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ASSESSING THE CPIA-BASED CLASSIFICATION OF LOW-INCOME COUNTRIES IN THE JOINT IMF-WORLD BANK DEBT SUSTAINABILITY FRAMEWORK

Thierry Nguéma-Affane[1]

Abstract

The purpose of the paper is to assess the relevance of the current classification of LICs in three groups based on CPIA thresholds in the Joint IMF-World Bank Debt Sustainability Framework for Low-Income Countries (LIC DSF). Using exploratory multivariate analysis techniques – the principal components analysis (PCA) and cluster analysis (CA) – on annual country profiles over ten years, we find that the current calculation of the CPIA index is solid and that a classification of LICs in three groups is also sound. However, the composition of the groups derived from the CA is different from the actual composition. In addition, the CPIA thresholds associated with the generated LIC groupings are lower than the actual thresholds. Having in mind calls for more risk rating categories in the DSF, a deeper analysis shows that a classification of LICs in four groups appears to be a better alternative. A grouping in five categories based on the proposed and actual CPIA thresholds in classifications in three clusters is appealing although it does not meet predefined suitability requirements.

[1] Senior Advisor to Executive Director, International Monetary Fund (IMF). The views expressed in this paper are my own and should not be attributed to the IMF, its Executive Directors and the countries they represent, or its Management. I am solely responsible for any errors and omissions. I would like thank Abdel Ismael and André Mialou for their constructive comments on the earliest versions of this document. Comments are welcome at nguemat@yahoo.fr.

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Acronyms

CA	Cluster analysis
CPIA	Country Policy and Institutional Assessment
DSA	Debt Sustainability Analysis
DSF	Debt Sustainability Framework
IDA	International Development Agency
IEG	Independent Evaluation Group
IMF	International Monetary Fund
LIC	Low Income Country
PCA	Principal Components Analysis

I. Introduction

The Country Policy and Institutional Assessment (CPIA)[2] is a diagnostic tool developed in the mid-1970s by the World Bank that assesses the quality of a country's policies and institutions for the purpose of determining the sizes of the Bank's concessional lending and grants to low-income countries. CPIA consists of rating 16 criteria focused on policies and institutional arrangements that are within the country's control rather than on actual outcomes as deemed to represent policy and institutional dimensions of an effective poverty reduction and growth strategy. They are grouped in four equally weighted clusters: economic management, structural policies, policies for social inclusion and equity, and public sector management and institutions (Box 1).

In 2004, the World Bank carried out a full review of the CPIA process and methodology. The Report of the External Panel of Experts convened to review the methodology and process of the World Bank's CPIA recommended, among others, a rationalization of the criteria and an analytical work to determine the weighting of the four clusters using the principal components analysis[3]. Based on these recommendations, the number of criteria was reduced from 20 to 16. In addition, the analytical work confirmed that clusters should be assigned equal weights[4].

Six years later, in 2010, the World Bank's Independent Evaluation Group (IEG) undertook an evaluation of the CPIA and recommended to undertake a thorough review of each CPIA criterion and revise as necessary[5]. Following that evaluation, the World Bank carried out a review of the CPIA that took into consideration the IEG recommendations. In particular, some criteria were revised to reducing overlap among criteria or to ensure consistent treatment of a topic across the different rating levels of a particular criterion.[6]

Beside its use for IDA resource allocation, the CPIA has been also used in the Joint IMF World Bank Debt Sustainability Framework for Low-Income Countries (LIC DSF) since its adoption in 2005, on the grounds that debt burden indicators or the level of debt that a country can sustain

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[2] For more details on the CPIA, see http://web.worldbank.org/WBSITE/EXTERNAL/EXTABOUTUS/IDA/0,,contentMDK:21378540~menuPK:2626968~pagePK:51236175~piPK:437394~theSitePK:73154,00.html

[3] See *Country Policy and Institutional Assessments: An External Panel Review—Panel Recommendations and Management Follow-up, (SecM2004-0304), June 15, 2004* at page 7, paragraph 12 https://www.worldbank.org/ida/papers/IDA14_Replenishment/CPIAExpPanRepSecM2004-0304.pdf

[4] See *supra* note 2

[5] See World Bank, The World Bank's Country Policy and Institutional Assessment, An IEG Evaluation, Washington DC 2010, at http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2010/09/27/000333038_20100928000028/Rendered/PDF/564560PUB00REP1e0box0info101PUBLIC1.pdf

[6] See World Bank, CPIA 2011 Criteria, 15 September 2011, para 4 and 5, available at https://www.worldbank.org/ida/papers/CPIAcriteria2011final.pdf

depend on the quality of policies and institutions[7]. Operationally, this entails grouping countries in three policy performance groups by setting an upper policy cutoff and a lower policy cutoff. Then debt thresholds are determined based on policy groups.

For the purpose of IDA resource allocation, countries are grouped in quartiles. The countries in the lower quartile are deemed to have weak policies whereas countries in the upper quartiles are considered as having strong policies. Policies in countries in the middle quartiles are qualified as medium. The same approach was proposed to determine policy-dependent debt thresholds in the LIC DSF. Under that approach, the cutoffs were originally 3.0 and 3.9 (in a scale of 1 to 6, 1 being the weakest and 6 the strongest). The cutoffs were finally set at 3.25 and 3.75, in order to facilitate a more conservative assessment at the lower threshold level. In doing so, the length of the threshold range was halved (for example from 200 to 100 percentage points for the exports to GDP ratio)[8]. Clearly some judgment was exercised in the determination of the cutoffs.

The successive reviews of the LIC DSF never reviewed these policy thresholds[9]. However, in the 2006 DSF Review, the Executive Boards of the IMF and IDA approved the use of the three-year moving average CPIA rating (as opposed to the single-year rating) to determine the country's performance category, in order to smooth out the impact of the CPIA fluctuations[10]. Likewise, in the 2009 DSF Review, the two Executive Boards opted to reduce the effects of changes in CPIA categories (CPIA thresholds effects) by introducing a band of 0.05 around CPIA thresholds (the breach classification rule). Specifically, no changes in CPIA categories (and consequently changes in debt thresholds) would occur unless the size of the breach of the threshold is higher than 0.05[11] or a breach lower than 0.05 has been sustained for two consecutive years. The 2012 DSF Review maintained the indicative policy-dependent thresholds but brought about some refinements to the framework with notably the consideration of total public debt and fiscal vulnerabilities in the DSAs.[12]

The purpose of this paper is to ascertain whether the actual grouping of the LICs in three clusters in the LIC DSF is statistically robust. Indeed, we argue that the policy thresholds are arbitrary

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[7] See IMF and IDA, Debt Sustainability in Low-Income Countries: Further Considerations on an Operational Framework and Policy Implications, Washington DC, 10 September 2004, available at https://www.imf.org/external/np/pdr/sustain/2004/091004.pdf

[8] See IMF and IDA, Operational Framework for Debt Sustainability Assessments in Low-Income Countries – Further Considerations, Washington, DC, 28 March 2005, at page 3, available at http://siteresources.worldbank.org/INTDEBTDEPT/PublicationsAndReports/20478153/032805.pdf

[9] The LIC DSF has been last revised in 2017 and the revised framework will take effect in the half of 2018.

[10] See IMF (2006) Review of the Low-Income Country Debt Sustainability Framework and Implications of the Multilateral Debt Relief Initiative (MDRI), 24 March 2006, available at http://www.imf.org/external/pp/longres.aspx?id=557

[11] See IMF (2009) A review of Some Aspects of the Low-Income Country Debt Sustainability Framework, 5 August 2009, available at http://www.imf.org/external/pp/longres.aspx?id=4358

[12] See IMF and World Bank (2012), Revisiting the Debt Sustainability Framework for Low-Income Countries, Washington DC, 12 January 2012, available at http://www.imf.org/external/pp/longres.aspx?id=4627

and could be improved, and the decisions better informed, by using multivariate analysis. To this end, we will use exploratory multivariate analysis (EMA) methods, notably the principal components analysis (PCA) following a clustering analysis (CA), to a dataset of annual country profiles.

The remainder of paper is organized as follows. Section II is presenting the methodology and data used. Section III presents the results. Additional elements are considered in Section IV and Section V concludes.

II. Methodology and data

II.1 Methodology

For the purpose of this paper, we use the two EMA methods: first the principal components analysis and second the cluster analysis. The use of EMA methods is motivated by the nature of the problem to solve. As already indicated, the CPIA is an index of 16 indicators grouped in 4 clusters which has been produced annually over the past 20 years. As such, it makes sense to use the PCA to determine first whether there is indeed ground to develop an index based on the four cluster variables. This will be assessed by looking at the proportion of total variation explained by the first principal component (PC1). If that proportion is very high, we can conclude that the component reflects a size dimension. In the event, we will then determine whether the actual calculation of the CPIA index is adequate, that is whether the weights assigned to each of the four clusters are acceptable. This will be verified by looking at the weights of the four clusters in the principal component. If the weights of the clusters in PC1 are close to those in the actual CPIA index, then we would conclude that PC1 is a good proxy for the CPIA index.

The second step is the cluster analysis[13], which aims to regroup observations deemed similar in clusters such that observations in one cluster would be considered different from observations in another cluster. The outcome of this statistical method is a list of sets of clusters deemed to be the most homogenous statistically. Given that this paper seeks to determine whether the actual CPIA country grouping is robust, the cluster analysis will be used to group countries based on the four CPIA clusters values[14]. The quality of the cluster sets will be evaluated by first looking at the correlations between the clusters and the first PC which is supposed to reflect the CPIA index. Policy thresholds will be derived from the summary statistics related to CPIA ratings in each cluster.

II.2. Data

We use annual CPIA data retrieved from the World Bank website for the period 2005-2014. Instead of undertaking separate annual analyses, we apply the EMA methods to one single

[13] The method used is the hierarchical cluster analysis.
[14] One could also question whether the 4 CPIA cluster variables are well defined.

dataset comprising all annual country profiles to better assess the strength of the CPIA index.[15] This will also enable observation of countries' temporal paths with respect to the CPIA. Annual country profiles are defined by the values of five variables, the four CPIA clusters and the IDA resource allocation index, which is the CPIA rating, in the year of interest (Table 1).

Table 1 – Description of variables

Variable	Description
ECON	CPIA economic management cluster average
SOCI	CPIA policies for social inclusion and equity cluster average
PUBS	CPIA public sector management and institutions cluster average
STRC	CPIA structural policy policies cluster average
IRAI	IDA resource allocation index (the CPIA rating)

The choice of the period 2005-2014 is motivated by the outcomes of the two reviews of the CPIA framework in 2004 and 2010. As already indicated in the introduction, one outcome of the 2004 review was the reduction in the number of variables from 20 to 16, which makes difficult a comparison of the CPIA ratings before and after that review. On the other hand, the review of the CPIA framework in 2010 kept the same 16 variables in the index but the calculation of some variables was revised to reduce overlap. However, the review report clearly indicated that the ratings before and after the review are not strictly comparable[16]. Nevertheless, since the number of variables is the same before and after the 2010 review, we decided to carry out our study on the CPIA ratings after the 2004 review. Proceeding this way gives the opportunity to assess to what extent the 2010 review affected the classification of countries.

In the PCA, only the four CPIA cluster variables will be active and the CPIA rating will be set as an illustrative or passive variable, in the sense that it is not involved in the construction of the principal components which are linear combinations of the four cluster variables.

[15] It is worth recalling that the LIC grouping is actually based on a 3-year moving average of annual CPIA rating. The EMA methods could also be used on the 3-year moving average data of the four cluster variables for comparison purposes. However, given that the 2011 and 2010 CPIA ratings are not strictly comparable; the use of the EMA methods on the moving average data would need to be carried out only for the period 2011-2014, resulting in only two years of moving average data, which in our view will be insufficient to undertake a comprehensive analysis.

[16] See *supra* note 6

III. Results

III.1. Principal Components Analysis

A first principal components analysis showed interesting results but highlighted the peculiar case of Eritrea. A look at different plots of country profile in Figure 1 and the output data on the contributions to the principal components shows that all Eritrea profiles are outliers. These profiles were therefore reset in the PCA as illustrative variables. In other words, the profiles remain in the analysis but are not participating in the construction of the principal components.

The first principal component is a size factor. The new PCA shows that PC1 accounts for 77.7 percent of the total variation (Table 2). Given the high correlation (at least 0.80) between PC1 and the variables, PC1 clearly represents an indicator of policy and institutional performance. The second principal component (PC2) accounts for 11.54 percent of the total variation and distinguishes between countries with strong economic policy management and those with strong public sector and structural policy management. The third principal component (PC3), which highlighted the weakness of structural policy in Eritrea in the first PCA accounts for 6.73 percent. All three PCs account for 95.98 percent and are retained for the purpose of the paper.

Table 2 - Eigenvalues

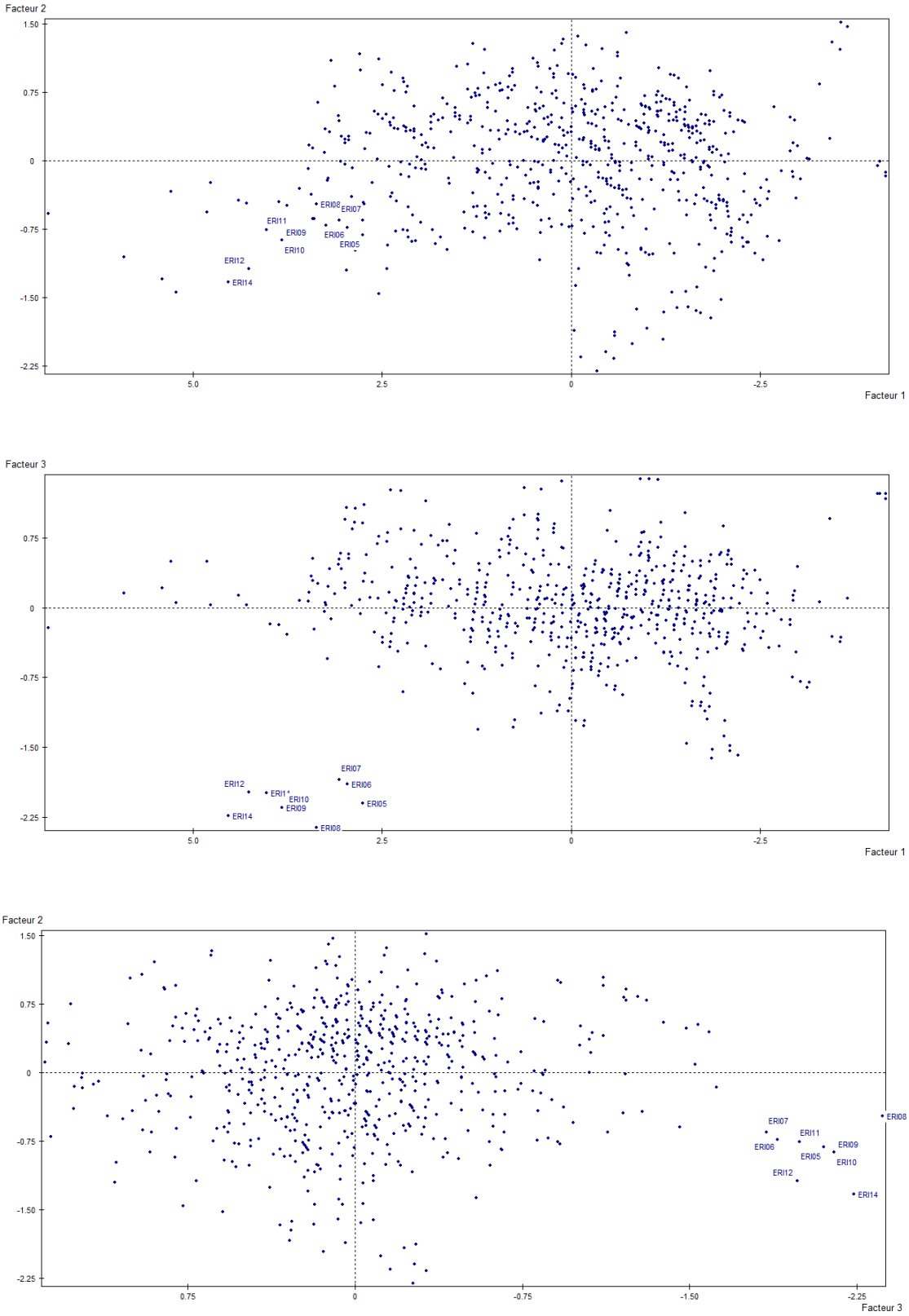
	Eigenvalue	Proportion of variance explained by the PC	Cumulated proportion
PC1	3.108	0.7770	0.7770
PC2	0.4617	0.1154	0.8924
PC3	0.2693	0.0673	0.9597
PC4	0.1609	0.0402	1.0000

The current calculation of the CPIA is still appropriate. The indicator of policy performance derives from the PCA/CA approach differs from the World Bank CPIA index in that the weights assigned to (the coefficients of) the CPIA clusters in PC1 are not equal, although they are not different from each other (Table 3). Given that the CPIA index (IRAI) as currently calculated is fully correlated with the first principal component, considering these weights as equal could be useful for simplicity purposes. This finding is similar to that of the Panel of Experts Review of Country Policy and Institutional Assessments in April 2004.

Table 3 – Coefficients of the CPIA clusters in PC1 and Pc2

Variable	PC1	PC2
ECON	0.227	0.532
SOCI	0.261	-0.054
PUBS	0.261	-0.180
STRC	0.250	-0.234

Figure 1 – Plots of country profiles in PC1xPC2, PC1xPC3 and PC3xPC2 plans



III.2. Cluster Analysis

The cluster analysis yields three best sets of clusters: a 3-cluster set, a 5-cluster set and a 7-cluster set. The first set is retained since it is the only set having all clusters highly correlated with the first PC (Table 4). Interestingly, it has the same number of clusters as the actual LIC groupings, which will be helpful for comparison purposes.

Table 4 – Correlation between clusters and the first principal component

	Clusters						
	1	**2**	**3**	**4**	**5**	**6**	**7**
3-cluster set	0.998	0.749	0.996				
5-cluster set	0.997	0.970	0.618	0.315	0.999		
7-cluster set	0.998	0.975	0.959	--	0.315	0.982	0.961

Description of classes

The 3-cluster set is a good reflection of relative policy performance similar to that of the CPIA:

- the first class comprises profiles with very low scores on all four CPIA cluster variables. We can consider these profiles as having weak policies.
- the second class includes profiles with better scores than those in the first class on two dimensions and close to the CPIA cluster average.
- the third class contains profiles with the highest scores on all CPIA cluster variables. These are the profiles with the strongest or robust policies.

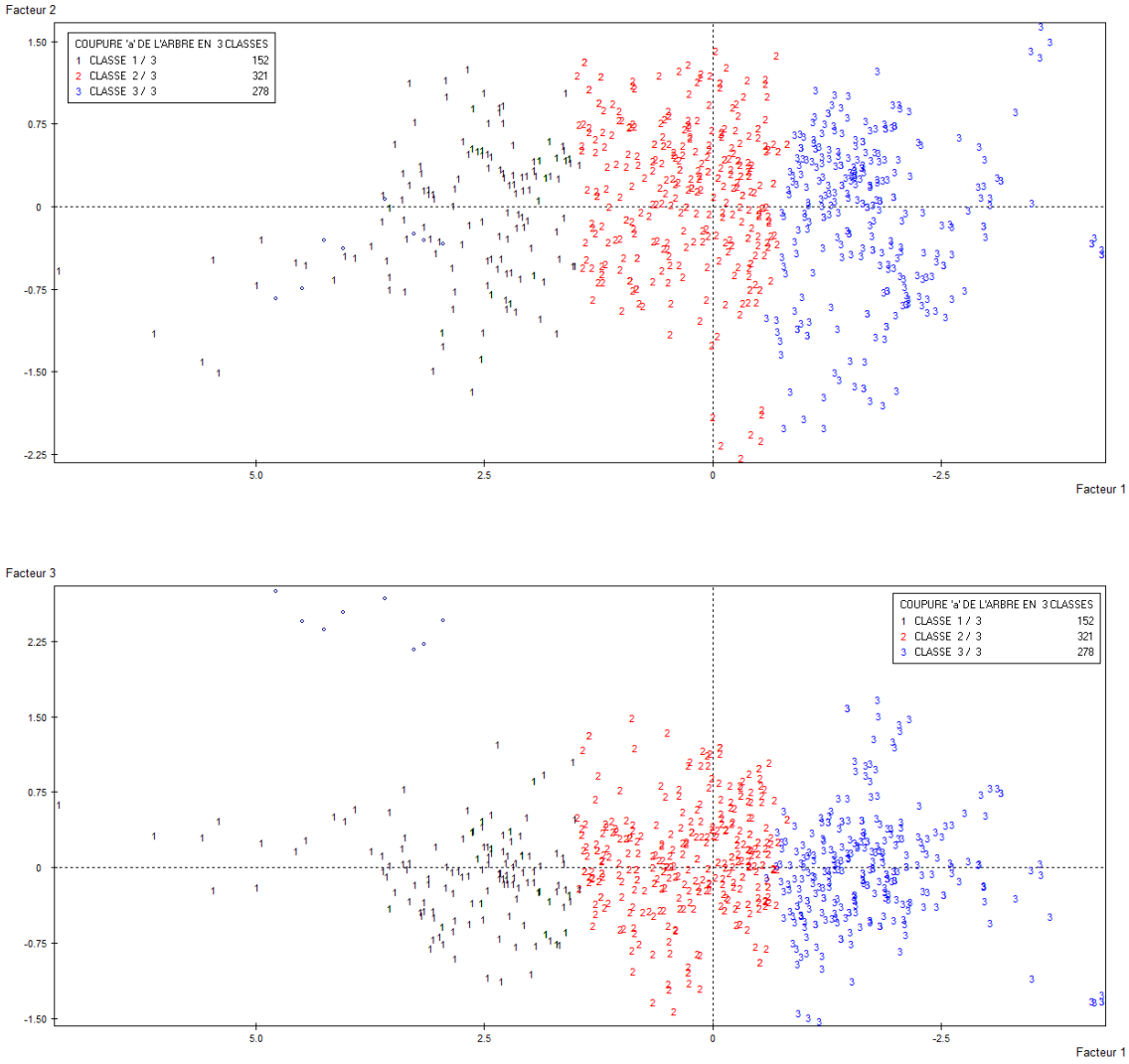
Figure 2 shows clearly an alignment of the clusters along the first principal component[17]. There is a clear graduation of policy strength with the first class of profiles having the weakest policies and the third class posting the strongest policies.

Composition of classes

Some countries have gone through different clusters over time, whereas others have not experienced significant changes in their policy performance. Some countries have all their profiles in the same cluster, thus leaving no doubt on the quality of their institutions and policies. The other countries have some profiles in at least two clusters, which reflect an evolution in their institutional strength (see Annex II). No country has profiles spanning over three clusters, except Tonga, which started at the low level for one year before upgrading to moderate and later to strong. In those cases, a rule could be to classify a country in a cluster if the two most recent profiles are in that cluster. Table 5 presents the composition of the three clusters following the application of this classification rule.

[17] The illustrative profiles of Eritrea appear on the upper left quadrant on the second panel of Figure 2. The cluster analysis assigned these profiles to the first cluster.

Figure 2 – Plots of three clusters in PC1xPC2 and PC1xPC3 plans



There are some discrepancies between the actual CPIA classification and the generated classification. Indeed, as currently set, countries with weak policies would have either weak or moderate policies in the generated LIC groupings. Put another way, some countries in the *weak institutions* group would actually be considered as having moderate policies in the new classification. For example, Cameroon would be classified as having moderate policies whereas it is currently classified as weak in the CPIA-based grouping of LICs. Benin is however downgraded as moderate in the generated classification (see Table 6).

Table 5 – Grouping of LICs using the cluster analysis

CLUSTER 1	CLUSTER 2	CLUSTER 3
Countries with all profiles in the clusters		
Afghanistan	Bangladesh	Armenia
Angola	Burundi	Bhutan
Central African Republic	Cambodia	Bosnia and Herzegovina
Chad	Cameroon	Burkina Faso
Comoros	Djibouti	Cabo Verde
Eritrea 1/	Ethiopia	Dominica
Guinea-Bissau	The Gambia	Georgia
Haiti	Guyana	Grenada
Marshall Islands	Lao Republic	India
Micronesia	Lesotho	Kenya
Solomon Islands	Malawi	Moldova
South Sudan	Mauritania	Nicaragua
Sudan	Mongolia	Samoa
Tuvalu	Nepal	Senegal
Zimbabwe	Niger	Sri Lanka
	Nigeria	Saint Lucia
	Papua New Guinea	Saint Vincent and the Grenadines
	Sao Tome and Principe	Tanzania
	Sierra Leone	Uganda
	Tajikistan	Vietnam
	Uzbekistan	
	Vanuatu	
	Yemen	
Countries with the most two recent profiles in the same cluster		
DRC	Benin	Ghana
Myanmar	Bolivia	Kosovo
	Congo	Kyrgyzstan
	Cote d'Ivoire	Mozambique
	Guinea	Rwanda
	Honduras	Tonga
	Kiribati	
	Liberia	
	Madagascar	
	Maldives	
	Mali	
	Pakistan	
	East Timor	
	Togo	
	Zambia	

1/ Eritrea profiles are classified in the Cluster 1 automatically

The impact of the 2010 review on the LIC groupings has been limited. Indeed, Table 5 shows that the number of countries having all their profiles in the same clusters is higher than the number of countries with profiles in different clusters. Therefore, the revision of a few variables in the CPIA did not seem to have had an impact on the classification of LICs. Moreover, when looking at countries with profiles in different clusters, only three countries Congo, Liberia and Togo change clusters from 2011.

Table 6 – LIC groupings using actual policy thresholds and derived from cluster analysis

Grouprings Using Actual Policy Thresholds				Groupings derived from the Cluster Analysis			
11				**Strong Policies**			26
Armenia	Burkina Faso	Cabo Verde	Dominica	Armenia	Burkina Faso	Cabo Verde	Dominica
Georgia	Kenya	Moldova	Rwanda	Georgia	Kenya	Moldova	Rwanda
Samoa	Senegal	Vietnam		Samoa	Senegal	Vietnam	
				Bhutan	*Bosnia and Herzegovina*	*Ghana*	*Grenada*
				India	*Kosovo*	*Kyrgyz Republic*	*Mozambique*
				Nicaragua	*St. Lucia*	*St. Vincent & Grenadines*	*Sri Lanka*
				Tanzania	*Tonga*	*Uganda*	
37				**Medium Policies**			38
Bhutan	*Bosnia and Herzegovina*	*Ghana*	*Grenada*				
India	*Kosovo*	*Kyrgyz Republic*	*Mozambique*				
Nicaragua	*St. Lucia*	*St. Vincent & Grenadines*	*Sri Lanka*				
Tanzania	*Tonga*	*Uganda*					
Bangladesh	Benin	Bolivia	Cambodia	Bangladesh	Benin	Bolivia	Cambodia
Ethiopia	Gambia, The	Guyana	Honduras	Ethiopia	Gambia, The	Guyana	Honduras
Lao PDR	Lesotho	Maldives	Mali	Lao PDR	Lesotho	Maldives	Mali
Mongolia	Nepal	Niger	Nigeria	Mongolia	Nepal	Niger	Nigeria
Papua New Guinea	Sierra Leone	Tajikistan	Uzbekistan	Papua New Guinea	Sierra Leone	Tajikistan	Uzbekistan
Vanuatu	Zambia			Vanuatu	Zambia		
				Burundi	*Cameroon*	*Congo, Rep.*	*Cote d'Ivoire*
				Djibouti	*Guinea*	*Kiribati*	*Liberia*
				Madagascar	*Malawi*	*Mauritania*	*Pakistan*
				Sao Tome and Principe	*Timor-Leste*	*Togo*	*Yemen, Rep.*
33				**Weak Policies**			17
Burundi	*Cameroon*	*Congo, Rep.*	*Cote d'Ivoire*				
Djibouti	*Guinea*	*Kiribati*	*Liberia*				
Madagascar	*Malawi*	*Mauritania*	*Pakistan*				
Sao Tome and Principe	*Timor-Leste*	*Togo*	*Yemen, Rep.*				
Afghanistan	Angola	Central African Republic	Chad	Afghanistan	Angola	Central African Republic	Chad
Comoros	Congo, Dem. Rep.	Eritrea	Guinea-Bissau	Comoros	Congo, Dem. Rep.	Eritrea	Guinea-Bissau
Haiti	Marshall Islands	Micronesia, Fed. Sts.	Myanmar	Haiti	Marshall Islands	Micronesia, Fed. Sts.	Myanmar
Solomon Islands	South Sudan	Sudan	Tuvalu	Solomon Islands	South Sudan	Sudan	Tuvalu
Zimbabwe				Zimbabwe			

Most of the countries with profiles in different clusters usually display marked change in the quality of the policies and institutions. Out of the 23 countries, 11 countries saw an improvement in their policy performance, notably in the second part of the period of interest, and five of them from the low to the medium cluster. Seven countries (Benin, Bolivia, Honduras, Madagascar, Maldives, Mali, and Pakistan) saw deterioration, all from the strong to medium cluster.

Policy thresholds

The findings of the previous subsection question the relevance of the actual CPIA thresholds. It is worth recalling that the CPIA rating (IRAI) is an illustrative variable and as such is useful in illustrating the clusters. The output data shows that the CPIA average ratings for Cluster 2 and Cluster 3 (3.26 and 3.78) are close to the actual CPIA thresholds (3.25 and 3.75) used in the debt sustainability framework (Table 7). In light of the average values for IRAI and given the corresponding standard deviation values, we believe that the actual CPIA thresholds are no more appropriate and need to be updated. New CPIA threshold values are proposed in Table 8.

Table 7 – IRAI Statistics

Cluster	Average	Standard deviation (STD)	Average +/- one STD interval
Cluster 1	2.62	0. 26	2.36 – 2.88
Cluster 2	3. 26	0. 17	3.09 – 3.43
Cluster 3	3. 78	0.19	3.59 – 3.97

Table 8 – Actual and proposed CPIA thresholds in the 3-cluster set

Quality	Actual thresholds	Proposed thresholds
Weak policy:	CPIA≤ 3.25	CPIA≤ 3.0
Medium policy:	3.25<CPIA<3.75	3.0<CPIA<3.5
Strong policy:	CPIA≥3.75	CPIA≥3.5

Using the proposed thresholds, new LIC groupings are constructed and compared to the groupings derived directly from the cluster analysis. In that regard, a 3-year moving average CPIA is used and the breach classification rule is applied. Table 9 shows that groupings are broadly similar. The strong-policy group in the constructed group has one additional country reflecting two additions (Bolivia and Nigeria) and one downgrade (Tonga). The constructed medium-policy group is smaller by five countries compared to the medium group from the cluster analysis. Four of these countries (Guinea, Kiribati, Togo, Yemen) are in the lower group in the constructed LIC grouping. We conclude that the proposed policy thresholds are appropriate as they achieve a LIC grouping that is broadly similar to that derived from the cluster analysis.

Table 9 – LIC groupings using proposed policy thresholds and derived from cluster analysis

Groupings derived from the Cluster Analysis			
26			
Armenia	Burkina Faso	Cabo Verde	Dominica
Georgia	Kenya	Moldova	Rwanda
Samoa	Senegal	Vietnam	
Bhutan	Bosnia and Herzegovina	Ghana	Grenada
India	Kosovo	Kyrgyz Republic	Mozambique
Nicaragua	St. Lucia	St. Vincent & Grenadines	Sri Lanka
Tanzania	Tonga	Uganda	
38			
Bangladesh	Benin	Bolivia	Cambodia
Ethiopia	Gambia, The	Guyana	Honduras
Lao PDR	Lesotho	Maldives	Mali
Mongolia	Nepal	Niger	Nigeria
Papua New Guinea	Sierra Leone	Tajikistan	Uzbekistan
Vanuatu	Zambia		
Burundi	Cameroon	Congo, Rep.	Cote d'Ivoire
Djibouti	**Guinea**	**Kiribati**	Liberia
Madagascar	Malawi	Mauritania	Pakistan
Sao Tome and Principe	Timor-Leste	**Togo**	**Yemen, Rep.**
17			
Afghanistan	Angola	Central African Republic	Chad
Comoros	Congo, Dem. Rep.	Eritrea	Guinea-Bissau
Haiti	Marshall Islands	Micronesia, Fed. Sts.	Myanmar
Solomon Islands	South Sudan	Sudan	Tuvalu
Zimbabwe			

Groupings Using Proposed Policy Thresholds			
27			
Armenia	Burkina Faso	Cabo Verde	Dominica
Georgia	Kenya	Moldova	Rwanda
Samoa	Senegal	Vietnam	
Bhutan	Bolivia	Bosnia and Herzegovina	Grenada
Ghana	India	Kosovo	Kyrgyz Republic
Mozambique	Nicaragua	Nigeria	Sri Lanka
St. Lucia	St. Vincent & Grenadines	Tanzania	Uganda
33			
Bangladesh	Benin	Cambodia	Ethiopia
Gambia, The	Guyana	Honduras	Lao PDR
Lesotho	Maldives	Mali	Mongolia
Nepal	Niger	Papua New Guinea	Sierra Leone
Tajikistan	Tonga	Uzbekistan	Vanuatu
Zambia			
Burundi	Cameroon	Congo, Rep.	Cote d'Ivoire
Djibouti	Liberia	Madagascar	Malawi
Mauritania	Pakistan	Sao Tome and Principe	Timor-Leste
21			
Afghanistan	Angola	Central African Republic	Chad
Comoros	Congo, Dem. Rep.	Eritrea	Guinea-Bissau
Haiti	**Guinea**	**Kiribati**	Marshall Islands
Micronesia, Fed. Sts.	Myanmar	Solomon Islands	South Sudan
Sudan	**Togo**	Tuvalu	**Yemen, Rep.**
Zimbabwe			

1/ Countries underlined and in bold are those classified in different categories in both sets

IV. Additional considerations

The findings in the previous section could have important policy implications for the upcoming review of the LIC DSF. Indeed, if the actual policy-dependent debt thresholds are maintained with the proposed thresholds, countries in the medium- and strong-policy clusters (countries that would see an improvement in their classification) will end up with greater debt margins. However, those countries do not necessarily end up with a better risk rating, as only 3 (Cameroon, Liberia, Madagascar) out of 12 countries would have a better rating.

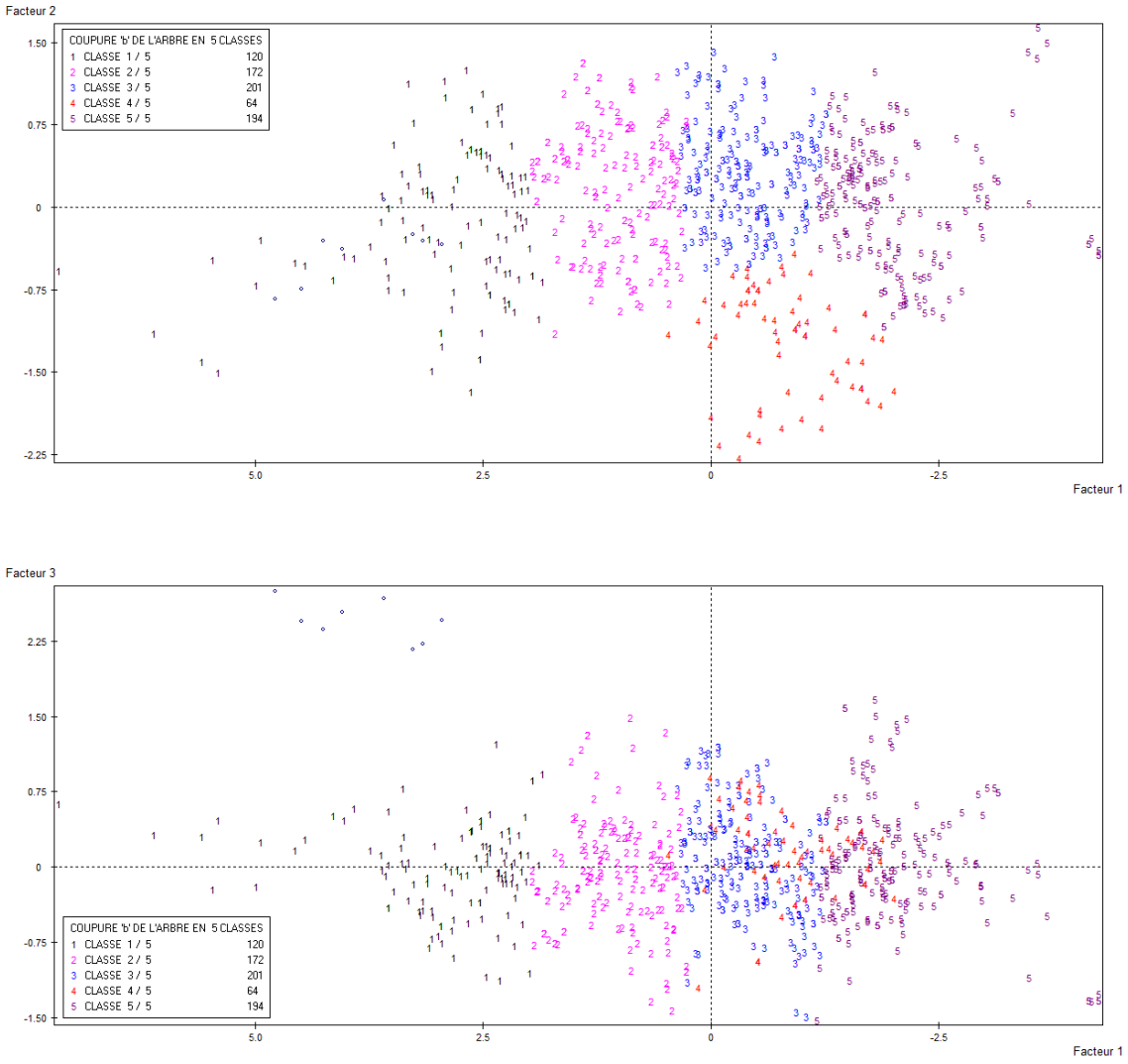
Table 10 – Classification in five clusters using actual and proposed policy thresholds

CPIA > 3.75				15
Armenia	Burkina Faso	Cabo Verde	Dominica	
Georgia	Kenya	Moldova	Rwanda	
Samoa	Senegal	Vietnam		
3.5 < CPIA ≤ 3.75				12
Bhutan	*Bolivia*	*Bosnia and Herzegovina*	*Grenada*	
Ghana	*India*	*Kosovo*	*Kyrgyz Republic*	
Mozambique	*Nicaragua*	*Nigeria*	*Sri Lanka*	
St. Lucia	*St. Vincent & Grenadines*	*Tanzania*	*Uganda*	
3.25 < CPIA ≤ 3.5				21
Bangladesh	Benin	Cambodia	Ethiopia	
Gambia, The	Guyana	Honduras	Lao PDR	
Lesotho	Maldives	Mali	Mongolia	
Nepal	Niger	Papua New Guinea	Sierra Leone	
Tajikistan	Tonga	Uzbekistan	Vanuatu	
Zambia				
3.0 < CPIA ≤ 3.25				12
Burundi	*Cameroon*	*Congo, Rep.*	*Cote d'Ivoire*	
Djibouti	*Liberia*	*Madagascar*	*Malawi*	
Mauritania	*Pakistan*	*Sao Tome and Principe*	*Timor-Leste*	
CPIA ≤ 3.0				21
Afghanistan	Angola	Central African Republic	Chad	
Comoros	Congo, Dem. Rep.	Eritrea	Guinea-Bissau	
Haiti	Guinea	Kiribati	Marshall Islands	
Micronesia, Fed. Sts.	Myanmar	Solomon Islands	South Sudan	
Sudan	Togo	Tuvalu	Yemen, Rep.	
Zimbabwe				

A greater number of clusters could be considered, given a possible increase in the number of risk categories in the next DSF review. In this regard and in light of the possible rejection of the proposed policy thresholds in the 3-cluster set, a compromise could be an LIC grouping based on both actual thresholds and proposed thresholds. This would result in five groups of equal threshold ranges (See Table 10).

Although the proposed classification in five classes is politically acceptable, it is not supported by data. Indeed, Figure 3 clearly shows that unlike in the 3-cluster set, the generated five clusters, notably clusters 3, 4 and 5, are not aligned along PC1. It is worth recalling that a 5-cluster set is also a good grouping of countries statistically but it was not retained due to a weak correlation between one cluster (Cluster 4) and PC1. Therefore, deriving thresholds that would neatly delineate the clusters is not possible. Subsequently, the proposed

Figure 3 – Plot of the 5-cluster set in the PC1xPC2 and PC1xPC3 plans



classification based on the actual thresholds and proposed thresholds is not backed by the clustering analysis.

On the other hand, a classification in four clusters appears to be more suitable. Unlike the 5-cluster set, the 4-cluster displays an acceptable grouping in the sense that all clusters are aligned along PC1 as shown in Figure 3 and their correlation with PC1 is high (Table 11). The related thresholds are derived and presented in the Table 12. The classification constructed based on these thresholds is close to the generated classification (Table 13). When compared to the 3-cluster set, the policy thresholds associated to the 4-cluster group implies splitting the weak-policy group in the 3-cluster set in two. Policy performance could then be qualified as either weak, acceptable, adequate or strong.

Figure 4 – Plot of the 4-cluster in the PC1xPC2 and PC1xPC3 plans

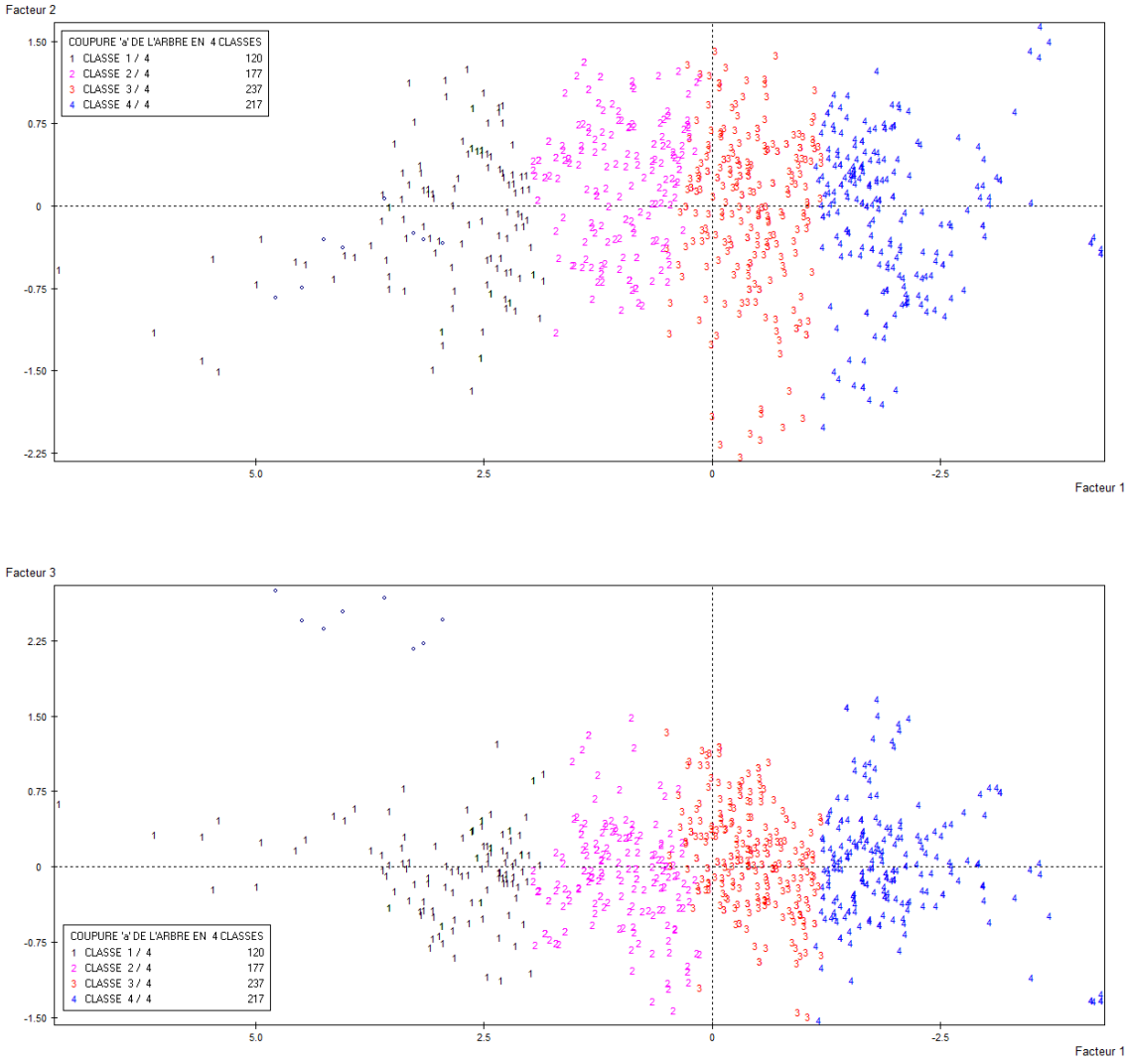


Table 11 – Correlation between clusters and the first principal component in the 4-cluster set

	Clusters			
	1	**2**	**3**	**4**
4-cluster set	0.997	0.945	0.925	0.998

Table 12 – IRAI Statistics in the 4-cluster set

Cluster	**Average**	**Standard deviation (STD)**	**Average +/- one STD interval**	**Proposed thresholds**
Cluster 1	2.55	0.25	2.30 – 2.80	
Cluster 2	3.07	0.13	2.94 – 3.20	2.9
Cluster 3	3.43	0.12	3.31 – 3.55	3.25
Cluster 4	3.84	0.18	3.66 – 4.02	3.6

Policy-dependent debt thresholds will need to be revised in the event the number of LIC groups is increased. In particular, at least a few thresholds would need to be defined to accommodate an equivalent addition of LIC groups. Two options can be considered. The first option is to keep the existing lowest and highest thresholds and review the thresholds in between. Maintaining the linearity of thresholds could be also considered. A second option is to review all thresholds all together. The first option is illustrated in Figure 5.

Figure 5 – Actual and illustrative thresholds for the exports-to-GDP ratio

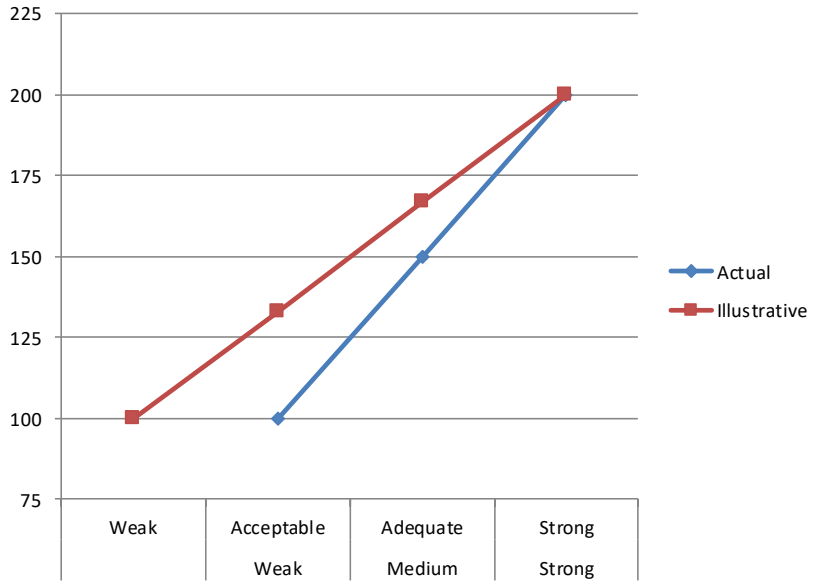


Table 13 – LIC groupings using proposed policy thresholds and derived from cluster analysis in the 4-cluster set

Groupings derived from the Cluster Analysis				**Grouprings Using Proposed Policy Thresholds**			
Cluster 4				*CPIA>3.60*			
Armenia	Bhutan	Bosnia and Herzegovina	Burkina Faso	Armenia	Bhutan	Bosnia and Herzegovina	Burkina Faso
Cabo Verde	Dominica	Georgia	Ghana	Cabo Verde	Dominica	Georgia	Grenada
Grenada	India	Kenya	Moldova	Ghana	India	Kenya	Moldova
Nicaragua	Rwanda	Samoa	Senegal	Mozambique	Nicaragua	Rwanda	Samoa
Saint Lucia	Saint Vincent/Grenadines	Tanzania	Uganda	Senegal	St. Lucia	St. Vincent/Grenadines	Tanzania
Vietnam				Uganda	Vietnam		
Cluster 3				*3.25<CPIA<3.60*	*(- Bangladesh, PNG and Sierra Leone if 3.3 instead of 3.25)*		
Bangladesh	Benin	Bolivia	Burundi	Bangladesh	Benin	Bolivia	Cambodia
Cambodia	Ethiopia	The Gambia	Guyana	Ethiopia	Gambia, The	Guyana	Honduras
Honduras	Kosovo	Kyrgyzstan	Lao Republic	Kosovo	Kyrgyz Republic	Lao PDR	Lesotho
Lesotho	Malawi	Maldives	Mali	Maldives	Mali	Mongolia	Nepal
Mauritania	Mongolia	Mozambique	Nepal	Niger	Nigeria	Papua New Guinea	Sierra Leone
Niger	Nigeria	Sierra Leone	Sri Lanka	Sri Lanka	Tajikistan	Tonga	Uzbekistan
Tajikistan	Tonga	Uzbekistan	Vanuatu	Vanuatu	Zambia		
Zambia							
Cluster 2				*2.90<CPIA<3.25*	*(+ Bangladesh, PNG and Sierra Leone if 3.3 instead of 3.25)*		
Cameroon	DRC	Congo	Cote d'Ivoire	Burundi	Cameroon	Congo, Rep.	Cote d'Ivoire
Djibouti	Guinea	Haiti	Kiribati	Djibouti	Guinea	Kiribati	Liberia
Liberia	Madagascar	Myanmar	Pakistan	Madagascar	Malawi	Mauritania	Myanmar
Papua New Guinea	Sao Tome and Principe	Solomon Islands	East Timor	Pakistan	Sao Tome and Principe	Solomon Islands	Timor-Leste
Togo	Yemen			Togo	Yemen, Rep.		
Cluster 1				*CPIA<2.90*			
Afghanistan	Angola	Central African Republic	Chad	Afghanistan	Angola	Central African Republic	Chad
Comoros	Eritrea	Guinea-Bissau	Marshall Islands	Comoros	Congo, Dem. Rep.	Eritrea	Guinea-Bissau
Micronesia	South Sudan	Sudan	Tuvalu	Haiti	Marshall Islands	Micronesia, Fed. Sts.	South Sudan
Zimbabwe				Sudan	Tuvalu	Zimbabwe	

V. Conclusion

In this paper, we argue that the CPIA thresholds in the Joint IMF World Bank Debt Sustainability Framework are arbitrary and propose to use statistical multivariate methods to support this argument. We find that the actual calculation of the CPIA index with equal weights assigned to the four CPIA clusters is robust. We also find that a classification of LICs in three groups statistically robust with all cluster highly correlated to the CPIA measure. However, the upper and lower policy thresholds derived from this classification are 3.50 and 3.00 respectively, which are lower than the actual ones (3.75 and 3.25).

Given the numerous calls for greater flexibility in the DSF, we explored the possibility of grouping LICs in a number of clusters higher than three. We find a grouping in four clusters would be the best alternative to a 3-cluster grouping, as all clusters are highly correlated with the CPIA measure. However, a grouping in five clusters does not have the same property although it is a sound grouping statistically. That said, some judgment could be made that countries are grouped in five clusters based on the actual and proposed thresholds related to a 3-cluster groupings.

In light of this, it would be advisable to undertake a similar work at each DSF review to ensure the appropriateness of the policy thresholds. Further work could be carried out to determine to confirm the relationship between policy performance and debt sustainability. In that context, it would be useful to determine which of the 16 variables are the most relevant for the DSA purposes.

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Box 1. CPIA Criteria

A. Economic Management
1. Macroeconomic Management
2. Fiscal Policy
3. Debt Policy

B. Structural Policies
4. Trade
5. Financial Sector
6. Business Regulatory Environment

C. Policies for Social Inclusion/Equity
7. Gender Equality
8. Equity of Public Resource Use
9. Building Human Resources
10. Social Protection and Labor
11. Policies and Institutions for Environmental Sustainability

D. Public Sector Management and Institutions
12. Property Rights and Rule-based Governance
13. Quality of Budgetary and Financial Management
14. Efficiency of Revenue Mobilization
15. Quality of Public Administration
16. Transparency, Accountability, and Corruption in the Public Sector

Source: World Bank

Box 2. The Debt Sustainability Framework for Low-Income Countries

The DSF, a standardized framework for analyzing debt-related vulnerabilities, was introduced in 2005 and reviewed in 2006 and 2009. Under the DSF, joint Fund-Bank DSAs are prepared for all PRGT-eligible, IDA-only countries. For PRGT-eligible countries that are not IDA-only, DSAs are prepared by Fund staff only.[1]

How the DSF works

The DSF consists of a set of indicative policy-dependent thresholds against which projections of external public debt over the next 20 years are compared in order to assess the risk of debt distress. Vulnerability to external and policy shocks is explored in alternative scenarios and standardized bound tests. The indicative threshold for each debt burden indicator depends on each country's policy and institutional capacity, as measured by the World Bank's Country Policy and Institutional Assessment (CPIA) index. The specific thresholds are as follows:

Debt Sustainability Framework: Indicative Policy-Dependent Thresholds

(Applicable to public and publicly guaranteed external debt)

	PV of debt in percent of			Debt service in percent of	
	GDP	Exports	Revenue	Exports	Revenue
Weak policy (CPIA ≤ 3.25)	30	100	200	15	25
Medium policy (3.25 < CPIA < 3.75)	40	150	250	20	30
Strong policy (CPIA ≥ 3.75)	50	200	300	25	35

Based on the assessment, one of four possible risk of debt distress ratings is assigned:

- *Low risk*: All the debt burden indicators are well below the thresholds.
- *Moderate risk*: Debt burden indicators are below the thresholds in the baseline scenario, but stress tests indicate that the thresholds could be breached if there are external shocks or abrupt changes in macroeconomic policies.
- *High risk*: One or more debt burden indicators breach the thresholds on a protracted basis under the baseline scenario.
- *In debt distress*: The country is already experiencing difficulties in servicing its debt, as evidenced, for example, by the existence of arrears.

The DSF also includes a public sector DSA, which assesses public domestic debt risks and overall fiscal sustainability. The risk of debt distress rating, however, is guided solely by an analysis of external public debt relative to the thresholds in the external DSA.

What is the CPIA?

The CPIA is an index of 16 indicators grouped into four categories: (1) economic management; (2) structural policies; (3) policies for social inclusion and equity; and (4) public sector management and institutions. Countries are rated on their current status in each of these performance criteria, with scores from 1 (lowest) to 6 (highest). The index is updated annually for all IDA-eligible countries, including blend countries.

[1] Some PRGT-eligible countries are classified by the World Bank as middle-income countries. See http://data.worldbank.org/about/country-classifications/country-and-lending-groups.

Source: IMF (2012)

ANNEX I - PRINCNPAL COMPONENTS ANALYSIS - OUTPUT DATA

NUM . IDEN - LIBELLE	EFFECTIF	POIDS	MOYENNE	ECART-TYPE	MINIMUM	MAXIMUM
7 . ECON - ECON	751	751.00	3.51	0.65	1.00	5.50
14 . SOCI - SOCI	748	748.00	3.30	0.50	1.50	4.30
17 . PUBS - PUBS	751	751.00	3.09	0.49	1.60	4.10
21 . STRC - STRC	751	751.00	3.39	0.48	1.50	5.00
24 . IRAI - IRAI	751	751.00	3.32	0.47	1.40	4.44

MATRICE DES CORRELATIONS

	ECON	SOCI	PUBS	STRC
ECON	1.00			
SOCI	0.66	1.00		
PUBS	0.62	0.83	1.00	
STRC	0.58	0.73	0.78	1.00
	ECON	SOCI	PUBS	STRC

MATRICE DES VALEURS-TESTS

	ECON	SOCI	PUBS	STRC
ECON	99.99			
SOCI	21.79	99.99		
PUBS	19.77	32.37	99.99	
STRC	18.20	25.44	28.61	99.99
	ECON	SOCI	PUBS	STRC

HISTOGRAMME DES 4 PREMIERES VALEURS PROPRES

NUMERO	VALEUR PROPRE	POURCENT.	POURCENT. CUMULE	
1	3.1080	77.70	77.70	**********
2	0.4617	11.54	89.24	**********
3	0.2693	6.73	95.98	*******
4	0.1609	4.02	100.00	*****

COORDONNEES DES **VARIABLES ACTIVES** SUR LES AXES 1 A 4

VARIABLES	COORDONNEES					CORRELATIONS VARIABLE-FACTEUR					ANCIENS AXES UNITAIRES				
IDEN - LIBELLE COURT	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0
ECON - ECON	-0.80	0.59	-0.09	0.04	0.00	-0.80	0.59	-0.09	0.04	0.00	-0.45	0.87	-0.17	0.09	0.00
SOCI - SOCI	-0.92	-0.06	0.30	-0.25	0.00	-0.92	-0.06	0.30	-0.25	0.00	-0.52	-0.09	0.58	-0.62	0.00
PUBS - PUBS	-0.92	-0.20	0.15	0.30	0.00	-0.92	-0.20	0.15	0.30	0.00	-0.52	-0.29	0.29	0.75	0.00
STRC - STRC	-0.88	-0.26	-0.39	-0.09	0.00	-0.88	-0.26	-0.39	-0.09	0.00	-0.50	-0.39	-0.75	-0.22	0.00

COORDONNEES DES **VARIABLES ILLUSTRATIVES** SUR LES AXES 1 A 4

VARIABLES	COORDONNEES					CORRELATIONS VARIABLE-FACTEUR					ANCIENS AXES UNITAIRES				
IDEN - LIBELLE COURT	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0
IRAI - IRAI	-1.00	0.07	-0.01	0.00	0.00	-1.00	0.07	-0.01	0.00	0.00					

INDIVIDUS ILLUSTRATIFS (AXES 1 A 4)

INDIVIDUS			COORDONNEES					CONTRIBUTIONS					COSINUS CARRES				
IDENTIFICATEUR	P.REL	DISTO	1	2	3	4	0	1	2	3	4	0	1	2	3	4	0
ERI05	0.13	14.88	2.95	-0.34	2.46	0.19	0.00	0.0	0.0	0.0	0.0	0.0	0.58	0.01	0.40	0.00	0.00
ERI06	0.13	15.20	3.16	-0.30	2.22	0.44	0.00	0.0	0.0	0.0	0.0	0.0	0.66	0.01	0.33	0.01	0.00
ERI07	0.13	15.49	3.26	-0.24	2.17	0.28	0.00	0.0	0.0	0.0	0.0	0.0	0.69	0.00	0.30	0.01	0.00
ERI08	0.13	20.18	3.59	0.07	2.67	0.44	0.00	0.0	0.0	0.0	0.0	0.0	0.64	0.00	0.35	0.01	0.00
ERI09	0.13	23.37	4.05	-0.38	2.54	0.64	0.00	0.0	0.0	0.0	0.0	0.0	0.70	0.01	0.28	0.02	0.00
ERI10	0.13	23.37	4.05	-0.38	2.54	0.64	0.00	0.0	0.0	0.0	0.0	0.0	0.70	0.01	0.28	0.02	0.00
ERI11	0.13	24.18	4.26	-0.30	2.36	0.61	0.00	0.0	0.0	0.0	0.0	0.0	0.75	0.00	0.23	0.02	0.00
ERI12	0.13	27.04	4.49	-0.75	2.45	0.56	0.00	0.0	0.0	0.0	0.0	0.0	0.75	0.02	0.22	0.01	0.00
ERI13	0.13	31.46	4.78	-0.84	2.75	0.61	0.00	0.0	0.0	0.0	0.0	0.0	0.73	0.02	0.24	0.01	0.00
ERI14	0.13	31.46	4.78	-0.84	2.75	0.61	0.00	0.0	0.0	0.0	0.0	0.0	0.73	0.02	0.24	0.01	0.00

DESCRIPTION OF PRINCIPAL COMPONENTS
DESCRIPTION DU FACTEUR 1
PAR LES INDIVIDUS ACTIFS

COORD.	POIDS	IDENTIFICATEUR DE L'INDIVIDU	NUMERO
-4.27	1.00	GEO13	1
-4.27	1.00	GEO12	2
-4.27	1.00	GEO10	3
-4.18	1.00	GEO08	4
-4.16	1.00	GEO11	5
-4.16	1.00	GEO09	6
-3.70	1.00	ARM08	7
-3.60	1.00	ARM07	8
-3.59	1.00	ARM05	9
-3.50	1.00	GEO07	10
-3.48	1.00	ARM06	11
-3.32	1.00	ARM09	12
-3.16	1.00	CPV09	13
-3.16	1.00	CPV07	14
-3.12	1.00	CPV08	15
-3.04	1.00	CPV10	16
-3.04	1.00	ARM13	17
-2.99	1.00	CPV05	18
-2.98	1.00	ARM12	19
-2.97	1.00	GEO06	20
-2.97	1.00	WSM09	21
-2.97	1.00	WSM10	22
-2.94	1.00	CPV06	23
-2.92	1.00	ARM10	24
-2.91	1.00	WSM11	25
Z O N E C E N T R A L E			
3.37	1.00	COM07	727
3.37	1.00	COM05	728
3.39	1.00	SDN10	729
3.40	1.00	TCD11	730
3.48	1.00	CAF14	731
3.54	1.00	COM06	732
3.54	1.00	CAF05	733
3.54	1.00	CAF06	734
3.54	1.00	COM08	735
3.56	1.00	SDN13	736
3.61	1.00	TCD10	737
3.62	1.00	SDN11	738
3.74	1.00	SDN12	739
3.92	1.00	ZWE13	740
4.02	1.00	ZWE12	741
4.14	1.00	ZWE11	742
4.46	1.00	SSD12	743
4.56	1.00	SSD13	744
4.94	1.00	SSD14	745
4.99	1.00	ZWE10	746
5.41	1.00	ZWE05	747
5.47	1.00	ZWE09	748
5.59	1.00	ZWE06	749
6.11	1.00	ZWE07	750
7.15	1.00	ZWE08	751

PAR LES INDIVIDUS ILLUSTRATIFS

COORD.	POIDS	IDENTIFICATEUR DE L'INDIVIDU	NUMERO
Z O N E C E N T R A L E			
4.05	1.00	ERI10	6
4.26	1.00	ERI11	7
4.49	1.00	ERI12	8
4.78	1.00	ERI13	9
4.78	1.00	ERI14	10

=== ATTENTION === EDITION TRONQUEE
PAR LES VARIABLES CONTINUES ACTIVES

COORD.	POIDS	LIBELLE DE LA VARIABLE	MOYENNE	ECART-TYPE	NUMERO
-0.92	751.00	PUBS	3.09	0.49	1
-0.92	748.00	SOCI	3.30	0.50	2
Z O N E C E N T R A L E					

=== ATTENTION === EDITION TRONQUEE
DESCRIPTION DU FACTEUR 2
PAR LES INDIVIDUS ACTIFS

COORD.	POIDS	IDENTIFICATEUR DE L'INDIVIDU	NUMERO
-2.30	1.00	MDV12	1
-2.18	1.00	MDV13	2
-2.14	1.00	MDV10	3
-2.08	1.00	MDV11	4
-2.02	1.00	MDV08	5
-2.02	1.00	GRD13	6
-1.94	1.00	GRD14	7
-1.92	1.00	MDV14	8
-1.90	1.00	MDV09	9
-1.85	1.00	GHA14	10
-1.81	1.00	GRD08	11
-1.77	1.00	GRD09	12
-1.74	1.00	MDV07	13
-1.69	1.00	TON10	14
-1.69	1.00	GNB08	15
-1.68	1.00	GRD10	16
-1.66	1.00	GRD07	17
-1.66	1.00	GHA13	18
-1.64	1.00	GRD12	19
-1.59	1.00	LCA14	20
-1.52	1.00	MDV06	21
-1.51	1.00	ZWE05	22
-1.50	1.00	CIV06	23
-1.42	1.00	ZWE06	24
-1.41	1.00	GRD05	25
Z O N E C E N T R A L E			
1.12	1.00	TJK05	727
1.13	1.00	LAO07	728
1.14	1.00	AFG06	729
1.15	1.00	NGA09	730
1.15	1.00	NGA14	731
1.17	1.00	TJK06	732
1.18	1.00	TMP13	733
1.18	1.00	TMP14	734
1.18	1.00	NGA06	735
1.18	1.00	UZB10	736
1.18	1.00	LAO05	737
1.20	1.00	UZB09	738
1.22	1.00	LAO08	739
1.23	1.00	VNM06	740
1.24	1.00	ZAR10	741
1.26	1.00	NGA08	742
1.29	1.00	UZB08	743
1.31	1.00	TMP12	744

1.31	1.00	TMP11	745
1.35	1.00	ARM05	746
1.37	1.00	NGA13	747
1.41	1.00	ARM06	748
1.41	1.00	NGA07	749
1.49	1.00	ARM08	750
1.63	1.00	ARM07	751

PAR LES INDIVIDUS ILLUSTRATIFS

COORD.	POIDS	IDENTIFICATEUR DE L'INDIVIDU	NUMERO
-0.84	1.00	ERI13	1
-0.84	1.00	ERI14	2
-0.75	1.00	ERI12	3
-0.38	1.00	ERI09	4
-0.38	1.00	ERI10	5
Z O N E C E N T R A L E			
0.07	1.00	ERI08	10

=== ATTENTION === EDITION TRONQUEE
PAR LES VARIABLES CONTINUES ACTIVES

COORD.	POIDS	LIBELLE DE VARIABLE	MOYENNE	ECART-TYPE	NUMERO
-0.26	751.00	STRC	3.39	0.48	1
-0.20	751.00	PUBS	3.09	0.49	2
Z O N E C E N T R A L E					
0.59	751.00	ECON	3.51	0.65	4

=== ATTENTION === EDITION TRONQUEE
DESCRIPTION DU FACTEUR 3
PAR LES INDIVIDUS ACTIFS

COORD.	POIDS	IDENTIFICATEUR DE L'INDIVIDU	NUMERO
-1.54	1.00	PAK05	1
-1.50	1.00	PAK06	2
-1.46	1.00	PAK07	3
-1.44	1.00	PNG13	4
-1.35	1.00	PNG14	5
-1.35	1.00	GEO08	6
-1.34	1.00	GEO09	7
-1.34	1.00	GEO11	8
-1.34	1.00	GEO12	9
-1.34	1.00	GEO13	10
-1.28	1.00	GEO10	11
-1.22	1.00	PNG08	12
-1.21	1.00	PAK08	13
-1.17	1.00	PNG09	14
-1.15	1.00	PNG07	15
-1.14	1.00	KGZ08	16
-1.14	1.00	CIV10	17
-1.11	1.00	GEO07	18
-1.10	1.00	CIV08	19
-1.07	1.00	CIV09	20
-1.05	1.00	PNG12	21
-1.05	1.00	PNG11	22
-1.04	1.00	PNG06	23
-1.01	1.00	BEN05	24
-0.99	1.00	PNG10	25
Z O N E C E N T R A L E			
1.05	1.00	VNM11	727
1.11	1.00	NPL12	728
1.13	1.00	UZB10	729
1.13	1.00	UZB14	730
1.15	1.00	MWI11	731
1.16	1.00	KIR13	732
1.18	1.00	UZB07	733
1.18	1.00	UZB11	734
1.18	1.00	UZB12	735
1.18	1.00	UZB13	736
1.19	1.00	BTN11	737
1.21	1.00	ZWE14	738
1.25	1.00	BTN08	739
1.27	1.00	BTN14	740
1.31	1.00	UZB06	741
1.31	1.00	UZB05	742
1.34	1.00	MWI12	743
1.35	1.00	BTN09	744
1.41	1.00	BTN07	745
1.47	1.00	BTN10	746
1.47	1.00	MWI13	747
1.50	1.00	BTN06	748
1.57	1.00	BTN12	749
1.57	1.00	BTN13	750
1.66	1.00	BTN05	751

PAR LES INDIVIDUS ILLUSTRATIFS

COORD.	POIDS	IDENTIFICATEUR DE L'INDIVIDU	NUMERO
Z O N E C E N T R A L E			
2.54	1.00	ERI10	6
2.54	1.00	ERI09	7
2.67	1.00	ERI08	8
2.75	1.00	ERI13	9
2.75	1.00	ERI14	10

=== ATTENTION === EDITION TRONQUEE
PAR LES VARIABLES CONTINUES ACTIVES

COORD.	POIDS	LIBELLE DE LA VARIABLE	MOYENNE	ECART-TYPE	NUMERO
-0.39	751.00	STRC	3.39	0.48	1
-0.09	751.00	ECON	3.51	0.65	2
Z O N E C E N T R A L E					
0.15	751.00	PUBS	3.09	0.49	3
0.30	748.00	SOCI	3.30	0.50	4

ANNEX II - CLUSTER ANALYSIS - OUTPUT DATA

COMPOSITION OF THE 3 CLUSTERS

CLASSES			VALEURS-TEST					COORDONNEES					
IDEN - LIBELLE	EFF.	P.ABS	1	2	3	4	0	1	2	3	4	0	DISTO.
COUPURE 'a' DE L'ARBRE EN 3 CLASSES													
aa1a - CLASSE 1 / 3	152	152.00	20.7	-1.6	-2.4	1.3	0.0	2.65	-0.08	-0.09	0.04	0.00	7.02
aa2a - CLASSE 2 / 3	321	321.00	3.4	4.0	3.6	-3.0	0.0	0.25	0.11	0.08	-0.05	0.00	0.09
aa3a - CLASSE 3 / 3	278	278.00	-20.7	-2.7	-1.7	2.0	0.0	-1.74	-0.09	-0.04	0.04	0.00	3.04

CLASSE 1 / 3

AFG06 AFG07 AFG08 AFG09 AFG10 AFG11
AFG12 AFG13 AFG14 AGO05 AGO06 AGO07
AGO08 AGO09 AGO10 AGO11 AGO12 AGO13
CAF05 CAF06 CAF07 CAF08 CAF09 CAF10
CAF11 CAF12 CAF13 CAF14 TCD05 TCD06
TCD07 TCD08 TCD09 TCD10 TCD11 TCD12
TCD13 TCD14 COM05 COM06 COM07 COM08
COM09 COM10 COM11 COM12 COM13 COM14
ZAR05 ZAR06 ZAR07 ZAR08 ZAR09 ZAR10
ZAR11 ZAR12 ZAR13 COG05 COG06 COG07
COG08 COG09 COG10 CIV05 CIV06 CIV07
CIV08 CIV09 CIV10 CIV11 GIN09 GIN10
GIN11 GNB05 GNB06 GNB07 GNB08 GNB09
GNB10 GNB11 GNB12 GNB13 GNB14 HTI05
HTI06 HTI07 HTI08 HTI09 HTI10 HTI11
HTI12 HTI13 HTI14 KIR12 LBR09 LBR10
MHL11 MHL12 MHL13 MHL14 FSM11 FSM12
FSM13 FSM14 MMR13 SLB05 SLB06 SLB07
SLB08 SLB09 SLB10 SLB11 SLB12 SLB13
SLB14 SSD12 SSD13 SSD14 SDN05 SDN06
SDN07 SDN08 SDN09 SDN10 SDN11 SDN12
SDN13 SDN14 TMP06 TMP07 TMP08 TMP09
TGO05 TGO06 TGO07 TGO08 TGO09 TGO10
TON06 TUV12 TUV13 TUV14 ZWE05 ZWE06
ZWE07 ZWE08 ZWE09 ZWE10 ZWE11 ZWE12
ZWE13 ZWE14

CLASSE 2 / 3

BGD05 BGD06 BGD07 BGD08 BGD09 BGD10
BGD11 BGD12 BGD13 BGD14 BEN09 BEN10
BEN11 BEN12 BEN13 BEN14 BOL13 BOL14
BDI05 BDI06 BDI07 BDI08 BDI09 BDI10
BDI11 BDI12 BDI13 BDI14 KHM05 KHM06
KHM07 KHM08 KHM09 KHM10 KHM11 KHM12
KHM13 KHM14 CMR05 CMR06 CMR07 CMR08
CMR09 CMR10 CMR11 CMR12 CMR13 CMR14
ZAR14 COG11 COG12 COG13 COG14 CIV12
CIV13 CIV14 DJI05 DJI06 DJI07 DJI08
DJI09 DJI10 DJI11 DJI12 DJI13 DJI14
ETH05 ETH06 ETH07 ETH08 ETH09 ETH10
ETH11 ETH12 ETH13 ETH14 GMB05 GMB06
GMB07 GMB08 GMB09 GMB10 GMB11 GMB12
GMB13 GMB14 GHA14 GIN05 GIN06 GIN07
GIN08 GIN12 GIN13 GIN14 GUY05 GUY06
GUY07 GUY08 GUY09 GUY10 GUY11 GUY12
GUY13 GUY14 HND12 HND13 HND14 KIR05
KIR06 KIR07 KIR08 KIR09 KIR10 KIR11
KIR13 KIR14 KSV09 KSV10 KSV11 KGZ05
LAO05 LAO06 LAO07 LAO08 LAO09 LAO10
LAO11 LAO12 LAO13 LAO14 LSO05 LSO06
LSO07 LSO08 LSO09 LSO10 LSO11 LSO12
LSO13 LSO14 LBR11 LBR12 LBR13 LBR14
MDG10 MDG11 MDG12 MDG13 MDG14 MWI05
MWI06 MWI07 MWI08 MWI09 MWI10 MWI11
MWI12 MWI13 MWI14 MDV09 MDV10 MDV11
MDV12 MDV13 MDV14 MLI12 MLI13 MLI14
MRT05 MRT06 MRT07 MRT08 MRT09 MRT10
MRT11 MRT12 MRT13 MRT14 MNG05 MNG06
MNG07 MNG08 MNG09 MNG10 MNG11 MNG12
MNG13 MNG14 MOZ05 MOZ06 MMR14 NPL05
NPL06 NPL07 NPL08 NPL09 NPL10 NPL11
NPL12 NPL13 NPL14 NER05 NER06 NER07
NER08 NER09 NER10 NER11 NER12 NER13
NER14 NGA05 NGA06 NGA07 NGA08 NGA09
NGA10 NGA11 NGA12 NGA13 NGA14 PAK08
PAK09 PAK10 PAK11 PAK12 PAK13 PAK14
PNG05 PNG06 PNG07 PNG08 PNG09 PNG10
PNG11 PNG12 PNG13 PNG14 RWA05 STP05
STP06 STP07 STP08 STP09 STP10 STP11
STP12 STP13 STP14 SLE05 SLE06 SLE07
SLE08 SLE09 SLE10 SLE11 SLE12 SLE13
SLE14 TJK05 TJK06 TJK07 TJK08 TJK09
TJK10 TJK11 TJK12 TJK13 TJK14 TMP10
TMP11 TMP12 TMP13 TMP14 TGO11 TGO12
TGO13 TGO14 TON05 TON07 TON08 TON13
UZB05 UZB06 UZB07 UZB08 UZB09 UZB10
UZB11 UZB12 UZB13 UZB14 VUT05 VUT06
VUT07 VUT08 VUT09 VUT10 VUT11 VUT12
VUT13 VUT14 YEM05 YEM06 YEM07 YEM08
YEM09 YEM10 YEM11 YEM12 YEM13 YEM14
ZMB05 ZMB06 ZMB07 ZMB09 ZMB10 ZMB11
ZMB12 ZMB13 ZMB14

CLASSE 3 / 3

ARM05 ARM06 ARM07 ARM08 ARM09 ARM10
ARM11 ARM12 ARM13 BEN05 BEN06 BEN07
BEN08 BTN05 BTN06 BTN07 BTN08 BTN09
BTN10 BTN11 BTN12 BTN13 BTN14 BOL05
BOL06 BOL07 BOL08 BOL09 BOL10 BOL11
BOL12 BIH05 BIH06 BIH07 BIH08 BIH09
BIH10 BIH11 BIH12 BIH13 BFA05 BFA06
BFA07 BFA08 BFA09 BFA10 BFA11 BFA12
BFA13 BFA14 CPV05 CPV06 CPV07 CPV08
CPV09 CPV10 CPV11 CPV12 CPV13 CPV14
DMA05 DMA06 DMA07 DMA08 DMA09 DMA10
DMA11 DMA12 DMA13 DMA14 GEO05 GEO06
GEO07 GEO08 GEO09 GEO10 GEO11 GEO12
GEO13 GHA05 GHA06 GHA07 GHA08 GHA09
GHA10 GHA11 GHA12 GHA13 GRD05 GRD06
GRD07 GRD08 GRD09 GRD10 GRD11 GRD12
GRD13 GRD14 HND05 HND06 HND07 HND08
HND09 HND10 HND11 IND05 IND06 IND07
IND08 IND09 IND10 IND11 IND12 IND13
KEN05 KEN06 KEN07 KEN08 KEN09 KEN10
KEN11 KEN12 KEN13 KEN14 KSV12 KSV13
KSV14 KGZ06 KGZ07 KGZ08 KGZ09 KGZ10
KGZ11 KGZ12 KGZ13 KGZ14 MDG05 MDG06
MDG07 MDG08 MDG09 MDV05 MDV06 MDV07
MDV08 MLI05 MLI06 MLI07 MLI08 MLI09
MLI10 MLI11 MDA05 MDA06 MDA07 MDA08
MDA09 MDA10 MDA11 MDA12 MDA13 MDA14
MOZ07 MOZ08 MOZ09 MOZ10 MOZ11 MOZ12
MOZ13 MOZ14 NIC05 NIC06 NIC07 NIC08
NIC09 NIC10 NIC11 NIC12 NIC13 NIC14
PAK05 PAK06 PAK07 RWA06 RWA07 RWA08
RWA09 RWA10 RWA11 RWA12 RWA13 RWA14
WSM05 WSM06 WSM07 WSM08 WSM09 WSM10
WSM11 WSM12 WSM13 WSM14 SEN05 SEN06
SEN07 SEN08 SEN09 SEN10 SEN11 SEN12
SEN13 SEN14 LKA05 LKA06 LKA07 LKA08
LKA09 LKA10 LKA11 LKA12 LKA13 LKA14
LCA05 LCA06 LCA07 LCA08 LCA09 LCA10
LCA11 LCA12 LCA13 LCA14 VCT05 VCT06
VCT07 VCT08 VCT09 VCT10 VCT11 VCT12
VCT13 VCT14 TZA05 TZA06 TZA07 TZA08
TZA09 TZA10 TZA11 TZA12 TZA13 TZA14
TON09 TON10 TON11 TON12 TON14 UGA05
UGA06 UGA07 UGA08 UGA09 UGA10 UGA11
UGA12 UGA13 UGA14 VNM05 VNM06 VNM07
VNM08 VNM09 VNM10 VNM11 VNM12 VNM13
VNM14 ZMB08

INDIVIDUS ILLUSTRATIFS

AFFECTATION DANS LES CLASSES

CLASSE	EFFECTIF	POIDS
CLASSE 1	10	10.00
CLASSE 2	0	0.00
CLASSE 3	0	0.00

COMPOSITION DE: COUPURE 'a' DE L'ARBRE EN 3

CLASSES

CLASSE 1 / 3

ERI05 ERI06 ERI07 ERI08 ERI09
ERI10
ERI11 ERI12 ERI13 ERI14

CLASSE 2 / 3

CLASSE 3 / 3

COMPOSITION OFTHE 5 CLUSTERS

CLASSES			VALEURS-TEST					COORDONNEES					
IDEN - LIBELLE	EFF.	P.ABS	1	2	3	4	0	1	2	3	4	0	DISTO.
COUPURE 'b' DE L'ARBRE EN 5 CLASSES													
bb1b - CLASSE 1 / 5	120	120.00	19.6	-2.8	-0.8	1.4	0.0	2.89	-0.16	-0.04	0.05	0.00	8.39
bb2b - CLASSE 2 / 5	172	172.00	8.7	3.6	-2.3	0.4	0.0	1.03	0.16	-0.08	0.01	0.00	1.10
bb3b - CLASSE 3 / 5	201	201.00	-3.7	7.5	1.2	-2.1	0.0	-0.40	0.31	0.04	-0.05	0.00	0.26
bb4b - CLASSE 4 / 5	64	64.00	-4.0	-15.2	2.1	-3.0	0.0	-0.84	-1.23	0.13	-0.14	0.00	2.27
bb5b - CLASSE 5 / 5	194	194.00	-18.5	1.0	0.3	2.4	0.0	-2.02	0.04	0.01	0.06	0.00	4.07

CLASSE 1 / 5
AFG06 AFG07 AFG08 AFG09 AFG10 AFG11
AFG12 AFG13 AFG14 AGO05 AGO06 AGO07
AGO08 AGO09 AGO10 AGO11 AGO12 AGO13
CAF05 CAF06 CAF07 CAF08 CAF09 CAF10
CAF11 CAF12 CAF13 CAF14 TCD06 TCD07
TCD08 TCD09 TCD10 TCD11 TCD12 TCD13
TCD14 COM05 COM06 COM07 COM08 COM09
COM10 COM11 COM12 COM13 COM14 ZAR08
ZAR09 ZAR10 ZAR11 ZAR12 COG05 COG06
COG07 COG08 CIV05 CIV06 CIV07 CIV08
CIV09 CIV10 GIN10 GNB05 GNB06 GNB07
GNB08 GNB09 GNB10 GNB12 GNB13 GNB14
HTI05 MHL11 MHL12 MHL13 MHL14 FSM11
FSM12 FSM13 FSM14 SLB06 SLB07 SLB08
SLB09 SLB10 SSD12 SSD13 SSD14 SDN05
SDN06 SDN07 SDN08 SDN09 SDN10 SDN11
SDN12 SDN13 SDN14 TMP06 TMP07 TMP08
TGO05 TGO06 TGO07 TGO08 TGO09 TUV12
TUV13 TUV14 ZWE05 ZWE06 ZWE07 ZWE08
ZWE09 ZWE10 ZWE11 ZWE12 ZWE13 ZWE14
CLASSE 2 / 5
BDI05 BDI06 BDI07 BDI08 BDI09 BDI10
BDI11 KHM05 KHM06 KHM07 CMR06 CMR07
CMR08 CMR09 CMR10 CMR11 CMR12 CMR13
CMR14 TCD05 ZAR05 ZAR06 ZAR07 ZAR13
ZAR14 COG09 COG10 COG11 COG12 COG13
COG14 CIV11 CIV12 CIV13 CIV14 DJI05
DJI06 DJI07 DJI08 DJI09 DJI10 DJI11
DJI12 DJI13 DJI14 GMB05 GMB06 GMB07
GMB08 GIN05 GIN06 GIN07 GIN08 GIN09
GIN11 GIN12 GIN13 GIN14 GNB11 HTI06
HTI07 HTI08 HTI09 HTI10 HTI11 HTI12
HTI13 HTI14 KIR05 KIR06 KIR07 KIR08
KIR09 KIR10 KIR11 KIR12 KIR13 KIR14
LAO05 LAO06 LAO07 LAO09 LBR09 LBR10
LBR11 LBR12 LBR13 LBR14 MDG11 MDG12
MDG13 MDG14 MWI12 MWI13 MWI14 MRT05
MRT10 MRT11 MRT12 MMR13 MMR14 NGA05
NGA06 PAK09 PAK10 PAK11 PAK12 PAK13
PAK14 PNG05 PNG06 PNG08 PNG09 PNG10
PNG11 PNG12 PNG13 PNG14 STP05 STP06
STP07 STP08 STP09 STP10 STP11 STP12
STP13 STP14 SLE05 SLE06 SLE07 SLE08
SLE09 SLB05 SLB11 SLB12 SLB13 SLB14
TJK07 TJK08 TJK09 TJK14 TMP09 TMP10
TMP11 TMP12 TMP13 TMP14 TGO10 TGO11
TGO12 TGO13 TGO14 TON05 TON06 TON07
TON08 UZB05 UZB06 UZB07 VUT05 VUT06
VUT07 YEM06 YEM07 YEM08 YEM09 YEM10
YEM11 YEM12 YEM13 YEM14

CLASSE 3 / 5
BGD05 BGD06 BGD07 BGD08 BGD09 BGD10
BGD11 BGD12 BGD13 BGD14 BEN06 BEN07
BEN08 BEN09 BEN10 BEN11 BEN12 BEN13
BEN14 BOL05 BOL06 BOL07 BOL11 BOL12
BOL13 BOL14 BIH05 BIH13 BFA06 BFA07
BDI12 BDI13 BDI14 KHM08 KHM09 KHM10
KHM11 KHM12 KHM13 KHM14 CMR05 ETH05
ETH06 ETH07 ETH08 ETH09 ETH10 ETH11
ETH12 ETH13 ETH14 GMB09 GMB10 GMB11
GMB12 GUY05 GUY06 GUY07 GUY08 GUY09
GUY10 GUY11 GUY12 GUY13 GUY14 HND10
HND12 KEN05 KEN06 KEN07 KEN08 KSV11
KSV13 KSV14 KGZ05 KGZ06 KGZ07 KGZ09
KGZ10 KGZ11 KGZ12 KGZ13 KGZ14 LAO08
LAO10 LAO11 LAO12 LAO13 LAO14 LSO05
LSO06 LSO07 LSO08 LSO09 LSO10 LSO11
LSO12 LSO13 LSO14 MDG09 MDG10 MWI07
MWI10 MWI11 MLI06 MLI08 MLI09 MLI10
MLI11 MLI12 MLI13 MLI14 MRT06 MRT07
MRT08 MRT09 MRT13 MRT14 MDA06 MNG05
MNG06 MNG10 MNG11 MNG12 MOZ05 MOZ06
MOZ07 MOZ08 MOZ11 MOZ13 MOZ14 NPL05
NPL06 NPL07 NPL08 NPL09 NPL10 NPL11
NPL12 NIC10 NER05 NER06 NER07 NER08
NER09 NER10 NER11 NER12 NER13 NER14
NGA07 NGA08 NGA09 NGA10 NGA11 NGA12
NGA13 NGA14 PAK06 PAK07 PNG07 RWA05
RWA06 SEN08 SLE10 SLE11 SLE12 SLE13
SLE14 TJK05 TJK06 TJK10 TJK11 TJK12
TJK13 TON14 UZB08 UZB09 UZB10 UZB11
UZB12 UZB13 UZB14 VUT08 VUT09 VUT10
VUT11 VUT12 VUT13 VUT14 YEM05 ZMB05
ZMB06 ZMB07 ZMB08 ZMB09 ZMB10 ZMB11
ZMB12 ZMB13 ZMB14
CLASSE 4 / 5
GMB13 GMB14 GHA13 GHA14 GRD05 GRD06
GRD07 GRD08 GRD09 GRD10 GRD11 GRD12
GRD13 GRD14 HND09 HND13 HND14 KSV09
KSV10 KSV12 MDG05 MDG06 MWI05 MWI06
MWI08 MWI09 MDV06 MDV07 MDV08 MDV09
MDV10 MDV11 MDV12 MDV13 MDV14 MDA05
MNG07 MNG08 MNG09 MNG13 MNG14 NPL13
NPL14 PAK08 LKA05 LKA06 LKA07 LKA08
LKA09 LKA10 LKA11 LKA12 LKA13 LKA14
LCA13 LCA14 VCT12 VCT13 VCT14 TON09
TON10 TON11 TON12 TON13
CLASSE 5 / 5
ARM05 ARM06 ARM07 ARM08 ARM09 ARM10
ARM11 ARM12 ARM13 BEN05 BTN05 BTN06
BTN07 BTN08 BTN09 BTN10 BTN11 BTN12
BTN13 BTN14 BOL08 BOL09 BOL10 BIH06
BIH07 BIH08 BIH09 BIH10 BIH11 BIH12
BFA05 BFA08 BFA09 BFA10 BFA11 BFA12
BFA13 BFA14 CPV05 CPV06 CPV07 CPV08
CPV09 CPV10 CPV11 CPV12 CPV13 CPV14
DMA05 DMA06 DMA07 DMA08 DMA09 DMA10
DMA11 DMA12 DMA13 DMA14 GEO05 GEO06
GEO07 GEO08 GEO09 GEO10 GEO11 GEO12
GEO13 GHA05 GHA06 GHA07 GHA08 GHA09
GHA10 GHA11 GHA12 HND05 HND06 HND07
HND08 HND11 IND05 IND06 IND07 IND08
IND09 IND10 IND11 IND12 IND13 KEN09
KEN10 KEN11 KEN12 KEN13 KEN14 KGZ08
MDG07 MDG08 MDV05 MLI05 MLI07 MDA07
MDA08 MDA09 MDA10 MDA11 MDA12 MDA13
MDA14 MOZ09 MOZ10 MOZ12 NIC05 NIC06
NIC07 NIC08 NIC09 NIC11 NIC12 NIC13
NIC14 PAK05 RWA07 RWA08 RWA09 RWA10
RWA11 RWA12 RWA13 RWA14 WSM05 WSM06
WSM07 WSM08 WSM09 WSM10 WSM11 WSM12
WSM13 WSM14 SEN05 SEN06 SEN07 SEN09
SEN10 SEN11 SEN12 SEN13 SEN14 LCA05
LCA06 LCA07 LCA08 LCA09 LCA10 LCA11
LCA12 VCT05 VCT06 VCT07 VCT08 VCT09
VCT10 VCT11 TZA05 TZA06 TZA07 TZA08
TZA09 TZA10 TZA11 TZA12 TZA13 TZA14
UGA05 UGA06 UGA07 UGA08 UGA09 UGA10
UGA11 UGA12 UGA13 UGA14 VNM05 VNM06
VNM07 VNM08 VNM09 VNM10 VNM11 VNM12
VNM13 VNM14

INDIVIDUS ILLUSTRATIFS
AFFECTATION DANS LES CLASSES

CLASSE	EFFECTIF	POIDS
CLASSE 1	10	10.00
CLASSE 2	0	0.00
CLASSE 3	0	0.00
CLASSE 4	0	0.00
CLASSE 5	0	0.00

COMPOSITION DE: COUPURE 'b' DE L'ARBRE EN 5 CLASSES
CLASSE 1 / 5
ERI05 ERI06 ERI07 ERI08 ERI09 ERI10
ERI11 ERI12 ERI13 ERI14
CLASSE 2 / 5
CLASSE 3 / 5
CLASSE 4 / 5
CLASSE 5 / 5

COMPOSITION OF THE 7 CLUSTERS

CLASSES			VALEURS-TEST					COORDONNEES					
IDEN - LIBELLE	EFF.	P.ABS	1	2	3	4	0	1	2	3	4	0	DISTO.
cc1c - CLASSE 1 / 7	120	120.00	17.4	-1.2	-2.3	0.4	0.0	2.57	-0.07	-0.10	0.01	0.00	6.64
cc2c - CLASSE 2 / 7	12	12.00	10.0	-3.8	1.9	1.3	0.0	5.07	-0.74	0.28	0.15	0.00	26.30
cc3c - CLASSE 3 / 7	154	154.00	7.8	3.7	-2.5	1.1	0.0	0.99	0.18	-0.09	0.03	0.00	1.02
cc4c - CLASSE 4 / 7	166	166.00	-1.7	5.6	4.8	-2.8	0.0	-0.20	0.26	0.17	-0.08	0.00	0.14
cc5c - CLASSE 5 / 7	63	63.00	-4.0	-15.2	2.0	-2.9	0.0	-0.85	-1.24	0.12	-0.14	0.00	2.31
cc6c - CLASSE 6 / 7	74	74.00	-13.6	-4.2	-2.4	2.0	0.0	-2.64	-0.32	-0.14	0.09	0.00	7.11
cc7c - CLASSE 7 / 7	162	162.00	-12.0	6.2	-0.5	1.5	0.0	-1.48	0.29	-0.02	0.04	0.00	2.27

COMPOSITION DE: COUPURE 'c' DE L'ARBRE EN 7 CLASSES

CLASSE 1 / 7
AFG06 AFG07 AFG08 AFG09 AFG10 AFG11
AFG12 AFG13 AFG14 AGO05 AGO06 AGO07
AGO08 AGO09 AGO10 AGO11 AGO12 AGO13
CAF05 CAF06 CAF07 CAF08 CAF09 CAF10
CAF11 CAF12 CAF13 CAF14 TCD06 TCD07
TCD08 TCD09 TCD10 TCD11 TCD12 TCD13
TCD14 COM05 COM06 COM07 COM08 COM09
COM10 COM11 COM12 COM13 COM14 ZAR05
ZAR06 ZAR07 ZAR08 ZAR09 ZAR10 ZAR11
ZAR12 COG05 COG06 COG07 COG08 COG09
CIV05 CIV06 CIV07 CIV08 CIV09 CIV10
GIN09 GIN10 GNB05 GNB06 GNB07 GNB08
GNB09 GNB10 GNB11 GNB12 GNB13 GNB14
HTI05 HTI06 HTI07 HTI13 HTI14 LBR09
MHL11 MHL12 MHL13 MHL14 FSM11 FSM12
FSM13 FSM14 SLB05 SLB06 SLB07 SLB08
SLB09 SLB10 SDN05 SDN06 SDN07 SDN08
SDN09 SDN10 SDN11 SDN12 SDN13 SDN14
TMP06 TMP07 TMP08 TGO05 TGO06 TGO07
TGO08 TGO09 TUV12 TUV13 TUV14 ZWE14
CLASSE 2 / 7
SSD12 SSD13 SSD14 ZWE05 ZWE06 ZWE07
ZWE08 ZWE09 ZWE10 ZWE11 ZWE12 ZWE13
CLASSE 3 / 7
BDI05 BDI06 BDI07 BDI08 BDI09 BDI10
BDI11 KHM05 KHM06 KHM07 CMR06 CMR07
CMR08 CMR09 CMR10 CMR11 CMR12 CMR13
CMR14 TCD05 ZAR13 ZAR14 COG10 COG11
COG12 COG13 COG14 CIV11 CIV12 CIV13
CIV14 DJI05 DJI06 DJI07 DJI08 DJI09
DJI10 DJI11 DJI12 DJI13 DJI14 GMB05
GMB06 GMB07 GMB08 GIN05 GIN06 GIN07
GIN08 GIN11 GIN12 GIN13 GIN14 HTI08
HTI09 HTI10 HTI11 HTI12 KIR05 KIR06
KIR07 KIR08 KIR09 KIR10 KIR11 KIR12
KIR13 KIR14 LAO05 LAO06 LAO07 LBR10
LBR11 LBR12 LBR13 LBR14 MDG12 MDG13
MDG14 MWI13 MRT05 MRT10 MRT11 MMR13
MMR14 NGA05 NGA06 PAK09 PAK10 PAK11
PAK12 PAK13 PAK14 PNG05 PNG06 PNG07
PNG08 PNG09 PNG10 PNG11 PNG12 PNG13
PNG14 STP05 STP06 STP07 STP08 STP09
STP10 STP11 STP12 STP13 STP14 SLE05
SLE06 SLE07 SLE08 SLE09 SLB11 SLB12
SLB13 SLB14 TJK07 TJK08 TJK09 TMP09
TMP10 TMP11 TMP12 TMP13 TMP14 TGO10
TGO11 TGO12 TGO13 TGO14 TON05 TON06
TON07 UZB05 UZB06 UZB07 VUT05 VUT06
VUT07 YEM06 YEM07 YEM08 YEM09 YEM10
YEM11 YEM12 YEM13 YEM14
CLASSE 4 / 7
BGD05 BGD06 BGD07 BGD08 BGD09 BGD10
BGD11 BGD12 BGD13 BGD14 BEN09 BEN10
BEN11 BEN12 BEN13 BEN14 BOL13 BOL14
BDI12 BDI13 BDI14 KHM08 KHM09 KHM10
KHM11 KHM12 KHM13 KHM14 CMR05 ETH05
ETH06 ETH07 ETH08 ETH09 ETH10 ETH11
ETH12 ETH13 ETH14 GMB09 GMB10 GMB11
GMB12 GUY05 GUY06 GUY07 GUY08 GUY09
GUY10 GUY11 GUY12 GUY13 GUY14 HND12
KSV11 KGZ05 KGZ13 LAO08 LAO09 LAO10
LAO11 LAO12 LAO13 LAO14 LSO05 LSO06
LSO07 LSO08 LSO09 LSO10 LSO11 LSO12
LSO13 LSO14 MDG09 MDG10 MDG11 MWI07
MWI08 MWI10 MWI11 MWI12 MWI14 MLI12
MLI13 MLI14 MRT06 MRT07 MRT08 MRT09
MRT12 MRT13 MRT14 MNG05 MNG06 MNG09
MNG10 MNG11 MNG12 MOZ05 MOZ06 NPL05
NPL06 NPL07 NPL08 NPL09 NPL10 NPL11
NPL12 NER05 NER06 NER07 NER08 NER09
NER10 NER11 NER12 NER13 NER14 NGA07
NGA08 NGA09 NGA10 NGA11 NGA12 NGA13
NGA14 RWA05 SLE10 SLE11 SLE12 SLE13
SLE14 TJK05 TJK06 TJK10 TJK11 TJK12
TJK13 TJK14 TON08 UZB08 UZB09 UZB10
UZB11 UZB12 UZB13 UZB14 VUT08 VUT09
VUT10 VUT11 VUT12 VUT13 VUT14 YEM05
ZMB05 ZMB06 ZMB07 ZMB08 ZMB09 ZMB10
ZMB11 ZMB12 ZMB13 ZMB14
CLASSE 5 / 7
GMB13 GMB14 GHA13 GHA14 GRD05 GRD06
GRD07 GRD08 GRD09 GRD10 GRD11 GRD12
GRD13 GRD14 HND09 HND13 HND14 KSV09
KSV10 KSV12 MDG05 MDG06 MWI05 MWI06
MWI09 MDV06 MDV07 MDV08 MDV09 MDV10
MDV11 MDV12 MDV13 MDV14 MDA05 MNG07
MNG08 MNG13 MNG14 NPL13 NPL14 PAK08
LKA05 LKA06 LKA07 LKA08 LKA09 LKA10
LKA11 LKA12 LKA13 LKA14 LCA13 LCA14
VCT12 VCT13 VCT14 TON09 TON10 TON11
TON12 TON13 TON14
CLASSE 6 / 7
ARM05 ARM06 ARM07 ARM08 ARM09 ARM10
ARM11 ARM12 ARM13 CPV05 CPV06 CPV07
CPV08 CPV09 CPV10 CPV11 CPV12 CPV13
CPV14 DMA05 DMA06 DMA07 DMA08 DMA09
DMA10 GEO06 GEO07 GEO08 GEO09 GEO10
GEO11 GEO12 GEO13 GHA06 GHA07 GHA08
GHA09 GHA10 GHA11 GHA12 HND06 HND07
MDV05 MDA13 RWA10 RWA11 RWA12 RWA13
RWA14 WSM05 WSM06 WSM07 WSM08 WSM09
WSM10 WSM11 WSM12 WSM13 WSM14 LCA05
LCA06 LCA07 LCA08 LCA09 LCA10 LCA11
LCA12 VCT05 VCT06 VCT07 VCT08 VCT09
VCT10 VCT11
CLASSE 7 / 7
BEN05 BEN06 BEN07 BEN08 BTN05 BTN06
BTN07 BTN08 BTN09 BTN10 BTN11 BTN12
BTN13 BTN14 BOL05 BOL06 BOL07 BOL08
BOL09 BOL10 BOL11 BOL12 BIH05 BIH06
BIH07 BIH08 BIH09 BIH10 BIH11 BIH12
BIH13 BFA05 BFA06 BFA07 BFA08 BFA09
BFA10 BFA11 BFA12 BFA13 BFA14 DMA11
DMA12 DMA13 DMA14 GEO05 GHA05 HND05
HND08 HND10 HND11 IND05 IND06 IND07
IND08 IND09 IND10 IND11 IND12 IND13
KEN05 KEN06 KEN07 KEN08 KEN09 KEN10
KEN11 KEN12 KEN13 KEN14 KSV13 KSV14
KGZ06 KGZ07 KGZ08 KGZ09 KGZ10 KGZ11
KGZ12 KGZ14 MDG07 MDG08 MLI05 MLI06
MLI07 MLI08 MLI09 MLI10 MLI11 MDA06
MDA07 MDA08 MDA09 MDA10 MDA11 MDA12
MDA14 MOZ07 MOZ08 MOZ09 MOZ10 MOZ11
MOZ12 MOZ13 MOZ14 NIC05 NIC06 NIC07
NIC08 NIC09 NIC10 NIC11 NIC12 NIC13
NIC14 PAK05 PAK06 PAK07 RWA06 RWA07
RWA08 RWA09 SEN05 SEN06 SEN07 SEN08
SEN09 SEN10 SEN11 SEN12 SEN13 SEN14
TZA05 TZA06 TZA07 TZA08 TZA09 TZA10
TZA11 TZA12 TZA13 TZA14 UGA05 UGA06
UGA07 UGA08 UGA09 UGA10 UGA11 UGA12
UGA13 UGA14 VNM05 VNM06 VNM07 VNM08
VNM09 VNM10 VNM11 VNM12 VNM13 VNM14
INDIVIDUS ILLUSTRATIFS
AFFECTATION DANS LES CLASSES

CLASSE	EFFECTIF	POIDS
CLASSE 1	3	3.00
CLASSE 2	7	7.00
CLASSE 3	0	0.00
CLASSE 4	0	0.00
CLASSE 5	0	0.00
CLASSE 6	0	0.00
CLASSE 7	0	0.00

COMPOSITION DE: COUPURE 'c' DE L'ARBRE EN 7 CLASSES
CLASSE 1 / 7
ERI05 ERI06 ERI07
CLASSE 2 / 7
ERI08 ERI09 ERI10 ERI11 ERI12 ERI13 ERI14
CLASSE 3 / 7 --- CLASSE 4 / 7
CLASSE 5 / 7 --- CLASSE 6 / 7
CLASSE 7 / 7

CARACTERISATION OF CLUSTERS BY VARIABLES

3-CLUSTER SET

CLASSE 1 / 3

V.TEST	PROBA	MOYENNES		ECARTS TYPES		VARIABLES CARACTERISTIQUES	
		CLASSE	GENERALE	CLASSE	GENERAL	NUM. LIBELLE	IDEN
		CLASSE 1 / 3		(POIDS = 152.00		EFFECTIF = 152)	aa1a
-16.98	0.000	2.79	3.39	0.30	0.48	21. STRC	STRC
-17.25	0.000	2.69	3.51	0.53	0.65	7. ECON	ECON
-18.75	0.000	2.43	3.09	0.25	0.49	17. PUBS	PUBS
-19.95	0.000	2.58	3.30	0.26	0.50	14. SOCI	SOCI
-20.73	0.000	2.62	3.32	0.26	0.47	24. IRAI	IRAI

CLASSE 2 / 3

V.TEST	PROBA	MOYENNES		ECARTS TYPES		VARIABLES CARACTERISTIQUES	
		CLASSE	GENERALE	CLASSE	GENERAL	NUM. LIBELLE	IDEN
		CLASSE 2 / 3		(POIDS = 321.00		EFFECTIF = 321)	aa2a
-3.21	0.001	3.26	3.32	0.17	0.47	24. IRAI	IRAI
-4.31	0.000	3.00	3.09	0.26	0.49	17. PUBS	PUBS
-5.18	0.000	3.28	3.39	0.26	0.48	21. STRC	STRC

CLASSE 3 / 3

V.TEST	PROBA	MOYENNES		ECARTS TYPES		VARIABLES CARACTERISTIQUES	
		CLASSE	GENERALE	CLASSE	GENERAL	NUM. LIBELLE	IDEN
		CLASSE 3 / 3		(POIDS = 278.00		EFFECTIF = 278)	aa3a
20.54	0.000	3.78	3.32	0.19	0.47	24. IRAI	IRAI
20.02	0.000	3.56	3.09	0.26	0.49	17. PUBS	PUBS
19.43	0.000	3.84	3.39	0.31	0.48	21. STRC	STRC
18.25	0.000	3.74	3.30	0.26	0.50	14. SOCI	SOCI
15.21	0.000	3.98	3.51	0.47	0.65	7. ECON	ECON

5-CLUSTER SET

CLASSE 1 / 5

V.TEST	PROBA	MOYENNES		ECARTS TYPES		VARIABLES CARACTERISTIQUES	
		CLASSE	GENERALE	CLASSE	GENERAL	NUM. LIBELLE	IDEN
		CLASSE 1 / 5		(POIDS = 120.00		EFFECTIF = 120)	bb1b
-16.31	0.000	2.73	3.39	0.30	0.48	21. STRC	STRC
-17.20	0.000	2.56	3.51	0.51	0.65	7. ECON	ECON
-17.20	0.000	2.39	3.09	0.25	0.49	17. PUBS	PUBS
-18.39	0.000	2.53	3.30	0.26	0.50	14. SOCI	SOCI
-19.72	0.000	2.55	3.32	0.25	0.47	24. IRAI	IRAI

CLASSE 2 / 5

V.TEST	PROBA	MOYENNES		ECARTS TYPES		VARIABLES CARACTERISTIQUES	
		CLASSE	GENERALE	CLASSE	GENERAL	NUM. LIBELLE	IDEN
		CLASSE 2 / 5		(POIDS = 172.00		EFFECTIF = 172)	bb2b
-4.67	0.000	3.30	3.51	0.35	0.65	7. ECON	ECON
-7.80	0.000	3.13	3.39	0.24	0.48	21. STRC	STRC
-8.45	0.000	3.06	3.32	0.12	0.47	24. IRAI	IRAI
-8.98	0.000	2.80	3.09	0.23	0.49	17. PUBS	PUBS
-9.04	0.000	3.00	3.30	0.23	0.50	14. SOCI	SOCI

CLASSE 3 / 5

V.TEST	PROBA	MOYENNES CLASSE	MOYENNES GENERALE	ECARTS TYPES CLASSE	ECARTS TYPES GENERAL	VARIABLES CARACTERISTIQUES NUM.	LIBELLE	IDEN
		CLASSE 3 / 5		(POIDS = 201.00		EFFECTIF = 201)		bb3b
7.23	0.000	3.79	3.51	0.30	0.65	7.	ECON	ECON
4.27	0.000	3.44	3.32	0.12	0.47	24.	IRAI	IRAI
3.85	0.000	3.42	3.30	0.21	0.50	14.	SOCI	SOCI

CLASSE 4 / 5

V.TEST	PROBA	MOYENNES CLASSE	MOYENNES GENERALE	ECARTS TYPES CLASSE	ECARTS TYPES GENERAL	VARIABLES CARACTERISTIQUES NUM.	LIBELLE	IDEN
		CLASSE 4 / 5		(POIDS = 64.00		EFFECTIF = 64)		bb4b
6.93	0.000	3.79	3.39	0.22	0.48	21.	STRC	STRC
6.10	0.000	3.45	3.09	0.23	0.49	17.	PUBS	PUBS
6.00	0.000	3.66	3.30	0.24	0.50	14.	SOCI	SOCI
2.85	0.002	3.48	3.32	0.15	0.47	24.	IRAI	IRAI
-6.09	0.000	3.03	3.51	0.33	0.65	7.	ECON	ECON

CLASSE 5 / 5

V.TEST	PROBA	MOYENNES CLASSE	MOYENNES GENERALE	ECARTS TYPES CLASSE	ECARTS TYPES GENERAL	VARIABLES CARACTERISTIQUES NUM.	LIBELLE	IDEN
		CLASSE 5 / 5		(POIDS = 194.00		EFFECTIF = 194)		bb5b
18.48	0.000	3.86	3.32	0.18	0.47	24.	IRAI	IRAI
17.59	0.000	3.62	3.09	0.24	0.49	17.	PUBS	PUBS
16.38	0.000	3.81	3.30	0.23	0.50	14.	SOCI	SOCI
15.68	0.000	3.86	3.39	0.34	0.48	21.	STRC	STRC
15.46	0.000	4.13	3.51	0.35	0.65	7.	ECON	ECON

7-CLUSTER SET

CLASSE 1 / 7

V.TEST	PROBA	MOYENNES CLASSE	MOYENNES GENERALE	ECARTS TYPES CLASSE	ECARTS TYPES GENERAL	VARIABLES CARACTERISTIQUES NUM.	LIBELLE	IDEN
		CLASSE 1 / 7		(POIDS = 120.00		EFFECTIF = 120)		cc1c
-14.16	0.000	2.81	3.39	0.25	0.48	21.	STRC	STRC
-14.44	0.000	2.71	3.51	0.39	0.65	7.	ECON	ECON
-16.04	0.000	2.44	3.09	0.21	0.49	17.	PUBS	PUBS
-16.73	0.000	2.60	3.30	0.20	0.50	14.	SOCI	SOCI
-17.44	0.000	2.64	3.32	0.14	0.47	24.	IRAI	IRAI

CLASSE 2 / 7

V.TEST	PROBA	MOYENNES CLASSE	MOYENNES GENERALE	ECARTS TYPES CLASSE	ECARTS TYPES GENERAL	VARIABLES CARACTERISTIQUES NUM.	LIBELLE	IDEN
		CLASSE 2 / 7		(POIDS = 12.00		EFFECTIF = 12)		cc2c
-7.81	0.000	2.00	3.09	0.17	0.49	17.	PUBS	PUBS
-8.68	0.000	2.18	3.39	0.23	0.48	21.	STRC	STRC
-8.70	0.000	2.05	3.30	0.31	0.50	14.	SOCI	SOCI
-10.28	0.000	1.95	3.32	0.25	0.47	24.	IRAI	IRAI
-10.39	0.000	1.56	3.51	0.40	0.65	7.	ECON	ECON

CLASSE 3 / 7

V.TEST	PROBA	MOYENNES		ECARTS TYPES		VARIABLES CARACTERISTIQUES	
		CLASSE	GENERALE	CLASSE	GENERAL	NUM. LIBELLE	IDEN
		CLASSE 3 / 7		(POIDS = 154.00		EFFECTIF = 154)	cc3c
-3.82	0.000	3.33	3.51	0.36	0.65	7. ECON	ECON
-6.95	0.000	3.15	3.39	0.25	0.48	21. STRC	STRC
-7.51	0.000	3.07	3.32	0.11	0.47	24. IRAI	IRAI
-7.98	0.000	2.81	3.09	0.21	0.49	17. PUBS	PUBS
-8.43	0.000	3.00	3.30	0.22	0.50	14. SOCI	SOCI

CLASSE 4 / 7

V.TEST	PROBA	MOYENNES		ECARTS TYPES		VARIABLES CARACTERISTIQUES	
		CLASSE	GENERALE	CLASSE	GENERAL	NUM. LIBELLE	IDEN
		CLASSE 4 / 7		(POIDS = 166.00		EFFECTIF = 166)	cc4c
4.12	0.000	3.69	3.51	0.29	0.65	7. ECON	ECON
3.31	0.000	3.42	3.30	0.19	0.50	14. SOCI	SOCI

CLASSE 5 / 7

V.TEST	PROBA	MOYENNES		ECARTS TYPES		VARIABLES CARACTERISTIQUES	
		CLASSE	GENERALE	CLASSE	GENERAL	NUM. LIBELLE	IDEN
		CLASSE 5 / 7		(POIDS = 63.00		EFFECTIF = 63)	cc5c
6.99	0.000	3.80	3.39	0.22	0.48	21. STRC	STRC
6.14	0.000	3.45	3.09	0.24	0.49	17. PUBS	PUBS
5.96	0.000	3.66	3.30	0.24	0.50	14. SOCI	SOCI
2.89	0.002	3.49	3.32	0.15	0.47	24. IRAI	IRAI
-6.02	0.000	3.03	3.51	0.33	0.65	7. ECON	ECON

CLASSE 6 / 7

V.TEST	PROBA	MOYENNES		ECARTS TYPES		VARIABLES CARACTERISTIQUES	
		CLASSE	GENERALE	CLASSE	GENERAL	NUM. LIBELLE	IDEN
		CLASSE 6 / 7		(POIDS = 74.00		EFFECTIF = 74)	cc6c
13.80	0.000	4.13	3.39	0.30	0.48	21. STRC	STRC
13.60	0.000	3.83	3.09	0.15	0.49	17. PUBS	PUBS
13.25	0.000	4.01	3.32	0.20	0.47	24. IRAI	IRAI
11.51	0.000	3.94	3.30	0.21	0.50	14. SOCI	SOCI
8.65	0.000	4.13	3.51	0.49	0.65	7. ECON	ECON

CLASSE 7 / 7

V.TEST	PROBA	MOYENNES		ECARTS TYPES		VARIABLES CARACTERISTIQUES	
		CLASSE	GENERALE	CLASSE	GENERAL	NUM. LIBELLE	IDEN
		CLASSE 7 / 7		(POIDS = 162.00		EFFECTIF = 162)	cc7c
13.41	0.000	4.12	3.51	0.23	0.65	7. ECON	ECON
12.52	0.000	3.73	3.32	0.09	0.47	24. IRAI	IRAI
10.23	0.000	3.44	3.09	0.22	0.49	17. PUBS	PUBS
10.20	0.000	3.66	3.30	0.24	0.50	14. SOCI	SOCI
9.01	0.000	3.69	3.39	0.23	0.48	21. STRC	STRC

CARACTERISATION OF CLUSTERS BY PRINCIPAL COMPONENTS

3-CLUSTER SET

CLASSE 1 / 3

AXES CARACTERISTIQUES	COORDONNEE	COS.CARRE	VALEUR-TEST	PROBABILITE
aa1a - CLASSE 1 / 3 (POIDS = 152.00 EFFECTIF = 152)				
AXE 1	2.65	0.998	20.714	0.0000
AXE 3	-0.09	0.001	-2.450	0.0071

CLASSE 2 / 3

AXES CARACTERISTIQUES	COORDONNEE	COS.CARRE	VALEUR-TEST	PROBABILITE
aa2a - CLASSE 2 / 3 (POIDS = 321.00 EFFECTIF = 321)				
AXE 2	0.11	0.148	3.952	0.0000
AXE 3	0.08	0.072	3.604	0.0002
AXE 1	0.25	0.749	3.422	0.0003
AXE 4	-0.05	0.030	-3.028	0.0012

CLASSE 3 / 3

AXES CARACTERISTIQUES	COORDONNEE	COS.CARRE	VALEUR-TEST	PROBABILITE
aa3a - CLASSE 3 / 3 (POIDS = 278.00 EFFECTIF = 278)				
AXE 1	-1.74	0.996	-20.742	0.0000
AXE 2	-0.09	0.003	-2.749	0.0030

5-CLUSTER SET

CLASSE 1 / 5

AXES CARACTERISTIQUES	COORDONNEE	COS.CARRE	VALEUR-TEST	PROBABILITE
bb1b - CLASSE 1 / 5 (POIDS = 120.00 EFFECTIF = 120)				
AXE 1	2.89	0.997	19.594	0.0000
AXE 2	-0.16	0.003	-2.758	0.0029

CLASSE 2 / 5

AXES CARACTERISTIQUES	COORDONNEE	COS.CARRE	VALEUR-TEST	PROBABILITE
bb2b - CLASSE 2 / 5 (POIDS = 172.00 EFFECTIF = 172)				
AXE 1	1.03	0.970	8.749	0.0000
AXE 2	0.16	0.024	3.584	0.0002

CLASSE 3 / 5

AXES CARACTERISTIQUES	COORDONNEE	COS.CARRE	VALEUR-TEST	PROBABILITE
bb3b - CLASSE 3 / 5 (POIDS = 201.00 EFFECTIF = 201)				
AXE 2	0.31	0.366	7.470	0.0000
AXE 1	-0.40	0.618	-3.741	0.0001

CLASSE 4 / 5

AXES CARACTERISTIQUES	COORDONNEE	COS.CARRE	VALEUR-TEST	PROBABILITE
bb4b - CLASSE 4 / 5 (POIDS = 64.00 EFFECTIF = 64)				
AXE 2	-1.23	0.673	-15.191	0.0000
AXE 1	-0.84	0.310	-3.974	0.0000
AXE 4	-0.14	0.009	-2.982	0.0014

CLASSE 5 / 5

AXES CARACTERISTIQUES	COORDONNEE	COS.CARRE	VALEUR-TEST	PROBABILITE
bb5b - CLASSE 5 / 5 (POIDS = 194.00 EFFECTIF = 194)				
AXE 1	-2.02	0.999	-18.483	0.0000
AXE 4	0.06	0.001	2.404	0.0081

7-CLUSTER SET

CLASSE 1 / 7

AXES CARACTERISTIQUES	COORDONNEE	COS.CARRE	VALEUR-TEST	PROBABILITE
cc1c - CLASSE 1 / 7 (POIDS = 120.00 EFFECTIF = 120)				
AXE 1	2.57	0.998	17.436	0.0000
AXE 3	-0.10	0.002	-2.344	0.0095

CLASSE 2 / 7

AXES CARACTERISTIQUES	COORDONNEE	COS.CARRE	VALEUR-TEST	PROBABILITE
cc2c - CLASSE 2 / 7 (POIDS = 12.00 EFFECTIF = 12)				
AXE 1	5.07	0.975	10.026	0.0000
AXE 2	-0.74	0.021	-3.781	0.0001

CLASSE 3 / 7

AXES CARACTERISTIQUES	COORDONNEE	COS.CARRE	VALEUR-TEST	PROBABILITE
cc3c - CLASSE 3 / 7 (POIDS = 154.00 EFFECTIF = 154)				
AXE 1	0.99	0.959	7.811	0.0000
AXE 2	0.18	0.032	3.681	0.0001
AXE 3	-0.09	0.009	-2.540	0.0055

CLASSE 4 / 7

AXES CARACTERISTIQUES	COORDONNEE	COS.CARRE	VALEUR-TEST	PROBABILITE
cc4c - CLASSE 4 / 7 (POIDS = 166.00 EFFECTIF = 166)				
AXE 2	0.26	0.474	5.615	0.0000
AXE 3	0.17	0.204	4.822	0.0000
AXE 4	-0.08	0.042	-2.831	0.0023

CLASSE 5 / 7

AXES CARACTERISTIQUES	COORDONNEE	COS.CARRE	VALEUR-TEST	PROBABILITE
cc5c - CLASSE 5 / 7 (POIDS = 63.00 EFFECTIF = 63)				
AXE 2	-1.24	0.669	-15.159	0.0000
AXE 1	-0.85	0.315	-4.011	0.0000
AXE 4	-0.14	0.008	-2.871	0.0020

CLASSE 6 / 7

AXES CARACTERISTIQUES	COORDONNEE	COS.CARRE	VALEUR-TEST	PROBABILITE
cc6c - CLASSE 6 / 7 (POIDS = 74.00 EFFECTIF = 74)				
AXE 1	-2.64	0.982	-13.575	0.0000
AXE 2	-0.32	0.014	-4.243	0.0000
AXE 3	-0.14	0.003	-2.380	0.0087

CLASSE 7 / 7

AXES CARACTERISTIQUES	COORDONNEE	COS.CARRE	VALEUR-TEST	PROBABILITE
cc7c - CLASSE 7 / 7 (POIDS = 162.00 EFFECTIF = 162)				
AXE 1	-1.48	0.961	-12.038	0.0000
AXE 2	0.29	0.038	6.218	0.0000

ANNEX III - CLASSIFICATION IN FOUR CLUSTERS - OUTPUT DATA

COMPOSITION OF THE 4 CLUSTERS

CLASSES			VALEURS-TEST					COORDONNEES					
IDEN - LIBELLE	EFF.	P.ABS	1	2	3	4	0	1	2	3	4	0	DISTO.
COUPURE 'a' DE L'ARBRE EN 4 CLASSES													
aa1a - CLASSE 1 / 4	120	120.00	19.6	-2.8	-0.8	1.4	0.0	2.89	-0.16	-0.04	0.05	0.00	8.39
aa2a - CLASSE 2 / 4	177	177.00	8.7	4.9	-3.2	0.2	0.0	1.01	0.22	-0.11	0.01	0.00	1.07
aa3a - CLASSE 3 / 4	237	237.00	-4.4	-0.6	3.1	-3.8	0.0	-0.42	-0.02	0.09	-0.08	0.00	0.19
aa4a - CLASSE 4 / 4	217	217.00	-19.4	-1.7	0.5	2.5	0.0	-1.96	-0.07	0.01	0.06	0.00	3.86

CLASSE 1 / 4
AFG06 AFG07 AFG08 AFG09 AFG10 AFG11
AFG12 AFG13 AFG14 AGO05 AGO06 AGO07
AGO08 AGO09 AGO10 AGO11 AGO12 AGO13
CAF05 CAF06 CAF07 CAF08 CAF09 CAF10
CAF11 CAF12 CAF13 CAF14 TCD06 TCD07
TCD08 TCD09 TCD10 TCD11 TCD12 TCD13
TCD14 COM05 COM06 COM07 COM08 COM09
COM10 COM11 COM12 COM13 COM14 ZAR08
ZAR09 ZAR10 ZAR11 ZAR12 COG05 COG06
COG07 COG08 CIV05 CIV06 CIV07 CIV08
CIV09 CIV10 GIN10 GNB05 GNB06 GNB07
GNB08 GNB09 GNB10 GNB12 GNB13 GNB14
HTI05 MHL11 MHL12 MHL13 MHL14 FSM11
FSM12 FSM13 FSM14 SLB06 SLB07 SLB08
SLB09 SLB10 SSD12 SSD13 SSD14 SDN05
SDN06 SDN07 SDN08 SDN09 SDN10 SDN11
SDN12 SDN13 SDN14 TMP06 TMP07 TMP08
TGO05 TGO06 TGO07 TGO08 TGO09 TUV12
TUV13 TUV14 ZWE05 ZWE06 ZWE07 ZWE08
ZWE09 ZWE10 ZWE11 ZWE12 ZWE13 ZWE14
CLASSE 2 / 4
BDI05 BDI06 BDI07 BDI08 BDI09 BDI10
BDI11 KHM05 KHM06 KHM07 KHM08 KHM09
CMR06 CMR07 CMR08 CMR09 CMR10 CMR11
CMR12 CMR13 CMR14 TCD05 ZAR05 ZAR06
ZAR07 ZAR13 ZAR14 COG09 COG10 COG11
COG12 COG13 COG14 CIV11 CIV12 CIV13
CIV14 DJI05 DJI06 DJI07 DJI08 DJI09
DJI10 DJI11 DJI12 DJI13 DJI14 GMB05
GMB06 GMB07 GMB08 GIN05 GIN06 GIN07
GIN08 GIN09 GIN11 GIN12 GIN13 GIN14
GNB11 HTI06 HTI07 HTI08 HTI09 HTI10
HTI11 HTI12 HTI13 HTI14 KIR05 KIR06
KIR07 KIR08 KIR09 KIR10 KIR11 KIR12
KIR13 KIR14 LAO05 LAO06 LAO07 LAO08
LAO09 LBR09 LBR10 LBR11 LBR12 LBR13
LBR14 MDG11 MDG12 MDG13 MDG14 MWI13
MRT10 MRT11 MMR13 MMR14 NGA05 NGA06
PAK09 PAK10 PAK11 PAK12 PAK13 PAK14
PNG05 PNG06 PNG07 PNG08 PNG09 PNG10
PNG11 PNG12 PNG13 PNG14 STP05 STP06
STP07 STP08 STP09 STP10 STP11 STP12
STP13 STP14 SLE05 SLE06 SLE07 SLE08
SLE09 SLE10 SLB05 SLB11 SLB12 SLB13
SLB14 TJK05 TJK06 TJK07 TJK08 TJK09
TJK10 TJK14 TMP09 TMP10 TMP11 TMP12
TMP13 TMP14 TGO10 TGO11 TGO12 TGO13
TGO14 TON05 TON06 TON07 UZB05 UZB06
UZB07 VUT05 VUT06 VUT07 VUT08 YEM05
YEM06 YEM07 YEM08 YEM09 YEM10 YEM11
YEM12 YEM13 YEM14
CLASSE 3 / 4
BGD05 BGD06 BGD07 BGD08 BGD09 BGD10
BGD11 BGD12 BGD13 BGD14 BEN06 BEN07
BEN08 BEN09 BEN10 BEN11 BEN12 BEN13
BEN14 BOL05 BOL06 BOL07 BOL11 BOL12
BOL13 BOL14 BIH05 BIH13 BDI12 BDI13
BDI14 KHM10 KHM11 KHM12 KHM13 KHM14
CMR05 ETH05 ETH06 ETH07 ETH08 ETH09
ETH10 ETH11 ETH12 ETH13 ETH14 GMB09
GMB10 GMB11 GMB12 GMB13 GMB14 GHA14
GRD14 GUY05 GUY06 GUY07 GUY08 GUY09
GUY10 GUY11 GUY12 GUY13 GUY14 HND09
HND10 HND12 HND13 HND14 KEN05 KEN07
KEN08 KSV09 KSV10 KSV11 KSV12 KSV13
KSV14 KGZ05 KGZ06 KGZ07 KGZ09 KGZ10
KGZ11 KGZ12 KGZ13 KGZ14 LAO10 LAO11
LAO12 LAO13 LAO14 LSO05 LSO06 LSO07
LSO08 LSO09 LSO10 LSO11 LSO12 LSO13
LSO14 MDG05 MDG06 MDG09 MDG10 MWI05
MWI06 MWI07 MWI08 MWI09 MWI10 MWI11
MWI12 MWI14 MDV08 MDV09 MDV10 MDV11
MDV12 MDV13 MDV14 MLI08 MLI09 MLI10
MLI11 MLI12 MLI13 MLI14 MRT05 MRT06
MRT07 MRT08 MRT09 MRT12 MRT13 MRT14
MDA05 MDA06 MNG05 MNG06 MNG07 MNG08
MNG09 MNG10 MNG11 MNG12 MNG13 MNG14
MOZ05 MOZ06 MOZ07 MOZ11 MOZ13 MOZ14
NPL05 NPL06 NPL07 NPL08 NPL09 NPL10
NPL11 NPL12 NPL13 NPL14 NIC10 NER05
NER06 NER07 NER08 NER09 NER10 NER11
NER12 NER13 NER14 NGA07 NGA08 NGA09
NGA10 NGA11 NGA12 NGA13 NGA14 PAK06
PAK07 PAK08 RWA05 RWA06 SEN08 SLE11
SLE12 SLE13 SLE14 LKA06 LKA07 LKA08
LKA09 LKA10 LKA11 LKA12 LKA13 LKA14
TJK11 TJK12 TJK13 TON08 TON09 TON10
TON11 TON12 TON13 TON14 UZB08 UZB09
UZB10 UZB11 UZB12 UZB13 UZB14 VUT09
VUT10 VUT11 VUT12 VUT13 VUT14 ZMB05
ZMB06 ZMB07 ZMB08 ZMB09 ZMB10 ZMB11
ZMB12 ZMB13 ZMB14
CLASSE 4 / 4
ARM05 ARM06 ARM07 ARM08 ARM09 ARM10
ARM11 ARM12 ARM13 BEN05 BTN05 BTN06
BTN07 BTN08 BTN09 BTN10 BTN11 BTN12
BTN13 BTN14 BOL08 BOL09 BOL10 BIH06
BIH07 BIH08 BIH09 BIH10 BIH11 BIH12
BFA05 BFA06 BFA07 BFA08 BFA09 BFA10
BFA11 BFA12 BFA13 BFA14 CPV05 CPV06
CPV07 CPV08 CPV09 CPV10 CPV11 CPV12
CPV13 CPV14 DMA05 DMA06 DMA07 DMA08
DMA09 DMA10 DMA11 DMA12 DMA13 DMA14
GEO05 GEO06 GEO07 GEO08 GEO09 GEO10
GEO11 GEO12 GEO13 GHA05 GHA06 GHA07
GHA08 GHA09 GHA10 GHA11 GHA12 GHA13
GRD05 GRD06 GRD07 GRD08 GRD09 GRD10
GRD11 GRD12 GRD13 HND05 HND06 HND07
HND08 HND11 IND05 IND06 IND07 IND08
IND09 IND10 IND11 IND12 IND13 KEN06
KEN09 KEN10 KEN11 KEN12 KEN13 KEN14
KGZ08 MDG07 MDG08 MDV05 MDV06 MDV07
MLI05 MLI06 MLI07 MDA07 MDA08 MDA09
MDA10 MDA11 MDA12 MDA13 MDA14 MOZ08
MOZ09 MOZ10 MOZ12 NIC05 NIC06 NIC07
NIC08 NIC09 NIC11 NIC12 NIC13 NIC14
PAK05 RWA07 RWA08 RWA09 RWA10 RWA11
RWA12 RWA13 RWA14 WSM05 WSM06 WSM07
WSM08 WSM09 WSM10 WSM11 WSM12 WSM13
WSM14 SEN05 SEN06 SEN07 SEN09 SEN10
SEN11 SEN12 SEN13 SEN14 LKA05 LCA05
LCA06 LCA07 LCA08 LCA09 LCA10 LCA11
LCA12 LCA13 LCA14 VCT05 VCT06 VCT07
VCT08 VCT09 VCT10 VCT11 VCT12 VCT13
VCT14 TZA05 TZA06 TZA07 TZA08 TZA09
TZA10 TZA11 TZA12 TZA13 TZA14 UGA05
UGA06 UGA07 UGA08 UGA09 UGA10 UGA11
UGA12 UGA13 UGA14 VNM05 VNM06 VNM07
VNM08 VNM09 VNM10 VNM11 VNM12 VNM13
VNM14

INDIVIDUS ILLUSTRATIFS
AFFECTATION DANS LES CLASSES

CLASSE	EFFECTIF	POIDS
CLASSE 1	10	10.00
CLASSE 2	0	0.00
CLASSE 3	0	0.00
CLASSE 4	0	0.00

COMPOSITION DE: COUPURE 'a' DE L'ARBRE EN 4 CLASSES
CLASSE 1 / 4
ERI05 ERI06 ERI07 ERI08 ERI09 ERI10
ERI11 ERI12 ERI13 ERI14
CLASSE 2 / 4
CLASSE 3 / 4
CLASSE 4 / 4

CARACTERISATION OF CLUSTERS BY VARIABLES

V.TEST	PROBA	MOYENNES CLASSE	MOYENNES GENERALE	ECARTS TYPES CLASSE	ECARTS TYPES GENERAL	VARIABLES CARACTERISTIQUES NUM.	LIBELLE	IDEN
		CLASSE 1 / 4		(POIDS = 120.00		EFFECTIF = 120)		aa1a
-16.31	0.000	2.73	3.39	0.30	0.48	21.	STRC	STRC
-17.20	0.000	2.56	3.51	0.51	0.65	7.	ECON	ECON
-17.20	0.000	2.39	3.09	0.25	0.49	17.	PUBS	PUBS
-18.39	0.000	2.53	3.30	0.26	0.50	14.	SOCI	SOCI
-19.72	0.000	2.55	3.32	0.25	0.47	24.	IRAI	IRAI

CLASSE 2 / 4

V.TEST	PROBA	MOYENNES CLASSE	MOYENNES GENERALE	ECARTS TYPES CLASSE	ECARTS TYPES GENERAL	VARIABLES CARACTERISTIQUES NUM.	LIBELLE	IDEN
		CLASSE 2 / 4		(POIDS = 177.00		EFFECTIF = 177)		aa2a
-3.78	0.000	3.34	3.51	0.37	0.65	7.	ECON	ECON
-7.73	0.000	3.14	3.39	0.24	0.48	21.	STRC	STRC
-8.29	0.000	3.07	3.32	0.13	0.47	24.	IRAI	IRAI
-9.30	0.000	3.00	3.30	0.23	0.50	14.	SOCI	SOCI
-9.37	0.000	2.79	3.09	0.23	0.49	17.	PUBS	PUBS

CLASSE 3 / 4

V.TEST	PROBA	MOYENNES CLASSE	MOYENNES GENERALE	ECARTS TYPES CLASSE	ECARTS TYPES GENERAL	VARIABLES CARACTERISTIQUES NUM.	LIBELLE	IDEN
		CLASSE 3 / 4		(POIDS = 237.00		EFFECTIF = 237)		aa3a
5.99	0.000	3.47	3.30	0.21	0.50	14.	SOCI	SOCI
4.36	0.000	3.43	3.32	0.12	0.47	24.	IRAI	IRAI
3.52	0.000	3.18	3.09	0.22	0.49	17.	PUBS	PUBS
3.21	0.001	3.47	3.39	0.27	0.48	21.	STRC	STRC
2.79	0.003	3.60	3.51	0.44	0.65	7.	ECON	ECON

CLASSE 4 / 4

V.TEST	PROBA	MOYENNES CLASSE	MOYENNES GENERALE	ECARTS TYPES CLASSE	ECARTS TYPES GENERAL	VARIABLES CARACTERISTIQUES NUM.	LIBELLE	IDEN
		CLASSE 4 / 4		(POIDS = 217.00		EFFECTIF = 217)		aa4a
19.23	0.000	3.84	3.32	0.18	0.47	24.	IRAI	IRAI
19.07	0.000	3.63	3.09	0.24	0.49	17.	PUBS	PUBS
17.46	0.000	3.80	3.30	0.23	0.50	14.	SOCI	SOCI
17.13	0.000	3.86	3.39	0.33	0.48	21.	STRC	STRC
14.58	0.000	4.05	3.51	0.44	0.65	7.	ECON	ECON

CARACTERISATION OF CLUSTERS BY PRINCIPAL COMPONENTS

CLASSE 1 / 4

AXES CARACTERISTIQUES	COORDONNEE	COS.CARRE	VALEUR-TEST	PROBABILITE
aa1a - CLASSE 1 / 4 (POIDS = 120.00 EFFECTIF = 120)				
AXE 1	2.89	0.997	19.594	0.0000
AXE 2	-0.16	0.003	-2.758	0.0029

CLASSE 2 / 4

AXES CARACTERISTIQUES	COORDONNEE	COS.CARRE	VALEUR-TEST	PROBABILITE
aa2a - CLASSE 2 / 4 (POIDS = 177.00 EFFECTIF = 177)				
AXE 1	1.01	0.945	8.691	0.0000
AXE 2	0.22	0.044	4.888	0.0000
AXE 3	-0.11	0.011	-3.166	0.0008

CLASSE 3 / 4

AXES CARACTERISTIQUES	COORDONNEE	COS.CARRE	VALEUR-TEST	PROBABILITE
aa3a - CLASSE 3 / 4 (POIDS = 237.00 EFFECTIF = 237)				
AXE 1	-0.42	0.925	-4.436	0.0000
AXE 4	-0.08	0.035	-3.791	0.0001
AXE 3	0.09	0.038	3.058	0.0011

CLASSE 4 / 4

AXES CARACTERISTIQUES	COORDONNEE	COS.CARRE	VALEUR-TEST	PROBABILITE
aa4a - CLASSE 4 / 4 (POIDS = 217.00 EFFECTIF = 217)				
AXE 1	-1.96	0.998	-19.428	0.0000
AXE 4	0.06	0.001	2.528	0.0057