS ISLANDS              20       35      7       23                          *
   1   CONGO                        15       103     11      97                          *
   1   DJIBOUTI                     5        .8      7       0                           *
   1   ETHIOPIA                     4668     445     933     1395                        *
   1   EGYPT                        1939     82      173     899                         *
   1   EQUATORIAL GUINEA            14       1       .2      0                           *
   1   GHANA                        993      646     125     1623                        *
   1   GABON                        7        61      0       46                          *
   1   GAMBIA                       106      2       15      88                          *
   1   GUINEA                       759      94      65      654                         *
   1   GUINEA-BISSAU                225      7       3       59                          *
   1   IVORY COAST                  1200     777     12      3199                        *
   1   KENYA                        1847     172     487     701                         *
   1   LIBERIA                      231      53      6       96                          *
   1   LESOTHO                      233      0       15      0                           *
   1   LIBYA                        415      16      10      70                          *
   1   MADAGASCAR                   1340     488     61      478                         *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  MOZAMBIQUE                  871      589     125     252                          *
   1  MALAWI                      1276     128     372     344                          *
   1  MALI                        1953     16      55      99                           *
   1  MAURITIUS                   1        1       2       84                           *
   1  MAURITANIA                  167      3       74      3                            *
   1  MOROCCO                     5027     46      515     620                          *
   1  NIGER                       4293     34      1614    131                          *
   1  NIGERIA                     9753     3133    1937    2012                         *
   1  RWANDA                      270      216     329     335                          *
   1  SAO TOME AND PRINCIPE       0        1       0       32                           *
   1  SENEGAL                     1314     16      104     776                          *
   1  SIERRA LEONE                387      44      55      111                          *
   1  SEYCHELLES                  0        0       0       3                            *
   1  SOMALIA                     702      4       41      137                          *
   1  SUDAN                       6136     81      92      1751                         *
   1  SWAZILAND                   68       5       5       35                           *
   1  TOGO                        472      96      126     144                          *
   1  TANZANIA                    3277     568     781     1023                         *
   1  TUNISIA                     1554     15      124     1534                         *
   1  UGANDA                      822      729     487     1889                         *
   1  ZAMBIA                      679      65      17      120                          *
   1  ZAIRE                       1299     2325    200     1361                         *
   1  ZIMBABWE                    1762     22      69      357                          *
   1  ;                                                                                 *
                                                                                        *
                                                                                        *
   1  DATA FOOD4;                                                                       *
   1  INPUT  country $ 1-26 f12 28-32 ff12 37-42 g1  44-48;                             *
                                                                                        *
   1  CARDS;                                                                            *
   1  ALGERIA                     0        3       3595                                 *
   1  ANGOLA                      182      63      1341                                 *
   1  BENIN                       5        87      1093                                 *
   1  BURUNDI                     41       9       1345                                 *
   1  BOTSWANA                    0        1       126                                  *
   1  BURKINA FASO                0        133     3299                                 *
   1  CAMEROON                    791      115     3661                                 *
   1  CAPE VERDE                  1        0       47                                   *
   1  CENTRAL AFRICAN REPUBLIC    49       77      626                                  *
   1  CHAD                        0        156     1734                                 *
   1  COMOROS ISLANDS             1        0       85                                   *
   1  CONGO                       8        2       228                                  *
   1  DJIBOUTI                    0        2       .                                    *
   1  ETHIOPIA                    743      58      7499                                 *
   1  EGYPT                       0        432     3525                                 *
   1  EQUATORIAL GUINEA           .52      .19     .                                    *
   1  GHANA                       1143     18      3405                                 *
   1  GABON                       25       0       114                                  *
   1  GAMBIA                      0        4       .                                    *
   1  GUINEA                      60       3       1575                                 *
   1  GUINEA-BISSAU               0        2       295                                  *
   1  IVORY COAST                 1176     193     5381                                 *
   1  KENYA                       225      177     3384                                 *
   1  LIBERIA                     47       100     486                                  *
```

```
PROJECT:  UQ5LC          MEMBER:  FDFTCOM          DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.05            TIME: 11:29
TYPE:     SAS            USERID:  U3D              PAGE: 05 OF 35
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```
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
   1   LESOTHO                      0        0       248                                  *
   1   LIBYA                        0        0       511                                  *
   1   MADAGASCAR                   232      33      2400                                 *
   1   MOZAMBIQUE                   17       82      1919                                 *
   1   MALAWI                       23       143     2263                                 *
   1   MALI                         0        157     2280                                 *
   1   MAURITIUS                    4        1       89                                   *
   1   MAURITANIA                   0        0       247                                  *
   1   MOROCCO                      0        20      6228                                 *
   1   NIGER                        0        6       6078                                 *
   1   NIGERIA                      706      323     17158                                *
   1   RWANDA                       49       2       1152                                 *
   1   SAO TOME AND PRINCIPE        31       0       33                                   *
   1   SENEGAL                      0        31      2241                                 *
   1   SIERRA LEONE                 79       1       598                                  *
   1   SEYCHELLES                   0        0       0                                    *
   1   SOMALIA                      1        13      897                                  *
   1   SUDAN                        0        348     8408                                 *
   1   SWAZILAND                    1        24      137                                  *
   1   TOGO                         66       62      900                                  *
   1   TANZANIA                     130      458     6107                                 *
   1   TUNISIA                      0        5       3232                                 *
   1   UGANDA                       229      532     4459                                 *
   1   ZAMBIA                       1        48      929                                  *
   1   ZAIRE                        310      260     5445                                 *
   1   ZIMBABWE                     15       206     2416                                 *
   1   ;                                                                                  *
   1   DATA FOOD5;                                                                        *
   1   INPUT country $ 1-26 f13 28-32 f14 37-42 f15 45-48 f16 50-54;                      *
   1   CARDS;                                                                             *
   1   ALGERIA                      3.49     0.51    0       1.46                         *
   1   ANGOLA                       1.11     0.46    0.64    0                            *
   1   BENIN                        1.21     0.82    .59     .78                          *
   1   BURUNDI                      3.13     1.20    .94     1.17                         *
   1   BOTSWANA                     0        .25     .13     .23                          *
   1   BURKINA FASO                 1.47     0.92    .60     .77                          *
   1   CAMEROON                     4.89     .85     .90     0                            *
   1   CAPE VERDE                   0        0.62    0       0                            *
   1   CENTRAL AFRICAN REPUBLIC     1.00     .80     .78     0                            *
   1   CHAD                         0.76     0.67    .56     0                            *
   1   COMOROS ISLANDS              1.12     1.02    0       0                            *
   1   CONGO                        0.58     .73     0       0                            *
   1   DJIBOUTI                     1.65     1.01    .48     0                            *
   1   ETHIOPIA                     0        1.81    .81     1.09                         *
   1   EGYPT                        5.75     4.27    3.80    0                            *
   1   EQUATORIAL GUINEA            1.23     1.04    .41     0                            *
   1   GHANA                        0.96     1.07    .56     .76                          *
   1   GABON                        2.46     1.43    0       0                            *
   1   GAMBIA                       1.59     1.71    1.17    0                            *
   1   GUINEA                       0.86     1.05    0       .63                          *
   1   GUINEA-BISSAU                1.23     1.05    .68     .58                          *
   1   IVORY COAST                  1.16     0.73    .63     .63                          *
```

```
START                                                                                  MOD
 COL   ---+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  KENYA                          2.19     1.71     1.05    .77                      *
   1  LIBERIA                        1.24     0        0       0                        *
   1  LESOTHO                        0        .68      0       .58                      *
   1  LIBYA                          0        1.20     1.42    0                        *
   1  MADAGASCAR                     1.87     1.06     0       .6                       *
   1  MOZAMBIQUE                     0.81     .53      .25     .82                      *
   1  MALAWI                         1.42     1.09     .48     .61                      *
   1  MALI                           1.21     1.46     .77     0                        *
   1  MAURITIUS                      5.16     4.25     0       0                        *
   1  MAURITANIA                     2.81     1.05     .43     0                        *
   1  MOROCCO                        4.85     0.76     .76     .59                      *
   1  NIGER                          2.53     0.71     .41     .31                      *
   1  NIGERIA                        2.04     2.09     .95     1.09                     *
   1  RWANDA                         2.33     1.33     .61     1.02                     *
   1  SAO TOME AND PRINCIPE          0        1.56     0       0                        *
   1  SENEGAL                        1.92     1.25     .70     0                        *
   1  SIERRA LEONE                   1.36     0.77     1.18    2.42                     *
   1  SEYCHELLES                     0        0        0       0                        *
   1  SOMALIA                        3.25     1.22     0       .52                      *
   1  SUDAN                          1.04     0.56     .20     .59                      *
   1  SWAZILAND                      7.50     1.39     0       .75                      *
   1  TOGO                           1.05     .78      .73     .79                      *
   1  TANZANIA                       1.63     1.21     .85     .79                      *
   1  TUNISIA                        0        0        0       .42                      *
   1  UGANDA                         1.29     1.08     1.39    1.5                      *
   1  ZAMBIA                         1.03     1.87     .73     .69                      *
   1  ZAIRE                          0.89     .87      .8      .89                      *
   1  ZIMBABWE                       2.53     1.64     .52     .60                      *
   1  ;                                                                                 *
                                                                                        *
   1  DATA FOOD6;                                                                       *
   1  INPUT  country $ 1-26 f17 28-32 f18 37-42 f19 44-47 f20 50-52;                    *
                                                                                        *
   1  CARDS;                                                                            *
   1  ALGERIA                        0        0        2       4                        *
   1  ANGOLA                         15.1     0        21      277                      *
   1  BENIN                          6.73     3.51     8       362                      *
   1  BURUNDI                        11.12    4.3      21      162                      *
   1  BOTSWANA                       0        5.38     0       2                        *
   1  BURKINA FASO                   5.25     4.80     34      144                      *
   1  CAMEROON                       1.6      2.75     113     359                      *
   1  CAPE VERDE                     10       1.74     0       12                       *
   1  CENTRAL AFRICAN REPUBLIC       5.07     3.25     11      46                       *
   1  CHAD                           4.35     .86      16      42                       *
   1  COMOROS ISLANDS                2.86     0        16      6                        *
   1  CONGO                          6.56     6.63     2       8                        *
   1  DJIBCUTI                       5.58     .74      .       .                        *
   1  ETHIOPIA                       0        2.57     0       1452                     *
   1  EGYPT                          0        3.43     2362    3412                     *
   1  EQUATORIAL GUINEA              6.34     6.51     .       .                        *
   1  GHANA                          8.09     5.28     83      481                      *
   1  GABON                          6.02     6.75     1       10                       *
   1  GAMBIA                         3        0        39      28                       *
   1  GUINEA                         6.94     6.43     488     46                       *
```

```
PROJECT:  UQ5LC          MEMBER:  FDFTCOM          DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.05            TIME: 11:29
TYPE:     SAS            USERID:  U3D              PAGE: 07 OF 35
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
   1  GUINEA-BISSAU                0        6.15     132     26                        *
   1  IVORY COAST                  5.56     1.28     566     438                       *
   1  KENYA                        9.8      0        31      2526                      *
   1  LIBERIA                      6.33     7.88     286     0                         *
   1  LESOTHO                      0        15       0       91                        *
   1  LIBYA                        0        0        0       1                         *
   1  MADAGASCAR                   6.6      6.41     2235    150                       *
   1  MOZAMBIQUE                   5.76     5        57      320                       *
   1  MALAWI                       3.94     0        33      1292                      *
   1  MALI                         9.13     0        223     192                       *
   1  MAURITIUS                    16.47    9.96     0       6                         *
   1  MAURITANIA                   0        0        16      10                        *
   1  MOROCCO                      0        0        22      289                       *
   1  NIGER                        7.28     0        64      6                         *
   1  NIGERIA                      11.11    5.03     1460    1299                      *
   1  RWANDA                       9.8      8.69     6       112                       *
   1  SAO TOME AND PRINCIPE        11.67    14.31    0       1                         *
   1  SENEGAL                      3.78     0        144     123                       *
   1  SIERRA LEONE                 3.41     4.85     469     12                        *
   1  SEYCHELLES                   5        0        0       0                         *
   1  SOMALIA                      10.72    0        10      301                       *
   1  SUDAN                        2.31     0        2       26                        *
   1  SWAZILAND                    0        0        3       91                        *
   1  TOGO                         7.59     4.92     19      160                       *
   1  TANZANIA                     12.22    0        522     2164                      *
   1  TUNISIA                      0        0        0       0                         *
   1  UGANDA                       7.58     0        19      320                       *
   1  ZAMBIA                       3.55     0        10      1099                      *
   1  ZAIRE                        7.14     5.41     300     745                       *
   1  ZIMBABWE                     4.16     0        0       2062                      *
   1  ;                                                                                *
                                                                                       *
   1  DATA FOOD7;                                                                      *
   1  INPUT  country $ 1-26 f21 28-32 f22 37-42 f23 44-47 f24 50-52;                   *
                                                                                       *
   1  CARDS;                                                                           *
   1  ALGERIA                      0        1        0       0                         *
   1  ANGOLA                       55       0        1963    7                         *
   1  BENIN                        17       85       666     2                         *
   1  BURUNDI                      58       210      538     123                       *
   1  BOTSWANA                     1        16       0       7                         *
   1  BURKINA FASO                 635      886      32      5                         *
   1  CAMEROON                     431      0        673     817                       *
   1  CAPE VERDE                   0        0        3       3                         *
   1  CENTRAL AFRICAN REPUBLIC     59       0        607     59                        *
   1  CHAD                         556      0        295     9                         *
   1  COMOROS ISLANDS              0        0        93      0                         *
   1  CONGO                        0        0        620     23                        *
   1  DJIBOUTI                     .        .        .       .                         *
   1  ETHIOPIA                     186      982      0       897                       *
   1  EGYPT                        568      0        0       103                       *
   1  EQUATORIAL GUINEA            .        .        .       .                         *
   1  GHANA                        127      175      2965    650                       *
   1  GABON                        0        0        255     55
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  GAMBIA                        75        0        6        0                      *
   1  GUINEA                        0         4        500      32                     *
   1  GUINEA-BISSAU                 21        29       0        40                     *
   1  IVORY COAST                   41        23       1500     255                    *
   1  KENYA                         62        123      497      0                      *
   1  LIBERIA                       0         0        299      17                     *
   1  LESOTHO                       0         40       0        6                      *
   1  LIBYA                         5         0        0        0                      *
   1  MADAGASCAR                    0         1        2247     93                     *
   1  MOZAMBIQUE                    5         147      330      5                      *
   1  MALAWI                        14        23       188      0                      *
   1  MALI                          1228      0        73       0                      *
   1  MAURITIUS                     0         0        0        0                      *
   1  MAURITANIA                    66        0        0        0                      *
   1  MOROCCO                       3         16       0        0                      *
   1  NIGER                         1284      349      200      0                      *
   1  NIGERIA                       3567      4964     14067    1727                   *
   1  RWANDA                        1         179      443      55                     *
   1  SAO TOME AND PRINCIPE         0         1        0        0                      *
   1  SENEGAL                       795       0        53       0                      *
   1  SIERRA LEONE                  19        19       113      22                     *
   1  SEYCHELLES                    0         0        0        0                      *
   1  SOMALIA                       0         234      41       0                      *
   1  SUDAN                         278       2708     83       0                      *
   1  SWAZILAND                     0         2        0        0                      *
   1  TOGO                          75        108      413      9                      *
   1  TANZANIA                      277       633      5500     0                      *
   1  TUNISIA                       0         6        0        0                      *
   1  UGANDA                        19        320      434      292                    *
   1  ZAMBIA                        20        30       220      0                      *
   1  ZAIRE                         33        34       15720    66                     *
   1  ZIMBABWE                      149       104      84       0                      *
   1  ;                                                                                *
                                                                                       *
   1  DATA FOOD8;                                                                      *
   1  INPUT  country $ 1-26 f25 28-32 f26 37-42 f27 45-50 f28 52-57;                   *
                                                                                       *
   1  CARDS;                                                                           *
   1  ALGERIA                       1523      5        14300    3500                   *
   1  ANGOLA                        3390      475      260      970                    *
   1  BENIN                         950       620      1200     1120                   *
   1  BURUNDI                       479       77       329      723                    *
   1  BOTSWANA                      2300      9        215      1050                   *
   1  BURKINA FASO                  3170      206      2300     3430                   *
   1  CAMEROON                      4400      1200     2500     2450                   *
   1  CAPE VERDE                    13        50       1        65                     *
   1  CENTRAL AFRICAN REPUBLIC      2224      371      116      1135                   *
   1  CHAD                          5148      12       2700     2700                   *
   1  COMOROS ISLANDS               85        732      9        95                     *
   1  CONGO                         71        45       64       185                    *
   1  DJIBOUTI                      70        .        412      500                    *
   1  ETHIOPIA                      30000     19       23200    17300                  *
   1  EGYPT                         1900      15       1160     1600                   *
   1  EQUATORIAL GUINEA             5         5        35       8                      *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1  GHANA                          1248      703      2400     2800                    *
    1  GABON                          9         153      83       63                      *
    1  GAMBIA                         300       13       195      200                     *
    1  GUINEA                         1800      50       460      460                     *
    1  GUINEA-BISSAU                  340       290      205      210                     *
    1  IVORY COAST                    965       450      1500     1500                    *
    1  KENYA                          9500      100      7200     8300                    *
    1  LIBERIA                        42        140      240      235                     *
    1  LESOTHO                        520       70       1430     1020                    *
    1  LIBYA                          212       134      5700     960                     *
    1  MADAGASCAR                     10565     1361     611      1050                    *
    1  MOZAMBIQUE                     1350      155      117      370                     *
    1  MALAWI                         940       200      200      900                     *
    1  MALI                           4476      59       5700     5500                    *
    1  MAURITIUS                      32        10       7        95                      *
    1  MAURITANIA                     1200      768      4000     3150                    *
    1  MOROCCO                        3178      9        14700    5280                    *
    1  NIGER                          3400      37       3500     7500                    *
    1  NIGERIA                        12200     1300     13200    26000                   *
    1  RWANDA                         650       90       350      1000                    *
    1  SAO TOME AND PRINCIPE          3         3        2        4                       *
    1  SENEGAL                        2500      450      3700     1130                    *
    1  SIERRA LEONE                   330       50       330      180                     *
    1  SEYCHELLES                     2         15       2        4                       *
    1  SOMALIA                        4770      10       13195    19705                   *
    1  SUDAN                          22400     5096     19000    14000                   *
    1  SWAZILAND                      655       19       32       315                     *
    1  TOGO                           290       300      900      880                     *
    1  TANZANIA                       13000     182      45000    6550                    *
    1  TUNISIA                        610       4        5800     1113                    *
    1  UGANDA                         3905      470      1683     2502                    *
    1  ZAMBIA                         2850      200      75       390                     *
    1  ZAIRE                          1420      790      775      2940                    *
    1  ZIMBABWE                       5567      180      570      1600                    *
    1  ;                                                                                  *
                                                                                          *
    1  DATA FOOD9;                                                                        *
    1  INPUT  country $ 1-26 f29 28-32 f30 37-42 f31 45-50 f32 52-57;                     *
                                                                                          *
    1  CARDS;                                                                             *
    1  ALGERIA                        185       130      920      1488                    *
    1  ANGOLA                         970       1        148      285                     *
    1  BENIN                          1120      6        20       11                      *
    1  BURUNDI                        12        .        36       26                      *
    1  BOTSWANA                       25        .        99       41                      *
    1  BURKINA FASO                   70        6        98       77                      *
    1  CAMEROON                       2450      24       47       48                      *
    1  CAPE VERDE                     1         .        2        19                      *
    1  CENTRAL AFRICAN REPUBLIC       903       .        5        6                       *
    1  CHAD                           150       606      149      31                      *
    1  COMOROS ISLANDS                1         .        4        4                       *
    1  CONGO                          83        .        3        23                      *
    1  DJIBOUTI                       .         56       .        .                       *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS

   1  ETHIOPIA                    1600     1050     918     235                        *
   1  EGYPT                       9        70       2331    552                        *
   1  EQUATORIAL GUINEA           .        .        .       .                          *
   1  GHANA                       4        .        9       44                         *
   1  GABON                       40       .        0       21                         *
   1  GAMBIA                      6        .        5       19                         *
   1  GUINEA                      1        .        47      15                         *
   1  GUINEA-BISSAU               1        .        13      3                          *
   1  IVORY COAST                 1        .        17      187                        *
   1  KENYA                       2        780      990     65                         *
   1  LIBERIA                     26       .        3       29                         *
   1  LESOTHO                     118      .        22      43                         *
   1  LIBYA                       45       180      128     313                        *
   1  MADAGASCAR                  1        .        41      26                         *
   1  MOZAMBIQUE                  92       .        73      64                         *
   1  MALAWI                      102      .        43      16                         *
   1  MALI                        62       249      151     44                         *
   1  MAURITIUS                   1        .        25      83                         *
   1  MAURITANIA                  16       800      254     109                        *
   1  MOROCCO                     180      52       902     111                        *
   1  NIGER                       294      416      255     36                         *
   1  NIGERIA                     250      18       348     354                        *
   1  RWANDA                      15       .        86      33                         *
   1  SAO TOME AND PRINCIPE       2        .        0       1                          *
   1  SENEGAL                     208      8        97      190                        *
   1  SIERRA LEONE                42       .        17      17                         *
   1  SEYCHELLES                  1        .        0       5                          *
   1  SOMALIA                     1        6601     835     110                        *
   1  SUDAN                       21       3000     2928    157                        *
   1  SWAZILAND                   2        .        38      5                          *
   1  TOGO                        1        .        7       7                          *
   1  TANZANIA                    3228     .        46      80                         *
   1  TUNISIA                     55       182      332     219                        *
   1  UGANDA                      61       .        362     20                         *
   1  ZAMBIA                      166      .        73      8                          *
   1  ZAIRE                       1335     .        7       83                         *
   1  ZIMBABWE                    22       .        210     17                         *
   1  ;                                                                                *
                                                                                       *
                                                                                       *
   1  DATA FOOD10;                                                                     *
   1  INPUT  country $ 1-26 f33 28-32 f34 37-42 f35 45-50 f36 52-57;                   *
                                                                                       *
   1  CARDS;                                                                           *
   1  ALGERIA                     2        2389     196     0                          *
   1  ANGOLA                      5        423      80      0                          *
   1  BENIN                       1        31       48      0                          *
   1  BURUNDI                     2        61       19      0                          *
   1  BOTSWANA                    3        105      41      25                         *
   1  BURKINA FASO                6        168      66      7                          *
   1  CAMEROON                    0        92       100     1                          *
   1  CAPE VERDE                  2        20       2       0                          *
   1  CENTRAL AFRICAN REPUBLIC    0        11       48      0                          *
   1  CHAD                        4        163      82      23                         *
```

```
PROJECT:  UQ5LC          MEMBER:  FDFTCOM          DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.05            TIME: 11:29
TYPE:     SAS            USERID:  U3D              PAGE: 11 OF 35
```

```
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
   1   COMOROS ISLANDS              0        7        3        0                          *
   1   CONGO                        0        26       7        0                          *
   1   DJIBOUTI                     0        .        .        0                          *
   1   ETHIOPIA                     23       1112     454      4                          *
   1   EGYPT                        23       2235     563      0                          *
   1   EQUATORIAL GUINEA            0        .        .        0                          *
   1   GHANA                        4        53       48       0                          *
   1   GABON                        0        22       5        0                          *
   1   GAMBIA                       1        23       6        0                          *
   1   GUINEA                       0        60       39       2                          *
   1   GUINEA-BISSAU                0        15       13       0                          *
   1   IVORY COAST                  0        200      68       0                          *
   1   KENYA                        4        905      214      8                          *
   1   LIBERIA                      0        32       10       0                          *
   1   LESOTHO                      3        64       25       3                          *
   1   LIBYA                        0        432      102      0                          *
   1   MADAGASCAR                   2        64       251      2                          *
   1   MOZAMBIQUE                   3        134      67       0                          *
   1   MALAWI                       0        56       40       0                          *
   1   MALI                         2        190      156      43                         *
   1   MAURITIUS                    1        106      7        0                          *
   1   MAURITANIA                   6        350      42       14                         *
   1   MOROCCO                      7        759      312      0                          *
   1   NIGER                        4        275      120      19                         *
   1   NIGERIA                      0        565      697      0                          *
   1   RWANDA                       4        114      24       0                          *
   1   SAO TOME AND PRINCIPE        0        1        0        0                          *
   1   SENEGAL                      7        282      69       0                          *
   1   SIERRA LEONE                 2        17       13       0                          *
   1   SEYCHELLES                   0        5        1        0                          *
   1   SOMALIA                      9        801      146      16                         *
   1   SUDAN                        6        2942     482      10                         *
   1   SWAZILAND                    0        37       17       2                          *
   1   TOGO                         2        14       15       0                          *
   1   TANZANIA                     5        552      213      0                          *
   1   TUNISIA                      7        480      107      0                          *
   1   UGANDA                       2        364      145      0                          *
   1   ZAMBIA                       1        69       58       0                          *
   1   ZAIRE                        0        89       76       0                          *
   1   ZIMBABWE                     2        173      92       26                         *
   1   ;                                                                                  *
                                                                                          *
                                                                                          *
   1   DATA FOOD11;                                                                       *
   1   INPUT  country $ 1-26 f37 28-32 f38 37-42 f39 45-50 f40 52-57;                     *
                                                                                          *
                                                                                          *
   1   CARDS;                                                                             *
   1   ALGERIA                      43       239      75000    62644                      *
   1   ANGOLA                       34       115      62666    8000                       *
   1   BENIN                        4        53       3600     16400                      *
   1   BURUNDI                      0        19       0        12000                      *
   1   BOTSWANA                     34       115      0        1500                       *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  BURKINA FASO                  0        59       0       7000                    *
   1  CAMEROON                      12       111      32458   20000                   *
   1  CAPE VERDE                    0        2        9320    7000                    *
   1  CENTRAL AFRICAN REPUBLIC      12       111      0       13000                   *
   1  CHAD                          0        59       0       110000                  *
   1  COMOROS ISLANDS               1        4        4000    1307                    *
   1  CONGO                         10       17       19297   12000                   *
   1  DJIBOUTI                      .8       .        426     .                       *
   1  ETHIOPIA                      1        450      400     35                      *
   1  EGYPT                         254      817      26146   112336                  *
   1  EQUATORIAL GUINEA             .5       .        3600    400                     *
   1  GHANA                         3        50       198424  40000                   *
   1  GABON                         23       25       50005   2633                    *
   1  GAMBIA                        0        7        9182    35                      *
   1  GUINEA                        2        38       17453   1000                    *
   1  GUINEA-BISSAU                 3        13       2696    2251                    *
   1  IVORY COAST                   47       115      65691   18000                   *
   1  KENYA                         0        206      5984    83904                   *
   1  LIBERIA                       6        15       10650   4000                    *
   1  LESOTHO                       0        22       0       12                      *
   1  LIBYA                         59       319      7800    9802                    *
   1  MADAGASCAR                    0        248      13500   42500                   *
   1  MOZAMBIQUE                    1        68       37440   5000                    *
   1  MALAWI                        0        40       0       65064                   *
   1  MALI                          1        114      0       54000                   *
   1  MAURITIUS                     7        13       10312   24                      *
   1  MAURITANIA                    0        28       44000   11000                   *
   1  MOROCCO                       7        319      466130  1320                    *
   1  NIGER                         0        101      0       6840                    *
   1  NIGERIA                       59       755      190265  183490                  *
   1  RWANDA                        0        24       0       786                     *
   1  SAO TOME AND PRINCIPE         0        1        4289    310                     *
   1  SENEGAL                       8        77       222552  19061                   *
   1  SIERRA LEONE                  3        16       36000   16500                   *
   1  SEYCHELLES                    1        1        3854    177                     *
   1  SOMALIA                       0        130      15300   14704                   *
   1  SUDAN                         1        472      4450    25050                   *
   1  SWAZILAND                     5        21       0       44                      *
   1  TOGO                          12       28       13897   650                     *
   1  TANZANIA                      0        213      31200   231600                  *
   1  TUNISIA                       25       124      74944   20150                   *
   1  UGANDA                        2        147      0       212200                  *
   1  ZAMBIA                        0        58       0       64621                   *
   1  ZAIRE                         45       121      1000    10000                   *
   1  ZIMBABWE                      3        70       0       16409                   *
   1  ;                                                                               *
                                                                                      *
                                                                                      *
   1  DATA FOOD12;                                                                    *
   1  INPUT  country $ 1-26 f41 28-32 f42 37-42 f43 45-50 f44 52-57;                  *
                                                                                      *
   1  CARDS;                                                                          *
   1  ALGERIA                       .8       .4       2       17.5                    *
   1  ANGOLA                        22       20       8.9     14.6                    *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1  BENIN                          7        .1       8.5      4.4
    1  BURUNDI                        .5       0        3.1      13.3
    1  BOTSWANA                       3        0        1.5      12.9
    1  BURKINA FASO                   3.5      0        1.5      17.7
    1  CAMEROON                       17.7     2.7      10.7     7.2
    1  CAPE VERDE                     .5       1.2      23.7     28
    1  CENTRAL AFRICAN REPUBLIC       .4       0        5.7      17
    1  CHAD                           .4       9.7      13.4     15.4
    1  COMOROS ISLANDS                1        1.1      10.9     34.5
    1  CONGO                          20.7     .8       28.3     7.6
    1  DJIBOUTI                       .        .        6.2      22.2
    1  ETHIOPIA                       124      119      .1       12.5
    1  EGYPT                          68.6     .5       4.8      28.7
    1  EQUATORIAL GUINEA              1.9      .        13.2     12.4
    1  GHANA                          35.7     34       19       15
    1  GABON                          12.5     1.5      20       11.7
    1  GAMBIA                         16.3     18       23.2     26.1
    1  GUINEA                         12       0        6.1      13.8
    1  GUINEA-BISSAU                  .4       .8       5.1      31.8
    1  IVORY COAST                    123.4    42.6     19.5     17.8
    1  KENYA                          1.4      2.4      3        9.7
    1  LIBERIA                        20.7     .8       16.1     22.6
    1  LESOTHO                        4        0        3        20.3
    1  LIBYA                          18.6     8.5      7.7      13.6
    1  MADAGASCAR                     .1       4.6      5.2      19.8
    1  MOZAMBIQUE                     7.6      3.9      3.2      18.4
    1  MALAWI                         .6       5        8.6      5.1
    1  MALI                           .5       4        9.5      25
    1  MAURITIUS                      12.4     2.6      15.9     21.9
    1  MAURITANIA                     76.5     50.7     16.2     44.7
    1  MOROCCO                        61       113.4    5.6      16.8
    1  NIGER                          17       3.3      1        13.4
    1  NIGERIA                        795.3    .7       16.3     11.9
    1  RWANDA                         .2       0        .2       11.4
    1  SAO TOME AND PRINCIPE          .2       2.5      20.4     21.9
    1  SENEGAL                        16.7     91.6     24.7     21
    1  SIERRA LEONE                   12.2     0        18       30.4
    1  SEYCHELLES                     .1       .5       71.1     15.9
    1  SOMALIA                        .1       2.2      1.8      29.4
    1  SUDAN                          .6       .8       1.5      14.3
    1  SWAZILAND                      2        0        .1       6.5
    1  TOGO                           20.3     1.4      10.9     20.7
    1  TANZANIA                       .9       .4       11.5     11
    1  TUNISIA                        .4       7.2      7.8      11.4
    1  UGANDA                         43       0        12.5     6
    1  ZAMBIA                         5.2      0        8.7      6.6
    1  ZAIRE                          64.5     0        5.9      19.8
    1  ZIMBABWE                       2        .1       2        3.1
    1  ;


    1  DATA FOOD13;
    1  INPUT  country $ 1-26 f45 28-32 f46 37-42 f47 45-50 f48 52-57;
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
                                                                                        *
   1  CARDS;                                                                            *
   1  ALGERIA                    2918     53.1     3839.5 2470                           *
   1  ANGOLA                     336      69.3     1083.9 332                            *
   1  BENIN                      38       52.6     59.4   502                            *
   1  BURUNDI                    24       87.5     51.1   413                            *
   1  BOTSWANA                   74       71.6     142.3  15                             *
   1  BURKINA FASO               99       85.9     159.7  1509                           *
   1  CAMEROON                   102      67.6     32.2   828                            *
   1  CAPE VERDE                 29       75.9     231.3  5                              *
   1  CENTRAL AFRICAN REPUBLIC   19       47.4     55.9   125                            *
   1  CHAD                       37       91.9     37.4   586                            *
   1  COMOROS ISLANDS            14       78.6     192.8  17                             *
   1  CONGO                      67       50.7     670    9                              *
   1  DJIBOUTI                   0        0        231.3  .                              *
   1  ETHIOPIA                   263      85.9     210.4  5047                           *
   1  EGYPT                      2447     63.3     870.8  7865                           *
   1  EQUATORIAL GUINEA          0        0        51[illegible].5  .                     *
   1  GHANA                      88       73.9     37.1   772                            *
   1  GABON                      84       32.1     2100   10                             *
   1  GAMBIA                     47       66       204.3  104                            *
   1  GUINEA                     58       81       446.2  403                            *
   1  GUINEA-BISSAU              11       90.9     183.3  145                            *
   1  IVORY COAST                398      67.1     32.5   896                            *
   1  KENYA                      205      49.8     57.7   2675                           *
   1  LIBERIA                    60       76.7     87     196                            *
   1  LESOTHO                    77       72.7     1283.3 144                            *
   1  LIBYA                      683      54.6     1447.2 256                            *
   1  MADAGASCAR                 105      90.5     120.7  1580                           *
   1  MOZAMBIQUE                 151      70.2     604    571                            *
   1  MALAWI                     17       82.4     8      1525                           *
   1  MALI                       106      89.6     478.6  1460                           *
   1  MAURITIUS                  131      67.9     119.1  6                              *
   1  MAURITANIA                 134      85.1     186    70                             *
   1  MOROCCO                    1007     38.5     637.3  5540                           *
   1  NIGER                      80       62.5     186    1567                           *
   1  NIGERIA                    833      61.3     378.6  10771                          *
   1  RWANDA                     41       65.9     71.9   299                            *
   1  SAO TOME AND PRINCIPE      4        75       80     1                              *
   1  SENEGAL                    366      69.9     305    909                            *
   1  SIERRA LEONE               51       76.5     221.7  377                            *
   1  SEYCHELLES                 9        55.6     900    0                              *
   1  SOMALIA                    169      74       433.3  593                            *
   1  SUDAN                      267      76.8     91.8   3107                           *
   1  SWAZILAND                  29       44.8     27.9   113                            *
   1  TOGO                       56       37.5     91.8   386                            *
   1  TANZANIA                   108      88       76.6   3401                           *
   1  TUNISIA                    578      48.6     441.2  1269                           *
   1  UGANDA                     23       73.9     11.9   798                            *
   1  ZAMBIA                     53       69.8     481.8  1169                           *
   1  ZAIRE                      198      56.6     131.1  1116                           *
   1  ZIMBABWE                   50       76       12.6   2610                           *
   1  ;                                                                                  *
```

```
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1   DATA FOOD14;                                                                     *
   1   INPUT country $ 1-26 f49 28-32 f50 37-42 f51 45-50 f52 52-57 f53 59-64;          *
                                                                                        *
   1   CARDS;                                                                           *
   1   ALGERIA                    3        0       4619    2044    4378                  *
   1   ANGOLA                     68       0       388     51      676                   *
   1   BENIN                      13       0       64      180     358                   *
   1   BURUNDI                    8        0       32      51      404                   *
   1   BOTSWANA                   44       4       217     26      191                   *
   1   BURKINA FASO               89       0       188     169     1244                  *
   1   CAMEROON                   10       45      251     125     1046                  *
   1   CAPE VERDE                 53       0       68      21      55                    *
   1   CENTRAL AFRICAN REPUBLIC   9        0       31      15      117                   *
   1   CHAD                       91       0       90      128     510                   *
   1   COMOROS ISLANDS            8        0       29      5       41                    *
   1   CONGO                      1        0       129     3       135                   *
   1   DJIBOUTI                   17       0       .       .       .                     *
   1   ETHIOPIA                   746      0       581     504     5590                  *
   1   EGYPT                      1909     1260    8505    5203    11030                 *
   1   EQUATORIAL GUINEA          5        0       .       .       .                     *
   1   GHANA                      86       0       208     157     816                   *
   1   GABON                      0        0       79      9       77                    *
   1   GAMBIA                     18       0       74      38      113                   *
   1   GUINEA                     66       0       162     73      484                   *
   1   GUINEA-BISSAU              10       0       31      16      154                   *
   1   IVORY COAST                0        7       632     298     1190                  *
   1   KENYA                      195      2800    438     413     3157                  *
   1   LIBERIA                    33       0       106     37      272                   *
   1   LESOTHO                    48       0       223     53      324                   *
   1   LIBYA                      0        0       1310    884     711                   *
   1   MADAGASCAR                 92       75      280     398     1457                  *
   1   MOZAMBIQUE                 328      0       406     73      905                   *
   1   MALAWI                     7        5       30      330     1371                  *
   1   MALI                       142      0       282     197     1535                  *
   1   MAURITIUS                  10       55      182     10      180                   *
   1   MAURITANIA                 101      0       245     17      245                   *
   1   MOROCCO                    424      4       2187    1863    5380                  *
   1   NIGER                      113      0       184     375     1441                  *
   1   NIGERIA                    0        0       1765    2305    10211                 *
   1   RWANDA                     25       0       40      51      282                   *
   1   SAO TOME AND PRINCIPE      8        0       9       1       10                    *
   1   SENEGAL                    109      0       583     189     1299                  *
   1   SIERRA LEONE               37       0       109     73      433                   *
   1   SEYCHELLES                 1        0       9       0       10                    *
   1   SOMALIA                    182      0       296     403     466                   *
   1   SUDAN                      881      5430    706     338     2485                  *
   1   SWAZILAND                  1        0       78      89      100                   *
   1   TOGO                       13       10      95      90      388                   *
   1   TANZANIA                   82       1140    274     732     3006                  *
   1   TUNISIA                    223      0       1047    755     1519                  *
   1   UGANDA                     18       0       24      186     1075                  *
   1   ZAMBIA                     105      0       218     218     1308                  *
   1   ZAIRE                      98       0       375     142     1404                  *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  ZIMBABWE                    56       3600     197     670     1566                 *
   1  ;                                                                                  *
                                                                                         *
   1  DATA FOOD15;                                                                       *
   1  INPUT  country $ 1-26 f54 28-32 f55 37-42 f56 45-50 f57 52-57;                     *
                                                                                         *
   1  CARDS;                                                                             *
   1  ALGERIA                     1232     519      85      0                            *
   1  ANGOLA                      354      14       96      8.5                          *
   1  BENIN                       213      174      34      0                            *
   1  BURUNDI                     287      97       22      4.5                          *
   1  BOTSWANA                    22       9        93      1                            *
   1  BURKINA FASO                1147     74       59      6.8                          *
   1  CAMEROON                    670      211      50      0                            *
   1  CAPE VERDE                  8        3        95      .3                           *
   1  CENTRAL AFRICAN REPUBLIC    81       17       47      0                            *
   1  CHAD                        521      1'5      12      4.9                          *
   1  COMOROS ISLANDS             13       2        94      0                            *
   1  CONGO                       9        3        96      0                            *
   1  DJIBOUTI                    .        .        65      0                            *
   1  ETHIOPIA                    4386     1022     22      35.4                         *
   1  EGYPT                       4686     3409     64      0                            *
   1  EQUATORIAL GUINEA           .        .        75      0                            *
   1  GHANA                       522      202      55      0                            *
   1  GABON                       14       3        94      0                            *
   1  GAMBIA                      71       5        92      0                            *
   1  GUINEA                      470      14       93      0                            *
   1  GUINEA-BISSAU               54       13       75      0                            *
   1  IVORY COAST                 780      95       88      0                            *
   1  KENYA                       2076     425      43      19.8                         *
   1  LIBERIA                     230      16       90      0                            *
   1  LESOTHO                     191      30       84      1.5                          *
   1  LIBYA                       39       139      86      0                            *
   1  MADAGASCAR                  2022     159      64      0                            *
   1  MOZAMBIQUE                  411      91       83      13.7                         *
   1  MALAWI                      1170     232      17      0                            *
   1  MALI                        1147     97       48      7.8                          *
   1  MAURITIUS                   .        0        100     0                            *
   1  MAURITANIA                  53       1        99      1.8                          *
   1  MOROCCO                     2951     1095     65      22.8                         *
   1  NIGER                       1517     140      35      5.9                          *
   1  NIGERIA                     5903     3604     40      0                            *
   1  RWANDA                      142      120      16      5.9                          *
   1  SAO TOME AND PRINCIPE       1        3        94      0                            *
   1  SENEGAL                     776      54       92      6.3                          *
   1  SIERRA LEONE                529      43       76      0                            *
   1  SEYCHELLES                  .        0        46      0                            *
   1  SOMALIA                     286      14       96      5.4                          *
   1  SUDAN                       2208     857      23      20.9                         *
   1  SWAZILAND                   81       23       71      0                            *
   1  TOGO                        232      72       49      0                            *
   1  TANZANIA                    2039     954      23      21.7                         *
   1  TUNISIA                     660      403      69      0                            *
   1  UGANDA                      893      367      10      0                            *
```

```
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1   ZAMBIA                        1021     194     65     0                          *
   1   ZAIRE                         737      203     70     0                          *
   1   ZIMBABWE                      956      1142    5      8.5                        *
   1   ;                                                                                *
                                                                                        *
   1   DATA FOOD16;                                                                     *
   1   INPUT  country $ 1-26 f58 28-32 f59 37-42 f60 45-50 f61 52-57;                   *
                                                                                        *
   1   CARDS;                                                                           *
   1   ALGERIA                       28.58    2818    56.0   2.2                        *
   1   ANGOLA                        9.84     1957    32.4   31.6                       *
   1   BENIN                         11.87    2080    34.6   37.1                       *
   1   BURUNDI                       8.29     2229    25.3   35.4                       *
   1   BOTSWANA                      67.55    1939    53.1   1                          *
   1   BURKINA FASO                  11.12    2032    71     2.1                        *
   1   CAMEROON                      10.48    2042    35.3   20.3                       *
   1   CAPE VERDE                    73.36    1994    60.7   4.7                        *
   1   CENTRAL AFRICAN REPUBLIC      6.90     2067    15.9   52                         *
   1   CHAD                          19.49    1441    53.6   11.9                       *
   1   COMOROS ISLANDS               4.98     2190    39.9   32.5                       *
   1   CONGO                         39.54    2527    15.2   49.8                       *
   1   DJIBOUTI                      26.84    .       .      .                          *
   1   ETHIOPIA                      13.89    1695    68.5   3.5                        *
   1   EGYPT                         3.25     3227    62.1   1.5                        *
   1   EQUATORIAL GUINEA             12.38    .       .      .                          *
   1   GHANA                         18.89    1859    34.5   37.5                       *
   1   GABON                         8.24     2483    16     37.5                       *
   1   GAMBIA                        24.13    2181    63.4   1.2                        *
   1   GUINEA                        9.18     1880    42.5   19.7                       *
   1   GUINEA-BISSAU                 27.87    2123    43.6   25.7                       *
   1   IVORY COAST                   7.44     2559    43.2   25                         *
   1   KENYA                         13.97    1810    56.4   8.4                        *
   1   LIBERIA                       5.41     2260    49.5   22.3                       *
   1   LESOTHO                       29.72    2338    76.8   0.6                        *
   1   LIBYA                         30.18    3695    40.3   1.5                        *
   1   MADAGASCAR                    3.30     2413    60     17.1                       *
   1   MOZAMBIQUE                    11.94    1637    39.4   36.3                       *
   1   MALAWI                        10.44    2438    69.3   2.3                        *
   1   MALI                          13.42    1852    73.5   2.5                        *
   1   MAURITIUS                     42.62    2801    49.9   1.1                        *
   1   MAURITANIA                    39.73    2221    57.2   0.5                        *
   1   MOROCCO                       23.07    2686    63     1.3                        *
   1   NIGER                         19.87    1968    68.7   4.1                        *
   1   NIGERIA                       7.92     2088    44.6   24.1                       *
   1   RWANDA                        8.13     1990    10.4   41.9                       *
   1   SAO TOME AND PRINCIPE         3.63     2255    44.3   12.3                       *
   1   SENEGAL                       25.11    2455    68.1   0.6                        *
   1   SIERRA LEONE                  9.45     1876    56.8   5.1                        *
   1   SEYCHELLES                    13.55    2190    42.6   19.8                       *
   1   SOMALIA                       16.85    2068    56.9   .9                         *
   1   SUDAN                         25.32    1735    51.7   1.8                        *
   1   SWAZILAND                     24.72    2578    55     2.2                        *
   1   TOGO                          12.09    2388    42.8   34.5                       *
   1   TANZANIA                      11.9     2247    36.1   29.9                       *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1  TUNISIA                    26.27    2943    54.9    1.2                          *
    1  UGANDA                     13.24    2394    30.4    18.4                         *
    1  ZAMBIA                     27.31    1968    71.5    4.5                          *
    1  ZAIRE                      5.54     2154    16.2    57.2                         *
    1  ZIMBABWE                   29.36    1843    62.8    1.2                          *
    1  ;                                                                               *
                                                                                       *
                                                                                       *
    1  DATA FOOD17;                                                                    *
    1  INPUT  country $ 1-26 f62 28-32 f63 37-42 f64 45-50 f65 52-57;                  *
                                                                                       *
    1  CARDS;                                                                          *
    1  ALGERIA                    2.2      10.6    11.7    16.5                         *
    1  ANGOLA                     3.6      6       5.9     20.5                         *
    1  BENIN                      8.90     3.8     .8      14.8                         *
    1  BURUNDI                    17.6     2.9     .8      18                           *
    1  BOTSWANA                   8        18      9.6     10.3                         *
    1  BURKINA FASO               14.2     4.3     2.1     6.3                          *
    1  CAMEROON                   12       5.1     3.2     24.1                         *
    1  CAPE VERDE                 7.6      8.5     9.7     8.8                          *
    1  CENTRAL AFRICAN REPUBLIC   12       5.4     1.6     13.1                         *
    1  CHAD                       5        4.9     3.6     21                           *
    1  COMOROS ISLANDS            10.1     4.9     2.8     9.4                          *
    1  CONGO                      4.8      5.3     45.     20.4                         *
    1  DJIBOUTI                   .        .       .       .                            *
    1  ETHIOPIA                   11.9     5.2     2.2     8.7                          *
    1  EGYPT                      2.7      6.4     9.8     17.5                         *
    1  EQUATORIAL GUINEA          .        .       .       .                            *
    1  GHANA                      3.6      5.1     2.1     17.2                         *
    1  GABON                      .1       3.9     5.3     37.2                         *
    1  GAMBIA                     6.6      6.5     7.3     15.                          *
    1  GUINEA                     5.1      3.1     2.6     26.2                         *
    1  GUINEA-BISSAU              5        4.5     2.8     18.4                         *
    1  IVORY COAST                2.7      6.6     3.5     19                           *
    1  KENYA                      5.7      10.1    9.6     9.8                          *
    1  LIBERIA                    2        4.9     2.5     18.8                         *
    1  LESOTHO                    3.2      6.9     7.6     4.9                          *
    1  LIBYA                      4.2      15.3    11.2    27.5                         *
    1  MADAGASCAR                 2.7      7       4.7     8.5                          *
    1  MOZAMBIQUE                 3.9      3.1     5.8     11.5                         *
    1  MALAWI                     13.1     4.1     3.4     7.8                          *
    1  MALI                       6.8      8.2     2.9     6.1                          *
    1  MAURITIUS                  3.4      11.2    15.1    19.3                         *
    1  MAURITANIA                 5.9      22.3    7.4     6.7                          *
    1  MOROCCO                    2.6      7       12.6    13.5                         *
    1  NIGER                      5.9      22.3    7.4     6.7                          *
    1  NIGERIA                    5.9      4.3     4.3     16.8                         *
    1  RWANDA                     18.2     2.1     .7      26.7                         *
    1  SAO TOME AND PRINCIPE      19.6     6.4     5.8     11.6                         *
    1  SENEGAL                    5.5      7       5.7     13.1                         *
    1  SIERRA LEONE               5.7      4.5     3.4     24.5                         *
    1  SEYCHELLES                 10.4     6.4     4.8     15.9                         *
    1  SOMALIA                    1.8      26.2    5.8     8.4                          *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1  SUDAN                          4.6       12.5      10.5      18.9                  *
    1  SWAZILAND                      2.6       13.4      17.4      9.4                   *
    1  TOGO                           6.3       3.5       3         9.9                   *
    1  TANZANIA                       6.5       7         3.9       16.6                  *
    1  TUNISIA                        4.1       8.5       9         22.3                  *
    1  UGANDA                         14        7.5       2.9       26.8                  *
    1  ZAMBIA                         2.4       5.3       7.9       8.4                   *
    1  ZAIRE                          6.3       2.7       1.1       16.5                  *
    1  ZIMBABWE                       7.6       7.3       9.6       11.5                  *
    1  ;                                                                                  *
                                                                                          *
                                                                                          *
    1  DATA FOOD18;                                                                       *
    1  INPUT  country $ 1-26 f66 28-32 f67 37-42 f68 45-50 f69 52-57;                     *
                                                                                          *
    1  CARDS;                                                                             *
    1  ALGERIA                        .4        7.5       7.6       .3                    *
    1  ANGOLA                         10.01     77.3      4.5       72.8                  *
    1  BENIN                          1.83      6.3       3         3.3                   *
    1  BURUNDI                        .25       1         1         0                     *
    1  BOTSWANA                       1.85      1.7       1.4       .3                    *
    1  BURKINA FASO                   1.73      10.7      6.7       4                     *
    1  CAMEROON                       3.69      31.5      7.7       23.8                  *
    1  CAPE VERDE                     .13       .2        .03       0                     *
    1  CENTRAL AFRICAN REPUBLIC       15.65     35.8      4.8       31                    *
    1  CHAD                           3.81      17        7.6       9.4                   *
    1  COMOROS ISLANDS                .26       .1        .09       0                     *
    1  CONGO                          14.16     21.7      .7        21                    *
    1  DJIBOUTI                       .         .         .17       .                     *
    1  ETHIOPIA                       .78       24.9      14.5      10.5                  *
    1  EGYPT                          .03       .9        2.8       .1                    *
    1  EQUATORIAL GUINEA              5.25      .2        .19       .                     *
    1  GHANA                          .96       11        4.5       6.5                   *
    1  GABON                          11.99     12.9      .4        12.5                  *
    1  GAMBIA                         .92       .5        .3        .2                    *
    1  GUINEA                         1.55      7.5       4.2       3.3                   *
    1  GUINEA-BISSAU                  2.5       .3        .09       0                     *
    1  IVORY COAST                    1.71      14.1      7         7.1                   *
    1  KENYA                          .4        6.7       4.4       2.3                   *
    1  LIBERIA                        2.8       5.2       .7        3.5                   *
    1  LESOTHO                        .26       .3        .3        .1                    *
    1  LIBYA                          .67       2         2         .2                    *
    1  MADAGASCAR                     3.76      32.8      3.1       29.7                  *
    1  MOZAMBIQUE                     3.43      41.4      5.6       35.8                  *
    1  MALAWI                         .69       4.1       2.5       1.6                   *
    1  MALI                           2.4       16.8      8         8.8                   *
    1  MAURITIUS                      .11       .1        .1        0                     *
    1  MAURITANIA                     .86       1.4       .9        .6                    *
    1  MOROCCO                        .37       7.4       7.4       .3                    *
    1  NIGER                          2.21      11.8      11        .8                    *
    1  NIGERIA                        .59       47.9      32.3      15.6                  *
    1  RWANDA                         .17       .9        .8        0                     *
    1  SAO TOME AND PRINCIPE          .68       .05       .003      0                     *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1  SENEGAL                    1.7      9.7      5.2      4.5                          *
    1  SIERRA LEONE               .79      2.6      1.8      .8                           *
    1  SEYCHELLES                 .08      .2       .002     0                            *
    1  SOMALIA                    .38      1.7      1.1      .7                           *
    1  SUDAN                      3.01     63.5     14.7     48.8                         *
    1  SWAZILAND                  1.54     .9       .2       .6                           *
    1  TOGO                       .84      2.1      1.9      .2                           *
    1  TANZANIA                   1.04     36.6     9.2      27.4                         *
    1  TUNISIA                    .7       4.5      4.4      .2                           *
    1  UGANDA                     .82      10.7     5.3      5.5                          *
    1  ZAMBIA                     9.04     51.1     5.3      45.8                         *
    1  ZAIRE                      6.23     177.7    13.7     164                          *
    1  ZIMBABWE                   2.16     15.9     4.1      11.8                         *
    1  ;                                                                                 *
                                                                                         *
                                                                                         *
    1  DATA FOOD19;                                                                      *
    1  INPUT  country $ 1-26 f70 28-32 f71 37-42 f72 45-50 f73 52-57;                    *
                                                                                         *
    1  CARDS;                                                                            *
    1  ALGERIA                    2        2        1        1                           *
    1  ANGOLA                     0        1        1        1                           *
    1  BENIN                      1        2        0        0                           *
    1  BURUNDI                    2        2        0        0                           *
    1  BOTSWANA                   1        2        2        2                           *
    1  BURKINA FASO               2        2        2        1                           *
    1  CAMEROON                   2        2        1        0                           *
    1  CAPE VERDE                 0        2        2        1                           *
    1  CENTRAL AFRICAN REPUBLIC   1        2        0        0                           *
    1  CHAD                       1        2        3        2                           *
    1  COMOROS ISLANDS            2        1        0        0                           *
    1  CONGO                      0        2        0        0                           *
    1  DJIBOUTI                   0        1        2        1                           *
    1  ETHIOPIA                   2        2        1        1                           *
    1  EGYPT                      0        0        2        1                           *
    1  EQUATORIAL GUINEA          0        1        0        0                           *
    1  GHANA                      1        2        0        0                           *
    1  GABON                      0        1        0        0                           *
    1  GAMBIA                     1        1        0        0                           *
    1  GUINEA                     0        2        0        0                           *
    1  GUINEA-BISSAU              0        1        0        0                           *
    1  IVORY COAST                1        2        0        0                           *
    1  KENYA                      1        2        1        2                           *
    1  LIBERIA                    0        1        0        0                           *
    1  LESOTHO                    2        2        0        0                           *
    1  LIBYA                      0        0        2        1                           *
    1  MADAGASCAR                 3        2        1        0                           *
    1  MOZAMBIQUE                 1        1        0        0                           *
    1  MALAWI                     1        2        0        0                           *
    1  MALI                       1        2        2        1                           *
    1  MAURITIUS                  1        1        0        0                           *
    1  MAURITANIA                 2        2        3        3                           *
    1  MOROCCO                    2        2        1        0                           *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1  NIGER                          2    2    2    2                                  *
    1  NIGERIA                        2    2    1    0                                  *
    1  RWANDA                         2    2    0    0                                  *
    1  SAO TOME AND PRINCIPE          0    1    0    0                                  *
    1  SENEGAL                        1    2    1    0                                  *
    1  SIERRA LEONE                   0    1    0    0                                  *
    1  SEYCHELLES                     0    1    0    0                                  *
    1  SOMALIA                        2    2    2    2                                  *
    1  SUDAN                          0    2    2    1                                  *
    1  SWAZILAND                      2    2    0    0                                  *
    1  TOGO                           1    2    0    0                                  *
    1  TANZANIA                       1    1    0    0                                  *
    1  TUNISIA                        2    1    1    0                                  *
    1  UGANDA                         1    2    0    0                                  *
    1  ZAMBIA                         1    2    0    0                                  *
    1  ZAIRE                          1    2    0    0                                  *
    1  ZIMBABWE                       1    2    0    0                                  *
    1  ;                                                                                 *
                                                                                         *
    1  DATA FOOD19a;                                                                     *
    1  INPUT  country $ 1-26 f74 28-32 f75 37-42 f76 45-50 fxx 52-57;                    *
                                                                                         *
    1  CARDS;                                                                            *
    1  ALGERIA                        0    0    2    x                                  *
    1  ANGOLA                         0    0    1    1                                  *
    1  BENIN                          2    1    1    0                                  *
    1  BURUNDI                        1    0    2    0                                  *
    1  BOTSWANA                       2    1    2    2                                  *
    1  BURKINA FASO                   2    2    2    1                                  *
    1  CAMEROON                       2    1    2    0                                  *
    1  CAPE VERDE                     1    0    1    1                                  *
    1  CENTRAL AFRICAN REPUBLIC       1    0    2    0                                  *
    1  CHAD                           2    0    2    2                                  *
    1  COMOROS ISLANDS                2    1    3    2                                  *
    1  CONGO                          2    1    1    0                                  *
    1  DJIBOUTI                       0    0    2    1                                  *
    1  ETHIOPIA                       2    1    3    1                                  *
    1  EGYPT                          1    0    0    1                                  *
    1  EQUATORIAL GUINEA              1    0    0    1                                  *
    1  GHANA                          2    1    2    0                                  *
    1  GABON                          0    0    1    0                                  *
    1  GAMBIA                         2    0    1    0                                  *
    1  GUINEA                         2    1    1    0                                  *
    1  GUINEA-BISSAU                  1    0    1    2                                  *
    1  IVORY COAST                    2    2    1    3                                  *
    1  KENYA                          2    2    1    2                                  *
    1  LIBERIA                        2    2    0    0                                  *
    1  LESOTHO                        2    0    0    1                                  *
    1  LIBYA                          0    2    0    1                                  *
    1  MADAGASCAR                     2    0    1    2                                  *
    1  MOZAMBIQUE                     0    1    0    1                                  *
    1  MALAWI                         2    0    2    2                                  *
    1  MALI                           1    2    2    1                                  *
```

```
START                                                                    MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
    1  MAURITIUS                  1        0        1        0                        *
    1  MAURITANIA                 1        2        3        3                        *
    1  MOROCCO                    1        0        2        0                        *
    1  NIGER                      1        2        3        2                        *
    1  NIGERIA                    2        1        1        1                        *
    1  RWANDA                     1        0        2        0                        *
    1  SAO TOME AND PRINCIPE      1        0        1        0                        *
    1  SENEGAL                    0        2        2        0                        *
    1  SIERRA LEONE               1        0        2        0                        *
    1  SEYCHELLES                 0        0        2        0                        *
    1  SOMALIA                    0        0        2        2                        *
    1  SUDAN                      1        1        2        1                        *
    1  SWAZILAND                  2        1        1        0                        *
    1  TOGO                       2        1        2        0                        *
    1  TANZANIA                   2        0        1        0                        *
    1  TUNISIA                    0        1        2        1                        *
    1  UGANDA                     1        0        1        0                        *
    1  ZAMBIA                     2        1        1        0                        *
    1  ZAIRE                      2        1        2        0                        *
    1  ZIMBABWE                   2        1        1        0                        *
    1  ;                                                                             *
                                                                                     *
                                                                                     *
    1  DATA FOOD20;                                                                 *
    1  INPUT  country $ 1-26 f77 28-32 f78 37-42 f79 45-50 f80 52-57 f81 59-62;     *
                                                                                     *
    1  CARDS;                                                                       *
    1  ALGERIA                    0        0        0        0        0            *
    1  ANGOLA                     1        0        1        1        0            *
    1  BENIN                      1        1        0        0        1            *
    1  BURUNDI                    1        0        0        0        0            *
    1  BOTSWANA                   0        0        0        0        0            *
    1  BURKINA FASO               1        1        1        0        0            *
    1  CAMEROON                   1        0        1        1        0            *
    1  CAPE VERDE                 0        0        0        0        0            *
    1  CENTRAL AFRICAN REPUBLIC   1        1        0        0        0            *
    1  CHAD                       0        0        1        1        0            *
    1  COMOROS ISLANDS            0        0        0        0        0            *
    1  CONGO                      1        0        0        0        0            *
    1  DJIBOUTI                   0        0        0        0        0            *
    1  ETHIOPIA                   0        1        1        1        1            *
    1  EGYPT                      0        1        0        1        1            *
    1  EQUATORIAL GUINEA          0        0        0        0        0            *
    1  GHANA                      1        1        1        1        0            *
    1  GABON                      1        0        0        1        0            *
    1  GAMBIA                     0        0        0        1        0            *
    1  GUINEA                     1        0        1        1        0            *
    1  GUINEA-BISSAU              1        0        0        0        0            *
    1  IVORY COAST                1        1        1        1        0            *
    1  KENYA                      0        0        1        1        1            *
    1  LIBERIA                    1        0        1        0        0            *
    1  LESOTHO                    0        0        0        0        0            *
    1  LIBYA                      0        0        0        0        0            *
```

```
START                                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  MADAGASCAR                  0        0        0       1       0                          *
   1  MOZAMBIQUE                  1        0        0       0       0                          *
   1  MALAWI                      1        0        0       1       1                          *
   1  MALI                        0        1        1       0       0                          *
   1  MAURITIUS                   0        0        0       1       0                          *
   1  MAURITANIA                  0        1        1       1       0                          *
   1  MOROCCO                     0        0        0       1       0                          *
   1  NIGER                       0        1        1       1       0                          *
   1  NIGERIA                     1        1        1       1       1                          *
   1  RWANDA                      1        0        0       0       0                          *
   1  SAO TOME AND PRINCIPE       0        0        0       0       0                          *
   1  SENEGAL                     0        0        0       1       0                          *
   1  SIERRA LEONE                1        0        1       1       0                          *
   1  SEYCHELLES                  0        0        0       0       0                          *
   1  SOMALIA                     0        0        1       0       1                          *
   1  SUDAN                       0        1        1       1       1                          *
   1  SWAZILAND                   0        0        0       0       0                          *
   1  TOGO                        1        1        0       1       0                          *
   1  TANZANIA                    1        1        0       1       1                          *
   1  TUNISIA                     0        0        0       0       0                          *
   1  UGANDA                      1        1        1       1       1                          *
   1  ZAMBIA                      1        0        0       1       1                          *
   1  ZAIRE                       1        0        1       1       1                          *
   1  ZIMBABWE                    0        0        0       1       1                          *
   1  ;                                                                                        *
                                                                                              *
                                                                                              *
   1  DATA FOOD21;                                                                            *
   1  INPUT  country $ 1-26 f82 28-32 f83 37-42 f84 45-50 f85 52-57;                          *
                                                                                              *
   1  CARDS;                                                                                  *
   1  ALGERIA                     0        0        83.19   9.9                                *
   1  ANGOLA                      3        0        77.7    6.7                                *
   1  BENIN                       3        1        31.82   1                                  *
   1  BURUNDI                     3        0        49.88   9.9                                *
   1  BOTSWANA                    0        2        77.73   1                                  *
   1  BURKINA FASO                2        1        33.33   1                                  *
   1  CAMEROON                    3        0        100     1                                  *
   1  CAPE VERDE                  1        0        100     6.4                                *
   1  CENTRAL AFRICAN REPUBLIC    0        0        83.33   1                                  *
   1  CHAD                        1        1        20      1                                  *
   1  COMOROS ISLANDS             1        0        49.88   10.9                               *
   1  CONGO                       0        0        100     1                                  *
   1  DJIBOUTI                    0        0        .       .                                  *
   1  ETHIOPIA                    2        2        94.25   1                                  *
   1  EGYPT                       0        0        100     101                                *
   1  EQUATORIAL GUINEA           0        0        .       .                                  *
   1  GHANA                       4        1        100     1                                  *
   1  GABON                       1        0        33.33   1                                  *
   1  GAMBIA                      2        0        33.33   9.9                                *
   1  GUINEA                      2        1        100     1                                  *
   1  GUINEA-BISSAU               0        0        70.09   1.5                                *
   1  IVORY COAST                 4        1        100     1                                  *
   1  KENYA                       3        2        42.86   4.9                                *
```

```
PROJECT:  UQ5LC          MEMBER:  FDFTCOM          DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.05            TIME: 11:29
TYPE:     SAS            USERID:  U3D              PAGE: 24 OF 35
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  LIBERIA                    2        0        100     1                          *
   1  LESOTHO                    0        0        100     1                          *
   1  LIBYA                      0        0        68.03   4.9                        *
   1  MADAGASCAR                 1        1        16.67   35                         *
   1  MOZAMBIQUE                 2        1        94.29   4.9                        *
   1  MALAWI                     2        0        80      1.                         *
   1  MALI                       3        2        62.5    4.9                        *
   1  MAURITIUS                  1        0        64.29   19.9                       *
   1  MAURITANIA                 0        1        20      4.9                        *
   1  MOROCCO                    1        0        53.75   35                         *
   1  NIGER                      2        2        33.33   1                          *
   1  NIGERIA                    4        1        5.88    4.9                        *
   1  RWANDA                     4        0        6.25    4.9                        *
   1  SAO TOME AND PRINCIPE      0        0        83.33   1                          *
   1  SENEGAL                    2        1        30      4.9                        *
   1  SIERRA LEONE               3        0        100     1.                         *
   1  SEYCHELLES                 1        0        49.88   10.9                       *
   1  SOMALIA                    1        0        50      9.9                        *
   1  SUDAN                      3        1        97.14   19.9                       *
   1  SWAZILAND                  1        0        91.67   35                         *
   1  TOGO                       4        0        23.08   1                          *
   1  TANZANIA                   4        3        17.99   4.9                        *
   1  TUNISIA                    0        0        10.81   4.9                        *
   1  UGANDA                     4        1        75      1                          *
   1  ZAMBIA                     2        1        62.5    1                          *
   1  ZAIRE                      4        0        100.    1                          *
   1  ZIMBABWE                   2        2        97.69   4.9                        *
   1  ;                                                                               *
                                                                                      *
                                                                                      *
                                                                                      *
   1  DATA FOOD22;                                                                    *
   1  INPUT country $ 1-26 f86 28-32 f87 37-42 f88 45-50 f89 52-57 f90 59-63;        *
                                                                                      *
   1  CARDS;                                                                          *
   1  ALGERIA                    32.7     5.1      0       0       0                 *
   1  ANGOLA                     14.2     15.7     180     89      16                *
   1  BENIN                      .3       33       5       700     4                 *
   1  BURUNDI                    .2       15       39      872     34                *
   1  BOTSWANA                   6.6      13.5     0       0       0                 *
   1  BURKINA FASO               .1       45.9     0       0       0                 *
   1  CAMEROON                   .5       83.7     350     291     102               *
   1  CAPE VERDE                 3.4      7.3      2       600     1.2               *
   1  CENTRAL AFRICAN REPUBLIC   .4       19.4     54      388     21                *
   1  CHAD                       .2       2.8      0       0       0                 *
   1  COMOROS ISLANDS            .        14.1     1       145     .1                *
   1  CONGO                      4.1      8.1      4       526     2                 *
   1  DJIBOUTI                   .        13.8     0       0       0                 *
   1  ETHIOPIA                   1.3      92.7     745     239     178               *
   1  EGYPT                      86.8     33.2     0       0       0                 *
   1  EQUATORIAL GUINEA          3        7.2      19      394     7                 *
   1  GHANA                      13.1     148.5    10      200     2                 *
   1  GABON                      17.8     23.2     4       289     1                 *
   1  GAMBIA                     1.1      30.7     0       0       0                 *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  GUINEA                        .4       22.2     45      333     15                  *
   1  GUINEA-BISSAU                 .4       18.8     0       0       0                   *
   1  IVORY COAST                   4.7      21.7     1160    224     260                 *
   1  KENYA                         14       84.7     138     790     109                 *
   1  LIBERIA                       9.7      20       27      370     10                  *
   1  LESOTHO                       20.1     13.6     0       0       0                   *
   1  LIBYA                         45.3     5.26     0       0       0                   *
   1  MADAGASCAR                    4.3      47.5     226     367     83                  *
   1  MOZAMBIQUE                    8.2      36.6     1       714     1                   *
   1  MALAWI                        2.2      32.9     2       2500    5                   *
   1  MALI                          1.7      120.8    0       0       0                   *
   1  MAURITIUS                     13.4     5.7      0       0       0                   *
   1  MAURITANIA                    6        36.3     0       0       0                   *
   1  MOROCCO                       15.8     96.8     0       0       0                   *
   1  NIGER                         .2       51.9     0       0       0                   *
   1  NIGERIA                       1.3      12.7     7       571     4                   *
   1  RWANDA                        .5       16.4     42      976     41                  *
   1  SAO TOME AND PRINCIPE         .        5.4      1       120     .1                  *
   1  SENEGAL                       .4       84.4     0       0       0                   *
   1  SIERRA LEONE                  .9       28.7     30      510     15                  *
   1  SEYCHELLES                    .        .3       0       0       0                   *
   1  SOMALIA                       6.5      27.1     0       0       0                   *
   1  SUDAN                         3.9      159.9    0       0       0                   *
   1  SWAZILAND                     86.3     12.6     0       0       0                   *
   1  TOGO                          .7       13.3     30      367     11                  *
   1  TANZANIA                      18.2     89.5     110     464     51                  *
   1  TUNISIA                       51.9     52.5     0       0       0                   *
   1  UGANDA                        2.1      42.3     235     872     205                 *
   1  ZAMBIA                        3.7      103.1    1       933     1                   *
   1  ZAIRE                         1.4      45.8     286     356     102                 *
   1  ZIMBABWE                      38.3     26.7     12      1124    13                  *
   1  ;                                                                                   *
                                                                                          *
                                                                                          *
   1  DATA FOOD23;                                                                        *
   1  INPUT  country $ 1-26 f91 28-32 f92 37-42 f93 45-50 f94 52-57 f95 59-61             *
   8         f96 64-66;                                                                   *
   1  CARDS;                                                                              *
   1  ALGERIA                       0        0        0       3       1033 3              *
   1  ANGOLA                        2        56       .1      6       500  3              *
   1  BENIN                         0        0        0       1       529  .5             *
   1  BURUNDI                       0        0        0       3       1167 4              *
   1  BOTSWANA                      0        0        0       0       0    0              *
   1  BURKINA FASO                  0        0        0       2       600  1              *
   1  CAMEROON                      450      267      120     3       1667 5              *
   1  CAPE VERDE                    0        0        0       0       0    0              *
   1  CENTRAL AFRICAN REPUBLIC      1        38       .04     1       944  1              *
   1  CHAD                          0        0        0       1       1422 1.4            *
   1  COMOROS ISLANDS               7        319      2.2     0       0    0              *
   1  CONGO                         4        49       2       2       300  .6             *
   1  DJIBOUTI                      0        0        0       0       0    0              *
   1  ETHIOPIA                      0        0        0       5       660  2              *
   1  EGYPT                         0        0        0       0       0    0              *
   1  EQUATORIAL GUINEA             76       86       7       0       0    0              *
```

```
START
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD
                                                                                         FLAGS
   1   GHANA                        1200     175     210     4       500  2              *
   1   GABON                        21       95      2       0       0    0              *
   1   GAMBIA                       0        0       0       0       0    0              *
   1   GUINEA                       15       267     4       2       900  2              *
   1   GUINEA-BISSAU                0        0       0       0       0    0              *
   1   IVORY COAST                  1050     543     570     10      200  3              *
   1   KENYA                        0        0       0       4       1182 5              *
   1   LIBERIA                      25       160     4       0       0    0              *
   1   LESOTHO                      0        0       0       0       0    0              *
   1   LIBYA                        0        0       0       .4      2444 1              *
   1   MADAGASCAR                   6        429     2       4       1027 4              *
   1   MOZAMBIQUE                   0        0       0       3       1111 3              *
   1   MALAWI                       0        0       0       90      778  70             *
   1   MALI                         0        0       0       1       917  1              *
   1   MAURITIUS                    0        0       0       1       1424 1              *
   1   MAURITANIA                   0        0       0       0       0    0              *
   1   MOROCCO                      0        0       0       7       1743 12             *
   1   NIGER                        0        0       0       1       740  1              *
   1   NIGERIA                      700      186     130     21      571  12             *
   1   RWANDA                       0        0       0       2       1550 3              *
   1   SAO TOME AND PRINCIPE        30       117     4       0       0    0              *
   1   SENEGAL                      0        0       0       0       0    0              *
   1   SIERRA LEONE                 50       210     11      1       1083 1              *
   1   SEYCHELLES                   0        0       0       0       0    0              *
   1   SOMALIA                      0        0       0       1       400  .4             *
   1   SUDAN                        0        0       0       0       0    0              *
   1   SWAZILAND                    0        0       0       1       476  .5             *
   1   TOGO                         36       341     12      4       500  2              *
   1   TANZANIA                     2        1000    2       29      621  18             *
   1   TUNISIA                      0        0       0       5       961  5              *
   1   UGANDA                       3        120     .4      8       500  4              *
   1   ZAMBIA                       0        0       0       4       1143 4              *
   1   ZAIRE                        22       223     5       16      475  4              *
   1   ZIMBABWE                     0        0       0       70      1829 128            *
   1   ;                                                                                 *
                                                                                         *
   1   DATA FOOD24;                                                                      *
   1   INPUT  country $ 1-26 f97 28-32 f98 37-42 f99 44-50 f100 52-56;                   *
                                                                                         *
   1   CARDS;                                                                            *
   1   ALGERIA                      0        0       19924   419                         *
   1   ANGOLA                       11       0       2679    0                           *
   1   BENIN                        40       1       10024   .4                          *
   1   BURUNDI                      2        0       67      0                           *
   1   BOTSWANA                     1        2       15      0                           *
   1   BURKINA FASO                 63       1       550     0                           *
   1   CAMEROON                     45       0       4987    57                          *
   1   CAPE VERDE                   0        0       306     0                           *
   1   CENTRAL AFRICAN REPUBLIC     14       0       231     0                           *
   1   CHAD                         38       1       11      0                           *
   1   COMOROS ISLANDS              0        0       144     0                           *
   1   CONGO                        5        0       1895    0                           *
   1   DJIBOUTI                     0        0       .       .                           *
   1   ETHIOPIA                     20       2       57      0                           *
```

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PROJECT:  UQ5LC          MEMBER:  FDFTCOM          DATE: 89/07/13
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```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  EGYP                          403      0      10803   577                          *
   1  EQUA[illegible]IAL GUINEA       0      0      234     .6                           *
   1  GHANA                         1      1      229     0                            *
   1  GABON                         0      0      3287    0                            *
   1  GA[illegible]                 1      0      3596    0                            *
   1  GUINEA                        0      1      356     0                            *
   1  GUINEA-BISSAU                 2      0      249     0                            *
   1  IVORY COAST                   91     1      10740   62                           *
   1  KENYA                         12     2      21      182                          *
   1  LIBERIA                       5      0      1037    0                            *
   1  LESOTHO                       0      0      488     0                            *
   1  LIBYA                         0      0      38931   0                            *
   1  MADAGASCAR                    15     1      3       24                           *
   1  MOZAMBIQUE                    17     1      157     30                           *
   1  MALAWI                        11     0      18      78                           *
   1  MALI                          78     2      574     0                            *
   1  MAURITIUS                     0      0      391     0                            *
   1  MAURITANIA                    0      1      4917    0                            *
   1  MOROCCO                       9      0      25      34885                        *
   1  NIGER                         1      2      2715    0                            *
   1  NIGERIA                       27     1      18687   63                           *
   1  RWANDA                        0      0      3.4     0                            *
   1  SAO TOME AND PRINCIPE         0      0      34      0                            *
   1  SENEGAL                       11     1      5872    0                            *
   1  SIERRA LEONE                  9      0      2742    18                           *
   1  SEYCHELLES                    0      0      187     .4                           *
   1  SOMALIA                       2      0      46      0                            *
   1  SUDAN                         174    1      8925    0                            *
   1  SWAZILAND                     11     0      191     0                            *
   1  TOGO                          33     0      7739    72                           *
   1  TANZANIA                      50     3      58      15                           *
   1  TUNISIA                       0      0      1174    554                          *
   1  UGANDA                        11     1      2476    .1                           *
   1  ZAMBIA                        21     1      .5      0                            *
   1  ZAIRE                         26     0      3175    .1                           *
   1  ZIMBABWE                      105    2      4.4     0                            *
   1  ;                                                                                *
                                                                                       *
   1  DATA FOOD25;                                                                     *
   1  INPUT  country $ 1-26 f101 28-32 f102 37-42 f103 44-50 f104 52-56;               *
                                                                                       *
   1  CARDS;                                                                           *
   1  ALGERIA                       4.8    0      .1      0                            *
   1  ANGOLA                        595    0      3800    0                            *
   1  BENIN                         628    .2     2710    0                            *
   1  BURUNDI                       119    0      76      0                            *
   1  BOTSWANA                      81     0      0       0                            *
   1  BURKINA FASO                  431    0      117     0                            *
   1  CAMEROON                      3778   30     1588    .9                           *
   1  CAPE VERDE                    .2     42     180     0                            *
   1  CENTRAL AFRICAN REPUBLIC      184    0      20      0                            *
   1  CHAD                          468    0      .3      0                            *
   1  COMOROS ISLANDS               844    0      0       0                            *
   1  CONGO                         4999   0      1004    0                            *
```

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PROJECT:  UQ5LC          MEMBER:  FDFTCOM          DATE: 89/07/13
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START                                                                                  MOD
 COL  ---+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  DJIBOUTI                  .       .       .       .                                *
   1  ETHIOPIA                  1.6     0       1062    0                                *
   1  EGYPT                     11106   217     9181    .2                               *
   1  EQUATORIAL GUINEA         265     0       0       0                                *
   1  GHANA                     103     1126    119     0                                *
   1  GABON                     3660    0       293     0                                *
   1  GAMBIA                    116     .9      237     0                                *
   1  GUINEA                    210     .1      26      .3                               *
   1  GUINEA-BISSAU             86      0       203     0                                *
   1  IVORY COAST               2876    18738   52      745                              *
   1  KENYA                     66      6       .1      197                              *
   1  LIBERIA                   1828    0       585     0                                *
   1  LESOTHO                   110     0       0       0                                *
   1  LIBYA                     6257    0       624     0                                *
   1  MADAGASCAR                26      0       82      1                                *
   1  MOZAMBIQUE                1115    0       17      0                                *
   1  MALAWI                    171     0       78      0                                *
   1  MALI                      433     0       68      0                                *
   1  MAURITIUS                 1792    1418    291     1                                *
   1  MAURITANIA                157     26      6005    0                                *
   1  MOROCCO                   .9      44611   2       0                                *
   1  NIGER                     122     .3      177     0                                *
   1  NIGERIA                   85374   568     11729   17                               *
   1  RWANDA                    124     0       97      0                                *
   1  SAO TOME AND PRINCIPE     101     0       0       0                                *
   1  SENEGAL                   256     11405   129     0                                *
   1  SIERRA LEONE              484     1.3     689     23                               *
   1  SEYCHELLES                4.9     0       350     0                                *
   1  SOMALIA                   21      7       .4      20                               *
   1  SUDAN                     1046    0       362     0                                *
   1  SWAZILAND                 43      0       0       0                                *
   1  TOGO                      58      7       411     0                                *
   1  TANZANIA                  13      0       3       0                                *
   1  TUNISIA                   1.3     75      0       0                                *
   1  UGANDA                    337     0       337     0                                *
   1  ZAMBIA                    0       0       0       0                                *
   1  ZAIRE                     3330    0       95      .1                               *
   1  ZIMBABWE                  23      0       0       0                                *
   1  ;                                                                                  *
                                                                                         *
                                                                                         *
                                                                                         *
   1  DATA FOOD26;                                                                       *
   1  INPUT  country $ 1-26 f105 28-33 f106 37-42 f107 44-50 f108 52-56                  *
  18                  f109 58-63;                                                        *
                                                                                         *
   1  CARDS;                                                                             *
   1  ALGERIA                   244251  .1      241960  0       182                      *
   1  ANGOLA                    29100   0       52350   0       21988                    *
   1  BENIN                     7908    9251    1307    0       .                        *
   1  BURUNDI                   1028    18      4488    0       .                        *
   1  BOTSWANA                  2824    0       5718    0       .                        *
   1  BURKINA FASO              8905    2007    4259    0       28000                    *
   1  CAMEROON                  7154    12873   604     6289    62350                    *
```

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PROJECT:  UQ5LC          MEMBER:  FDFTCOM          DATE: 89/07/13
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START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
   1   CAPE VERDE                  491      0       5521     0       .                  *
   1   CENTRAL AFRICAN REPUBLIC    58       0       1818     0       .                  *
   1   CHAD                        506      454     681      0       17480              *
   1   COMOROS ISLANDS             1139     0       2306     0       .                  *
   1   CONGO                       3654     466     10262    0       9844               *
   1   DJIBOUTI                    .        .       .        .       .                  *
   1   ETHIOPIA                    3510     0       60       10200   158240             *
   1   EGYPT                       221378   0       973460   2       3487000            *
   1   EQUATORIAL GUINEA           105      0       34       0       .                  *
   1   GHANA                       2531     .5      25475    0       .                  *
   1   GABON                       17133    252     3        799     14000              *
   1   GAMBIA                      695      7618    25116    213     .                  *
   1   GUINEA                      2115     406     2822     .5      20240              *
   1   GUINEA-BISSAU               1440     0       1062     0       .                  *
   1   IVORY COAST                 971      90174   6018     3008    80000              *
   1   KENYA                       98780    157     2216     1       318000             *
   1   LIBERIA                     4210     6043    4141     1       4600               *
   1   LESOTHO                     3846     0       7788     0                          *
   1   LIBYA                       51493    0       122204   0       0                  *
   1   MADAGASCAR                  12160    0       4        10517   70672              *
   1   MOZAMBIQUE                  8858     3143    .4       26299   89453              *
   1   MALAWI                      795      305     68       17667   56088              *
   1   MALI                        856      8075    15878    0       6000               *
   1   MAURITIUS                   15381    496     3        6262    41000              *
   1   MAURITANIA                  6005     0       54545    0       0                  *
   1   MOROCCO                     197482   0       6012     .1      602641             *
   1   NIGER                       5859     .1      5077     .1      0                  *
   1   NIGERIA                     193382   38304   814904   4512    46000              *
   1   RWANDA                      857      0       2352     0       1696               *
   1   SAO TOME AND PRINCIPE       270      0       547      0       .                  *
   1   SENEGAL                     53732    142021  7274     0       44000              *
   1   SIERRA LEONE                2374     97      9873     153     165                *
   1   SEYCHELLES                  902      605     2987     0       66                 *
   1   SOMALIA                     14475    1681    10377    150     31400              *
   1   SUDAN                       6957     17177   75650    0       307000             *
   1   SWAZILAND                   1509     0       3055     0       .                  *
   1   TOGO                        150      75      26577    1163    .                  *
   1   TANZANIA                    9569     0       4963     0       105273             *
   1   TUNISIA                     59517    58466   132347   508     36000              *
   1   UGANDA                      257      0       5        0       27600              *
   1   ZAMBIA                      17704    17      50       0       92000              *
   1   ZAIRE                       458      17728   7583     0       58420              *
   1   ZIMBABWE                    5.9      0       0        29163   185680             *
   1   ;                                                                                *
                                                                                        *
                                                                                        *
   1   DATA FOOD27;                                                                     *
   1   INPUT  country $ 1-26 f110 28-33  f111 37-43 f112 45-50 f113 52-57;              *
                                                                                        *
                                                                                        *
   1   CARDS;                                                                           *
   1   ALGERIA                     .04295   3       4048     14                         *
   1   ANGOLA                      .02150   63      .        .                          *
   1   BENIN                       .00225   87      105      10.9                       *
```

```
START                                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1   BURUNDI                          .        9       57      -2                                  *
   1   BOTSWANA                         .00214   1       .       .                                   *
   1   BURKINA FASO                     .00282   133     187     5.1                                 *
   1   CAMEROON                         .00219   115     163     15                                  *
   1   CAPE VERDE                       .00024   0       .       .                                   *
   1   CENTRAL AFRICAN REPUBLIC         .00060   77      20.6    19                                  *
   1   CHAD                             .        156     .       .                                   *
   1   COMOROS ISLANDS                  .        .       .       .                                   *
   1   CONGO                            .00114   2       31      14.6                                *
   1   DJIBOUTI                         .        .       .       .                                   *
   1   ETHIOPIA                         .01532   58      320     2.2                                 *
   1   EGYPT                            .13700   432     6680.8  23.8                                *
   1   EQUATORIAL GUINEA                .00017   .       .       .                                   *
   1   GHANA                            .01199   18      15.8    -19                                 *
   1   GABON                            .00225   0       102     16.5                                *
   1   GAMBIA                           .00090   .       .       .                                   *
   1   GUINEA                           .        3       .       .                                   *
   1   GUINEA-BISSAU                    .        2       .       .                                   *
   1   IVORY COAST                      .01887   193     1526    18.5                                *
   1   KENYA                            .03570   177     2127.7  14.7                                *
   1   LIBERIA                          .00066   100     .       .                                   *
   1   LESOTHO                          .00169   0       .       .                                   *
   1   LIBYA                            .00346   0       383.91  13.6                                *
   1   MADAGASCAR                       .00952   33      67      -8.3                                *
   1   MOZAMBIQUE                       .04164   82      .       .                                   *
   1   MALAWI                           .01551   143     58.48   2.5                                 *
   1   MALI                             .00300   157                                                 *
   1   MAURITIUS                        .00978   1                                                   *
   1   MAURITANIA                       .        0                                                   *
   1   MOROCCO                          .03069   20                                                  *
   1   NIGER                            .00012   6                                                   *
   1   NIGERIA                          .04116   323                                                 *
   1   RWANDA                           .00282   2                                                   *
   1   SAO TOME AND PRINCIPE            .        .                                                   *
   1   SENEGAL                          .01609   31      7274    0       44000                       *
   1   SIERRA LEONE                     .00236   1       9873    153     165                         *
   1   SEYCHELLES                       .00035   0       2987    0       66                          *
   1   SOMALIA                          .00378   13      10377   150     31400                       *
   1   SUDAN                            .01568   348     75650   0       307000                      *
   1   SWAZILAND                        .00407   24      .       .       .                           *
   1   TOGO                             .00051   62      26577   1163    .                           *
   1   TANZANIA                         .02086   458                                                 *
   1   TUNISIA                          .01443   5       132347  508     36000                       *
   1   UGANDA                           .01448   532     5       0       27600                       *
   1   ZAMBIA                           .02086   48      50      0       92000                       *
   1   ZAIRE                            .01166   260     7583    0       58420                       *
   1   ZIMBABWE                         .02397   206     0       29163   185680                      *
   1   ;                                                                                            *
                                                                                                    *
                                                                                                    *
   1   DATA FOOD28;                                                                                 *
   1   INPUT  country $ 1-26 f114 28-33  f115 37-43 f116 45-50 f117 52-57;                          *
                                                                                                    *
                                                                                                    *
```

```
START                                                                    MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
    1  CARDS;                                                                          *
    1  ALGERIA                    23                                                   *
    1  ANGOLA                     8.9                                                  *
    1  BENIN                      3.8       xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx           *
    1  BURUNDI                    4.8                                                  *
    1  BOTSWANA                   1.2       xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx           *
    1  BURKINA FASO               8                                                    *
    1  CAMEROON                   10.5                                                 *
    1  CAPE VERDE                 .3        0          .          .                    *
    1  CENTRAL AFRICAN REPUBLIC   2.7       77         20.6       19                   *
    1  CHAD                       4.5       156        .          .                    *
    1  COMOROS ISLANDS            .5        .          .          .                    *
    1  CONGO                      2         2          31         14.6                 *
    1  DJIBOUTI                   .4        .          .          .                    *
    1  ETHIOPIA                   46        58         320        2.2                  *
    1  EGYPT                      50        432        6680.8     23.8                 *
    1  EQUATORIAL GUINEA          .3        .          .          .                    *
    1  GHANA                      12.2      18         15.8       -19                  *
    1  GABON                      1         0          102        16.5                 *
    1  GAMBIA                     .7        .          .          .                    *
    1  GUINEA                     5.8       3          .          .                    *
    1  GUINEA-BISSAU              .8        2          .          .                    *
    1  IVORY COAST                10.2      193        1526       18.5                 *
    1  KENYA                      21.6      177        2127.7     14.7                 *
    1  LIBERIA                    2         100        .          .                    *
    1  LESOTHO                    1.6       0          .          .                    *
    1  LIBYA                      3.6       0          383.91     13.6                 *
    1  MADAGASCAR                 10.3      33         67         -8.3                 *
    1  MOZAMBIQUE                 13.4      82         .          .                    *
    1  MALAWI                     7.1       143        58.48      2.5                  *
    1  MALI                       7.5       157                                       *
    1  MAURITIUS                  1         1                                         *
    1  MAURITANIA                 1.3       0                                         *
    1  MOROCCO                    22.8      20                                        *
    1  NIGER                      6.2       6                                         *
    1  NIGERIA                    100       323                                       *
    1  RWANDA                     6.3       2                                         *
    1  SAO TOME AND PRINCIPE      .1        .                                         *
    1  SENEGAL                    7         31         7274       0          44000    *
    1  SIERRA LEONE               3.7       1          9873       153        165      *
    1  SEYCHELLES                 .06       0          2987       0          66       *
    1  SOMALIA                    5.4       13         10377      150        31400    *
    1  SUDAN                      21.1      348        75650      0          307000   *
    1  SWAZILAND                  .6        24         .          .          .        *
    1  TOGO                       3         62         26577      1163       .        *
    1  TANZANIA                   21.7      458                                       *
    1  TUNISIA                    7.4       5          132347     508        36000    *
    1  UGANDA                     15.9      532        5          0          27600    *
    1  ZAMBIA                     7         48         50         0          92000    *
    1  ZAIRE                      32        260        7583       0          58420    *
    1  ZIMBABWE                   8.8       206        0          29163      185680   *
    1  ;                                                                             *
                                                                                      *
```

```
START                                                                    MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
    1  PROC SORT DATA=FOOD1;                                                          *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD2;                                                          *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD3;                                                          *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD4;                                                          *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD5;                                                          *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD6;                                                          *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD7;                                                          *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD8;                                                          *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD9;                                                          *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD10;                                                         *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD11;                                                         *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD12;                                                         *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD13;                                                         *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD14;                                                         *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD15;                                                         *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD16;                                                         *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD17;                                                         *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD18;                                                         *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD19;                                                         *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD19a;                                                        *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD20;                                                         *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD21;                                                         *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD22;                                                         *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD23;                                                         *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD24;                                                         *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD25;                                                         *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FOOD26;                                                         *
    6       BY COUNTRY;                                                             *
```

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```
START                                                                    MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
    1  PROC SORT DATA=FOOD27;                                                        *
    6       BY COUNTRY;                                                            *
    1  PROC SORT DATA=FOOD28;                                                        *
    6       BY COUNTRY;                                                            *
                                                                                   *
    3    ****************************************;                                *
    3    *       MERGE DATA                      *;                               *
    3    ****************************************;                                *
    1  DATA FOO1;                                                                  *
    1  MERGE FOOD1 FOOD2 FOOD3 FOOD4 FOOD5 FOOD6 FOOD7 FOOD8 FOOD9 FOOD10;         *
    6       BY COUNTRY;                                                            *
                                                                                   *
    1  DATA FOO2;                                                                  *
    1  MERGE FOOD11 FOOD12 FOOD13 FOOD14 FOOD15 FOOD16 FOOD17 FOOD18 FOOD19        *
    8        FOOD19a;                                                              *
    6       BY COUNTRY;                                                            *
                                                                                   *
    1  DATA FOO3;                                                                  *
    1  MERGE FOOD20 FOOD21 FOOD22 FOOD23 FOOD24 FOOD25 FOOD26 FOOD27 FOOD28;       *
    6       BY COUNTRY;                                                            *
                                                                                   *
    1  ************** FINAL DATA SET FOR AGRO FOODS ************;                  *
                                                                                   *
    1  DATA FO1;                                                                   *
    1  MERGE FOO1 FOO2 FOO3;                                                       *
    6       BY COUNTRY;                                                            *
                                                                                   *
    3    ****************************************;                                *
    3    *     Per Capitalization                 ;                               *
    3    ****************************************;                                *
                                                                                   *
    2   f31=f31/f114;                                                              *
    2   f32=f32/f114;                                                              *
    2   f33=f33/f114;                                                              *
    2   f34=f34/f114;                                                              *
    2   f38=f38/f114;                                                              *
    2   f48=f39/f114;                                                              *
    2   f49=f49/f114;                                                              *
    2   f53=f53/f114;                                                              *
    2   f67=f67/f114;                                                              *
    2   f68=f68/f114;                                                              *
    2   f69=f69/f114;                                                              *
    2   f57=f57/f114;                                                              *
    2   ****************************************;                                 *
                                                                                   *
    2   ****************************************;                                 *
    2   *       PRINT DATA                      *;                                *
    2   ****************************************;                                 *
    2   TITLE 'Raw Data on Agro-Foods Industry';                                   *
    2   PROC PRINT;                                                                *
                                                                                   *
    2   ****************************************;                                 *
    2   *    MEANS AND STANDARD DEVIATIONS      ;                                 *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   2   ****************************************;                                        *
                                                                                        *
   2   TITLE 'Means of Variables for all observations';                                 *
   2   PROC MEANS;                                                                      *
                                                                                        *
                                                                                        *
   2   ****************************************;                                        *
   2   *      FACTOR ANALYSIS OF WHOLE         *;                                       *
   2   ****************************************;                                        *
                                                                                        *
                                                                                        *
   1  TITLE  gro-Food Industry';                                                        *
   1  PROC FACTOR DATA=F01 NFACTORS=10 OUT=AGEC SIMPLE;                                 *
   1  VAR f1-f3 f8-f17 f19-f30 f40-f42 f57-f65 f66-f85 f88 f91 f93 f94 f97              *
   5      f5 f6 f34 f36 f37 f38 f32 f43-f48 f50-f52 f56 f99-f108 f111;                  *
                                                                                        *
   2   /*                                                                               *
   2   ****************************************;                                        *
   2   *      FACTOR ANALYSIS BY COMPONENTS    *;                                       *
   2   ****************************************;                                        *
                                                                                        *
                                                                                        *
   1  TITLE 'Agro-Ecological Constraints';                                              *
   1  PROC FACTOR DATA=F01 NFACTORS=4 OUT=AGEC SIMPLE;                                  *
   1  VAR f70-f83;                                                                      *
                                                                                        *
   1  TITLE 'Land Resources Component';                                                 *
   1  PROC FACTOR DATA=F01 NFACTORS=4 OUT=LAND SIMPLE;                                  *
   1  VAR f8-f12 f66-f69 f88 f91 f94;                                                   *
                                                                                        *
                                                                                        *
   1  TITLE 'Other Inputs: Irrigation & Pop in Agriculture';                            *
   1  PROC FACTOR DATA=F01 NFACTORS=4 OUT=OTHR SIMPLE;                                  *
   1  VAR f84 f85 f3;                                                                   *
                                                                                        *
                                                                                        *
   1  TITLE 'Production Component';                                                     *
   1  PROC FACTOR DATA=F01 NFACTORS=4 OUT=PROD SIMPLE;                                  *
   1  VAR f1 f2 f13-f17 f19-f30 f39 f40 f48 f58 f93 f97 f111;                           *
                                                                                        *
                                                                                        *
   1  TITLE 'Trade Component';                                                          *
   1  PROC FACTOR DATA=F01 NFACTORS=4 OUT=TRAD SIMPLE;                                  *
   1  VAR f5 f6 f36 f37 f32 f44-f47 f50 f51 f56 f99-f108 f41 f42;                       *
                                                                                        *
   1  TITLE 'Consumption Component';                                                    *
   1  PROC FACTOR DATA=F01 NFACTORS=4 OUT=CONS SIMPLE;                                  *
   1  VAR f34 f38 f43 f52 f57 f59-f65;                                                  *
                                                                                        *
   1  TITLE 'Food Aid Component';                                                       *
   1  PROC FACTOR DATA=F01 NFACTORS=4 OUT=FAID SIMPLE;                                  *
   1  VAR f33 f49;                                                                      *
                                                                                        *
   1  TITLE 'Concessional Commitments to Agriculture';                                  *
```

PROJECT: UQ5LC
GROUP: PDSU
TYPE: SAS

MEMBER: FDFTCOM
LEVEL: 01.05
USERID: U3D

DATE: 89/07/13
TIME: 11:29
PAGE: 35 OF 35

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1  PROC FACTOR DATA=FO1 NFACTORS=4 OUT=CONC SIMPLE;                                  *
    1  VAR f7 f87;                                                                       *
                                                                                         *
    1  /*                                                                                *
```

```
PROJECT:  UQ5LC              MEMBER:  FRTCL                  DATE: 89/07/13
GROUP:    PDSU               LEVEL:   01.00                  TIME: 11:29
TYPE:     SAS                USERID:  U3D                    PAGE: 01 OF 02
START                                                                                MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  //U3DFERT  JOB (Q5,T),D1867-THOMAS,MSGCLASS=X,CLASS=I,                  00010000
   1  //          TIME=(01,00),NOTIFY=U3C,MSGLEVEL=(1,1),REGION=3500K          00020000
   1  //*                                                                              *
   1  //*                                                                              *
   1  //*        Job Control for SAS-Batch                                             *
   1  //*                                                                              *
   1  //*                                                                              *
   1  /*JOBPARM COPIES=1                                                               *
   1  //STRUCC5  EXEC SAS,PARM='MACRO,PAGESIZE=65'                                     *
   1  //FT11F001 DD SYSOUT=*,DEST=UNIDO,DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)          *
   1  //FT12F001 DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)             *
   1  //FT02F001 DD SYSOUT=(Q,,XPLA),DCB=RECFM=UA,DEST=UNIDO                           *
   1  //SYSOUT   DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)             *
                                                                                       *
   1  OPTIONS DQUOTE PAGESIZE=65;                                                      *
   1  GOPTIONS DEVICE=XEROX NOTEXT82 HSIZE=10.5 VSIZE=7.5 NOCHARACTERS;                *
   1  *;                                                                               *
                                                                                       *
   1  *   Place data for fertilizers here*;                                            *
                                                                                       *
                                                                                       *
                                                                                       *
                                                                                       *
   1  ********************************************;                                    *
   1  *  ALL METHODS OF CLUSTER ANALYSIS          ;                                    *
   1  ********************************************;                                    *
                                                                                       *
   1  TITLE 'Average Linkage Method';                                                  *
   1  PROC CLUSTER METHOD=AVERAGE STD PSEUDO NOEIGEN OUTTREE=TREE;                     *
   1  ID country;                                                                      *
   1  VAR f1-  ;                                                                       *
   1  PROC TREE;                                                                       *
                                                                                       *
   1  TITLE 'Ward's Method';                                                           *
   1  PROC CLUSTER METHOD=WARD    STD PSEUDO NOEIGEN OUTTREE=TREE;                     *
   1  ID country;                                                                      *
   1  VAR f1-  ;                                                                       *
   1  PROC TREE;                                                                       *
                                                                                       *
   1  TITLE 'Centroid Method';                                                         *
   1  PROC CLUSTER METHOD=CEN     STD PSEUDO NOEIGEN OUTTREE=TREE;                     *
   1  ID country;                                                                      *
   1  VAR f1-  ;                                                                       *
   1  PROC TREE;                                                                       *
                                                                                       *
   1  TITLE 'Complete Linkage Method';                                                 *
   1  PROC CLUSTER METHOD=COM     STD PSEUDO NOEIGEN OUTTREE=TREE;                     *
   1  ID country;                                                                      *
```

```
START                                                                    MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
    1  VAR f1-    ;                                                                    *
    1  PROC TREE;                                                                      *
                                                                                       *
    1  TITLE 'Density Linkage Method';                                                 *
    1  PROC CLUSTER METHOD=DEN K=2 STD PSEUDO NOEIGEN OUTTREE=TREE;                    *
    1  ID country;                                                                     *
    1  VAR f1-     ;                                                                   *
    1  PROC TREE;                                                                      *
                                                                                       *
    1  TITLE 'Maximun Likleyhood Method';                                              *
    1  PROC CLUSTER METHOD=EML     STD PSEUDO NOEIGEN OUTTREE=TREE;                    *
    1  ID country;                                                                     *
    1  VAR f1-     ;                                                                   *
    1  PROC TREE;                                                                      *
                                                                                       *
    1  TITLE 'Flexible Beta Method';                                                   *
    1  PROC CLUSTER METHOD=FLE     STD PSEUDO NOEIGEN OUTTREE=TREE;                    *
    1  ID country;                                                                     *
    1  VAR f1-     ;                                                                   *
    1  PROC TREE;                                                                      *
                                                                                       *
    1  TITLE 'McQuitty's Method';                                                      *
    1  PROC CLUSTER METHOD=MCQ     STD PSEUDO NOEIGEN OUTTREE=TREE;                    *
    1  ID country;                                                                     *
    1  VAR f1-     ;                                                                   *
    1  PROC TREE;                                                                      *
                                                                                       *
    1  TITLE 'Median Method';                                                          *
    1  PROC CLUSTER METHOD=MED     STD PSEUDO NOEIGEN OUTTREE=TREE;                    *
    1  ID country;                                                                     *
    1  VAR f1-     ;                                                                   *
    1  PROC TREE;                                                                      *
                                                                                       *
    1  TITLE 'Single Linkage Method';                                                  *
    1  PROC CLUSTER METHOD=SIN     STD PSEUDO NOEIGEN OUTTREE=TREE;                    *
    1  ID country;                                                                     *
    1  VAR f1-     ;                                                                   *
    1  PROC TREE;                                                                      *
                                                                                       *
    1  TITLE 'Two-Stage Method';                                                       *
    1  PROC CLUSTER METHOD=TWO K=2 STD PSEUDO NOEIGEN OUTTREE=TREE;                    *
    1  ID country;                                                                     *
    1  VAR f1-     ;                                                                   *
    1  PROC TREE;                                                                      *
                                                                                       *
    1  /*                                                                             *
```

```
        PROJECT:  UQ5LC              MEMBER:  FRTCLCOM                DATE: 89/07/13
        GROUP:    PDSU               LEVEL:   01.00                   TIME: 11:29
        TYPE:     SAS                USERID:  U3D                     PAGE: 01 OF 01
START                                                                          MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
    1  //U3DFTCLC JOB (Q5,T),D1867-THOMAS,MSGCLASS=X,CLASS=I,                  00010000
    1  //          TIME=(01,00),NOTIFY=U3D,MSGLEVEL=(1,1),REGION=3500K         00020000
    1  //*
    1  //*
    1  //*       Job Control for SAS-Batch
    1  //*
    1  //*
    1  /*JOBPARM COPIES=1
    1  //STRUCC5  EXEC SAS,PARM='MACRO,PAGESIZE=65'
    1  //FT11F001 DD SYSOUT=*,DEST=UNIDO,DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)
    1  //FT12F001 DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)
    1  //FT02F001 DD SYSOUT=(Q,,XPLA),DCB=RECFM=UA,DEST=UNIDO
    1  //SYSOUT   DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)

    1  OPTIONS DQUOTE PAGESIZE=65;
    1  GOPTIONS DEVICE=XEROX NOTEXT82 HSIZE=10.5 VSIZE=7.5 NOCHARACTERS;
    1  *;

    1  *  Data for fertilizers goes here  *;




    1  ************************************************;
    1  *        PRINT ALL VARIABLES                   *;
    1  ************************************************;

    1  PROC PRINT;


    2   ************************************************;
    2   * CLUSTER ANALYSIS ON EACH COMPONENT           *;
    2   ************************************************;

    1  PROC CLUSTER METHOD=WARD STD NOEIGEN OUTTREE=TREE;
    1  ID country;
    1  VAR ft1;
    1  TITLE 'COMPONENT 1';
    1  PROC TREE;

    1  PROC CLUSTER DATA=AG1 METHOD=WARD STD NOEIGEN OUTTREE=TREE;
    1  ID country;
    1  VAR ft2-ft5;
    1  TITLE 'COMPONENT 2';
    1  PROC TREE;

    1  * etc.
    6       .
    6       .
    5       ;

    1  /*
```

```
        PROJECT:  UQ5LC              MEMBER:  FRTFCAL                  DATE: 89/07/13
        GROUP:    PDSU               LEVEL:   01.00                    TIME: 11:29
        TYPE:     SAS                USERID:  U3D                      PAGE: 01 OF 03
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1   //U3DFRTFA JOB (Q5,T),D1867-THOMAS,MSGCLASS=X,CLASS=I,                  00010000
   1   //          TIME=(01,00),NOTIFY=U3D,MSGLEVEL=(1,1),REGION=3500K          00020000
   1   //*                                                                              *
   1   //*                                                                              *
   1   //*        Job Control for SAS-Batch                                             *
   1   //*                                                                              *
   1   //*                                                                              *
   1   /*JOBPARM COPIES=1                                                               *
   1   //STRUCC5  EXEC SAS,PARM='MACRO,PAGESIZE=65'                                     *
   1   //FT11F001 DD SYSOUT=*,DEST=UNIDO,DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)          *
   1   //FT12F001 DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)             *
   1   //FT02F001 DD SYSOUT=(Q,,XPLA),DCB=RECFM=UA,DEST=UNIDO                           *
   1   //SYSOUT   DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)             *
                                                                                        *
   1   OPTIONS DQUOTE PAGESIZE=65;                                                      *
   1   GOPTIONS DEVICE=XEROX NOTEXT82 HSIZE=10.5 VSIZE=7.5 NOCHARACTERS;                *
   1   *;                                                                               *
   1   DATA FERT1;                                                                      *
   6        Title 'Raw Data on Fertilizers';                                            *
   1   INPUT  country $ 1-26 ft1 28-32 ft2 37-42 ft3 44-47 ft4 50-52;                   *
                                                                                        *
   1   CARDS;                                                                           *
   1   ALGERIA                      x       xxxxx   xxx    xxx                          *
   1   ANGOLA                       x       xxxxx   xxx    xxx                          *
   1   BENIN                        x       xxxxx   xxx    xxx                          *
   1   BURUNDI                      x       xxxxx   xxx    xxx                          *
   1   BOTSWANA                     x       xxxxx   xxx    xxx                          *
   1   BURKINA FASO                 x       xxxxx   xxx    xxx                          *
   1   CAMEROON                     x       xxxxx   xxx    xxx                          *
   1   CAPE VERDE                   x       xxxxx   xxx    xxx                          *
   1   CENTRAL AFRICAN REPUBLIC     x       xxxxx   xxx    xxx                          *
   1   CHAD                         x       xxxxx   xxx    xxx                          *
   1   COMOROS ISLANDS              x       xxxxx   xxx    xxx                          *
   1   CONGO                        x       xxxxx   xxx    xxx                          *
   1   DJIBOUTI                     x       xxxxx   xxx    xxx                          *
   1   ETHIOPIA                     x       xxxxx   xxx    xxx                          *
   1   EGYPT                        x       xxxxx   xxx    xxx                          *
   1   EQUATORIAL GUINEA            x       xxxxx   xxx    xxx                          *
   1   GHANA                        x       xxxxx   xxx    xxx                          *
   1   GABON                        x       xxxxx   xxx    xxx                          *
   1   GAMBIA                       x       xxxxx   xxx    xxx                          *
   1   GUINEA                       x       xxxxx   xxx    xxx                          *
   1   GUINEA-BISSAU                x       xxxxx   xxx    xxx                          *
   1   IVORY COAST                  x       xxxxx   xxx    xxx                          *
   1   KENYA                        x       xxxxx   xxx    xxx                          *
   1   LIBERIA                      x       xxxxx   xxx    xxx                          *
   1   LESOTHO                      x       xxxxx   xxx    xxx                          *
   1   LIBYA                        x       xxxxx   xxx    xxx                          *
   1   MADAGASCAR                   x       xxxxx   xxx    xxx                          *
   1   MOZAMBIQUE                   x       xxxxx   xxx    xxx                          *
   1   MALAWI                       x       xxxxx   xxx    xxx                          *
   1   MALI                         x       xxxxx   xxx    xxx                          *
   1   MAURITIUS                    x       xxxxx   xxx    xxx                          *
   1   MAURITANIA                   x       xxxxx   xxx    xxx                          *
```

```
START                                                                    MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
    1  MOROCCO                        x       xxxxx    xxx     xxx                    *
    1  NIGER                          x       xxxxx    xxx     xxx                    *
    1  NIGERIA                        x       xxxxx    xxx     xxx                    *
    1  RWANDA                         x       xxxxx    xxx     xxx                    *
    1  SAO TOME AND PRINCIPE          x       xxxxx    xxx     xxx                    *
    1  SENEGAL                        x       xxxxx    xxx     xxx                    *
    1  SIERRA LEONE                   x       xxxxx    xxx     xxx                    *
    1  SEYCHELLES                     x       xxxxx    xxx     xxx                    *
    1  SOMALIA                        x       xxxxx    xxx     xxx                    *
    1  SUDAN                          x       xxxxx    xxx     xxx                    *
    1  SWAZILAND                      x       xxxxx    xxx     xxx                    *
    1  TOGO                           x       xxxxx    xxx     xxx                    *
    1  TANZANIA                       x       xxxxx    xxx     xxx                    *
    1  TUNISIA                        x       xxxxx    xxx     xxx                    *
    1  UGANDA                         x       xxxxx    xxx     xxx                    *
    1  ZAMBIA                         x       xxxxx    xxx     xxx                    *
    1  ZAIRE                          x       xxxxx    xxx     xxx                    *
    1  ZIMBABWE                       x       xxxxx    xxx     xxx                    *
    1  ;                                                                             *
    1  DATA FERT2;                                                                   *
    1  INPUT  country $ 1-26 ft5 28-32 ft6 36-38 ft7 40-45 ft8 47-52;                *
    1  CARDS;                                                                        *
    1  ALGERIA                        x       xxxxx    xxx     xxx                    *
    1  ANGOLA                         x       xxxxx    xxx     xxx                    *
    1  BENIN                          x       xxxxx    xxx     xxx                    *
    1  BURUNDI                        x       xxxxx    xxx     xxx                    *
    1  BOTSWANA                       x       xxxxx    xxx     xxx                    *
    1  BURKINA FASO                   x       xxxxx    xxx     xxx                    *
    1  CAMEROON                       x       xxxxx    xxx     xxx                    *
    1  CAPE VERDE                     x       xxxxx    xxx     xxx                    *
    1  CENTRAL AFRICAN REPUBLIC       x       xxxxx    xxx     xxx                    *
    1  CHAD                           x       xxxxx    xxx     xxx                    *
    1  COMOROS ISLANDS                x       xxxxx    xxx     xxx                    *
    1  CONGO                          x       xxxxx    xxx     xxx                    *
    1  DJIBOUTI                       x       xxxxx    xxx     xxx                    *
    1  ETHIOPIA                       x       xxxxx    xxx     xxx                    *
    1  EGYPT                          x       xxxxx    xxx     xxx                    *
    1  EQUATORIAL GUINEA              x       xxxxx    xxx     xxx                    *
    1  GHANA                          x       xxxxx    xxx     xxx                    *
    1  GABON                          x       xxxxx    xxx     xxx                    *
    1  GAMBIA                         x       xxxxx    xxx     xxx                    *
    1  GUINEA                         x       xxxxx    xxx     xxx                    *
    1  GUINEA-BISSAU                  x       xxxxx    xxx     xxx                    *
    1  IVORY COAST                    x       xxxxx    xxx     xxx                    *
    1  KENYA                          x       xxxxx    xxx     xxx                    *
    1  LIBERIA                        x       xxxxx    xxx     xxx                    *
    1  LESOTHO                        x       xxxxx    xxx     xxx                    *
    1  LIBYA                          x       xxxxx    xxx     xxx                    *
    1  MADAGASCAR                     x       xxxxx    xxx     xxx                    *
    1  MOZAMBIQUE                     x       xxxxx    xxx     xxx                    *
    1  MALAWI                         x       xxxxx    xxx     xxx                    *
    1  MALI                           x       xxxxx    xxx     xxx                    *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  MAURITIUS                    x       xxxxx   xxx    xxx                          *
   1  MAURITANIA                   x       xxxxx   xxx    xxx                          *
   1  MOROCCO                      x       xxxxx   xxx    xxx                          *
   1  NIGER                        x       xxxxx   xxx    xxx                          *
   1  NIGERIA                      x       xxxxx   xxx    xxx                          *
   1  RWANDA                       x       xxxxx   xxx                                 *
   1  SAO TOME AND PRINCIPE        x       xxxxx   xxx    xxx                          *
   1  SENEGAL                      x       xxxxx   xxx    xxx                          *
   1  SIERRA LEONE                 x       xxxxx   xxx    xxx                          *
   1  SEYCHELLES                   x       xxxxx   xxx    xxx                          *
   1  SOMALIA                      x       xxxxx   xxx    xxx                          *
   1  SUDAN                        x       xxxxx   xxx    xxx                          *
   1  SWAZILAND                    x       xxxxx   xxx    xxx                          *
   1  TOGO                         x       xxxxx   xxx    xxx                          *
   1  TANZANIA                     x       xxxxx   xxx    xxx                          *
   1  TUNISIA                      x       xxxxx   xxx    xxx                          *
   1  UGANDA                       x       xxxxx   xxx    xxx                          *
   1  ZAMBIA                       x       xxxxx   xxx    xxx                          *
   1  ZAIRE                        x       xxxxx   xxx    xxx                          *
   1  ZIMBABWE                     x       xxxxx   xxx    xxx                          *
   1  ;                                                                                *
                                                                                       *
                                                                                       *
   1  *etc.                                                                            *
   5      .                                                                            *
   5      .                                                                            *
   5      ;                                                                            *
                                                                                       *
                                                                                       *
   1  PROC SORT DATA=FERT1;                                                            *
   6       BY COUNTRY;                                                                 *
   1  PROC SORT DATA=FERT2;                                                            *
   6       BY COUNTRY;                                                                 *
   6       *etc.                                                                       *
  10           .                                                                       *
  10           .                                                                       *
  10           ;                                                                       *
                                                                                       *
   1  DATA FRT1;                                                                       *
   1  MERGE FERT1 FERT2;                                                               *
   6       BY COUNTRY;                                                                 *
                                                                                       *
                                                                                       *
   1  ***************************************************;                             *
   1  *       FACTOR ANALYSIS ON ALL COMPONENTS         *;                            *
   1  ***************************************************;                             *
                                                                                       *
   1  TITLE 'Factor Analysis on all variables';                                        *
   1  PROC FACTOR DATA=FINAL NFACTORS=5 OUT=COM1 SIMPLE;                               *
   1  VAR ft1-ft6;                                                                     *
                                                                                       *
                                                                                       *
   6       /*                                                                          *
                                                                                       *
```

```
        PROJECT:  UQ5LC              MEMBER:  FRTFTCOM                DATE: 89/07/13
        GROUP:    PDSU               LEVEL:   01.02                   TIME: 11:29
        TYPE:     SAS                USERID:  U3D                     PAGE: 01 OF 04
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1   //U3DFRTFC JOB (Q5,T),D1867-THOMAS,MSGCLASS=X,CLASS=I,                  00010000
   1   //         TIME=(01,00),NOTIFY=U3D,MSGLEVEL=(1,1),REGION=3500K           00020000
   1   //*                                                                              *
   1   //*                                                                              *
   1   //*       Job Control for SAS-Batch                                              *
   1   //*                                                                              *
   1   //*                                                                              *
   1   /*JOBPARM COPIES=1                                                              *
   1   //STRUCC5  EXEC SAS,PARM='MACRO,PAGESIZE=65'                                     *
   1   //FT11F001 DD SYSOUT=*,DEST=UNIDO,DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)          *
   1   //FT12F001 DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)             *
   1   //FT02F001 DD SYSOUT=(Q,,XPLA),DCB=RECFM=UA,DEST=UNIDO                           *
   1   //SYSOUT   DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)             *
                                                                                        *
   1   OPTIONS DQUOTE PAGESIZE=65;                                                      *
   1   GOPTIONS DEVICE=XEROX NOTEXT82 HSIZE=10.5 VSIZE=7.5 NOCHARACTERS;                *
   1   *;                                                                               *
   1   DATA FERT1;                                                                      *
   6        Title 'Raw Data on Fertilizers';                                            *
   1   INPUT  country $ 1-26 ft1 28-32 ft2 37-42 ft3 44-47 ft4 50-52;                   *
                                                                                        *
   1   CARDS;                                                                           *
   1   ALGERIA                    x       xxxxx   xxx    xxx                            *
   1   ANGOLA                     x       xxxxx   xxx    xxx                            *
   1   BENIN                      x       xxxxx   xxx    xxx                            *
   1   BURUNDI                    x       xxxxx   xxx    xxx                            *
   1   BOTSWANA                   x       xxxxx   xxx    xxx                            *
   1   BURKINA FASO               x       xxxxx   xxx    xxx                            *
   1   CAMEROON                   x       xxxxx   xxx    xxx                            *
   1   CAPE VERDE                 x       xxxxx   xxx    xxx                            *
   1   CENTRAL AFRICAN REPUBLIC   x       xxxxx   xxx    xxx                            *
   1   CHAD                       x       xxxxx   xxx    xxx                            *
   1   COMOROS ISLANDS            x       xxxxx   xxx    xxx                            *
   1   CONGO                      x       xxxxx   xxx    xxx                            *
   1   DJIBOUTI                   x       xxxxx   xxx    xxx                            *
   1   ETHIOPIA                   x       xxxxx   xxx    xxx                            *
   1   EGYPT                      x       xxxxx   xxx    xxx                            *
   1   EQUATORIAL GUINEA          x       xxxxx   xxx    xxx                            *
   1   GHANA                      x       xxxxx   xxx    xxx                            *
   1   GABON                      x       xxxxx   xxx    xxx                            *
   1   GAMBIA                     x       xxxxx   xxx    xxx                            *
   1   GUINEA                     x       xxxxx   xxx    xxx                            *
   1   GUINEA-BISSAU              x       xxxxx   xxx    xxx                            *
   1   IVORY COAST                x       xxxxx   xxx    xxx                            *
   1   KENYA                      x       xxxxx   xxx    xxx                            *
   1   LIBERIA                    x       xxxxx   xxx    xxx                            *
   1   LESOTHO                    x       xxxxx   xxx    xxx                            *
   1   LIBYA                      x       xxxxx   xxx    xxx                            *
   1   MADAGASCAR                 x       xxxxx   xxx    xxx                            *
   1   MOZAMBIQUE                 x       xxxxx   xxx    xxx                            *
   1   MALAWI                     x       xxxxx   xxx    xxx                            *
   1   MALI                       x       xxxxx   xxx    xxx                            *
   1   MAURITIUS                  x       xxxxx   xxx    xxx                            *
   1   MAURITANIA                 x       xxxxx   xxx    xxx                            *
```

```
START                                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1   MOROCCO                      x        xxxxx    xxx     xxx                                  *
   1   NIGER                        x        xxxxx    xxx     xxx                                  *
   1   NIGERIA                      x        xxxxx    xxx     xxx                                  *
   1   RWANDA                       x        xxxxx    xxx     xxx                                  *
   1   SAO TOME AND PRINCIPE        x        xxxxx    xxx     xxx                                  *
   1   SENEGAL                      x        xxxxx    xxx     xxx                                  *
   1   SIERRA LEONE                 x        xxxxx    xxx     xxx                                  *
   1   SEYCHELLES                   x        xxxxx    xxx     xxx                                  *
   1   SOMALIA                      x        xxxxx    xxx     xxx                                  *
   1   SUDAN                        x        xxxxx    xxx     xxx                                  *
   1   SWAZILAND                    x        xxxxx    xxx     xxx                                  *
   1   TOGO                         x        xxxxx    xxx     xxx                                  *
   1   TANZANIA                     x        xxxxx    xxx     xxx                                  *
   1   TUNISI                       x        xxxxx    xxx     xxx                                  *
   1   UGANDA                       x        xxxxx    xxx     xxx                                  *
   1   ZAMBIA                       x        xxxxx    xxx     xxx                                  *
   1   ZAIRE                        x        xxxxx    xxx     xxx                                  *
   1   ZIMBABWE                     x        xxxxx    xxx     xxx                                  *
   1   ;                                                                                            *
                                                                                                    *
   1   DATA FERT2;                                                                                  *
   1   INPUT  country $ 1-26 ft5 28-32 ft6 36-38 ft7 40-45 ft8 47-52;                              *
                                                                                                    *
   1   CARDS;                                                                                       *
   1   ALGERIA                      x        xxxxx    xxx     xxx                                  *
   1   ANGOLA                       x        xxxxx    xxx     xxx                                  *
   1   BENIN                        x        xxxxx    xxx     xxx                                  *
   1   BURUNDI                      x        xxxxx    xxx     xxx                                  *
   1   BOTSWANA                     x        xxxxx    xxx     xxx                                  *
   1   BURKINA FASO                 x        xxxxx    xxx     xxx                                  *
   1   CAMEROON                     x        xxxxx    xxx     xxx                                  *
   1   CAPE VERDE                   x        xxxxx    xxx     xxx                                  *
   1   CENTRAL AFRICAN REPUBLIC     x        xxxxx    xxx     xxx                                  *
   1   CHAD                         x        xxxxx    xxx     xxx                                  *
   1   COMOROS ISLANDS              x        xxxxx    xxx     xxx                                  *
   1   CONGO                        x        xxxx     xxx     xxx                                  *
   1   DJIBOUTI                     x        xxxxx    xxx     xxx                                  *
   1   ETHIOPIA                     x        xxxxx    xxx     xxx                                  *
   1   EGYPT                        x        xxxxx    xxx     xxx                                  *
   1   EQUATORIAL GUINEA            x        xxxxx    xxx     xxx                                  *
   1   GHANA                        x        xxxxx    xxx     xxx                                  *
   1   GABON                        x        xxxxx    xxx     xxx                                  *
   1   GAMBIA                       x        xxxxx    xxx     xxx                                  *
   1   GUINEA                       x        xxxxx    xxx     xxx                                  *
   1   GUINEA-BISSAU                x        xxxxx    xxx     xxx                                  *
   1   IVORY COAST                  x        xxxxx    xxx     xxx                                  *
   1   KENYA                        x        xxxxx    xxx     xxx                                  *
   1   LIBERIA                      x        xxxxx    xxx     xxx                                  *
   1   LESOTHO                      x        xxxxx    xxx     xxx                                  *
   1   LIBYA                        x        xxxxx    xxx     xxx                                  *
   1   MADAGASCAR                   x        xxxxx    xxx     xxx                                  *
   1   MOZAMBIQUE                   x        xxxxx    xxx     xxx                                  *
   1   MALAWI                       x        xxxxx    xxx     xxx                                  *
   1   MALI                         x        xxxxx    xxx     xxx                                  *
```

```
START                                                                    MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
    1  MAURITIUS                      x       xxxxx    xxx     xxx                    *
    1  MAURITANIA                     x       xxxxx    xxx     xxx                    *
    1  MOROCCO                        x       xxxxx    xxx     xxx                    *
    1  NIGER                          x       xxxxx    xxx     xxx                    *
    1  NIGERIA                        x       xxxxx    xxx     xxx                    *
    1  RWANDA                         x       xxxxx    xxx     xxx                    *
    1  SAO TOME AND PRINCIPE          x       xxxxx    xxx     xxx                    *
    1  SENEGAL                        x       xxxxx    xxx     xxx                    *
    1  SIERRA LEONE                   x       xxxxx    xxx     xxx                    *
    1  SEYCHELLES                     x       xxxxx    xxx     xxx                    *
    1  SOMALIA                        x       xxxxx    xxx     xxx                    *
    1  SUDAN                          x       xxxxx    xxx     xxx                    *
    1  SWAZILAND                      x       xxxxx    xxx     xxx                    *
    1  TOGO                           x       xxxxx    xxx     xxx                    *
    1  TANZANIA                       x       xxxxx    xxx     xxx                    *
    1  TUNISIA                        x       xxxxx    xxx     xxx                    *
    1  UGANDA                         x       xxxxx    xxx     xxx                    *
    1  ZAMBIA                         x       xxxxx    xxx     xxx                    *
    1  ZAIRE                          x       xxxxx    xxx     xxx                    *
    1  ZIMBABWE                       x       xxxxx    xxx     xxx                    *
    1  ;                                                                            *
                                                                                    *
    1  *etc.                                                                       *
    5       .                                                                       *
    5       .                                                                       *
    5       ;                                                                       *
                                                                                    *
    1  PROC SORT DATA=FERT1;                                                       *
    6       BY COUNTRY;                                                             *
    1  PROC SORT DATA=FERT2;                                                       *
    6       BY COUNTRY;                                                             *
    6       *etc.                                                                   *
   10           .                                                                   *
   10           .                                                                   *
   10           ;                                                                   *
                                                                                    *
    1  DATA FRT1;                                                                  *
    1  MERGE FERT1 FERT2;                                                          *
    6       BY COUNTRY;                                                             *
                                                                                    *
    1  ********************************************************;                  *
    1  *       FACTOR ANALYSIS ON EACH COMPONENT              *;                  *
    1  ********************************************************;                  *
                                                                                    *
    1  TITLE 'COMPONENT 1';                                                        *
    1  PROC FACTOR DATA=FINAL NFACTORS=5 OUT=COM1 SIMPLE;                          *
    1  VAR ft1 ft2 ft3;                                                            *
                                                                                    *
    1  TITLE 'COMPONENT 2';                                                        *
    1  PROC FACTOR DATA=FINAL NFACTORS=5 OUT=COM2 SIMPLE;                          *
    1  VAR ft4 ft5 ft6;                                                            *
```

PROJECT: UQ5LC
GROUP: PDSU
TYPE: SAS

MEMBER: FRTFTCOM
LEVEL: 01.02
USERID: U3D

DATE: 89/07/13
TIME: 11:29
PAGE: 04 OF 04

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
                                                                                        *
                                                                                        *
   3    *etc.                                                                           *
   7          .                                                                         *
   7          .                                                                         *
   7          ;                                                                         *
                                                                                        *
   6        /*                                                                         *
```

```
        PROJECT:  UQ5LC              MEMBER:  PSTCL                    DATE: 89/07/13
        GROUP:    PDSU               LEVEL:   01.00                    TIME: 11:30
        TYPE:     SAS                USERID:  U3D                      PAGE: 01 OF 02
START                                                                          MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
    1  //U3DPEST  JOB (Q5,T),D1867-THOMAS,MSGCLASS=X,CLASS=I,                  00010000
    1  //          TIME=(01,00),NOTIFY=U3C,MSGLEVEL=(1,1),REGION=3500K         00020000
    1  //*                                                                     *
    1  //*                                                                     *
    1  //*       Job Control for SAS-Batch                                     *
    1  //*                                                                     *
    1  //*                                                                     *
    1  /*JOBPARM COPIES=1                                                      *
    1  //STRUCC5  EXEC SAS,PARM='MACRO,PAGESIZE=65'                           *
    1  //FT11F001 DD SYSOUT=*,DEST=UNIDO,DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA) *
    1  //FT12F001 DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)    *
    1  //FT02F001 DD SYSOUT=(Q,,XPLA),DCB=RECFM=UA,DEST=UNIDO                  *
    1  //SYSOUT   DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)    *
    1  OPTIONS DQUOTE PAGESIZE=65;                                            *
    1  GOPTIONS DEVICE=XEROX NOTEXT82 HSIZE=10.5 VSIZE=7.5 NOCHARACTERS;      *
    1  *;                                                                     *
    1  *                                                                      *
    1  *   Place data for pesticides here*;                                   *
    1  *                                                                      *
    1  *                                                                      *
    1  *                                                                      *
    1  *                                                                      *
    1  *                                                                      *
    1  ********************************************;                        *
    1  *  ALL METHODS OF CLUSTER ANALYSIS          ;                        *
    1  ********************************************;                        *
    1  *                                                                      *
    1  TITLE 'Average Linkage Method';                                        *
    1  PROC CLUSTER METHOD=AVERAGE STD PSEUDO NOEIGEN OUTTREE=TREE;           *
    1  ID country;                                                           *
    1  VAR p1-   ;                                                           *
    1  PROC TREE;                                                            *
    1  *                                                                     *
    1  TITLE 'Ward's Method';                                                *
    1  PROC CLU ER METHOD=WARD    STD PSEUDO NOEIGEN OUTTREE=TREE;           *
    1  ID country;                                                           *
    1  VAR p1-   ;                                                           *
    1  PROC TREE;                                                            *
    1  *                                                                     *
    1  TITLE 'Centroid Method';                                              *
    1  PROC CLUSTER METHOD=CEN     STD PSEUDO NOEIGEN OUTTREE=TREE;          *
    1  ID country;                                                           *
    1  VAR p1-   ;                                                           *
    1  PROC TREE;                                                            *
    1  *                                                                     *
    1  TITLE 'Complete Linkage Method';                                      *
    1  PROC CLUSTER METHOD=COM     STD PSEUDO NOEIGEN OUTTREE=TREE;          *
    1  ID country;                                                           *
```

```
PROJECT:  UQ5LC          MEMBER:  PSTCL          DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.00          TIME: 11:30
TYPE:     SAS            USERID:  U3D            PAGE: 02 OF 02
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  VAR p1-    ;                                                                     *
   1  PROC TREE;                                                                       *
                                                                                       *
   1  TITLE 'Density Linkage Method';                                                  *
   1  PROC CLUSTER METHOD=DEN K=2 STD PSEUDO NOEIGEN OUTTREE=TREE;                     *
   1  ID country;                                                                      *
   1  VAR p1-      ;                                                                   *
   1  PROC TREE;                                                                       *
                                                                                       *
   1  TITLE 'Maximun Likleyhood Method';                                               *
   1  PROC CLUSTER METHOD=EML      STD PSEUDO NOEIGEN OUTTREE=TREE;                    *
   1  ID country;                                                                      *
   1  VAR p1-    ;                                                                     *
   1  PROC TREE;                                                                       *
                                                                                       *
   1  TITLE 'Flexible Beta Method';                                                    *
   1  PROC CLUSTER METHOD=FLE      STD PSEUDO NOEIGEN OUTTREE=TREE;                    *
   1  ID country;                                                                      *
   1  VAR p1-      ;                                                                   *
   1  PROC TREE;                                                                       *
                                                                                       *
   1  TITLE 'McQuitty's Method';                                                       *
   1  PROC CLUSTER METHOD=MCQ      STD PSEUDO NOEIGEN OUTTREE=TREE;                    *
   1  ID country;                                                                      *
   1  VAR p1-      ;                                                                   *
   1  PROC TREE;                                                                       *
                                                                                       *
   1  TITLE 'Median Method';                                                           *
   1  PROC CLUSTER METHOD=MED      STD PSEUDO NOEIGEN OUTTREE=TREE;                    *
   1  ID country;                                                                      *
   1  VAR p1-    ;                                                                     *
   1  PROC TREE;                                                                       *
                                                                                       *
   1  TITLE 'Single Linkage Method';                                                   *
   1  PROC CLUSTER METHOD=SIN      STD PSEUDO NOEIGEN OUTTREE=T[illegible]E;                *
   1  ID country;                                                                      *
   1  VAR p1-      ;                                                                   *
   1  PROC TREE;                                                                       *
                                                                                       *
   1  TITLE 'Two-Stage Method';                                                        *
   1  PROC CLUSTER METHOD=TWO K=2 STD PSEUDO NOEIGEN OUTTREE=TREE;                     *
   1  ID country;                                                                      *
   1  VAR p1-    ;                                                                     *
   1  PROC TREE;                                                                       *
                                                                                       *
   1  /*
```

```
        PROJECT:  UQ5LC              MEMBER:  PSTCLCOM                DATE: 89/07/13
        GROUP:    PDSU               LEVEL:   01.00                   TIME: 11:30
        TYPE      SAS                USERID:  U3D                     PAGE: 01 OF 01
START
 COL    ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1   //U3DPTCLC JOB (Q5,T),D1867-THOMAS,MSGCLASS=X,CLASS=I,                  00010000
    1   //         TIME=(01,00),NOTIFY=U3D,MSGLEVEL=(1,1),REGION=3500K           00020000
    1   //*                                                                              *
    1   //*                                                                              *
    1   //*       Job Control for SAS-Batch                                              *
    1   //*                                                                              *
    1   //*                                                                              *
    1   /*JOBPARM COPIES=1                                                              *
    1   //STRUCC5  EXEC SAS,PARM='MACRO,PAGESIZE=65'                                    *
    1   //FT11F001 DD SYSOUT=*,DEST=UNIDO,DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)         *
    1   //FT12F001 DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)           *
    1   //FT02F001 DD SYSOUT=(Q,,XPLA),DCB=RECFM=UA,DEST=UNIDO                         *
    1   //SYSOUT   DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)           *
    1   OPTIONS DQUOTE PAGESIZE=65;                                                   *
    1   GOPTIONS DEVICE=XEROX NOTEXT82 HSIZE=10.5 VSIZE=7.5 NOCHARACTERS;             *
    1   *;                                                                           *
    1   *  Data for pesticides goes here  *;                                         *
                                                                                     *
                                                                                     *
                                                                                     *
    1   ************************************************;                           *
    1   *        PRINT ALL VARIABLES                     ;                           *
    1   ************************************************;                           *
                                                                                     *
    1   PROC PRINT;                                                                  *
                                                                                     *
    2    ************************************************;                          *
    2    * CLUSTER ANALYSIS ON EACH COMPONENT            ;                          *
    2    ************************************************;                          *
                                                                                     *
    1   PROC CLUSTER METHOD=WARD STD NOEIGEN OUTTREE=TREE;                           *
    1   ID country;                                                                  *
    1   VAR p1;                                                                      *
    1   TITLE 'COMPONENT 1';                                                         *
    1   PROC TREE;                                                                   *
                                                                                     *
    1   PROC CLUSTER DATA=AG1 METHOD=WARD STD NOEIGEN OUTTREE=TREE;                  *
    1   ID country;                                                                  *
    1   VAR p2-p5;                                                                   *
    1   TITLE 'COMPONENT 2';                                                         *
    1   PROC TREE;                                                                   *
                                                                                     *
    1   * etc.                                                                       *
    6         .                                                                      *
    6         .                                                                      *
    6         ;                                                                      *
                                                                                     *
    1   /*                                                                           *
```

```
PROJECT:  UQ5LC          MEMBER:  PSTFCAL          DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.00            TIME: 11:30
TYPE:     SAS            USERID:  U3D              PAGE: 01 OF 03
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

  1  //U3DPSTFA JOB (Q5,T),D1867-THOMAS,MSGCLASS=X,CLASS=I,                  00010000
  1  //          TIME=(01,00),NOTIFY=U3D,MSGLEVEL=(1,1),REGION=3500K          00020000
  1  //*                                                                              *
  1  //*                                                                              *
  1  //*       Job Control for SAS-Batch                                              *
  1  //*                                                                              *
  1  //*                                                                              *
  1  /*JOBPARM COPIES=1                                                               *
  1  //STRUCC5  EXEC SAS,PARM='MACRO,PAGESIZE=65'                                     *
  1  //FT11F001 DD SYSOUT=*,DEST=UNIDO,DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)          *
  1  //FT12F001 DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)             *
  1  //FT02F001 DD SYSOUT=(Q,,XPLA),DCB=RECFM=UA,DEST=UNIDO                           *
  1  //SYSOUT   DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)             *
                                                                                      *
  1  OPTIONS DQUOTE PAGESIZE=65;                                                      *
  1  GOPTIONS DEVICE=XEROX NOTEXT82 HSIZE=10.5 VSIZE=7.5 NOCHARACTERS;                *
  1  *;                                                                               *
  1  DATA PEST1;                                                                      *
  6       Title 'Raw Data on Pesticides';                                             *
  1  INPUT  country $ 1-26 p1 28-32 p2 37-42 p3 44-47 p4 50-52;                      *
                                                                                      *
  1  CARDS;                                                                           *
  1  ALGERIA                    x       xxxxx   xxx     xxx                           *
  1  ANGOLA                     x       xxxxx   xxx     xxx                           *
  1  BENIN                      x       xxxxx   xxx     xxx                           *
  1  BURUNDI                    x       xxxxx   xxx     xxx                           *
  1  BOTSWANA                   x       xxxxx   xxx     xxx                           *
  1  BURKINA FASO               x       xxxxx   xxx     xxx                           *
  1  CAMEROON                   x       xxxxx   xxx     xxx                           *
  1  CAPE VERDE                 x       xxxxx   xxx     xxx                           *
  1  CENTRAL AFRICAN REPUBLIC   x       xxxxx   xxx     xxx                           *
  1  CHAD                       x       xxxxx   xxx     xxx                           *
  1  COMOROS ISLANDS            x       xxxxx   xxx     xxx                           *
  1  CONGO                      x       xxxxx   xxx     xxx                           *
  1  DJIBOUTI                   x       xxxxx   xxx     xxx                           *
  1  ETHIOPIA                   x       xxxxx   xxx     xxx                           *
  1  EGYPT                      x       xxxxx   xxx     xxx                           *
  1  EQUATORIAL GUINEA          x       xxxxx   xxx     xxx                           *
  1  GHANA                      x       xxxxx   xxx     xxx                           *
  1  GABON                      x       xxxxx   xxx     xxx                           *
  1  GAMBIA                     x       xxxxx   xxx     xxx                           *
  1  GUINEA                     x       xxxxx   xxx     xxx                           *
  1  GUINEA-BISSAU              x       xxxxx   xxx     xxx                           *
  1  IVORY COAST                x       xxxxx   xxx     xxx                           *
  1  KENYA                      x       xxxxx   xxx     xxx                           *
  1  LIBERIA                    x       xxxxx   xxx     xxx                           *
  1  LESOTHO                    x       xxxxx   xxx     xxx                           *
  1  LIBYA                      x       xxxxx   xxx     xxx                           *
  1  MADAGASCAR                 x       xxxxx   xxx     xxx                           *
  1  MOZAMBIQUE                 x       xxxxx   xxx     xxx                           *
  1  MALAWI                     x       xxxxx   xxx     xxx                           *
  1  MALI                       x       xxxxx   xxx     xxx                           *
  1  MAURITIUS                  x       xxxxx   xxx     xxx                           *
  1  MAURITANIA                 x       xxxxx   xxx     xxx                           *
```

```
START
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  MOD FLAGS
    1  MOROCCO                        x       xxxxx    xxx     xxx                        *
    1  NIGER                          x       xxxxx    xxx     xxx                        *
    1  NIGERIA                        x       xxxxx    xxx     xxx                        *
    1  RWANDA                         x       xxxxx    xxx     xxx                        *
    1  SAO TOME AND PRINCIPE          x       xxxxx    xxx     xxx                        *
    1  SENEGAL                        x       xxxxx    xxx     xxx                        *
    1  SIERRA LEONE                   x       xxxxx    xxx     xxx                        *
    1  SEYCHELLES                     x       xxxxx    xxx     xxx                        *
    1  SOMALIA                        x       xxxxx    xxx     xxx                        *
    1  SUDAN                          x       xxxxx    xxx     xxx                        *
    1  SWAZILAND                      x       xxxxx    xxx     xxx                        *
    1  TOGO                           x       xxxxx    xxx     xxx                        *
    1  TANZANIA                       x       xxxxx    xxx     xxx                        *
    1  TUNISIA                        x       xxxxx    xxx     xxx                        *
    1  UGANDA                         x       xxxxx    xxx     xxx                        *
    1  ZAMBIA                         x       xxxxx    xxx     xxx                        *
    1  ZAIRE                          x       xxxxx    xxx     xxx                        *
    1  ZIMBABWE                       x       xxxxx    xxx     xxx                        *
    1  ;                                                                                  *
    1                                                                                     *
    1  DATA PEST2;                                                                        *
    1  INPUT  country $ 1-26 p5 28-32 p6 36-38 p7 40-45 p8 47-52;                         *
    1                                                                                     *
    1  CARDS;                                                                             *
    1  ALGERIA                        x       xxxxx    xxx     xxx                        *
    1  ANGOLA                         x       xxxxx    xxx     xxx                        *
    1  BENIN                          x       xxxxx    xxx     xxx                        *
    1  BURUNDI                        x       xxxxx    xxx     xxx                        *
    1  BOTSWANA                       x       xxxxx    xxx     xxx                        *
    1  BURKINA FASO                   x       xxxxx    xxx     xxx                        *
    1  CAMEROON                       x       xxxxx    xxx     xxx                        *
    1  CAPE VERDE                     x       xxxxx    xxx     xxx                        *
    1  CENTRAL AFRICAN REPUBLIC       x       xxxxx    xxx     xxx                        *
    1  CHAD                           x       xxxxx    xxx     xxx                        *
    1  COMOROS ISLANDS                x       xxxxx    xxx     xxx                        *
    1  CONGO                          x       xxxxx    xxx     xxx                        *
    1  DJIBOUTI                       x       xxxxx    xxx     xxx                        *
    1  ETHIOPIA                       x       xxxxx    xxx     xxx                        *
    1  EGYPT                          x       xxxxx    xxx     xxx                        *
    1  EQUATORIAL GUINEA              x       xxxxx    xxx     xxx                        *
    1  GHANA                          x       xxxxx    xxx     xxx                        *
    1  GABON                          x       xxxxx    xxx     xxx                        *
    1  GAMBIA                         x       xxxxx    xxx     xxx                        *
    1  GUINEA                         x       xxxxx    xxx     xxx                        *
    1  GUINEA-BISSAU                  x       xxxxx    xxx     xxx                        *
    1  IVORY COAST                    x       xxxxx    xxx     xxx                        *
    1  KENYA                          x       xxxxx    xxx     xxx                        *
    1  LIBERIA                        x       xxxxx    xxx     xxx                        *
    1  LESOTHO                        x       xxxxx    xxx     xxx                        *
    1  LIBYA                          x       xxxxx    xxx     xxx                        *
    1  MADAGASCAR                     x       xxxxx    xxx     xxx                        *
    1  MOZAMBIQUE                     x       xxxxx    xxx     xxx                        *
    1  MALAWI                         x       xxxxx    xxx     xxx                        *
    1  MALI                           x       xxxxx    xxx     xxx                        *
```

```
PROJECT:  UQ5LC          MEMBER:  PSTFCAL          DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.00            TIME: 11:30
TYPE:     SAS            USERID:  U3D              PAGE: 03 OF 03
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS
                                                                                        *
  1   MAURITIUS                    x       xxxxx   xxx    xxx                           *
  1   MAURITANIA                   x       xxxxx   xxx    xxx                           *
  1   MOROCCO                      x       xxxxx   xxx    xxx                           *
  1   NIGER                        x       xxxxx   xxx    xxx                           *
  1   NIGERIA                      x       xxxxx   xxx    xxx                           *
  1   RWANDA                       x       xxxxx   xxx    xxx                           *
  1   SAO TOME AND PRINCIPE        x       xxxxx   xxx    xxx                           *
  1   SENEGAL                      x       xxxxx   xxx    xxx                           *
  1   SIERRA LEONE                 x       xxxxx   xxx    xxx                           *
  1   SEYCHELLES                   x       xxxxx   xxx    xxx                           *
  1   SOMALIA                      x       xxxxx   xxx    xxx                           *
  1   SUDAN                        x       xxxxx   xxx    xxx                           *
  1   SWAZILAND                    x       xxxxx   xxx    xxx                           *
  1   TOGO                         x       xxxxx   xxx    xxx                           *
  1   TANZANIA                     x       xxxxx   xxx    xxx                           *
  1   TUNISIA                      x       xxxxx   xxx    xxx                           *
  1   UGANDA                       x       xxxxx   xxx    xxx                           *
  1   ZAMBIA                       x       xxxxx   xxx    xxx                           *
  1   ZAIRE                        x       xxxxx   xxx    xxx                           *
  1   ZIMBABWE                     x       xxxxx   xxx    xxx                           *
  1   ;                                                                                 *
                                                                                        *
  1   *etc.                                                                             *
  5       .                                                                             *
  5       .                                                                             *
  5       ;                                                                             *
                                                                                        *
  1   PROC SORT DATA=PEST1;                                                             *
  6        BY COUNTRY;                                                                  *
  1   PROC SORT DATA=PEST2;                                                             *
  6        BY COUNTRY;                                                                  *
  6        *etc.                                                                        *
 10            .                                                                         *
 10            .                                                                         *
 10            ;                                                                         *
                                                                                        *
  1   DATA PST1;                                                                        *
  1   MERGE PEST1 PEST2;                                                                *
  6        BY COUNTRY;                                                                  *
                                                                                        *
  1   ***************************************************;                              *
  1   *       FACTOR ANALYSIS ON ALL COMPONENTS         *;                              *
  1   ***************************************************;                              *
                                                                                        *
  1   TITLE 'Factor Analysis on all Variables';                                         *
  1   PROC FACTOR DATA=FINAL NFACTORS=5 OUT=FERT SIMPLE;                                *
  1   VAR ft1-ft6;                                                                      *
                                                                                        *
                                                                                        *
  6        /*                                                                           *
```

```
        PROJECT:  UQ5LC              MEMBER:  PSTFTCOM                DATE: 89/07/13
        GROUP:    PDSU               LEVEL:   01.00                   TIME: 11:30
        TYPE:     SAS                USERID:  U3D                     PAGE: 01 OF 04
START                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1   //U3DPSTFC JOB (Q5,T),D1867-THOMAS,MSGCLASS=X,CLASS=I,                  00010000
   1   //          TIME=(01,00),NOTIFY=U3D,MSGLEVEL=(1,1),REGION=3500K          00020000
   1   //*                                                                              *
   1   //*                                                                              *
   1   //*        Job Control for SAS-Batch                                             *
   1   //*                                                                              *
   1   //*                                                                              *
   1   /*JOBPARM COPIES=1                                                              *
   1   //STRUCC5  EXEC SAS,PARM='MACRO,PAGESIZE=65'                                    *
   1   //FT11F001 DD SYSOUT=*,DEST=UNIDO,DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)         *
   1   //FT12F001 DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)            *
   1   //FT02F001 DD SYSOUT=(Q,,XPLA),DCB=RECFM=UA,DEST=UNIDO                          *
   1   //SYSOUT   DD SYSOUT=(*,,XPLA),DCB=(BLKSIZE=141,LRECL=137,RECFM=VBA)            *
                                                                                       *
   1   OPTIONS DQUOTE PAGESIZE=65;                                                     *
   1   GOPTIONS DEVICE=XEROX NOTEXT82 HSIZE=10.5 VSIZE=7.5 NOCHARACTERS;               *
   1   *;                                                                               *
   1   DATA PEST1;                                                                      *
   6        Title 'Raw Data on Pesticides';                                            *
   1   INPUT  country $ 1-26 p1 28-32 p2 37-42 p3 44-47 p4 50-52;                      *
                                                                                       *
   1   CARDS;                                                                           *
   1   ALGERIA                      x       XXXXX   XXX    XXX                          *
   1   ANGOLA                       x       XXXXX   XXX    XXX                          *
   1   BENIN                        x       XXXXX   XXX    XXX                          *
   1   BURUNDI                      x       XXXXX   XXX    XXX                          *
   1   BOTSWANA                     x       XXXXX   XXX    XXX                          *
   1   BURKINA FASO                 x       XXXXX   XXX    XXX                          *
   1   CAMEROON                     x       XXXXX   XXX    XXX                          *
   1   CAPE VERDE                   x       XXXXX   XXX    XXX                          *
   1   CENTRAL AFRICAN REPUBLIC     x       XXXXX   XXX    XXX                          *
   1   CHAD                         x       XXXXX   XXX    XXX                          *
   1   COMOROS ISLANDS              x       XXXXX   XXX    XXX                          *
   1   CONGO                        x       XXXXX   XXX    XXX                          *
   1   DJIBOUTI                     x       XXXXX   XXX    XXX                          *
   1   ETHIOPIA                     x       XXXXX   XXX    XXX                          *
   1   EGYPT                        x       XXXXX   XXX    XXX                          *
   1   EQUATORIAL GUINEA            x       XXXXX   XXX    XXX                          *
   1   GHANA                        x       XXXXX   XXX    XXX                          *
   1   GABON                        x       XXXXX   XXX    XXX                          *
   1   GAMBIA                       x       XXXXX   XXX    XXX                          *
   1   GUINEA                       x       XXXXX   XXX    XXX                          *
   1   GUINEA-BISSAU                x       XXXXX   XXX    XXX                          *
   1   IVORY COAST                  x       XXXXX   XXX    XXX                          *
   1   KENYA                        x       XXXXX   XXX    XXX                          *
   1   LIBERIA                      x       XXXXX   XXX    XXX                          *
   1   LESOTHO                      x       XXXXX   XXX    XXX                          *
   1   LIBYA                        x       XXXXX   XXX    XXX                          *
   1   MADAGASCAR                   x       XXXXX   XXX    XXX                          *
   1   MOZAMBIQUE                   x       XXXXX   XXX    XXX                          *
   1   MALAWI                       x       XXXXX   XXX    XXX                          *
   1   MALI                         x       XXXXX   XXX    XXX                          *
   1   MAURITIUS                    x       XXXXX   XXX    XXX                          *
   1   MAURITANIA                   x       XXXXX   XXX    XXX                          *
```

```
START                                                                                                  MOD
 COL   ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1   MOROCCO                        x        xxxxx    xxx     xxx                                  *
   1   NIGER                          x        xxxxx    xxx     xxx                                  *
   1   NIGERIA                        x        xxxxx    xxx     xxx                                  *
   1   RWANDA                         x        xxxxx    xxx     xxx                                  *
   1   SAO TOME AND PRINCIPE          x        xxxxx    xxx     xxx                                  *
   1   SENEGAL                        x        xxxxx    xxx     xxx                                  *
   1   SIERRA LECNE                   x        xxxxx    xxx     xxx                                  *
   1   SEYCHELLES                     x        xxxxx    xxx     xxx                                  *
   1   SOMALIA                        x        xxxxx    xxx     xxx                                  *
   1   SUDAN                          x        xxxxx    xxx     xxx                                  *
   1   SWAZILAND                      x        xxxxx    xxx     xxx                                  *
   1   TOGO                           x        xxxxx    xxx     xxx                                  *
   1   TANZANIA                       x        xxxxx    xxx     xxx                                  *
   1   TUNISIA                        x        xxxxx    xxx     xxx                                  *
   1   UGANDA                         x        xxxxx    xxx     xxx                                  *
   1   ZAMBIA                         x        xxxxx    xxx     xxx                                  *
   1   ZAIRE                          x        xxxxx    xxx     xxx                                  *
   1   ZIMBABWE                       x        xxxxx    xxx     xxx                                  *
   1   ;                                                                                             *
                                                                                                     *
   1   DATA PEST2;                                                                                   *
   1   INPUT  country $ 1-26 p5 28-32 p6 36-38 p7 40-45 p8 47-52;                                    *
                                                                                                     *
   1   CARDS;                                                                                        *
   1   ALGERIA                        x        xxxxx    xxx     xxx                                  *
   1   ANGOLA                         x        xxxxx    xxx     xxx                                  *
   1   BENIN                          x        xxxxx    xxx     xxx                                  *
   1   BURUNDI                        x        xxxxx    xxx     xxx                                  *
   1   BOTSWANA                       x        xxxxx    xxx     xxx                                  *
   1   BURKINA FASO                   x        xxxxx    xxx     xxx                                  *
   1   CAMEROON                       x        xxxxx    xxx     xxx                                  *
   1   CAPE VERDE                     x        xxxxx    xxx     xxx                                  *
   1   CENTRAL AFRICAN REPUBLIC       x        xxxxx    xxx     xxx                                  *
   1   CHAD                           x        xxxxx    xxx     xxx                                  *
   1   COMOROS ISLANDS                x        xxxxx    xxx     xxx                                  *
   1   CONGO                          x        xxxxx    xxx     [illegible]                          *
   1   DJIBOUTI                       x        xxxxx    xxx     [illegible]                          *
   1   ETHIOPIA                       x        xxxxx    xxx     xxx                                  *
   1   EGYPT                          x        xxxxx    xxx     xxx                                  *
   1   EQUATORIAL GUINEA              x        xxxxx    xxx     xxx                                  *
   1   GHANA                          x        xxxxx    xxx     xxx                                  *
   1   GABON                          x        xxxxx    xxx     xxx                                  *
   1   GAMBIA                         x        xxxxx    xxx     xxx                                  *
   1   GUINEA                         x        xxxxx    xxx     xxx                                  *
   1   GUINEA-BISSAU                  x        xxxxx    xxx     xxx                                  *
   1   IVORY COAST                    x        xxxxx    xxx     xxx                                  *
   1   KENYA                          x        xxxxx    xxx     xxx                                  *
   1   LIBERIA                        x        xxxxx    xxx     xxx                                  *
   1   LESOTHO                        x        xxxxx    xxx     xxx                                  *
   1   LIBYA                          x        xxxxx    xxx     xxx                                  *
   1   MADAGASCAR                     x        xxxxx    xxx     xxx                                  *
   1   MOZAMBIQUE                     x        xxxxx    xxx     xxx                                  *
   1   MALAWI                         x        xxxxx    xxx     xxx                                  *
   1   MALI                           x        xxxxx    xxx     xxx                                  *
```

```
START                                                                                  MOD
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8  FLAGS

   1  MAURITIUS                    x       xxxxx   xxx    xxx                          *
   1  MAURITANIA                   x       xxxxx   xxx    xxx                          *
   1  MOROCCO                      x       xxxxx   xxx    xxx                          *
   1  NIGER                        x       xxxxx   xxx    xxx                          *
   1  NIGERIA                      x       xxxxx   xxx    xxx                          *
   1  RWANDA                       x       xxxxx   xxx    xxx                          *
   1  SAO TOME AND PRINCIPE        x       xxxxx   xxx    xxx                          *
   1  SENEGAL                      x       xxxxx   xxx    xxx                          *
   1  SIERRA LEONE                 x       xxxxx   xxx    xxx                          *
   1  SEYCHELLES                   x       xxxxx   xxx    xxx                          *
   1  SOMALIA                      x       xxxxx   xxx    xxx                          *
   1  SUDAN                        x       xxxxx   xxx    xxx                          *
   1  SWAZILAND                    x       xxxxx   xxx    xxx                          *
   1  TOGO                         x       xxxxx   xxx    xxx                          *
   1  TANZANIA                     x       xxxxx   xxx    xxx                          *
   1  TUNISIA                      x       xxxxx   xxx    xxx                          *
   1  UGANDA                       x       xxxxx   xxx    xxx                          *
   1  ZAMBIA                       x       xxxxx   xxx    xxx                          *
   1  ZAIRE                        x       xxxxx   xxx    xxx                          *
   1  ZIMBABWE                     x       xxxxx   xxx    xxx                          *
   1  ;                                                                                *
                                                                                       *
   1  *etc.                                                                            *
   5      .                                                                            *
   5      .                                                                            *
   5      ;                                                                            *
                                                                                       *
   1  PROC SORT DATA=PEST1;                                                            *
   6       BY COUNTRY;                                                                 *
   1  PROC SORT DATA=PEST2;                                                            *
   6       BY COUNTRY;                                                                 *
   6       *etc.                                                                       *
  10                                                                                   *
  10           .                                                                       *
  10           ;                                                                       *
                                                                                       *
   1  DATA PST1;                                                                       *
   1  MERGE PEST1 PEST2;                                                               *
   6       BY COUNTRY;                                                                 *
                                                                                       *
   1  ****************************************************;                           *
   1  *       FACTOR ANALYSIS ON EACH COMPONENT          *;                           *
   1  ****************************************************;                           *
                                                                                       *
   1  TITLE 'COMPONENT 1';                                                             *
   1  PROC FACTOR DATA=FINAL NFACTORS=5 OUT=COM1 SIMPLE;                               *
   1  VAR ft1 ft2 ft3;                                                                 *
                                                                                       *
   1  TITLE 'COMPONENT 2';                                                             *
   1  PROC FACTOR DATA=FINAL NFACTORS=5 OUT=COM2 SIMPLE;                               *
   1  VAR ft4 ft5 ft6;                                                                 *
```

```
PROJECT:  UQ5LC          MEMBER:  PSTFTCOM          DATE: 89/07/13
GROUP:    PDSU           LEVEL:   01.00             TIME: 11:30
TYPE:     SAS            USERID:  U3D               PAGE: 04 OF 04
                                                                          MOD
START                                                                     FLAGS
 COL  ----+----1----+----2----+----3----+----4----+----5----+----6----+----7----+----8
                                                                          *
                                                                          *
  3    *etc.                                                              *
  7        .                                                              *
  7        .                                                              *
  7        :                                                              *
                                                                          *
  6      /*                                                               *
```