

MODERATING ROLE OF INSTITUTIONAL QUALITY IN THE RELATIONSHIP BETWEEN OFFICIAL DEVELOPMENT ASSISTANCE AND POVERTY IN THE DEMOCRATIC REPUBLIC OF CONGO

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ABSTRACT

This paper aims to assess the moderating role of institutional quality in the relationship between official development assistance (ODA) and poverty in the Democratic Republic of Congo over the period 1990-2024. Despite the considerable amounts of external resources to support economic and social development. Poverty remains the daily life of many peoples in the world. Whose sub-Saharan Africa is home to a large proportion of the poor. This situation raises questions about the real effectiveness of international aid. Using a hypothetico-deductive approach and an ARDL model supported by the error correction model, the study examines the short-term and long-term effects of ODA on poverty by integrating institutional quality as a moderating variable. The preliminary results validate the potential existence of a long-term relationship between the variables used and reveal that Official Development Assistance does not have a significant effect on poverty in the short term. On the other hand, the interaction between ODA and institutional quality contributes significantly to long-term poverty reduction. These results highlight the importance of institutions in promoting aid effectiveness, suggesting that improved governance is a key condition for transforming external resources into sustainable results in the fight against poverty in the Democratic Republic of Congo.

Keywords: Official development assistance, poverty, institutional quality, Democratic Republic of Congo.

1.0 INTRODUCTION

Poverty reduction remains one of the main structural challenges facing many countries in their quest for sustainable development. Indeed, in order to support economic and social development efforts in the world, the international community has been mobilizing enormous amounts of Official Development Assistance (ODA) for several decades. The latter is generally considered to be a strategic instrument that can boost economic growth, improve people's well-being and reduce poverty (Charnoz, 2007) (Rosenstein-Rodan, 1943)

However, the real effectiveness of Official Development Assistance has certainly been the subject of a persistent debate in the literature for years. Some studies argue that aid contributes significantly to poverty reduction when it is directed towards effective public policies and sectors that benefit vulnerable populations; Conversely, other studies question this effectiveness by highlighting the lack of a robust relationship between external aid and poverty reduction. These divergences suggest that the impact of aid depends in some ways on several structural factors as well as institutional ones.(Collier, P., & Dollar, D. , 2002)(Mosley, P.,

Hudson, J., & Verschoor, A., 2004) (Alvi, E., & Senbeta, A., 2012) (Chong, A., Gradstein, M., & Calderón, C., 2009)

Among these factors, institutional quality is central. According to the institutional theory developed by, institutions determine the effectiveness of economic policies by influencing the mechanisms for allocating and managing resources. In the same vein, an idea shows that international aid produces more results in countries characterized by strong governance and with economic policies oriented towards sustainable resilience. Thus, institutional quality appears at this stage as a factor likely to strengthen or limit the impact of aid on poverty reduction. (North, 1990) (Burnside, 2000)

The Democratic Republic of Congo is a particularly relevant analytical framework because of its structural realities that are difficult to define. To the extent that despite the considerable volumes of Official Development Assistance received for nearly fifty years, estimated at about 809.567 million USD on average each year since 1990, as well as the support of many technical and financial partners, poverty remains persistent and widespread, affecting millions of the Congolese population live in extreme poverty with less than 5,680 francs per day and more than 76.9% are multidimensionally poor. This situation raises questions about the role of the public entity in revitalizing leveraged aid capable of contributing to the significant and sustainable reduction of poverty in the DRC in the short and long term. From this evidence, the heart of this paper can be summarized around the guiding question stated as follows:(INS, 2026)

What is the role of institutional quality in revitalizing the effectiveness of Official Development Assistance on poverty reduction in the DRC in the short and long term? Two specific questions arise, namely: what is the effect of Official Development Assistance on poverty in the short term? What is the effect of institutional quality through the control of corruption in the relationship between ODA and poverty in the DRC?

It is in this perspective that this study is inscribed, the objective of which is to verify the moderating role of institutional quality in the relationship between Official Development Assistance and poverty in the Democratic Republic of Congo over the period between 1990-2024. More specifically, this paper assesses the effect of ODA on poverty, while taking a critical look at the influence of institutional quality on this relationship.

Therefore, speaking of the hypotheses put forward, the study assumes, in general, that intentional quality revitalizes the effect of Official Development Assistance on poverty in the DRC in the short and long term. Two secondary hypotheses are proposed as follows: (i) Official Development Assistance has a significant effect on the reduction of poverty reduction in the short term (ii) institutional quality through the control of corruption significantly strengthens the effectiveness of Official Development Assistance on poverty in the DRC.

The entire paper is based on a sequence of the following main points: introduction, literature review, methodological approach adopted and presentation and discussion of the results, followed by the conclusion as well as the bibliography and appendices.

2.0 LITERATURE REVIEW

2.1 Conceptual clarification

Official Development Assistance (ODA) is defined by the Organisation for Economic Co-operation and Development (OECD) as all concessional financial flows granted by public bodies in developed countries to developing countries, with the main aim of fostering their economic development and promoting their social well-being. (OCDE, 2025)

According to the World Bank, poverty refers to a situation of deprivation affecting people's ability to meet their basic needs. For UNDP, poverty is the lack of access to food, education, health, housing and other basic services. Beyond its monetary dimension, poverty is also understood as a multidimensional phenomenon affecting the general living conditions of populations. (Banque mondiale. , 2001) (Emmanuelle B, 2001)

Institutional quality refers to the effectiveness of public institutions in the management of state affairs. It includes transparency, accountability, corruption control, government effectiveness, the rule of law and political stability. In this study, institutional quality is apprehended through the corruption control indicator. (North, D. C., 1990)

2.2 Theoretical foundations

The analysis of the relationship between Official Development Assistance (ODA) and poverty is based on several theoretical frameworks. Among others: the institutional theory developed by which maintains that the quality of institutions influences the effectiveness of development policies. For this approach, transparency, public accountability and institutional stability are very essential issues to promote better use of external resources. In the same vein, show that international aid produces better results in countries with good economic policies and effective governance. (North, D. C., 1990) (Burnside, C., & Dollar, D., 2000)

In addition, the idealistic approach to international aid has also been mobilized, considering that resource transfers from external partners are a lever capable of stimulating economic development and reducing poverty in developing countries. (Charnoz, 2007) (Rosenstein, 1943)

Finally, the endogenous growth model developed by and has also been adopted, highlighting the importance of human capital, infrastructure and institutional quality in economic growth. In this perspective, Official Development Assistance can promote poverty reduction when it finances productive investments and strengthens institutional capacities. (Romer, Paul M., 1986) (Lucas, Robert E., 1998)

2.3 Empirical contributions

There is a large body of empirical work on the effectiveness of Official Development Assistance. Nevertheless, they present contrasting results.

In the international context, several studies conclude that aid has a positive effect on poverty reduction. Show that an efficient allocation of aid to poor countries with good public policies significantly increases its impact. Similarly, they note that aid contributes to poverty reduction when it promotes public spending directed towards disadvantaged populations. based on a

panel of 79 developing countries, also conclude that aid has a significant effect on poverty reduction. (Collier, P., & Dollar, D., 2002) (Mosley, P., Hudson, J., & Verschoor, A., 2004) (Alvi, E., & Senbeta, A., 2012)

However, other studies have come to less optimistic conclusions. and Calderón 2009) find no robust relationship between external aid and poverty reduction, even in relatively favourable institutional contexts. In the African context, the results also remain mixed. show that aid contributes to poverty reduction when it is accompanied by an enabling institutional environment. Stress that aid effectiveness depends heavily on the structural and institutional characteristics of recipient countries. Conversely, concludes that aid has not had a significant impact on poverty reduction in Ghana. (Chong, A., Gradstein, M., & Calderón, C., 2009) (Anetor, F. O., Esho, E., Verhoef, G., & Nsiah, C., 2020) (Adedokun et al., 2022) (Boye, 2019)

In the Democratic Republic of Congo, research remains relatively limited. and Kambale (2023) highlight a small and insignificant effect of aid on human development indicators. show that aid contributed to poverty reduction after the 2000s, stressing that this effect does not pass through the channel of economic growth. The study also focuses on the importance of the quality of public management. (Mbambu Mughole, 2020) (Arsène, Benjamin, et Jean-Hélène, 2021)

An examination of this work highlights the lack of consensus on the effectiveness of Official Development Assistance. This divergence in results suggests that the impact of aid depends largely on the institutional conditions in which it is mobilized. It is precisely this dimension that this study seeks to deepen by analysing the moderating role of institutional quality in the relationship between Official Development Assistance and poverty in the Democratic Republic of Congo.

3.0 METHODOLOGICAL FRAMEWORK

3.1 Type of study

This study is part of a quantitative approach of an explanatory nature. It adopts a hypothetico-deductive approach, aimed at empirically verifying the existence of a relationship between official development assistance, institutional quality and poverty in the Democratic Republic of Congo.

3.2 Data collection sources and techniques

The data used in this study are secondary data covering the period 1990-2024. They come mainly from the OECD for Official Development Assistance, the World Bank for macroeconomic variables and the Worldwide Governance Indicators (WGI) for institutional quality. Data collection was carried out through the documentary technique, which consists of extracting the statistical information available in these various international databases.

3.3 Operationalization of study variables.

The following illustration shows an operational framework of variables used in this study:

Table n° 1'Operationalization of variables

<i>Variables</i>	<i>Descriptions</i>	<i>Measures</i>	<i>Natures</i>	<i>Signs heard</i>
V. Dependent	Poverty	Proportion of populations in multidimensional poverty	Quantitative	
V. Independent	ODA	Total Official Development Assistance	Quantitative	-
V. Moderator	Institutional quality	Corruption Control Index	(-2,5) Minimum (2,5) Maximum	-/+
V. Control	Public investment	Total amount of funds allocated to public investment (% of GDP)	Quantitative	-
	Population growth	POPGROW	Quantitative	+ /-

Source: Developed by the author.

3.4 Model specification

This study uses the Autoregressive Staggered Delay Model (ARDL) proposed by this model and constitutes an econometric approach allowing to simultaneously estimate the short-term and long-term relationships between variables. After the confirmation of the existence of a cointegration relationship through the appropriate tests, the model will be reestimated in its error-corrected form (ECM). The estimation of the parameters will be carried out using the Ordinary Least Squares (OLS) method. The functional model is inspired by the one used in the work of . The choice of the ARDL model is justified by its ability to be used even when variables are integrated at different orders (I(0) and I(1)), as well as by its performance in small samples and its flexibility in the dynamic analysis of economic relations. The equation for the basic linear model is as follows: (Pesaran, M. Hashem, Shin, Yongcheol & Smith, Richard J., 2001) (Vangvaidi, 2018)

$$Pauv = \beta_0 + \beta_1APDt + \beta_2CC_t + \beta_3(APD*CC)_t + \beta_4INVPSt + \beta_5POPGROWt + \varepsilon_t \quad (1)$$

This basic model allows the study of the effect of explanatory variables on poverty before the introduction of temporal dynamics and delays in the ARDL model.

Thus, the general equation of the ARDL model reestimated in the form of the error-corrected model is written as follows:

$$\begin{aligned} \Delta Pauv_t &= a_0 + \sum_{i=1}^p a_i \Delta Pauv_{t-i} + \sum_{j=0}^{q_1} \beta_j \Delta APD_{t-j} + \sum_{k=0}^{q_2} \gamma_k \Delta CC_{t-k} \\ &+ \sum_{l=0}^{q_3} \delta_l \Delta (APD * CC)_{t-l} \\ &+ \sum_{m=0}^{q_4} \theta_m INVPS_{t-m} + \sum_{n=0}^{q_5} \phi_n \Delta POPGROW_{t-n} + \lambda_1 ECM_{t-1} + \varepsilon_t \quad (2) \end{aligned}$$

Hence:

- **Poverty**: Proportion of populations in multidimensional poverty
- $Pauv_{t-i}$: Lagging Values of Poverty
- APD_{t-j} : Official Development Assistance (Total amount taken in logarithm);
- CC_{t-k} : Corruption Control Index;
- $(APD * CC)_{t-l}$: International Aid Interaction and Corruption Control.
- $INVPS_{t-m}$: Public investment (% of GDP)
- $POPGROW_{t-n}$: Population growth
- φ : Constant
- ε_t : The error term.

As part of this study, several robustness tests will be performed to verify the validity and reliability of the results obtained from the ARDL model. First, the Augmented Dickey-Fuller (ADF) stationarity test will be used to determine the order of integration of the variables and to ensure that no variables are integrated of order two I(2), a necessary condition for the application of the ARDL model. The choice of the optimal number of delays will be made using the Schwarz Information Criterion (SIC), using the specification with the lowest value of the criterion.

Then, the stability of the model coefficients will be examined using the CUSUM of Squares (CUSUMSQ) tests, which allow to verify the structural stability of the parameters over the entire study period.

In addition, several diagnostic tests will be performed, including the Breusch-Godfrey test to detect the autocorrelation of errors, the Breusch-Pagan-Godfrey test to check the homoscedasticity of residues, and the Jarque-Bera test to examine the normality of errors.

All of these tests will ensure that the results of the ARDL model are econometrically robust and statistically reliable.

4.0 PRESENTATION AND DISCUSSION OF RESULTS

In this part, it is a question of presenting, analysing and discussing the empirical results of the study. The different econometric procedures will be implemented using the EViews 12 software in order to verify the hypotheses formulated. The analysis is mainly based on the thesis that Official Development Assistance is only truly effective in reducing poverty when it

is part of an environment characterized by stable, transparent and quality governance (Burnside, C., & Dollar, D., 2000)

4.1 Descriptive analysis

Table 2: Results of the descriptive statistics of the variables used

	<i>POVERTY</i>	<i>ODA In USD million</i>	<i>CC</i>	<i>(APD*CC)</i>	<i>POPGRO W</i>	<i>INVP</i>
Mean	85.43714	809.102	-1.548849	-32.17860	3.213476	18.18761
Median	85.90000	757,350	-1.520000	-32.63218	3.237908	21.84541
Maximum	98.60000	5.5309	-1.319968	-27.74848	4.733026	36.68315
Minimum	75.00000	1.270	-1.828034	-37.51605	1.606976	0.000000
Std. Dev.	3.418641	1.5809	0.145639	2.056788	0.503510	11.73252
Skewness	0.509953	0.505031	-0.521539	-0.272287	-0.458235	-0.198395
Kurtosis	10.06635	2.482755	2.160544	2.924541	7.392989	1.607323
Jarque- Bera	74.33641	1.877994	2.614353	0.440788	29.36831	3.058112
Probability	0.000000	0.391020	0.270583	0.802203	0.000000	0.216740
Sum	2990.300	6.9510	-54.20971	-1126.251	112.4717	636.5664
Sum Sq. Dev.	397.3617	8.4419	0.721169	143.8328	8.619758	4680.169
Observation s	35	35	35	35	35	35

Source: Prepared by the author using data from the World Bank, the OECD and the BCC.

Descriptive statistics show that multidimensional poverty remains high in the Democratic Republic of Congo over the period 1990-2024, with an average of 85.44%, a minimum value of 75% and a maximum of 98.60%. This situation contrasts with the importance of Official Development Assistance (ODA) flows, which average USD 809.102 million, with values ranging from USD 127 million to USD 5,530.900 million, reflecting the high volatility of the aid received during the period studied.

As for institutional quality, measured by the Corruption Control (CC), it has an average of -1.549, ranging from -1.828 to -1.320, which reflects relatively weak governance. The interaction term (ODA*CC) shows an average of -32.179, indicating that aid resources have evolved in an unfavourable institutional context. On the other hand, population growth (POPGROW) averaged 3.213%, while public investment (INVP) averaged 18.188% with a high dispersion (standard deviation of 11.733). Overall, these results highlight the persistence of poverty despite the importance of external aid, which justifies the econometric analysis of the effect of ODA and institutional quality on poverty in the DRC.

4.2 Results of econometric analyses

After the presentation of the descriptive statistics, it is important to carry out econometric analyses in order to verify the assumptions made in the context of this study. The ARDL

approach adopted requires the prior examination of the stationarity properties of the series used. This step is fundamental, as it allows us to determine the order of integration of the variables and to ensure that none of them is integrated of order two $I(2)$, a prerequisite for the application of the ARDL model.

To this end, the Augmented Dickey-Fuller (ADF) unit root test is used to verify the stationarity of the variables retained in the study. The results obtained make it possible to identify the variables stationary at level $I(0)$ and those becoming stationary after the first differentiation $I(1)$, a prerequisite for the estimation of the ARDL model.

4.2.1 Unit root or stationarity test

The results of this Augmented Dickey-Fuller (ADF) test are shown in the following illustration:

Table 3: Stationarity Test Results

<i>Variables</i>	<i>ADF Level (State)</i>	<i>P-value</i>	<i>ADF 1st difference</i>	<i>P-value</i>	<i>Conclusion</i>	<i>Integration</i>
POVERTY	-5.948448	0.0000	-	-	Stationary in level	I (0)
APD	-8.91606	0.7787	-4.761153	0.0000	Stationary after diff.	I (1)
CC	-1.955242	0.3043	-5.513565	0.0001	Stationary after diff.	I (1)
(APD*CC)	-3.684047	0.0099	-	-	Stationary in level	I (0)
POPGROW	-2.647604	0.0943	-6.958516	0.0000	Stationary after diff.	I (1)
INV_P.	-0.829050	0.7962	-5.690006	0.0000	Stationary after diff.	I (1)

Source: Our estimates with Eviews software 12

The results of the ADF test reveal that some variables are stationary at level $I(0)$, while others become stationary after the first differentiation $I(1)$, without any $I(2)$ variables. This combination of integration orders confirms the relevance of the ARDL model and justifies the continuation of the analysis by the bounds cointegration test in order to verify the existence of a long-term relationship.

4.2.2 Terminal Cointegration Test

The Bounds Test verifies the existence of a long-term equilibrium relationship between the variables of the ARDL model. When the calculated F statistic is higher than the critical upper bound, the hypothesis of non-cointegration is rejected in favor of the existence of a long-term relationship.

Table 4: Terminal Cointegration Results

<i>F-Bounds Test</i>		<i>Null Hypothesis: No levels relationship</i>		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	13.59101	10%	2.08	3
K	5	5%	2.39	3.38
		2.5%	2.7	3.73
		1%	3.06	4.15

Source: Our estimates with Eviews 12 software

The results of the bound-bound cointegration test, an approach of Pesaran et al. (2001), confirm that the variables have a long-term relationship, (value of F-calculated is much higher than those of the bounds, lower and upper) which gives the possibility to estimate the ARDL model in the form of the error-corrected model. And present the effects of the short and long term.

4.2.3 Optimal Offset Determination and ARDL Dynamic Model Estimates

4.2.3.1 Optimal Offset Determination

The choice of the information criterion is a strategic step in the selection of the optimal specification of the ARDL model, as it allows to determine the appropriate number of delays to be retained for each variable. In the context of this study, the Schwarz information criterion (SIC) was favoured because of its parsimonious nature and its ability to limit the risks of overparameterization of the model, particularly when several variables are mobilized. This criterion thus promotes a better quality of estimation and reduces possible problems related to the autocorrelation of errors. The following results present the optimal specification of the ARDL model for analysis.

4.2.3.2 Estimates of ARDL dynamic models

The estimated ARDL dynamic models is (1, 0, 4, 4, 1, 4)

Table 5: Results of ARDL Dynamic Models

<i>Dependent variable : poverty</i>				
<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Prob.*</i>
POVERTY (-1)	-0.525083	0.180168	-2.914414	0.0141
APDLOG	27.85633	11.45823	2.431120	0.1333
CC	-368.5137	142.3241	-2.589257	0.8752
CC(-1)	-46.06469	24.10931	-1.910660	0.1824
CC(-2)	79.59075	30.50454	2.609145	0.1243
CC(-3)	83.06264	34.87855	2.381482	0.1364
CC(-4)	-82.51321	19.52518	-4.225989	0.0814
APD*CC	17.43770	6.877269	2.535555	0.1277
APD CC(-1)	1.523014	0.925259	1.646040	0.1280
APD CC(-2)	-3.625745	1.159319	-3.127478	0.0896
APD*CC(-3)	-2.290038	1.432931	-1.598150	0.1383
APD*CC(-4)	3.023484	0.744717	4.059909	0.0019
POP GROW	-0.828993	1.161682	-0.713615	0.4903

POP GROW(-1)	4.054096	1.442618	2.810236	0.0170
INV P	-0.496860	0.139892	-3.551732	0.0045
INV P(-1)	-0.355871	0.100845	-3.528904	0.0047
INV P(-2)	-0.001443	0.120869	-0.011941	0.9907
INV P(-3)	0.205578	0.097135	2.116421	0.0579
INV P(-4)	0.182204	0.087295	2.087215	0.0609
C	-451.0470	248.9152	-1.812050	0.0973
R-squared	0.888186	Mean dependent var		85.45484
Adjusted R-squared	0.695052	S.D. dependent var		3.619193
S.E. of regression	1.998594	Akaike Info Criterion		4.476996
Sum squared resid	43.93817	Schwarz criterion		5.402149
Log likelihood	-49.39344	Hannan-Quinn criter.		4.778573
F-statistic	4.598812	Durbin-Watson stat		2.428415
Prob(F-statistic)	0.006430			

Source: Our estimates with Eviews 12 software

This table presents the first level of estimation of the ADRL model, it allows us to assess the overall relationship between the variables studied before the decomposition into short- and long-term dynamics. The coefficients obtained reflect the structural effects of the explanatory variables on poverty, while their significance makes it possible to validate the statistical relevance of the estimated relationships. Let us check the level of reliability of the ARDL model in the illustration below through various econometric tests.

Table 6: Model Robustness Test Results

<i>Test hypothesis</i>	<i>Tests</i>	<i>Values (probability)</i>	<i>P-values</i>	<i>Observations</i>
Autocorrelation	Breusch-Godfrey	0.2219	0.6314	Lack of autocorrelation of errors.
Heteroscedasticity	Arch-test	0.0606	0.0638	Absence of residue heteroscedasticity
Normality	Jarque-Bera	0.643914	0.724729	Residues are stable and follow a normal distribution
Specification	Ramsey (Fisher)	0.9775	0.9775	The model is correctly specified

Source: Our estimates with Eviews 12 software

As soon as the robustness of the estimated model was established through the rigorous verification of possible violations of classical assumptions and presented the Bounds Test proposed by Pesaran et al. (2001) confirming the existence of a long-term equilibrium

relationship between the variables mobilized. It seems appropriate to reparameterize the ARDL model in the form of an Error Correction Model (ECM) in order to capture short-term adjustments and the speed of return to long-term equilibrium following a shock affecting the system.

4.2.4 Error-correcting model (ECM)

The Error Correction Model (ECM) is an extension of cointegration models that allows the simultaneous analysis of short-term dynamics and long-term equilibrium relationships between variables. It is based on the idea that when variables are co-integrated, any temporary deviation from their long-term equilibrium is gradually corrected over time. Thus, the ECM not only makes it possible to measure the immediate impact of variations in the explanatory variables on the dependent variable, but also to evaluate the speed at which the system returns to its equilibrium path after a shock. In the framework of the ARDL approach, the ECM model plays a central role in highlighting the adjustment mechanism that links short-term fluctuations to long-term equilibrium.

Table 7: Results of estimation of short-term coefficients

<i>Variable</i>	<i>Coefficient</i>	<i>t-Statistic</i>	<i>Prob.</i>	<i>Observations</i>
D(APDLOG)	32.4202	3.1204	0.0620	Weakly significant
D(CC)	-415.1149	-2.9490	0.0856	Weakly significant
D(APD*CC)	20.6669	3.0878	0.0214	Significant
D(POP_GROW)	4.9950	5.2455	0.0819	Weakly significant
D(INV_P)	-0.4434	-5.6055	0.0014	Very significant
CointEq (-1)	-1.7929	-11.2563	0.0000	Very significant (speed of adjustment)

Source: Our estimates with Eviews 12 software

The short-term results show that several variables have a significant influence on poverty. Indeed, public investment (D(INV_P)) has a negative and highly significant effect, indicating that an increase in public investment contributes to poverty reduction in the short term. Official Development Assistance (D(APDLOG)) and corruption (D(CC)) have significant but weak effects at the 10% threshold, reflecting a more limited influence on poverty.

This situation can be explained by the time required for the mobilization, allocation and implementation of projects financed by international assistance. The effects of these resources on the well-being of populations generally require some time before they materialize through investments in infrastructure, health, education or other productive sectors

Moreover, interaction (ODA*CC) is positively and significantly associated with poverty, suggesting that the combined effect of aid and corruption can worsen the situation. Finally, population growth (D(POP_GROW)) shows a positive but not very significant effect, indicating a moderate influence on poverty in the short term

Finally, the coefficient of the error correction term CointEq (-1) is negative (-1.792955) and highly significant ($p = 0.0000$). This result confirms the existence of a long-term relationship

between the variables of the model. It also indicates that short-term imbalances are corrected quickly to bring the system back to its long-term equilibrium path, which attests to the stability of the estimated model. These results invalidate our first hypothesis according to which Official Development Assistance significantly influences poverty in the DRC in the short term.

Table 8: Results of the estimation of long-term coefficients.

<i>Variable dependent: poverty</i>				
<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Prob.</i>
APDLOG	-3.453214	0.845787	-4.082843	0.0065
CC	-62.12109	17.87398	-3.475505	0.0132
(APD*CC)	-4.056139	1.465873	-2.767046	0.0325
POP_GROW	15.36300	9.312927	1.649642	0.1501
INV_P	-0.072258	0.181874	-0.397300	0.7049

Source: Our estimates with Eviews 12 software

On reading this table, the variable APDLOG has a negative coefficient of (-3.453214) and a probability of (0.0065,) below the 5% threshold. This result shows that in the long term, Official Development Assistance contributes significantly to poverty reduction. Thus, a 1 per cent increase in ODA is associated with a decrease of about 3.45 units in the poverty indicator, all other things being equal.

The CC variable, which measures institutional quality through corruption control, also shows a negative (-62.12109) and statistically significant ($p = 0.0132$) coefficient. This result indicates that an improvement in the quality of government contributes to a significant reduction in poverty. These results thus confirm the predictions of institutional and governmental theory, according to which the quality of public institutions is a determining factor in the effectiveness of development policies.

Regarding the interaction term (APD*CC). The associated coefficient is negative (-4.056139) and significant at the 5% level ($p = 0.0325$). This result highlights the existence of a moderating effect of institutional quality in the relationship between Official Development Assistance and poverty. More specifically, it suggests that an improvement in the quality of government reinforces the favorable effect of Official Development Assistance on poverty reduction. In other words, when the control of corruption improves and institutions become more effective, resources from international aid are more directed towards their development objectives, which increases their impact on improving the well-being of the population.

For the control variables, population growth (POP_GROW) has a positive coefficient (15.36300) but not statistically significant ($p = 0.1501$). Although its sign suggests that an increase in population could increase poverty, this effect is not robust enough to be statistically retained. Public investment (INV_P) has a negative coefficient (-0.072258) in line with theoretical expectations, indicating that an increase in public investment tends to reduce poverty. However, this influence remains insignificant at the conventional level of 5% ($p = 0.7049$). These results confirm our second hypothesis according to which institutional quality reinforces the effectiveness of Official Development Assistance on poverty reduction

5.0 DISCUSSION OF RESULTS

The main results of this study are as follows:

In line with the first specific objective, it appears that the effect of Official Development Assistance on poverty in the short term is not significant, with a positive coefficient (32.42024) with a p-value of (0.0620) indicating that the aid does not have an immediate and robust impact on poverty reduction in the Democratic Republic of Congo. These results are consistent with the work of Chong, Alberto et al. (2009), who do not find a robust relationship between external aid and poverty reduction. It is also in line with the results of Boye (2019) in the case of Ghana, as well as those observed in the Democratic Republic of Congo by Mbambu Mughole (2020) and Kambale (2023), which highlight a weak or non-significant effect of aid on development indicators. that find a significant direct effect of the aid. This divergence can be explained by the institutional and structural specificities specific to the Democratic Republic of Congo.

Finally, in line with the second specific objective on the interaction effect between official development assistance and institutional quality, the results reveal that the interaction term (ODA*CC) significantly influences the relationship between aid and poverty in the long run. The coefficient obtained is negative (-4.056139) with a value of (0.0325), which indicates that institutional quality reinforces the effectiveness of Official Development Assistance in reducing poverty in the long term. These results are in line with the findings of Anetor et al. (2020), as well as those of Mosley et al. (2004), who show that aid is only effective when it is accompanied by pro-poor public policies. These results are consistent with those of Collier and Dollar (2002) on the efficient allocation of aid to poor countries and also reinforce this idea of conditional aid effectiveness.

The results of this study generally confirm the position of North's (1990) institutional theory, according to which the quality of institutions is a determining factor in the effectiveness of economic policies and, in particular, of Official Development Assistance. Indeed, empirical analysis shows that aid does not have an automatic impact on poverty reduction, but that its effectiveness depends strongly on the institutional framework in which it is mobilized. Thus, the presence of a moderating effect on institutional quality validates the idea that external resources produce significant effects on development only when they are accompanied by effective, transparent and credible governance. These results are therefore fully in line with the institutionalist logic and reinforce the idea of a conditional effectiveness of aid in the Democratic Republic of Congo.

6.0 CONCLUSION

The objective of this study was to analyze the moderating role of institutional quality in the relationship between Official Development Assistance (ODA) and poverty in the Democratic Republic of Congo over the period 1990–2024, based on an ARDL model supplemented by a GCED. The results first show the existence of a long-term relationship between the variables (F-statistic = 13.591), validating the cointegration.

In the short term, ODA does not have a significant effect on poverty ($p = 0.0620$), confirming the limited immediate effectiveness of aid. In contrast, in the long run, ODA becomes significantly effective and reduces poverty with a coefficient of -3.45 ($p = 0.0065$). Institutional

quality also plays a decisive role with a negative and significant effect of -62.12 ($p = 0.0132$). Above all, the interaction (ODA*CC) is significant and negative (-4.056; $p = 0.0325$), confirming that better institutions strengthen the impact of aid on poverty reduction.

Finally, the error correction term (-1.79; $p = 0.0000$) indicates a rapid adjustment towards long-run equilibrium, confirming the stability of the model. In addition, robustness tests (autocorrelation, heteroscedasticity, normality and specification) confirm the reliability and statistical validity of the results obtained.

In terms of recommendations, it is essential to strengthen public governance, in particular through improved control of corruption and transparency in the management of external resources, particularly aid. In addition, better channelling of ODA towards productive investments and priority social sectors would increase its impact on poverty reduction.

Finally, several research perspectives remain open:

- Conduct a study that simultaneously integrates the different forms of Official Development Assistance, including grants, concessional loans, bilateral aid and multilateral aid, in order to assess their respective contribution to poverty reduction in the Democratic Republic of Congo and to identify the most effective aid modalities.
- Conduct an in-depth study on the existence and effectiveness of mechanisms for planning, allocation, monitoring and evaluation of Official Development Assistance in the Democratic Republic of Congo. Such research would make it possible to determine precisely the modalities of aid disbursement, the beneficiary sectors, the institutions responsible for its management and the control mechanisms put in place. It would also contribute to assessing the level of transparency and accountability in the use of external resources, in order to identify factors that could improve their impact on poverty reduction.

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APPENDICES

• **Model ARDC**

Dependent Variable: PAUVRETE
 Method: ARDL
 Date: 06/12/26 Time: 13:24
 Sample (adjusted): 1994 2024
 Included observations: 31 after adjustments
 Maximum dependent lags: 2 (Automatic selection)
 Model selection method: Schwarz criterion (SIC)
 Dynamic regressors (4 lags, automatic): APDLOG CC APD_CC
 CRD_GROW INV_P
 Fixed regressors: C
 Number of models evaluated: 6250
 Selected Model: ARDL(1, 0, 4, 4, 1, 4)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
POVERTY(-1)	-0.525083	0.180168	-2.914414	0.0141
APDLOG	27.85633	11.45823	2.431120	0.1333
CC	-368.5137	142.3241	-2.589257	0.8752
CC(-1)	-46.06469	24.10931	-1.910660	0.1824
CC(-2)	79.59075	30.50454	2.609145	0.1243
CC(-3)	83.06264	34.87855	2.381482	0.1364
CC(-4)	-82.51321	19.52518	-4.225989	0.0814
APD_CC	17.43770	6.877269	2.535555	0.1277
APD_CC(-1)	1.523014	0.925259	1.646040	0.1280
APD_CC(-2)	-3.625745	1.159319	-3.127478	0.0896
APD_CC(-3)	-2.290038	1.432931	-1.598150	0.1383
APD_CC(-4)	3.023484	0.744717	4.059909	0.0019
CRD_GROW	-0.828993	1.161682	-0.713615	0.4903
CRD_GROW(-1)	4.054096	1.442618	2.810236	0.0170
INV_P	-0.496860	0.139892	-3.551732	0.0045
INV_P(-1)	-0.355871	0.100845	-3.528904	0.0047
INV_P(-2)	-0.001443	0.120869	-0.011941	0.9907
INV_P(-3)	0.205578	0.097135	2.116421	0.0579
INV_P(-4)	0.182204	0.087295	2.087215	0.0609
C	-451.0470	248.9152	-1.812050	0.0973
R-squared	0.888186	Mean dependent var		85.45484
Adjusted R-squared	0.695052	S.D. dependent var		3.619193
S.E. of regression	1.998594	Akaike Info Criterion		4.476996
Sum squared resid	43.93817	Schwarz criterion		5.402149
Log likelihood	-49.39344	Hannan-Quinn criter.		4.778573
F-statistic	4.598812	Durbin-Watson stat		2.428415
Prob(F-statistic)	0.006430			

*Note: p-values and any subsequent tests do not account for model selection.

• **Autocorrelation of errors (Breusch-Godfrey test)**

Breusch-Godfrey Serial Correlation LM Test:
 Null hypothesis: No serial correlation at up to 2 lags

F-statistic	0.484189	Prob. F(2,9)	0.6314
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Obs*R-squared 3.011492 Prob. Chi-Square(2) 0.2219

• **Specification (Ramsey Test)**

Ramsey RESET Test
 Equation: UNTITLED
 Omitted Variables: Squares of fitted values
 Specification: POVERTY POVERTY(-1) APDLOG CC CC(-1) CC(-2) CC(-3) CC(-4) APD_CC APD_CC(-1) APD_CC(-2) APD_CC(-3) APD_CC(-4) CRD_GROW CRD_GROW(-1) INV_P INV_P(-1) INV_P(-2) INV_P(-3) INV_P(-4) C

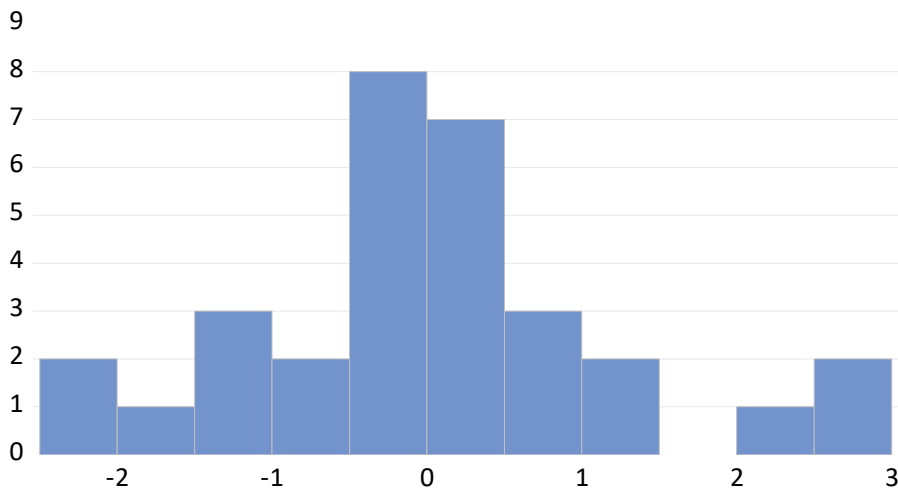
	Value	df	Probability
t-statistic	0.028946	10	0.9775
F-statistic	0.000838	(1, 10)	0.9775
Likelihood ratio	0.002597	1	0.9594

• **Heteroscedasticity**

Heteroskedasticity Test: ARCH

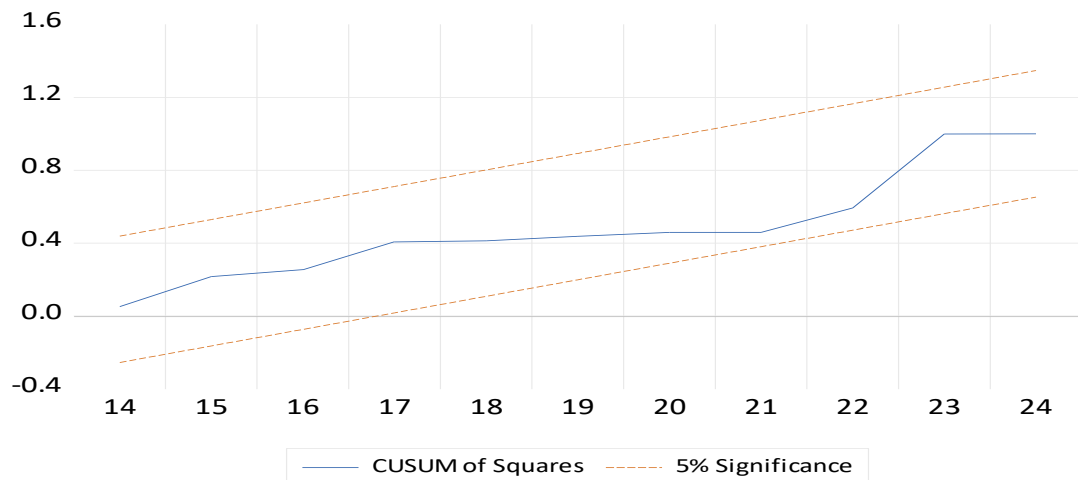
F-statistic	3.724257 Prob. F(1,28)	0.0638
Obs*R-squared	3.521838 Prob. Chi-Square(1)	0.0606

• **Normality test**

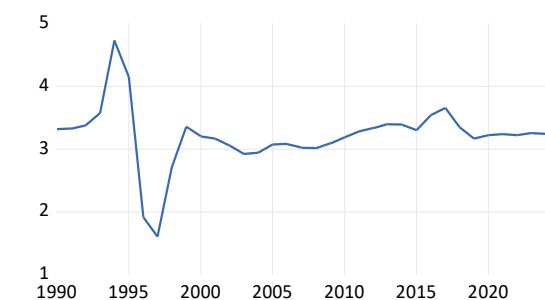
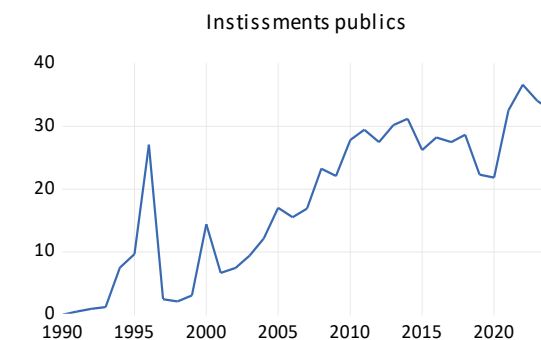
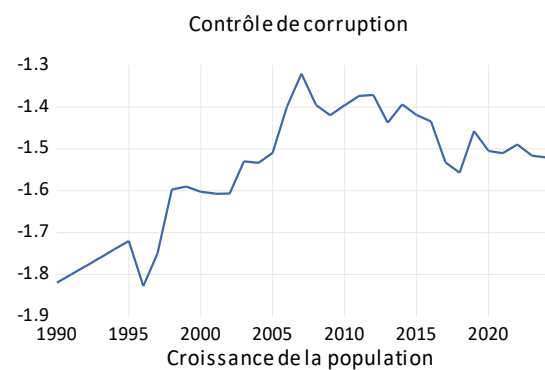
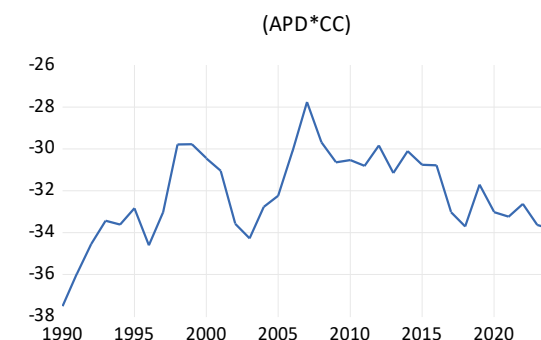
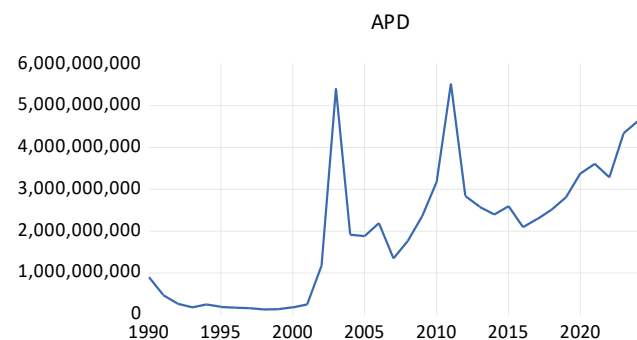
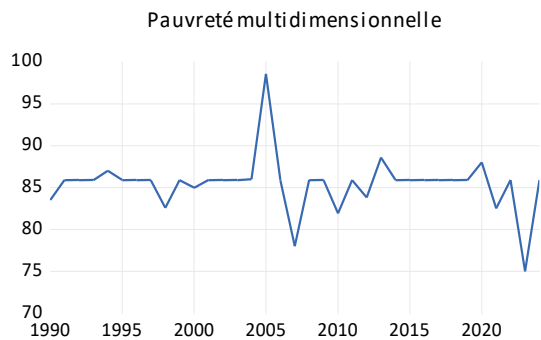


Series: Residuals	
Sample 1994 2024	
Observations 31	
Mean	2.94e-14
Median	-0.061990
Maximum	2.643100
Minimum	-2.173543
Std. Dev.	1.210209
Skewness	0.349997
Kurtosis	3.092316
Jarque-Bera	0.643914
Probability	0.724729

• **Tests de CUSUM of Squares**



• The block of temporal dynamics



• Short- and long-term model

ARDL Error Correction Regression
 Dependent Variable: D(POVERTY)
 Selected Model: ARDL(1, 0, 4, 4, 1, 4)
 Case 1: No Constant and No Trend
 Date: 06/12/26 Time: 16:21
 Sample: 1990 2024
 Included observations: 31

ECM Regression
 Case 1: No Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(POVERTY(-1))	0.063725	0.106842	0.596439	0.5727
D(POVERTY(-2))	0.388629	0.112754	3.446688	0.0137
D(APDLOG)	32.42024	10.38992	3.120354	0.0606
D(CC)	-415.1149	140.7634	-2.949025	0.0856
D(CC(-1))	-3.588783	10.71624	-0.334892	0.7491
D(CC(-2))	45.40930	13.04658	3.480552	0.0131
D(CC(-3))	143.8422	14.40691	9.984250	0.0001
D(APD_CC)	20.66693	6.693155	3.087772	0.0214
D(APD_CC(-1))	0.151119	0.398934	0.378807	0.7179
D(APD_CC(-2))	-1.579608	0.477718	-3.306568	0.0163
D(APD_CC(-3))	-5.674994	0.615112	-9.225954	0.0001
D(CRD_GROW)	4.995029	0.952255	5.245476	0.0819
D(CRD_GROW(-1))	-14.16761	1.660177	-8.533797	0.0001
D(CRD_GROW(-2))	-6.906714	1.482162	-4.659890	0.0035
D(CRD_GROW(-3))	-6.828485	1.252462	-5.452049	0.0016
D(INV_P)	-0.443406	0.079102	-5.605466	0.0014
D(INV_P(-1))	-0.307867	0.068893	-4.468785	0.0042
D(INV_P(-2))	-0.204041	0.067579	-3.019300	0.0234
D(INV_P(-3))	-0.307419	0.064619	-4.757440	0.0031
CointEq(-1)*	-1.792955	0.159285	-11.25627	0.0000

R-squared	0.976623	Mean dependent var	0.000000
Adjusted R-squared	0.936244	S.D. dependent var	5.232208
S.E. of regression	1.321130	Akaike Info Criterion	3.649082
Sum squared resid	19.19922	Schwarz criterion	4.574235
Log likelihood	-36.56077	Hannan-Quinn criter.	3.950659
Durbin-Watson stat	2.647769		

Levels Equation
 Case 1: No Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
APDLOG	-3.453214	0.845787	-4.082843	0.0065
CC	-62.12109	17.87398	-3.475505	0.0132
APD_CC	-4.056139	1.465873	-2.767046	0.0325
CRD_GROW	15.36300	9.312927	1.649642	0.1501
INV_P	-0.072258	0.181874	-0.397300	0.7049