



The impact of inflation and unemployment on economic growth in France 2000-2023

SOLTANI Ahlem Fadila ¹, TALEB Mohamed Elamine Oualid ²

¹ Accounting, Finance, Taxation and Insurance Laboratory, Oum El Bouaghi University (Algeria), soltani.ahlemfadila@univ-oeb.dz

² Accounting, Finance, Taxation and Insurance Laboratory, Oum El Bouaghi University (Algeria), Taleb.oualid@univ-oeb.dz

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Abstract:

This study aims to examine the impact of both inflation and unemployment on economic growth in France from 2000 to 2023 using the ARDL model. This is done after confirming the stationarity of the time series, which was found to be stationary at the first difference.

The study found a cointegration relationship among the variables. It also determined that inflation positively affects economic growth, whereas unemployment negatively affects economic growth, although the effect is not significant. Additionally, the adjustment process from the short term to the long term takes approximately two years, ten months, and twenty-one days. Around 80 % of the variations in economic growth can be explained by the independent variables. The model's validity was confirmed through diagnostic tests.

Keywords: Inflation, Unemployment, Economic growth, France, ARDL model.

JEL Classification Codes: E31, E24, O40, O52, C22.

1. INTRODUCTION

Over the years, the French economy has seen significant changes. These range from the post-World War II boom, which was marked by rapid growth and significant industrial expansion, to the current economic troubles. Understanding France's economic dynamics requires an understanding of its economic growth, which is a key indicator of the nation's capacity to strike a balance between sustainable development and financial stability.

Despite having one of the largest economies in Europe, France remains susceptible to inflationary pressures. France has experienced a notable increase in inflation rates in recent years, leading to higher living costs and a negative impact on household purchasing power. Energy markets play a significant role in influencing prices, as fluctuations in gas and oil prices directly affect production and transportation expenses.

Additionally, global economic tensions and changes in supply chains play a crucial role in driving up inflation. In an effort to combat this phenomenon, the French central bank has taken measures such as adjusting interest rates and implementing tighter monetary policies. The government also seeks to support low-income households by providing financial assistance and implementing policies to mitigate the impact of inflation. Despite these measures, controlling inflation remains a significant challenge facing the French economy today.

Unemployment in France also is one of the prominent economic issues facing the country. Despite the fact that France has gained ground in diminishing joblessness rates throughout the long term, the issue continues to happen. The nation faces difficulties in restricting the hole between joblessness levels among youth and those with restricted abilities. Additionally, France struggles with structural unemployment, where some individuals find it difficult to secure jobs that match their skills and qualifications.

Research Problem:

Inflation and unemployment are fundamental economic issues that impact the growth of any country. In France, the economy has experienced significant fluctuations between 2000 and 2023, marked by periods of stable growth as well as notable economic challenges.

This two-decade length has seen expansions in expansion and joblessness rates, bringing up issues about what these variables mean for generally monetary development. Dissecting the connection between expansion, joblessness, and financial development in France during this period can give a more profound comprehension of the difficulties looked by the French economy and its reactions to monetary emergencies.

How do inflation and unemployment impact economic growth in France between 2000 and 2023?

Significance of the Research:

This study is huge in giving a thorough comprehension of the connection between expansion, joblessness, and financial development in France. By looking at this relationship, the review can give suggestions for financial strategies pointed toward accomplishing monetary security and working on personal satisfaction. Additionally, the research will contribute insights into managing future economic crises and developing effective strategies to promote sustainable economic growth.

Research Objectives :

- ✓ Analyze the impact of inflation on economic growth in France between 2000 and 2023.
- ✓ Assess the effect of unemployment on economic growth during the same period.
- ✓ Provide policy recommendations based on the findings to improve economic stability and promote growth in France.

1. Method and materials:

To answer the review's concern, we utilized the ARDL model to track down the effect of expansion and joblessness in France from 2000-2023 beginning with adding the logarithm for all factors "expansion, joblessness, and Gross domestic product in dollars", evaluating the soundness of time series, assessing cointegration and finishing with affirming the legitimacy of the model by the analytic

tests, where we accumulated the yearly information for all variables from the World Bank.

Variables:

- ✓ **Dependent Variable:** Economic Growth (using the GDP)
- ✓ **Independent variables:** Inflation and Unemployment

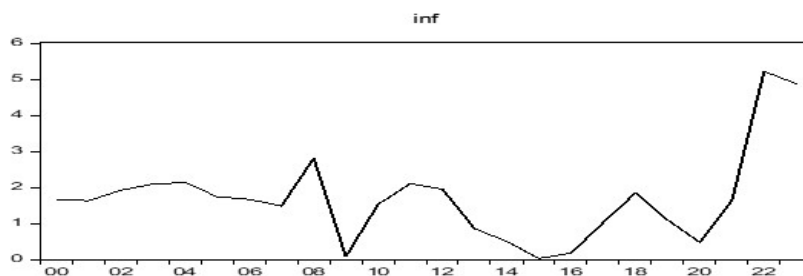
Inflation:

Inflation is characterized as a consistent expansion in costs. At the point when the cost of one great or set of products rises, expansion isn't generally present in light of the fact that the costs of any remaining merchandise might stay unaltered or even fall. Hence, expansion is characterized as a general expansion in the cost of all labor and products. (Aicha, 2017, p. 26)

The general - and notable - part of expansion is: "a vertical development in costs described by a self-propagating process coming about because of overabundance request comparative with the limit of supply." Furthermore, an expansion in how much cash and incomes drives the monetary framework into a condition of inflation. This makes up for the abatement in the speed of cash comparative with the expansion in how much cash, so the complete size of incomes continues as before. However, an increase in cash expenditures may be accompanied by a proportional increase in the supply of goods and services, so that this increase does not lead to inflation. Inflation is expected if the increase in cash flows is not matched by a corresponding increase in the overall supply of goods and services. (Djamila & Naima, 2021)

Fig.1. The Inflation rate in France 2000-2023

Source: The EViews 10.0 program outputs



Inflation during the early 2000s shows a relatively stable trend with moderate fluctuations. It peaked in 2004 (2.14) but then slightly declined towards 2007.

During the Global Financial Crisis (2008-2009) Inflation spiked in 2008, which could be attributed to economic uncertainties and rising commodity prices. Be that as it may, it plunged to an exceptionally low level in 2009, mirroring the effect of the the global financial crisis on financial movement.

After the Post-Emergency Period (2010-2016) Expansion stayed low in this period, with remarkable drops. 2015 and 2016 had exceptionally low inflation rates, likely due to continued economic recovery and low commodity prices.

In the recent years (2017-2023) Inflation rates saw a substantial increase starting from 2021, with a dramatic spike in 2022 reaching 5.22. The high inflation in recent years could be due to a combination of post-pandemic economic recovery, supply chain disruptions, and increased energy prices. The inflation rate slightly decreased in 2023 but remains elevated compared to previous years.

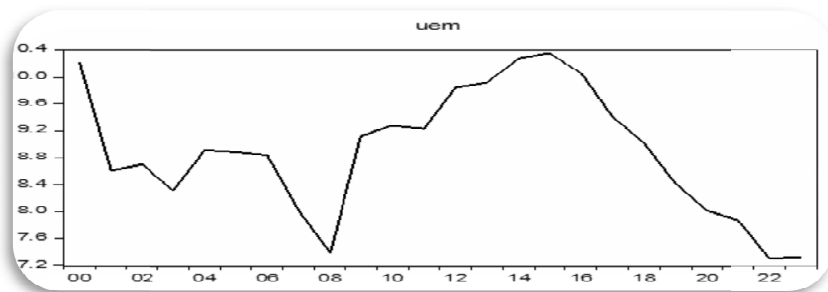
Unemployment:

According to the International Labour Organization, unemployment is the situation of a person who, wanting to work and having the ability to do so (especially in terms of age), finds themselves without a job despite their search efforts.

The lack of employment can result from not entering the labor market, the desire to regain employment after a period of inactivity, a dismissal, a voluntary resignation, or a desire to change occupation.

According to the International Labour Organization, unemployment is the situation of available labor seeking work but failing to find it. Unemployment is an economic phenomenon with both an individual or microeconomic dimension and a global or macroeconomic dimension, meaning it affects all national economic sectors. (Mohand, 2019, p. 614)

Fig.2. The Unemployment rate in France 2000-2023



Source: The EViews 10.0 program outputs

During this period, France experienced a gradual decrease in unemployment rates, from 10.22% in 2000 to 8.01% in 2007. This improvement might be attributed to supportive employment policies and stable economic growth during these years.

France saw a significant increase in the unemployment rate in 2009 after a decrease in 2008. This rise was directly related to the global financial crisis, which led to economic slowdown and negatively impacted the labor market in France, causing unemployment to rise.

After the financial crisis, unemployment rates remained relatively high, with some minor increases. This period was marked by a slow economic recovery, with France facing local and European economic difficulties that contributed to persistently high unemployment rates.

In recent years, unemployment rates have shown a gradual decline, reaching the lowest level in 2022 at 7.31%. This improvement could be attributed to France's efforts in implementing labor market reforms, the global economic recovery post-pandemic, and employment-supporting policies. However, there is a slight increase in the unemployment rate in 2023, which may indicate some ongoing economic pressures.

Economic Growth:

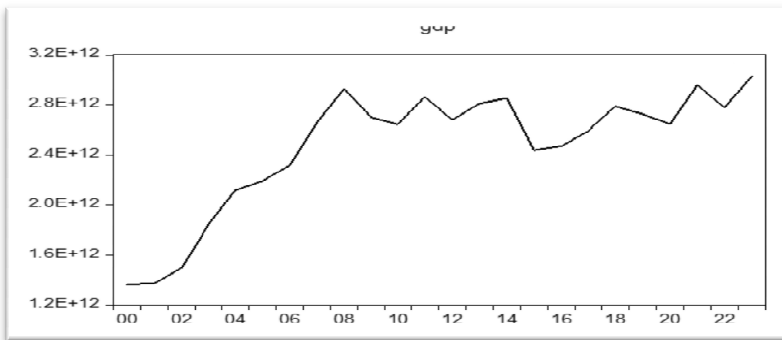
Economic growth is characterized as "a steady expansion in the economy's capability to deliver labor and products wanted by the local area," based on the resources available in terms of quantity and quality .It can thus be defined as the continuous increase in both

population and production per capita. Economic growth is measured by the rate of growth of real GDP or the rate of growth of real income per capita. (Fatiha & Hamza, 2021, p. 1436)

Economic growth is not: (Abderrahim, Zakaria, & Youness, 2021, p. 139)

- ✓ Expansion, which is a short-term (cyclical) increase in GDP.
- ✓ Economic development, which is an evolution of societies characterized by an increase in real income for the population and an improvement in living conditions, particularly in areas such as security, freedom, education, and health, etc.

Fig.3. The Economic Growth rate in France 2000-2023



Source: The EViews 10.0 program outputs

The data shows a general increase in GDP over the period, reflecting sustainable economic expansion. From \$1.37 trillion in 2000 to \$3.03 trillion in 2023, this indicates significant economic growth.

Between 2000 and 2008, France experienced continuous and rapid growth. The substantial increase from \$1.37 trillion in 2000 to \$2.93 trillion in 2008 reflects a period of economic prosperity.

A noticeable decline in GDP to \$2.70 trillion in 2009 after the peak in 2008 reflects the impact of the 2008-2009 global financial crisis on the French economy.

After the crisis, the French economy saw a gradual recovery but with fluctuations. Growth was not consistent, with some years showing lower GDP levels compared to previous years. For example,

2015 and 2016 experienced slight declines compared to earlier years, but the overall trend remained upward.

From 2021 to 2023, there was a notable jump in GDP from \$2.96 trillion to \$3.03 trillion, indicating a strong recovery in the recent years following the COVID-19 pandemic.

The overall increase in GDP reflects the expansion of the French economy over the two decades, suggesting the economy's ability to grow and overcome economic challenges.

The fluctuations in GDP, especially during financial and economic crises, highlight the impact of global and domestic events on the French economy.

The return to higher growth levels in recent years indicates that the French economy has managed to recover and grow after significant challenges like the financial crisis and the COVID-19 pandemic.

Literature review:

The review led by (**Girijasankar & Chowdhury, 2001**) took a gander at the association between Gross domestic product investigates the mind-boggling connection between Gross domestic product development and inflation across four South Asian nations: Bangladesh, India, Pakistan, and Sri Lanka. By using yearly information obtained from the IMF Global Monetary Insights, the scientists applied progressed econometric methods, including cointegration and blunder adjustment models, to investigate and analyze exact proof.

The discoveries demonstrate a drawn-out certain connection between Gross domestic product development and inflation in every one of these nations. In particular, the review recognizes a predictable pattern where higher Gross domestic product development rates are related with higher inflation rates over the long haul. Moreover, the examination features huge bidirectional criticism between GDP and inflation, recommending that adjustments of one can altogether impact the other.

These outcomes have significant approach suggestions for monetary administration in these countries. Moderate expansion seems to work with GDP by giving a support to monetary changes and

invigorating venture. Notwithstanding, the concentrate likewise noticed that as monetary development speeds up, inflation will in general increment at a quicker rate, presenting expected dangers of overheating economies.

The cozy connection among development and inflation in these nations highlights the requirement for painstakingly adjusted financial arrangements. Policymakers should explore the fragile harmony where moderate expansion upholds development without prompting exorbitant inflationary tensions. Therefore, these countries should embrace reasonable monetary systems to oversee inflationary patterns while supporting financial turn of events, guaranteeing long haul security and flourishing

In their review, **(Faraji & Kenami, 2013)** researched the exchange among inflation and economic growth, analyzing what changes in inflation mean for by and large financial extension. By breaking down time-series information spreading over from 1990 to 2011, the analysts tried to figure out the unique impacts of inflation on financial development. They utilized different econometric devices, including the connection coefficient and co-mix approach, to investigate the connection between GDP (Gross domestic product) and inflation.

The review used the connection coefficient to evaluate the strength and heading of the direct connection among inflation and Gross domestic product. Furthermore, the co-incorporation approach was utilized to decide if a drawn-out harmony relationship existed between these two factors. To additionally comprehend the awareness of financial development to changes in inflation, the analysts determined the versatility coefficient, which estimates how responsive general cost level changes are to vacillations in Gross domestic product.

The consequences of the review propose that expansion applies an unfavorable impact on monetary development. In particular, higher expansion rates were related with more slow financial development. Moreover, the investigation uncovered that there was no proof of co-incorporation among expansion and monetary development during the review time frame. This shows that there is no maintained, long-haul

connection among expansion and monetary development in Tanzania. In synopsis, the discoveries highlight the unfriendly effect of expansion on monetary execution and feature the shortfall of a diligent connection among's expansion and Gross domestic product development with regards to the Tanzanian economy.

In the review led by **(Muhammad , 2014)**, the effect of joblessness and expansion on financial development in Pakistan was broke down. The examination used time-series information from the World Information Bank, covering the period from 1980 to 2010. The discoveries uncovered that while joblessness and expansion become fixed after the main contrast, monetary development is fixed at both the level and the primary distinction, as per unit root tests (ADF and Phillips-Perron).

The outcomes from the Autoregressive Circulated Slack (ARDL) model showed a drawn-out connection between the factors, demonstrating a supported relationship between joblessness, expansion, and financial development over the review period. Moreover, the review led further tests to guarantee the power of the model. The Breusch-Godfrey Sequential Connection LM test results showed no issues with sequential relationship in the information. The Ramsey RESET test affirmed the shortfall of model particular mistakes, while the White test for heteroskedasticity showed no issues connected with difference irregularity.

These outcomes highlight the significance of precisely breaking down the connection between joblessness, expansion, and financial development to guarantee an extensive comprehension of the elements influencing the Pakistani economy. They additionally feature the need of utilizing vigorous scientific instruments to keep away from measurable issues and guarantee the legitimacy of the discoveries.

The exploration by **(Krupasindhu Panigrahi, Noor, Shahryar, & Prabha, 2020)** researched the drawn-out elements between expansion, financing costs, joblessness, and Gross domestic product development inside the ASEAN-5 nations — to be specific Malaysia, Indonesia, Thailand, Singapore, and the Philippines — over the period from 1995 to 2018. This extensive review used auxiliary board

information got from the World Bank data set to inspect these monetary factors.

The discoveries of the review featured a striking and unpredictable long-haul connection between loan costs and expansion with monetary development. In particular, it was seen that variances in loan costs and expansion rates powerfully affect Gross domestic product development, recommending a mind-boggling transaction between these variables. On the other hand, the review found a generally powerless connection between joblessness rates and monetary development, demonstrating that adjustments of joblessness lesserly affect Gross domestic product development contrasted with loan fees and expansion.

Further examination utilizing Granger's causality tests uncovered a causal linkage among loan fees, joblessness, expansion, and financial development. These outcomes recommend that varieties in one of these factors can impact the others, showing the interconnected idea of these financial pointers.

For policymakers in the ASEAN-5 nations, these bits of knowledge highlight the significance of understanding these connections while planning methodologies pointed toward cultivating monetary security and development. By considering the critical cooperations between financing costs, expansion, and monetary development, while recognizing the humbler job of joblessness, policymakers can more readily explore the intricacies of financial administration and strategy definition.

The concentrate by **(Dimakatso & Mbulaheni Albert, 2023)** examined the effect of expansion and joblessness on South Africa's financial development over the period from 1994 to 2018, utilizing quarterly information. The investigation utilized thorough factual strategies to survey these financial connections. The unit root tests, including Phillips-Perron and Increased Dickey-Fuller, uncovered that all factors at first displayed a unit root at their levels. Notwithstanding, these factors accomplished stationarity after first differencing, showing that their factual properties were predictable over the long haul in the wake of representing patterns.

The Johansen co-incorporation test gave proof of a huge long haul harmony relationship among expansion, joblessness, and financial development. This proposes that in spite of momentary changes, the factors will generally move together for a really long time. The Vector Mistake Rectification Model (VECM) further approved this finding by exhibiting that both joblessness and expansion adversely affect financial development in South Africa. In particular, expansions in joblessness and expansion were related with more slow financial development, featuring the negative impacts of these factors on the country's monetary execution.

Also, the review incorporated a few symptomatic tests to guarantee the unwavering quality of the outcomes. The White test for heteroskedasticity affirmed that there were no issues with shifting blunder differences. The Jarque-Bera test for ordinarieness showed that the residuals of the model followed a typical circulation. The Breusch-Godfrey Sequential Relationship LM test showed that there were no critical issues with sequential connection in the model's residuals. These discoveries altogether certify the strength and believability of the review, giving important bits of knowledge to policymakers intending to address expansion and joblessness to encourage practical financial development.

The investigation of **(Nnachi Douglas & Ugochukwu, 2023)** This study looks at what joblessness and expansion mean for Nigeria's financial development (1981-2021). To check how much joblessness and expansion affected financial development, the review utilized the ARDL. Pesaran and Shin Bound Testing were utilized to determine the factors' long-and transient connections. It was shown that there is a drawn-out connection between's financial development and joblessness and expansion. what's more, exhibited that though joblessness and monetary development are adversely associated, expansion and financial development are decidedly connected. All the more explicitly, the joblessness rate diminished by - 0.019 for each 1% development in Gross domestic product. A R2 worth of 0.61 percent is likewise shown in the outcome, proposing that Gross domestic product makes sense of around 61% of the variety in joblessness in Nigeria.

The review directed by (Yohana, 2024) analyzed the effect of expansion on financial development in Tanzania, expecting to furnish policymakers with bits of knowledge on keeping up with macroeconomic security. Utilizing a quantitative exploration approach, the review utilized diminished structure relapse and co-reconciliation investigation procedures to break down optional information covering a time of 32 years (1990-2021).

The discoveries uncovered a critical negative connection among expansion and Gross domestic product development, demonstrating that higher expansion rates are related with more slow Gross domestic product development. Nonetheless, the review tracked down restricted proof of a co-mix or long-haul connection among expansion and financial development. By introducing exact information on the unfavorable impacts of expansion on Tanzania's financial execution, the exploration highlights the significance of cost soundness for feasible monetary development.

The outcomes underscore the requirement for policymakers to focus on compelling money related arrangements, as well as to advance speculation and efficiency, to help long haul monetary development. This study adds to existing writing by featuring the basic job of overseeing expansion in accomplishing macroeconomic steadiness and cultivating monetary turn of events.

2. Results and discussion:

2.1. Descriptive statistical study of variables:

Table 1. The descriptive statistical study of variables

	GDP	INF	UEM
Mean	1.285983	1.695180	8.886916
Median	1.753095	1.658727	8.898
Maximum	6.435209	5.222367	10.354
Minimum	-7.540459	0.037514	7.308
Std. Dev.	2.483765	1.260949	0.937724
Skewness	-1.728378	1.352649	-0.100854
Kurtosis	8.506765	5.088619	2.057709
Jarque-Bera	42.273634	11.680972	0.928597
Probability	6.612974	0.002907	0.628575

Source: The EViews 10.0 program outputs

Gross Domestic Product (GDP experiences significant fluctuations and shows substantial variation around the mean, with a distribution that deviates from normality, indicating economic instability.

Inflation shows moderate variability with a skew towards lower values and a distribution that is less extreme compared to GDP, reflecting noticeable effects on economic stability.

Unemployment displays relative stability with a distribution closer to normal, suggesting a more stable indicator compared to GDP and inflation.

2.2. Stability tests: (unit root test)

To verify the stationarity of the time series and ensure they do not contain a unit root, we used two tests: the Augmented Dickey-Fuller test and the Philip Perron test. This was done to avoid the problem of spurious regression, and the results are shown in Tables 02 and 03.

Table 2. ADF (Augmented Dickey-Fuller test) results

	Level			1 st Difference		
	Intercept	Trend and intercept	None	Intercept	Trend and intercept	None
LN-GDP	0.0943	0.5650	0.9855	0.0064	0.0087	0.0013
LN-INF	0.0533	0.2011	0.0043	0.0001	0.0007	0.0000
LN-UUEM	0.5030	0.7865	0.2691	0.0006	0.0023	0.0000

Source: The EViews 10.0 program outputs

The table N°02 presents the results of the Augmented Dickey-Fuller (ADF) test for unit roots, which is used to assess the stationarity of time series data. The table shows p-values for both the level and first difference of the variables with different specifications: intercept, trend and intercept, and none.

The results in Table 02 indicate that all variables are non-stationary at the level, meaning they contain a unit root, as the p-values were greater than 0.05. However, they are stationary at the first difference.

Table 3. P.P (Philips-Perron test) result

	Level			1 st Difference		
	Intercept	Trend and intercept	None	Intercept	Trend and intercept	None
LN-GDP	0.0041	0.5364	0.9855	0.0063	0.0089	0.0013
LN-INF	0.0496	0.1885	0.0040	0.0000	0.0000	0.0000
LN-UEM	0.4382	0.7362	0.2691	0.0006	0.0018	0.0000

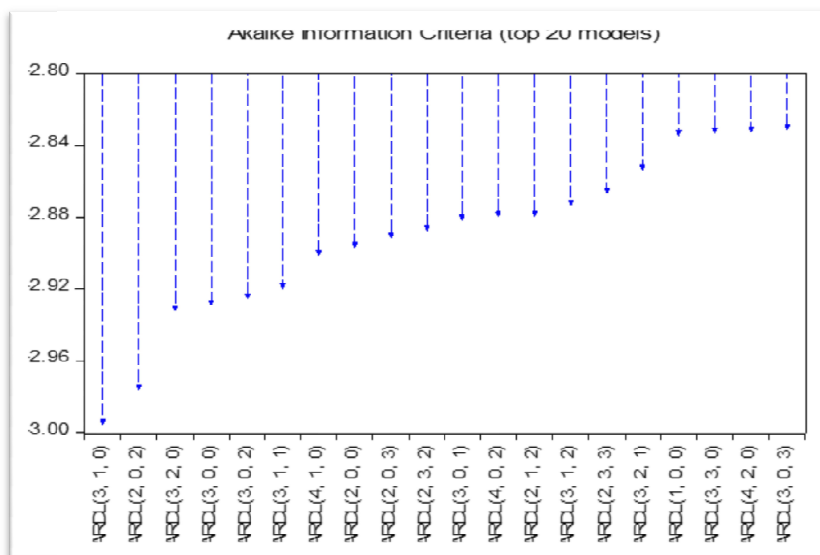
Source: The EViews 10.0 program outputs

The results of the Philip Perron test shown in Table 03 confirm the findings from the Augmented Dickey-Fuller test. We found that the Gross Domestic Product (GDP) growth rate, unemployment and inflation rates are not stable at the level but are stable at the first difference.

2.3. Lag selection criteria:

From the figure N°4 the selection of lag lengths in the ARDL model was based on Akaike information Criteria, the selected ARDL model is ARDL (3,1,0), which means the inclusion of three lags for GDP and one lag for inflation and zero lag for unemployment.

Fig.4. Akaike Information Criteria



Source: The EViews 10.0 program outputs

2.4. ARDL Boundary test (F-Bound Test) for cointegration:

We notice from table n°4 that fisher countable value is 9.26 and it is greater than the critical value at the upper and lower limits at all levels 1%, 2.5%, 5%, 10% that means we refuse the null hypothesis and accept the alternative hypothesis which that there is a cointegration between the variables under study.

Table 4. F-Bound Test for cointegration

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	9.266214	10%	2.63	3.35
k	2	5%	3.1	3.87
		2.5%	3.55	4.38
		1%	4.13	5

Source: The EViews 10.0 program outputs

2.5. Estimating the study model using autoregressive distributed lag (ARDL) models:

After confirming that there is a long relationship between variables, we estimated the long run relationship and the results are shown in table n°5.

Table 5. Results of estimating the long-run relationship

Conditional Error Correction Regression				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	11.15361	2.226439	5.009616	0.0002
LNGDP(-1)*	-0.378288	0.075495	-5.010791	0.0002
LNINF(-1)	0.033836	0.016078	2.104534	0.0539
LNUEM**	-0.138826	0.136404	-1.017760	0.3261
D(LNGDP(-1))	-0.304410	0.169995	-1.790704	0.0950
D(LNGDP(-2))	-0.210066	0.151627	-1.385412	0.1876
D(LNINF)	0.020636	0.012578	1.640599	0.1231
Levels Equation Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNINF	0.089445	0.046976	1.904069	0.0777
LNUEM	-0.366986	0.356235	-1.030180	0.3204
C	29.48445	0.779723	37.81401	0.0000
EC = LNGDP - (0.0894*LNINF -0.3670*LNUEM + 29.4844)				

Source: The EViews 10.0 program outputs

From the table, we conclude that there is an inverse relationship between unemployment and economic growth in France from 2000 to 2023, and a positive relationship between inflation and the economic growth rate in France.

Unemployment has a negative impact on the economic growth rate in France during the period 2000-2023, but its effect is not significant because the p-value is greater than 0.05.

On the other hand, inflation has a positive impact on economic growth in France during the study period, and its effect is significant and statistically meaningful.

2.6. Error correction model:

We conducted the ECM test to estimate the parameters in the short run between economic growth and both inflation and unemployment in France during the study period, with the results shown in Table 6.

Table 6. Results of short-run relationship estimation and error correction model

ECM Regression				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNGDP(-1))	-0.304410	0.148388	-2.051439	0.0594
D(LNGDP(-2))	-0.210066	0.130467	-1.610115	0.1297
D(LNINF)	0.020636	0.008019	2.573387	0.0221
CointEq(-1)*	-0.378288	0.056387	-6.708750	0.0000
R-squared	0.766716	Mean dependent var		0.033450
Adjusted R-squared	0.725548	S.D. dependent var		0.086212
S.E. of regression	0.045165	Akaike info criterion		-3.187340
Sum squared resid	0.034678	Schwarz criterion		-2.988383
Log likelihood	37.46707	Hannan-Quinn criter.		-3.144161
Durbin-Watson stat	2.390923			

Source: The EViews 10.0 program outputs

We observe from Table 06 that the error correction coefficient is negative and statistically significant, which confirms the existence of a short-term equilibrium relationship between the study variables. The value of the error correction coefficient CointEq (-1) is -0.37 with a

probability of 0.0000, indicating the speed of adjustment from the short term to the long term. This means that the correction process from the short term to the long term takes approximately two years, seven months, and twenty-one days. Additionally, the coefficient of determination R^2 is 0.766716, meaning that 77% of the changes in economic growth are explained by the independent variables.

2.7. Model diagnostic tests:

2.7.1. The autocorrelation test for errors:

We conducted the Breusch-Godfrey Serial Correlation LM Test, and its results are shown in the following table:

Table 7. Breusch-Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.120720	Prob. F(2,12)	0.3579
Obs*R-squared	3.305161	Prob. Chi-Square(2)	0.1916

Source: The EViews 10.0 program outputs

We observe from the table n°7 that the p-value is greater than 0.05, thus we accept the null hypothesis, which states that there is no autocorrelation between the errors.

2.7.2. Homogeneity of variance test:

We conducted the ARCH test for heteroscedasticity, and the results are shown in Table 08.

Table 8. Heteroskedasticity Test: ARCH

Heteroskedasticity Test: ARCH

F-statistic	0.008306	Prob. F(1,18)	0.9284
Obs*R-squared	0.009224	Prob. Chi-Square(1)	0.9235

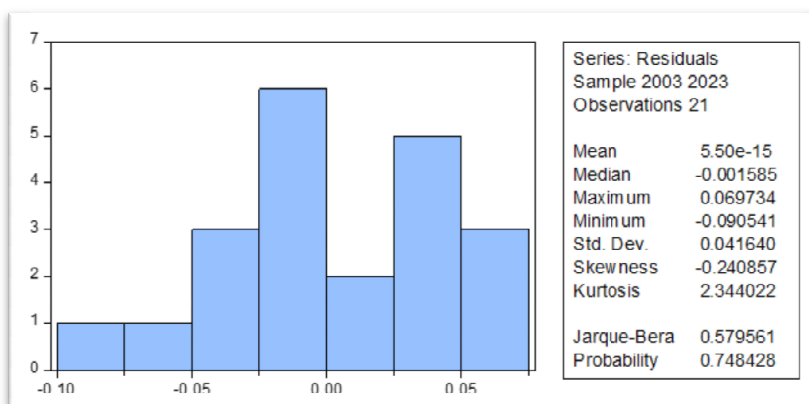
Source: The EViews 10.0 program outputs

Since the p-value is greater than 0.05 (0.9284), we accept the null hypothesis, which states that there is homogeneity of variance.

2.7.3. Test for normal distribution of residuals:

The results of the test are shown in Figure N°5.

Fig.5. Normal distribution test



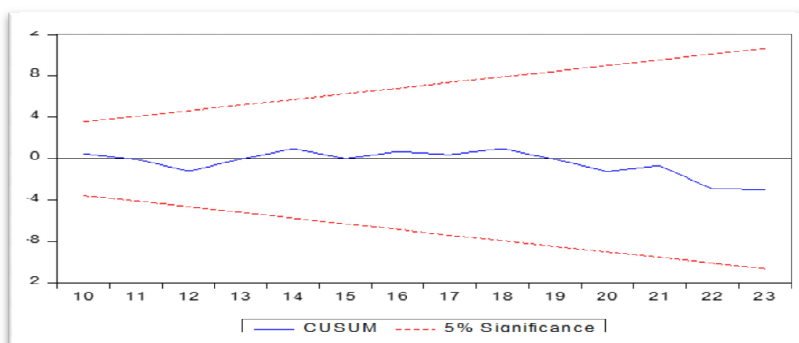
Source: The EViews 10.0 program outputs

We observe from Figure N°50 that the p-value for the Jarque-Bera test is greater than 0.05 (0.79), thus we accept the null hypothesis, which states that the residuals follow a normal distribution.

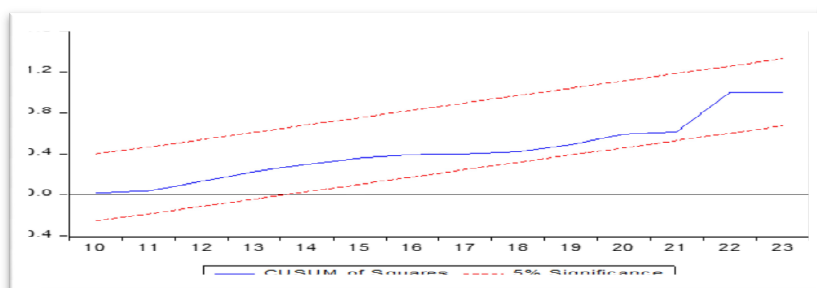
2.7.4. Structural stability testing:

To ensure that the data used in our study does not exhibit any structural changes over time, we conduct the CUSUM and CUSUM of squares tests. The results of these tests are shown in Figures N°6 and 7, respectively.

Fig.6. results of CUSUM test



Source: The EViews 10.0 program outputs

Fig.7. The results of CUSUM of squares test

Source: The EViews 10.0 program outputs

From Figures 6 and 7, we observe that both the CUSUM and CUSUM of squares are represented by a line that remains within the critical region boundaries. This indicates structural stability between the long-term and short-term results.

4. CONCLUSION

The review uncovers a cointegrated relationship among inflation, unemployment, and economic growth, demonstrating that these factors collaborate in a perplexing way to decide monetary development directions.

The outcomes feature a positive connection among inflation and economic growth, proposing that more elevated levels of inflation might be related with invigorating economic growth temporarily. On the other hand, the backwards connection among unemployment and economic growth shows that rising unemployment could diminish economic growth. In any case, the effect of unemployment was viewed as non-critical, which might recommend that unemployment itself doesn't altogether influence economic growth in the concentrated-on setting.

An eminent part of the review is the assessed time expected for momentary irregular characteristics to address and arrive at long haul harmony, which is roughly two years, ten months, and 22 days. This length outlines the sluggish acclimation to monetary changes and stresses the significance of maintainable financial arrangements that think about these elements.

In light of these discoveries, financial approaches could profit

from zeroing in on compelling inflation the board and supporting techniques to address unemployment, adding to monetary soundness and manageable development.

As per the discoveries of the review with respect to the effect of inflation and unemployment on economic growth in France from 2000 to 2023, the accompanying proposals are recommended to upgrade monetary execution and advance feasible financial development:

Execute preparing and expertise advancement projects to adjust laborers' capabilities to the developing necessities of the work market. Such projects can assist with overcoming any barrier between individual capabilities and occupation market necessities and offer monetary and specialized help to SMEs to increment open positions and lift neighborhood economic growth.

Put resources into Framework activities like transportation, energy, and innovation which can upgrade economic growth by further developing proficiency and expanding efficiency.

Support exploration, advancement, and development to work on the intensity of the economy and encourage development.

Ceaselessly screen and dissect the impacts of inflation and unemployment on economic growth to guarantee convenient and viable arrangement mediations.

Utilize financial models that record for communications between different monetary factors to give informed arrangement proposals.

Team up between the public authority and confidential area to work on the adequacy of monetary approaches and backing the effective execution of financial ventures.

By applying these suggestions, France can accomplish a superior harmony among inflation and unemployment, adding to reasonable economic growth and long-haul monetary steadiness.

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