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Analysis of National Characteristics in Conducting ODA Projects in the Public Administration Field in Africa: Utilisation of Cluster Analysis Method

Young-Chool Choi, Professor, Department of Public Administration, Chungbuk National University, Korea, ycchoi@cbu.ac.kr

Abstract- The aim of this study is to analyse the national characteristics of the recipient country that are needed in order for aid to be provided to the public administration sector of countries in Africa. For this purpose, the cluster analysis method was utilised. In the cluster analysis of 64 countries that were examined, indicators such as stability, government effectiveness in policymaking, governance in policymaking, and per capita national income were used. As a result of the analysis, five clusters were found. If a country is in Cluster 5, as is the case with 31 countries, it may be said that aid provision regarding its level of public administration is urgent. Aid donors to these 31 countries that are in a poor position regarding the field of public administration can make a big difference in terms of effective aid provision.

Keywords: public administration aid, cluster analysis, African ODA

I. INTRODUCTION

According to the Creditor Reporting System (CRS) used by the OECD Development Assistance Committee (DAC), the public administration sector is included in the Government and Civil Society Grouping, which includes a total of sixteen sub-fields. These sixteen sub-areas consist of: public sector policy and administrative management; public finance management; decentralisation and support for sub-national government; anti-corruption organisations and institution; domestic revenue mobilisation; public procurement; legal and judicial development; macroeconomic policy; democratic participation and civil society; elections; legislatures and political parties; media and free flow of information; human rights; women's rights organisations and movements; ending violence against women and girls; and the facilitation of orderly, safe, regular and responsible migration and mobility.

Today, ODA is being carried out in the fields of education, agriculture, and health and technology, but in order for these projects to be successful the public administration sectors of developing countries must first be transparent in terms of quality, and highly effective. This is because, in the case of developing countries, the impact of public administration is greater than that of advanced countries, and public administration is directly related to the effective execution of various government projects. For this reason, OECD DAC member countries and donors are making great efforts to improve the quality of public administration in developing countries. Although the quantity of ODA projects to be placed into the public administration sector varies from continent to continent, the proportion of public administration ODA projects to Africa amounted to around 12.5 per cent of the total as of 2019 (http://www.oecd.org/dac/financing-sustainable-development).

This is a very large proportion in terms of the entire ODA project. Therefore, it may be said that ODA projects in the field of public administration are extremely important in terms of their impact and scale. However, in practice, it is difficult to ensure that ODA projects in the public administration field are effectively carried out, since countries with a high demand for public administration are not classified systematically. In order to systematically analyse public administration demand, appropriate indicators for measuring it must be established, and countries with high demand identified through analysis applying these indicators.

In practice, however, this process has not been carried out well. In order to solve these problems, international indicators that can measure public administration needs accurately must first be derived. Next, using these indicators, we need to analyse the level of demand for public administration in individual countries. By means of this process, it is necessary to classify countries with high demand for public administration and to carry out intensive ODA projects to assist them. Against this background, this study focuses on deriving indicators that can measure the public administration needs of 54 African

countries, and on using these indicators to derive groups of countries among these 54 with particularly high ODA public administration demands.

II. Review of Previous Studies

As regards the carrying out of ODA projects, it is true that a number of studies (Bingimlas, 2009; Brautigam et al., 2004; Burnside et al., 1998; Kanbur et al., 1999; Mishra and Newhouse, 2009; Papanek, 1973; Svensson, 1999) have been conducted to derive indicators for measuring levels of public administration, owing to the importance of the public administration field. These studies have mainly used international indicators prepared by international organisations such as the World Bank, the United Nations and the World Economic Forum. Looking at the indicators used by these institutions, we can see that government effectiveness, degree of corruption, and governance are representative. These indicators do help to measure the level of public administration in individual countries. However, more detailed and precise information is required on the part of donor countries conducting ODA projects. In reality, donor countries that carry out ODA projects divide the countries of the world into continental units, classify countries within a continent according to certain standards, and apply specific policy measures targeting the national groups so classified.

For example, when a public administration ODA project is carried out targeting African countries, the 54 African countries are placed into several categories using certain indicators, and a specific policy established for countries in each category. However, not much information is required in implementing this process, and as a direct result, the information that donors have in carrying out ODA projects in the public administration sector is limited. To solve this problem, it is necessary first to diversify the indicators that can measure public administration demand, and divide countries into clusters using these comprehensive indicators. Donor countries will thus be able to use discriminatory policy measures regarding the countries divided in this way (Birdsall and Kharas, 2010; McGillivray and White, 1994).

In other words, there are not many studies that systematically classify African countries by selecting a variety of valid indicators for measuring public administration demand, and using these selected indicators. In view of this, the present study, building on the results of various existing studies (Irish Aid, 2011; Mayne, 2001; Center for Global Development, 2018; OECD, 2018; UNFPA, 2019) has selected the following six indicators for measuring the level of public administration: political stability; rule of law; government effectiveness; corruption, voice and accountability; and per capita GDP. *Political stability* refers to the degree to which a country is politically stabilised. When a country's regime is unstable and changes frequently, the ministers in charge will also change frequently. If the minister in charge changes frequently, the demand for the ODA project content will change frequently as well.

Moreover, whenever the minister changes, new project content is requested, and in this case the donor country and the recipient country must have new consultations, which means delay in carrying out the project. Therefore, whether or not the countries receiving aid are politically stable acts as a very important variable in carrying out ODA projects relating to public administration. The governing principle of the *law* implies that procedures and processes in the conduct of public affairs must be fully legitimate. If an illegal or expedient method is used to carry out the ODA project in the field, this inevitably entails budgetary waste and delays the project. Therefore, for countries receiving aid, to what extent the governing principles of the law are applied is an important factor.

Government effectiveness is an indicator that allows the government of a country to know how effective it is in performing public actions. In some countries with a very low score on this indicator, all administrative tasks are delayed and the quality of public services is poor. *Corruption* indicators are also very important. A country's level of corruption has a negative impact on all business operations in that country. This leads to public distrust of the government, increases administrative transaction costs, and inevitably lowers the quality of public services. *Voice and accountability* is an index that can measure whether public opinion is well reflected in government administrative affairs. These indicators are important in that the voice of the people must be reflected well in order for the decision-making process to be implemented democratically. Finally, *per capita GDP* is an indicator of a country's income level. It is an indispensable indicator in the classification of countries because it affects all other indicators relating to public administration. This study, then, attempts to classify the 54 African countries into several groups using the six indicators discussed above.

III. SURVEY DESIGN

Data provided by the World Bank (https://www.theglobaleconomy.com/) will be used to construct the six public-administration-related indicators to be used in this study. The countries included are the 54 countries in the African Union. Where a country omits the values of some indicators, this case is treated as a missing value and analysed. To classify the African countries, this study uses a cluster analysis method. Cluster analysis is a method of classifying research subjects into groups with common characteristics using important indicators. Since the purpose of this study is to classify African countries using the important indicators of public administration, this method of analysis is appropriate.

IV. ANALYSIS RESULT

4.1 Basic statistics

The basic statistics representing the values the 54 countries have on the six indicators are shown in Table 1.

Table 1 DescripStive statistics of table variables

	N	Min.	Max.	Mean	Std
Political stability	53	-2.57	1.01	-0.6428	0.83609
Corruption	52	9.00	66.00	32.4615	11.95328
Rule of law	52	2.90	10.00	6.8365	1.79706
Government Effectiveness	52	-2.24	0.87	-0.7815	0.67615
Voice and accountability	52	-2.19	0.87	-0.5869	0.76350
GDP per capita	50	208.07	15048.75	2826.3192	3212.38328

Notes: (1) the larger the value of each variable, the higher the quality level;
(2) data for the 54 countries are taken from https://www.theglobaleconomy.com/

As Table 1 shows, the number of countries included in the actual analysis is less than 54, because for some of the 54 target countries values are missing.

4.2 Cluster analysis result

As a result of the cluster analysis, the 54 African countries were classified into five clusters. Statistics for each variable in each cluster are presented in Table 2.

Table 2 Mean values for each cluster

	Cluster				
	1	2	3	4	5
Political stability	-0.42	-0.58	0.69	-0.43	-0.69
Corruption	41.00	33.57	66.00	34.00	31.00
Rule of law	6.13	7.24	3.80	6.88	6.87
Government effectiveness	-0.30	-0.65	0.52	-0.67	-0.88
Voice and accountability	-0.39	-0.72	0.34	-0.63	-0.54
GDP per capita	4922.24	3054.34	15048.75	8395.27	987.16

As Table 2 indicates, for Cluster 1 *per capita GDP* is 4,922 dollars, and the *political stability* index is -0.42, which is better than the average value of -0.64. *Corruption* is 41, *rule of law* is 6.13, *government effectiveness* is -0.30, and *voice and accountability* is -0.39.

The results of the ANOVA analysis that was performed for the significance analysis between these groups are shown in Table 3.

Table 3 Results of ANOVA analysis

ANOVA						
	cluster		*error*		F	sig
	mean square	df	mean square	df		
Political stability	0.552	4	0.614	43	5.899	0.0473
Corruption	368.321	4	118.179	43	3.117	0.024
Rule of law	3.096	4	3.099	43	0.999	0.0419
Government effectiveness	0.753	4	0.314	43	2.402	0.065
Voice and accountability	0.285	4	0.512	43	0.557	0.0695
GDP	106558952.694	4	282127.371	43	377.698	0.000

Overall, the cluster analysis results can be said to be significant. Meanwhile, Table 4 shows the distance between the final cluster centres.

Table 4 Distance between clusters

Cluster	1	2	3	4	5
1		1867.915	10126.539	3473.033	3935.095
2	1867.915		11994.452	5340.925	2067.185
3	10126.539	11994.452		6653.560	14061.634
4	3473.033	5340.925	6653.560		7408.109
5	3935.095	2067.185	14061.634	7408.109	

Table 5 shows the number of cases in each cluster. Case 5 contains 31 countries, whereas case 2 contains only one country.

Table 5 Number of cases in each cluster

cluster	*case*
1	4
2	7
3	1
4	5
5	31

From Table 5, it can be seen that Cluster 1 contains four countries, Cluster 2 seven countries, Cluster 3 one country, Cluster 4 five countries, and Cluster 5 thirty-one countries.

Table 6 shows the country classification results for each cluster that were obtained as a result of cluster analysis.

Table 6 Results of country classification by cluster

Case number	Country	Cluster	Distance
1	Algeria	1	222.566
2	Angola	2	57.325
3	Benin	5	272.842
4	Botswana	4	303.514

5	Burkina Faso	5	165.211
6	Burundi	5	779.187
7	Cabo Verde	2	853.669
8	Cameroon	5	531.186
9	Central African Republic		
10	Chad	5	173.804
11	Comoros	5	412.276
12	Congo (Republic of)	2	888.374
13	Congo (Democratic)	5	563.679
14	Côte d'Ivoire		
15	Djibouti	2	360.596
16	Egypt	2	44.311
17	Equatorial Guinea	4	842.647
18	Eritrea		
19	Eswatini (Kingdom	1	104.327
20	Ethiopia	5	384.580
21	Gabon	4	782.258
22	Gambia	5	172.054
23	Ghana	5	897.179
24	Guinea	5	66.311
25	Guinea-Bissau	5	351.875
26	Kenya	5	250.359
27	Lesotho	5	365.535
28	Liberia	5	470.910
29	Libya	4	273.588
30	Madagascar	5	486.812
31	Malawi	5	463.561
32	Mali	5	195.527
33	Mauritania	5	768.966
34	Mauritius		
35	Morocco	2	341.800
36	Mozambique	5	398.513
37	Namibia	1	843.835
38	Niger	5	424.012
39	Nigeria	2	680.017
40	Rwanda	5	88.646
41	Sao Tome and Princ.	5	302.262
42	Senegal	5	597.477
43	Seychelles	3	0.000

44	Sierra Leone	5	498.707
45	Somalia		
46	South Africa	4	1049.360
47	South Sudan		
48	Sudan	5	737.089
49	Tanzania (United R)	5	6.266
50	Togo	5	291.087
51	Tunisia	1	517.227
52	Uganda	5	24.830
53	Zambia	5	666.677
54	Zimbabwe	5	196.071

The above analysis results may be summarised in a simple table (Table 7).

Table 7 Summary of countries by cluster

Cluster	*Number of countries*	*Name of country*	*Main characteristics of clusters*
1	4	Algeria, Eswatini (Kingdom), Namibia, Tunisia	Overall, these are countries with low levels of government effectiveness.
2	7	Egypt, Angola, Cabo Verde, Congo (Republic of), Djibouti, Morocco, Nigeria	Relatively strong rule of law.
3	1	Seychelles	High income level.
4	5	Botswana, Equatorial Guinea, Gabon, Libya, South Africa	In general, these countries correspond to the level of middle-income countries.
5	31	Benin, Burkina Faso, Burundi, Cameroon, Chad, Comoros, Congo (Democratic), Ethiopia, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mozambique, Niger, Rwanda, Sao Tome and Princ., Senegal, Sierra Leone, Sudan, Tanzania (United R.), Togo, Uganda, Zambia, Zimbabwe	Overall public administration is poor. In the implementation of Korea's ODA project, all the key partner countries belong to this cluster.

V. CONCLUSION

This study is concerned with the public administration field, one of the most important fields involved in

providing ODA projects aimed at improving quality of life in developing countries. The public administration sector of developing countries is an area that needs to be improved prior to other projects being undertaken, because of its large influence within the country. Since the resources of donor countries are limited, aid to the public sector needs to be provided according to the principle of selection and concentration. In this context, it is necessary to classify many countries receiving aid according to important indicators of public administration. There is a need to select countries that require aid most urgently on the basis of the classification results, and there is a need to provide aid to these countries intensively.

Against this background, this study classified 54 countries in Africa into five groups using key public-administration-related indicators. On the basis of this classification, Cluster 5 included thirty-one countries which perform at an extremely low level in terms of public administration. Aid donors, including Korea, need to make strategic efforts to improve the level of public administration of countries in the Cluster 5. It is hoped that the results of this study will provide needed information for future public administration aid policies in Africa.

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REFERENCES

1. Bingimlas, K. A.(2009). “Barriers to the successful implementation of ICT in teaching and
2. learning environments : A review of the literature”. *Eurasia Journal of Mathematics, Science & Technology Education,* 5(3), pp. 235-245.
3. Birdsall, N., Kharas, H. J., Mahgoub, A. & Perakis, R.(2010*). Quality of Official Development*
4. *Assistance Assessment.* Washington, DC: Center for Global Development.
5. Brautigam, Deborah & Stephen Knack(2004). "Foreign Aid, Institutions, and Governance in
6. Sub-Saharan Africa". *Economic Development and Cultural Change,* January, 52(2), pp. 255-285.
7. Burnside, Craig & David Dollar(1998). *Aid, the Incentive Regime, and Poverty Reduction.*
8. No. 1937. World Bank Publications.
9. Lister, S., Batley, R., Cumbi, A. & Warren-Rodríguez, A.(2011). Evaluation of the Irish Aid Mozambique Country Strategy 2007–2010.
10. Kanbur, S. R., Sandler, T. & Morrison, K. M.(1999). "The Future of Development Assistance:
11. Common Pools and International Public Goods". Vol. 25. Washington, DC: Overseas Development Council.
12. Mayne, J.(2001). “Assessing attribution through contribution analysis: Using performance measures sensibly”. *Canadian Journal of Program Evaluation.* 16(1), pp. 1-24. Available at: http://old.evaluationcanada.ca/site.cgi?s=4&ss=21
13. McGillivray, M. & H. White(1994). “Development Criteria for the Allocation of Aid and Assessment of Donor Performance.” Center for Research in Economic Development and Interna\-tional Trade, University of Nottingham, Nottingham, UK.
14. Mishra, Prachi & David Newhouse(2009). "Does Health Aid matter?". *Journal of Health Economics,* 28(4), pp. 855- 872.
15. OECD, O.(2018). “Development Co-operation Peer Reviews.” *Korea*.
16. Papanek, G. F.(1973). ‘Aid, Foreign Private Investment, Savings, and Growth in Less
17. Developed Countries’, *Journal of Political Economy*, 81(1), pp.120–130.
18. Svensson, Jakob(1999). *Foreign aid and Rent-Seeking*. The World Bank.
19. UNFPA(2019). *Evaluation Handbook*. New York: UNFPA.