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Determinants of Poverty: Evidence from Morocco through ARDL Approach

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Abstract

Since gaining independence, Morocco has made a commitment to achieving goals aimed at achieving a high rate of economic growth in order to raise the standard of living for its people. As such, this ongoing commitment is based on a strategy that aims to lower the poverty rate and provide a dignified life for those who are vulnerable. However, it is crucial to comprehend the factors that contribute to poverty in order to implement an effective strategy for combating it. In this regard, this article aims to analyze poverty in Morocco through an economic study of the effects of economic growth, education, inflation, and unemployment on the evolution of poverty in Morocco. This study examined the intricate connections between economic growth, inflation, unemployment, and poverty in the Moroccan environment using the ARDL method. Poverty and education are related, both immediately and over time. Initially, the dependent variable and the independent variables do not have a long-term relationship. On the other hand, economic expansion has a statistically significant short-term effect on reducing poverty. however, after making changes to the analysis model, the dependent and independent variables have a significant long-term association. These findings can concentrate efforts on the areas that are most crucial for lowering poverty and improving the standard of living for vulnerable people by identifying the factors that have a substantial impact on poverty. This study contributes to the scientific understanding of the factors influencing poverty in Morocco by using an economic approach.

Keywords: *Poverty, Morocco, ARDL Approach, Economic Growth, Education, Inflation.*

INTRODUCTION

Increasing education and skill levels makes people more employable and promotes a productive labor market (Karnani, 2011). Nevertheless, if wages or income do not meet the quality of living, boosting education and skills alone might not be enough to reduce the risk of poverty (Cheung and Chou, 2016; Feder and Yu, 2019; ILO, 2019; Fibaek, 2021 cited in Endrawati (2022)). Despite the complex relationship between low-paid job and poverty, people in low-income conditions need steady, more productive employment alternatives that enhance their income in order to escape poverty (Feder and Yu, 2019). Globally, the coronavirus's spread has had devastating effects that have profoundly impacted every nation's social, economic, and health sectors. In response to this health crisis, Morocco has stepped up attempts to identify itself with the global movement fighting poverty and social exclusion. The Moroccan government has been paying close attention to the issue of poverty for many years, hoping to accomplish its goals by giving significant financial resources to public actors.

Launched in 2005 by His Majesty le Roi Mohammed VI, the national human development initiative has been ranked as the third best global program of interest by the World Bank. This program aims to uphold political progress by defending individuals' economic, social, cultural rights, fighting against social, and geographical inequality. The first phase of the national human development initiative (2005–2010) was focused on four programs designed to address the unique needs of various social categories. The main goals of these programs were to tackle poverty in rural areas, social marginalization in urban areas, and precarity. Additionally, this phase included a transversal program for non-targeted communes that were chosen based on project calls. The second phase of the national human development initiative (2011-2015) saw a notable advancement made possible by a significant increase in its financial envelope. During this time, the project focused on underprivileged urban neighborhoods and rural communities, benefiting one million people spread across 3,300 villages spread across 22 remote and mountainous regions. The third phase (2019-2023) of the national human development initiative, which was introduced on September 19, 2018, under the direction of His Majesty le Roi Mohammed VI, aims

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to build on the gains made during the previous phases. Her foundation consists of four programs aimed at reducing the shortfall of basic infrastructure and services in underdeveloped areas, supporting those in precarious situations, enhancing youth incomes and economic integration, and promoting human development by investing in human capital for future generations.

According to Oxfam (2017), over a billion people are living in poverty in the twenty-first century. The fight against poverty needs to be an ongoing endeavor based on a plan to lower the rate of poverty and provide vulnerable individuals with a decent standard of living. However, it is crucial to comprehend the factors that determine poverty in order to implement an effective strategy for combating it. This article addresses the following problem following as: What are the factors influencing poverty and how can they be evaluated to create an effective strategy to combat this gap that aims to lower the rate of poverty and improve the lives of vulnerable individuals?

In order to address this issue, this study uses an economic model based on stationarity and cointegration tests. She subscribes to the idea that the main factors influencing poverty in Morocco are inflation, economic growth, education, and poverty. This study will follow a methodological strategy consisting of multiple phases to analyze the factors influencing poverty and assess the efficacy of strategies to combat it.

Conceptual Framework and Summary of Empirical Literature Review

Poverty has many different meanings and is very richly defined. Watts (1968) asserts that poverty is not seen as a result of personal traits or behavioral patterns, but rather as a phenomenon that affects individuals. According to this viewpoint, people who live below the federal minimal level of welfare and lack the resources to meet their basic needs are considered to be in poverty (Drewnosky, 1997). Numerous studies have been conducted to investigate the causes of poverty and comprehend the factors that contribute to its persistence. These studies have identified a number of critical factors that affect the rate of poverty in various nations and regions.

The study "Poverty Comparisons: Guide to Concepts and Methods" by Ravallion (1992) is a significant addition to the measurement and comparison of poverty. The author offers a conceptual and methodological framework that allows one to assess poverty and compare various population groups throughout time. Ravallion also looks at other approaches to measuring poverty, such as measures of privation, multidimensional indicators, and monetarily based poverty indices. Additionally, Hossain and Bose's (2012) study employ an economic methodology based on the ARDL (Autoregressive Distributed Lag) model to analyze the factors influencing poverty. This study emphasizes the significance of education, economic growth, inflation, and unemployment as factors influencing poverty in Bangladesh. The main focus of Haile and Saha's (2017) study is an analysis of the factors influencing poverty in this nation. The authors use a multi-level approach to study the factors influencing poverty, taking into account both the unique characteristics of individual households and contextual factors at the community level. This study highlighted the significance of education, health services accessibility, and contextual factors at the community level as factors influencing poverty in Ethiopia. In the short term, poverty is significantly reduced by unemployment, education, and inflation, but there is a significant but negative relationship between economic growth and poverty. On the other hand, economic growth, education, and inflation do not appear to have any long-term effects on reducing poverty. Conversely, it appears that between 1987 and 2018, Morocco's annual personal spending per person increased as a result of the unemployment according to ES-SALMANI.M, et al. (2023). In summary, these findings provide vital information to inform the development of policies and the implementation of initiatives aimed at reducing poverty and improving the living conditions of disadvantaged populations in these countries.

Based on the summary of the empirical literature above, we can formulate the following hypotheses and select the variables for our current study.

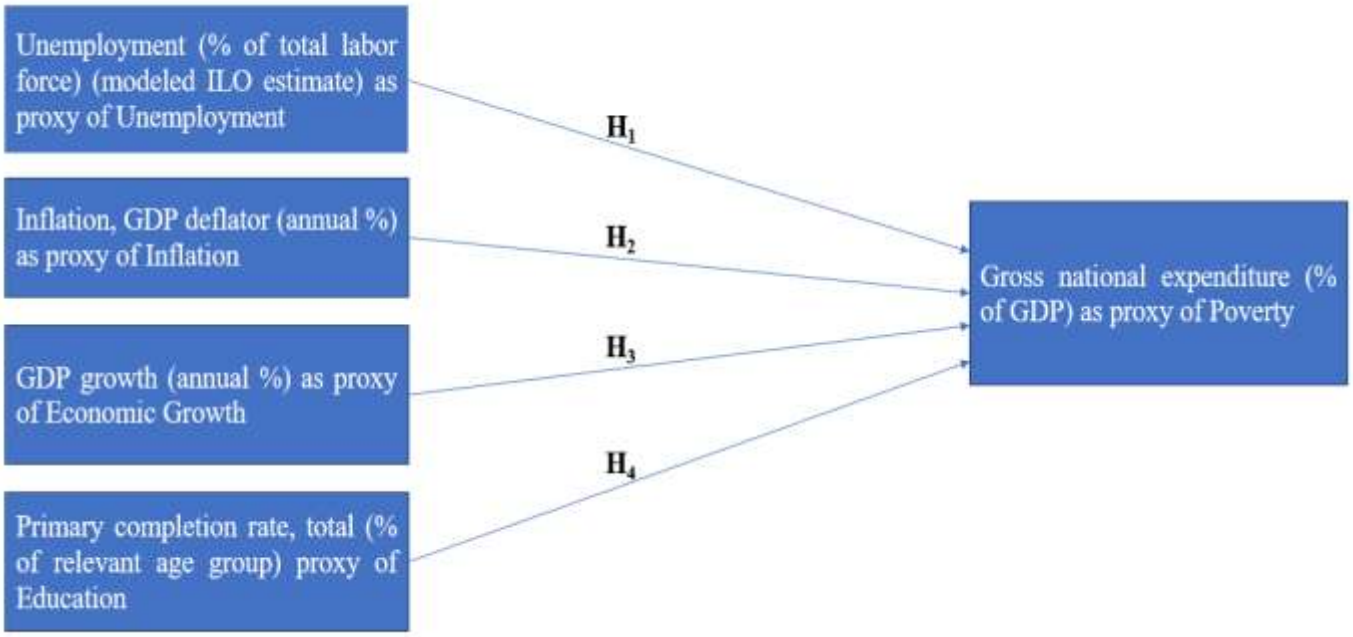


Fig.1. Conceptual framework

Hypothesis of the Study

H_1: Unemployment (% of total labor force) (modeled ILO estimate) as proxy of Unemployment has a negative effect on Gross national expenditure (% of GDP) as proxy of Poverty.

H_2: Inflation, GDP deflator (annual %) as proxy of Inflation has a positive impact on Gross national expenditure (% of GDP) as proxy of Poverty.

H_3: GDP growth (annual %) as proxy of Economic Growth has a positive effect on Gross national expenditure (% of GDP) as proxy of Poverty.

H_4: Primary Completion Rate, total (% of relevant age group) proxy of Education has a positive effect on Gross national expenditure (% of GDP) as proxy of Poverty.

Methodology and Data

First, we will gather relevant data on the key variables, such as education, which is measured by the total primary completion rate (% of relevant age group), economic growth, which is measured by GDP growth (annual %), inflation, which is measured by the GDP deflator (annual %), poverty, and which is measured by the total unemployment (% of total labor force) (modeled ILO estimate).

Next, in order to confirm that temporal series are appropriate for economic analysis, we will ascertain their stationarity. We will also look at the causal relationships between these variables to determine the direct and indirect effects on poverty. Then, in order to determine whether there is a long-term relationship between the variables, we will conduct a cointegration test using the ARDL (Autoregressive Distributed Lag) model. Additionally, we will run diagnostic tests on the model to ensure that it is valid and appropriate for the data. We will investigate the long-term coefficients that quantify the influence of the factors determining poverty by using the bound test cointegration. This thorough methodological approach will enable us to gather invaluable information on the factors influencing poverty and will provide recommendations to improve the efficacy of strategies aimed at combating this issue.

This paper aims to analyze poverty in Morocco by conducting an economic study on the effects of education, economic growth, inflation, and Unemployment on the evolution of poverty in the nation. We will don't use the logarithm because all variables are in percentage. The data for our study were gathered annually from several

sources inside the World Bank, spanning the years 1993 to 2022, and it is examined using the Autoregressive Distributed Lag (ARDL) approach. The following table summarizes the variables examined:

Tbale1. Variables of the study

Variables	sign
Primary completion rate, total (% of relevant age group) proxy of Education	+
GDP growth (annual %) as proxy of Economic Growth	+
Inflation, GDP deflator (annual %) as proxy of Inflation	+
unemployment (% of total labor force) (modeled ILO estimate) as proxy of Unemployment	-
Gross national expenditure (% of GDP) as proxy of Poverty	

We base our economic growth equation in our research framework on an analysis framework developed by Barro (2001), Solow (1956), and others. The majority of authors identify growth modeling factors for estimating purposes. In the other way, our model is following as:

Y = f (Unemployment (% of total labor force), Inflation, GDP deflator (annual %), GDP growth (annual %), Primary completion rate, total (% of relevant age group))

Where Y represents Gross national expenditure (% of GDP) as proxy of Poverty, our model will be represented following as:

$$\mathbf{GNE_t = \alpha + \beta_1 U_t + \beta_2\, INF_t + \beta_3\, GDP_t + \beta_4 PCR_t + \mu_t}$$

Where:

GNE: Gross National Expenditure (% of GDP) as proxy of Poverty is measured in percentage.

U: Unemployment (% of total labor force) (modeled ILO estimate) as proxy of Unemployment is measured in percentage.

INF: Inflation, GDP deflator (annual %) as proxy of Inflation is measured in percentage.

GDP: GDP growth (annual %) as proxy of Economic Growth is measured in percentage.

PCR: Primary Completion Rate, total (% of relevant age group) proxy of Education is measured in percentage.

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$**:** Coefficients representing the effect of each respective variable on Gross National Expenditure (% of GDP) as proxy of Poverty.

μ_t: Error term capturing unobserved influences on Gross National Expenditure (% of GDP) as proxy of Poverty.

t: Time.

RESULTS AND DISCUSSIONS

Tbale2. Descriptive statistics results.

	GDP GROWTH ANNUAL	PRIMARY COMPLETION RATE TOTAL OF RELEVANT AGE GROUP	INFLATION GDP DEFLATOR ANNUAL	GROSS NATIONAL EXPENDITURE OF GDP	UNEMPLOYMENT TOTAL OF TOTAL LABOR FORCE MODELED ILO ESTIMATE
Mean	3.657683	76.58267	1.628664	102.6200	10.99100
Median	3.614877	81.92211	0.873315	104.3728	10.11950
Maximum	12.37288	101.0282	11.65717	111.6276	14.08900
Minimum	-7.178207	45.47018	-1.767599	92.13963	8.910000
Std. Dev.	4.051571	18.88849	2.601633	6.316227	1.956780
Skewness	-0.528937	-0.387568	2.342884	-0.406353	0.527546
Kurtosis	4.108908	1.642751	9.087513	1.778351	1.638670
Jarque-Bera	2.935969	3.053702	73.76781	2.691149	3.708048
Probability	0.230389	0.217219	0.000000	0.260390	0.156606
Sum	109.7305	2297.480	48.85993	3078.600	329.7300
Sum Sq. Dev.	476.0415	10346.47	196.2864	1156.947	111.0406
Observations	30	30	30	30	30

Table 2 presents the findings of descriptive statistics that shed light on the variables being examined. An overview of central tendencies can be obtained from the mean and median values. A moderate average of INFLATION GDP DEFLATOR ANNUAL is shown by the mean INFLATION GDP DEFLATOR ANNUAL of 1.628664 and the highest average of Gross National Expenditure of GDP. The socioeconomic issues are highlighted by the GDP Growth Annual and Unemployment Total of Total Labor Force Modeled ILO Estimate, which have mean values of 3.657683 and 10.99100, respectively. Elevated kurtosis in the GDP growth annual, as well as the INFLATION GDP DEFLATOR ANNUAL, suggest heavy-tailed distributions and unusually high values. negative skewness of GDP GROWTH ANNUAL, PRIMARY COMPLETION RATE TOTAL OF RELEVANT AGE GROUP, and GROSS NATIONAL EXPENDITURE OF GDP propose an attentiveness on the way to advanced heights of economic growth, education, and poverty. Generally speaking, statistics highlight the intricate interactions between the variables influencing poverty in Morocco. The results of the Augmented Dickey-Fuller (ADF) unit root test in Table 3 offer important information about the stationarity characteristics of the variables in our investigation. All variables retain stationarity after both level and first difference when the findings are examined without trends, indicating their stability over time.

Table 3. Unit Root Test

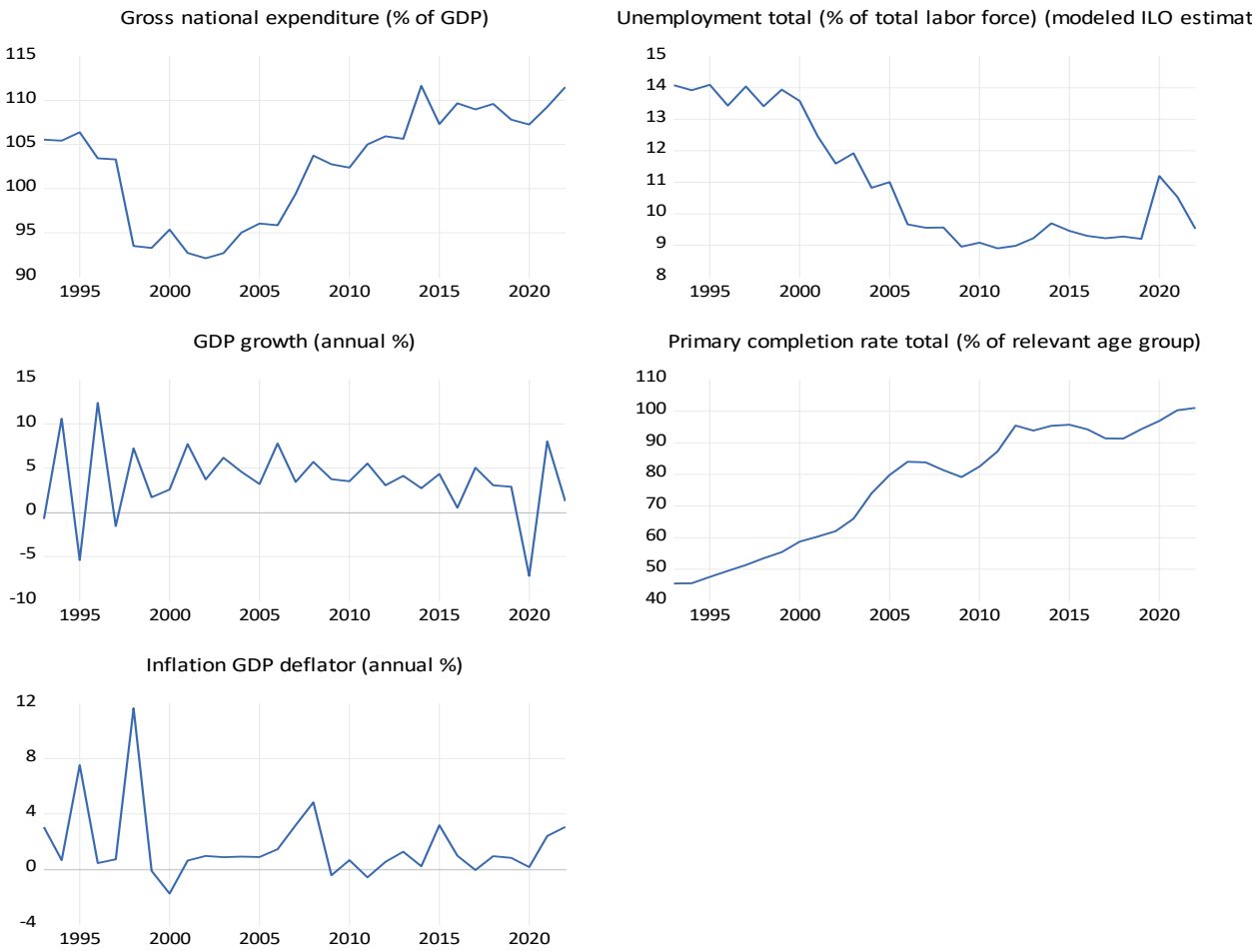
Constant without Trend

Tests	Level		1st difference	
	T-statistic	Proba*	T-statistic	Proba*
Levin, Lin & Chu t*	-2.39330	0.0083	-8.44450	0.0000
Im, Pesaran and Shin W-stat	-6.13099	0.0000	-10.6195	0.0000
ADF - Fisher Chi-square	52.5046	0.0000	97.5021	0.0000
PP - Fisher Chi-square				

	58.7618	0.0000	99.9297	0.0000

Constant with Trend

Tests	Level		1st difference	
	T-statistic	Proba*	T-statistic	Proba*
Levin, Lin & Chu t*	-4.05636	0.0000	-5.24962	0.0000
Im, Pesaran and Shin W-stat	-6.66797	0.0000	-9.73281	0.0000
ADF - Fisher Chi-square	170.284	0.0000	88.0223	0.0000
PP - Fisher Chi-square	154.525	0.0000	392.857	0.0000



Graph 1 Memory Root Test Results Graph.

These results suggest that in order to achieve stationarity, the variables in our study need to be at a level devoid of trend, hence we will apply the ARDL approach. We use the Akaike Information Criterion (AIC) to choose the most suitable ARDL model. Based on the AIC criterion, the best model is ARDL (1,0,0,0,0), as it has the lowest value.

Table 4. Optimal ARDL model

Sample : 1993 2022
Included observations : 29

Model	LogL	AIC*	BIC	HQ	Adj. R-sq	Specification
1	-65.101915	4.903580	5.186469	4.992178	0.839576	ARDL (1, 0, 0, 0, 0)

Fig.1 Akaike information criterion ou AIC

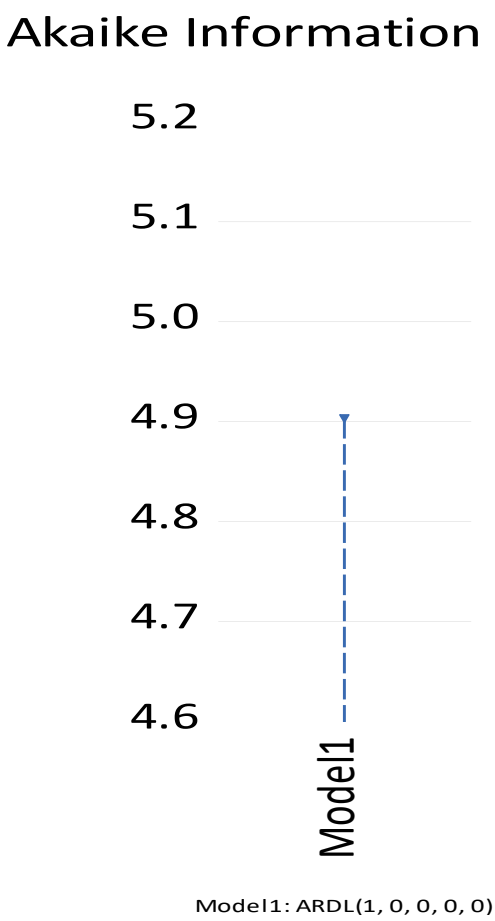
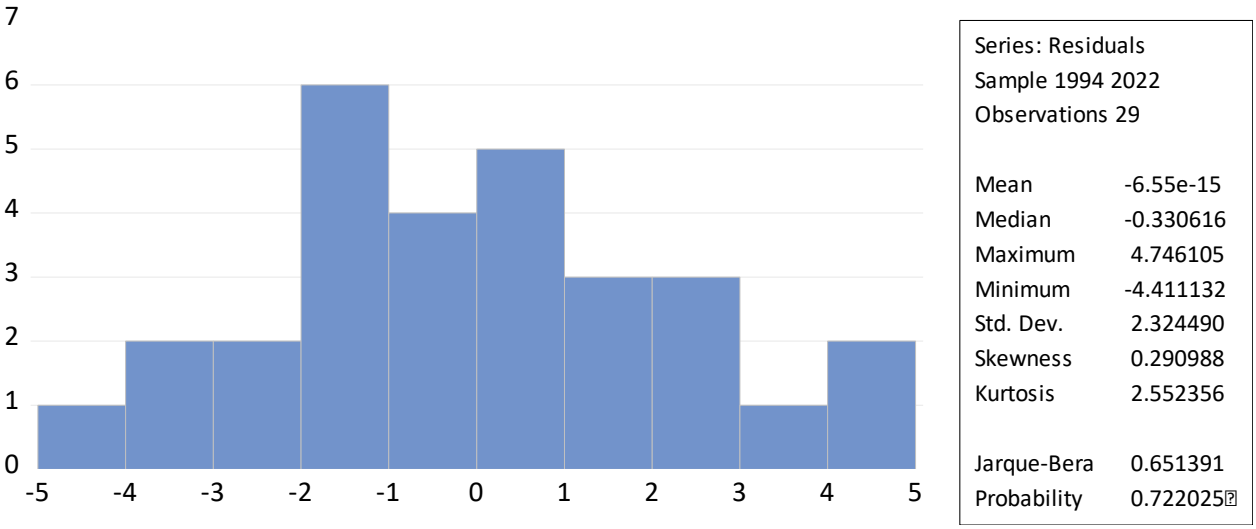


Fig. 2 Normality of residuals



Prior to moving on to the results' interpretation, it is necessary to confirm that the model's many main hypotheses are not violated:

- Cov (,) = 0; there is no error auto-correlation.

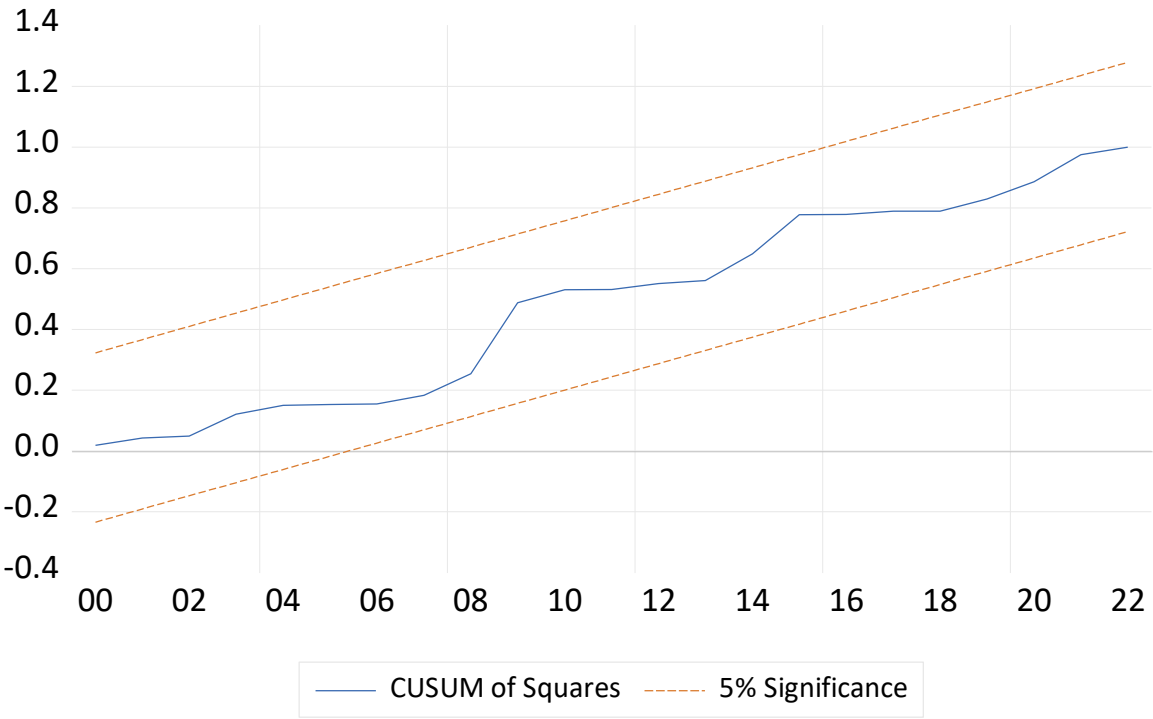
- V () = σ2 for every t; homoscedastic errors occur.
- N (0, σ2); the errors are distributed normally.
- The model's proper specification hypothesis, as per the Ramsey reset.
- The stable hypothesis following the CUSUM CUSUMQ diagnostic.

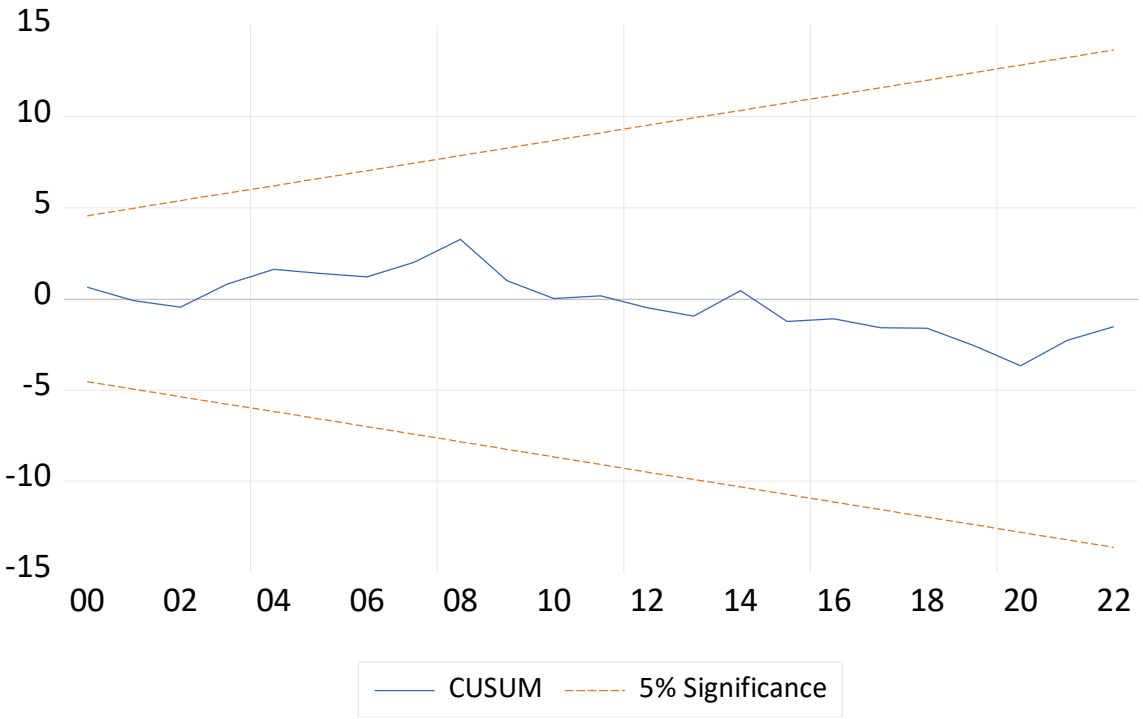
Table. 5 Diagnostic tests results.

Tests	Null Hypothesis	T-statistic	P-value	Conclusion
Jarque-Bera	The residues are typically distributed normally	0.6513	0.7220	the model's residuals have a normal distribution.
Breusch-Godfrey	The absence of autocorrelation	0.445244	0.6466	the residuals are not correlated.
White	Homoscedasticity	1.739042	0.2138	The absence of heteroscedasticity.
Ramsey Reset	The model is correctly specified	2.513569	0.0198	the model so is not well specified.

The results of the diagnostic tests provide an indication of the reliability and quality of our ARDL model. They investigate several theories and pinpoint potential issues within the model. In summary, the diagnostic test results, which are shown in Table 5, show that the ARDL model satisfies a number of important hypotheses, including the absence of heteroscedasticity and autocorrelation. Furthermore, the model appears to be quite free of bias related to omitted variables or erroneous specification of the functional form, and it is normally distributed.

Fig.3 CUSUM and CUSUM of squares results.





The results of the CUSUM (Somme Cumulative) and CUSUM of squares tests, which are used to evaluate a model's coefficients' stability over time, are displayed in Fig. 3. The model's coefficients are still considered to be relatively stable when the blue line in both tests stays inside the red lines. As a result, your ARDL model does not contain any verifiable proof of parameter instability or structural breaches. The CUSUM and CUSUMSQ graphs of the two images stay inside the segments, demonstrating the validity and consistency of our model.

These numerous tests attest to the veracity of our findings. This is a positive finding since it suggests that the correlations between the variables, we have discovered are steady and have not significantly changed from 1993 to 2022. When the coefficients in our model are stable, the outcomes and conclusions you draw from it are more trustworthy. The bound test results, which are shown in, provide more significant insights into the cointegration relationships among the variables in our analysis.

Table 6. ARDL bounds test results.

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	**Value**	**Signif.**	**I(0)**	**I(1)**
F-statistic	2.194534	10%	2.2	3.09
k	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

Whether there is no cointegration relationship-that is, no long-term equilibrium relationship-between the variables is the null hypothesis that is being tested in this instance. The estimated F-statistic is contrasted with critical values at various significance. The determined F-statistic in this instance is 2.194534. The F-statistic does not exceed the critical values, according to a comparison of this value and the critical values. So, we cannot reject the null hypothesis that significant there is no long-run relationship among all variables and the cointegration does not exist. In addition, the calculated statistic F of 2.194534 is significantly lower than the critical values, supporting the statistical significance of the non-cointegration relationship. This means that the

variables we have chosen, such as GDP Growth Annual, Primary Completion Rate Total of Relevant Age Group, Annual GDP Deflator, Gross National Expenditure, and Unemployment Total of Total Labor Force Modeled ILO Estimate, may not be consistent over time, potentially having no impact on long-term trends in poverty in Morocco. In the short run, looking at the coefficients reveals a few interesting findings, in table 7 provides important insights into the dynamic interactions between the variables in our model based on the ARDL test results. The GDP GROWTH ANNUAL coefficient, which is -0.164443, suggests that a 1% annual increase in GDP growth is linked to a short-term decrease in poverty of about 0.164443%. According to the study, inflation has the potential to both short- and long-term reduce poverty. Additionally, in the short-run INFLATION GDP DEFLATOR ANNUAL coefficient, which is -0.334649, suggests that a 1% annual increase in GDP growth is linked to a short-term decrease in poverty of about 0.334649% like long-run value is 2.212577%

Table 7. Short-run and long-run estimates.

Short-run				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	14.26883	13.16114	1.084164	0.2895
GROSS NATIONAL EXPENDITURE OF GDP (-1)*	-0.151248	0.092186	-1.640693	0.1145
GDP GROWTH ANNUAL**	-0.164443	0.130957	-1.255700	0.2218
INFLATION GDP DEFLATOR ANNUAL**	-0.334649	0.194003	-1.724970	0.0979
PRIMARY COMPLETION RATE TOTAL OF RELEVANT AGE GROUP**	0.049933	0.069351	0.719997	0.4788
UNEMPLOYMENT TOTAL OF TOTAL LABOR FORCE MODELED_ILO_ESTIMATE_**	-0.120460	0.619798	-0.194354	0.8476
CointEq(-1)*	-0.151248	0.037777	-4.003703	0.0006

Long-run				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
GDP GROWTH ANNUAL	-1.087237	1.092447	-0.995230	0.3300
INFLATION GDP DEFLATOR ANNUAL	-2.212577	2.077292	-1.065126	0.2979
PRIMARY COMPLETION RATE TOTAL OF RELEVANT AGE GROUP	0.330136	0.428037	0.771278	0.4484
UNEMPLOYMENT TOTAL OF TOTAL LABOR FORCE MODELED ILO ESTIMATE	-0.796439	4.208495	-0.189246	0.8516
C	94.34035	78.38808	1.203504	0.2410

However, the short-run highlights the fact that a 1% increase in the relevant age group's primary completion rate corresponds to a roughly 0.049933% increase in poverty, but in the long-run like 0.330136% increase in poverty. According to the "UNEMPLOYMENT TOTAL OF TOTAL LABOR FORCE MODELED ILO ESTIMATE" coefficient of -0.120460, there is a short-term decrease in poverty of roughly 0.120460% for every 1% yearly increase in unemployment, in the long-run, this value increase 0.796439%. these results adequate with and adequate with Haile and Saha's (2017) and adequate with the results of Hossain and Bose's (2012) emphasizes the significance of education, economic growth, inflation, and unemployment as factors influencing poverty in Bangladesh. Additionally, the system approximates its long-term equilibrium correction rate at 15.1248% per period, according to the coefficient associated with the error correction term (ECT), which is measured as -0.151248. This implies that the system corrects by this amount in each succeeding period in the event of a departure from the long-term equilibrium. To improve the robustness of our research, we ran DOLS tests, the results of which are shown in Table 8.

Table 8 Robustness checks: DOLS test

	R-squared	Adjusted R-squared	Coefficient	Std. Error	t-Statistic	Prob.
INFLATION GDP DEFLATOR ANNUAL to **GROSS NATIONAL EXPENDITURE OF GDP**	0.035080	-0.140360	-0.448291	1.896769	-0.236345	0.8154
PRIMARY COMPLETION RATE TOTAL OF RELEVANT AGE GROUP to **GROSS NATIONAL EXPENDITURE OF GDP**	0.585028	0.509578	0.214767	0.075368	2.849602	0.0093
UNEMPLOYMENT TOTAL OF TOTAL LABOR FORCE MODELED ILO ESTIMATE to **GROSS NATIONAL EXPENDITURE OF GDP**	0.638307	0.572544	-1.506625	0.599507	-2.513105	0.0198

According to the results of the analysis made with the help of the DOLS test, when the PRIMARY COMPLETION RATE TOTAL OF RELEVANT AGE GROUP increases by one unit, the GROSS NATIONAL EXPENDITURE OF GDP increases by 0.214767 units. When GDP GROWTH ANNUAL increases by one unit, GROSS NATIONAL EXPENDITURE OF GDP decreases by

-3.260855 units

Granger Causality Test

A statistical technique for figuring out the causal relationship between variables in a time series is the Granger Causality Test. In order to ascertain whether there is a causal relationship between two variables, this test examines autocorrelation structures in time series data. One of the following two hypotheses is tested by the two-way Granger Causality Test: H0: Y explains X; X is Y's gregarious act without cause. H0: X causes Y (X explains Y) without any justification. In this case, there are two variables, X and Y.

Null Hypothesis	Obs	F-Statistic	Prob.
UNEMPLOYMENT_TOTAL___OF_TOTAL_LABOR_FORCE__MODELED_ILO_ESTIMATE_ does not Granger Cause GROSS_NATIONAL_EXPENDITURE___OF_GDP_	28	4.39207	0.0242
GROSS_NATIONAL_EXPENDITURE___OF_GDP_ does not Granger Cause UNEMPLOYMENT_TOTAL___OF_TOTAL_LABOR_FORCE__MODELED_ILO_ESTIMATE_		3.74887	0.0390
GDP_GROWTH__ANNUAL__ does not Granger Cause GROSS_NATIONAL_EXPENDITURE___OF_GDP_	28	1.91147	0.1706
GROSS_NATIONAL_EXPENDITURE___OF_GDP_ does not Granger Cause GDP_GROWTH__ANNUAL__		4.48907	0.0229
PRIMARY_COMPLETION_RATE_TOTAL___OF_RELEVANT_AGE_GROUP_ does not Granger Cause GROSS_NATIONAL_EXPENDITURE___OF_GDP_	28	5.45871	0.0115
GROSS_NATIONAL_EXPENDITURE___OF_GDP_ does not Granger Cause PRIMARY_COMPLETION_RATE_TOTAL___OF_RELEVANT_AGE_GROUP_		0.22327	0.8016
INFLATION_GDP_DEFLATOR__ANNUAL__ does not Granger Cause GROSS_NATIONAL_EXPENDITURE___OF_GDP_	28	0.07550	0.9275
GROSS_NATIONAL_EXPENDITURE___OF_GDP_ does not Granger Cause INFLATION_GDP_DEFLATOR__ANNUAL__		0.20511	0.8160
GDP_GROWTH__ANNUAL__ does not Granger Cause UNEMPLOYMENT_TOTAL___OF_TOTAL_LABOR_FORCE__MODELED_ILO_ESTIMATE_	28	0.14846	0.8629
UNEMPLOYMENT_TOTAL___OF_TOTAL_LABOR_FORCE__MODELED_ILO_ESTIMATE_ does not Granger Cause GDP_GROWTH__ANNUAL__		0.96539	0.3957
PRIMARY_COMPLETION_RATE_TOTAL___OF_RELEVANT_AGE_GROUP_ does not Granger Cause UNEMPLOYMENT_TOTAL___OF_TOTAL_LABOR_FORCE__MODELED_ILO_ESTIMATE_	28	0.63135	0.5408
UNEMPLOYMENT_TOTAL___OF_TOTAL_LABOR_FORCE__MODELED_ILO_ESTIMATE_ does not Granger Cause PRIMARY_COMPLETION_RATE_TOTAL___OF_RELEVANT_AGE_GROUP_		1.98021	0.1609
INFLATION_GDP_DEFLATOR__ANNUAL__ does not Granger Cause UNEMPLOYMENT_TOTAL___OF_TOTAL_LABOR_FORCE__MODELED_ILO_ESTIMATE_	28	1.23149	0.3104
UNEMPLOYMENT_TOTAL___OF_TOTAL_LABOR_FORCE__MODELED_ILO_ESTIMATE_ does not Granger Cause INFLATION_GDP_DEFLATOR__ANNUAL__		2.45824	0.1078
PRIMARY_COMPLETION_RATE_TOTAL___OF_RELEVANT_AGE_GROUP_ does not Granger Cause GDP_GROWTH__ANNUAL__	28	0.55377	0.5823
GDP_GROWTH__ANNUAL__ does not Granger Cause PRIMARY_COMPLETION_RATE_TOTAL___OF_RELEVANT_AGE_GROUP_		0.01706	0.9831
INFLATION_GDP_DEFLATOR__ANNUAL__ does not Granger Cause GDP_GROWTH__ANNUAL__	28	0.71402	0.5002
GDP_GROWTH__ANNUAL__ does not Granger Cause INFLATION_GDP_DEFLATOR__ANNUAL__		0.53866	0.5907
INFLATION_GDP_DEFLATOR__ANNUAL__ does not Granger Cause PRIMARY_COMPLETION_RATE_TOTAL___OF_RELEVANT_AGE_GROUP_	28	1.10488	0.3482
PRIMARY_COMPLETION_RATE_TOTAL___OF_RELEVANT_AGE_GROUP_ does not Granger Cause INFLATION_GDP_DEFLATOR__ANNUAL__		1.69026	0.2084

CONCLUSION, SUGGESTIONS, AND LIMITATIONS

In summary, this study used the ARDL approach to examine the complex relationships between economic growth, unemployment, inflation, and poverty in the Moroccan context. Education and poverty have a relationship, both in the short and long terms. initially there is not a long-run relationship between the dependent variable and the independent variables. however, in the short run, economic growth has a statistically and significant impact on poverty reduction. but after readjusting the analysis model, in long-run there is an important relationship between the dependent and independent variable. First and foremost, the study's findings may offer invaluable information to managers and policymakers in the creation and implementation of programs and policies aimed at combating poverty. By identifying the factors that significantly affect poverty, these findings can focus efforts on the areas that are most important for reducing poverty and raising the standard of living of vulnerable groups. Through an economic approach, this research advances scientific understanding of the factors that determine poverty in Morocco. This study strengthens the scientific rigor of the research in this area by providing empirical results based on quantitative data through the use of advanced statistical analysis techniques. The economic methods employed may also serve as a foundation for further research on poverty and socioeconomic determinants in other contexts. Regarding boundaries, it is important to note that despite the scientific contributions of our work, there are a number of them that are related to the availability and quality of the data, the temporal dynamics, and the particular situation.

Credit Author Statement

YAHYA FIKRI & MOHAMED RHALMA: Conceptualization, Methodology, Writing- Original draft preparation. YAHYA FIKRI: Data curation, Writing-Original draft preparation. YAHYA FIKRI: Visualization, Investigation, Writing- Original draft preparation. YAHYA FIKRI & MOHAMED RHALMA: Writing- Reviewing and Editing, Validation, Funding acquisition

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