The Role Of Private Sector Credit In Explaining The Dynamics Of Inflation In Algeria during the Period 1990–2024

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Abstract:

This study aimed to assess the impact of the volume of credit directed to the private sector in the economy on the inflation rate in Algeria, based on annual data covering the period 1990–2024. To achieve this objective, the Autoregressive Distributed Lag model was employed to analyze the dynamic response of the inflation rate to changes in the volume of credit directed to the private sector (as a percentage of GDP).

The results revealed a positive and significant long-term effect of private sector credit on inflation, while in the short term, the study variables had no significant effect. These findings indicate that most credit is directed toward consumption rather than productive investment, reflecting the weak allocative efficiency of financial resources. The study recommended the need to redirect credit toward productive activities, regulate consumer credit, and enhance the flexibility of the productive system in the Algerian economy.

Keywords: Private Sector Credit; Credit; Inflation; Price Stability; Private Sector.

Jel Classification Codes: E51, G21, E31

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1. INTRODUCTION

Inflation is an economic phenomenon experienced by various economies around the world. It reflects a general rise in the overall price level as a result of an excess supply of money in the economy, according to Milton Friedman's perspective, or as a result of aggregate demand exceeding aggregate supply, according to Keynesian theory. This phenomenon significantly affects individuals, as the rise in the general price level (inflation) leads to a decline in real incomes, and consequently, a decrease in individuals' purchasing power. This results in a deterioration of individuals' economic and social well-being.

Keynesian theory considers the rise in the general price level to be the result of an increase in aggregate demand over aggregate supply. The increase in household consumption expenditures leads to a higher overall demand for goods and services, which in turn causes the general price level to rise. On the other hand, Milton Friedman, one of the leading proponents of the modern monetarist school, viewed inflation as a monetary phenomenon, resulting from an "excess supply of money" in the markets, and assumed that it occurs in all economies around the world. This explains that an increase in the amount of money supplied by the state to the economy will lead to a rise in the general price leve .(Wong & Trang, 2020, p. 19)

Since the 1970s, the global economy has witnessed a decline in the intensity of inflation as central banks adopted a set of reforms aimed at achieving price stability. The increasing inflationary pressures in the economy weaken investor confidence and reduce the level of savings, which in turn leads to a decline in the economic growth rate rate. (Boukraine, 2020, p. 122) nflation is considered one of the major problems faced by the majority of the world's economies, due to various financial and monetary imbalances that require the use of modern methods for targeting inflation (Belahrech & Kifani, 2022, p. 339). According to economic theory, inflation is a purely monetary phenomenon that occurs as a result of an increase in the money supply within the economy (benameur, 2023, p. 53). Money is also regarded as a strategic variable whose role is not limited to serving as a medium of exchange and a measure of the value of goods and services, but extends to

influencing and directing other macroeconomic variables, including the general price level (takhi & kouidri, 2021, p. 489).

Private sector bank credit refers to the money that commercial banking institutions lend to individuals and private entities for the purposes of consumption or investment. Institutions borrow in order to purchase machinery and equipment for investment, while individuals direct the borrowed funds toward consumption. Meanwhile, the government directs bank financing toward current and capital expenditures. Private sector credit is considered one of the key components of economic assets and the money supply. (Kharel, Poudel, Upadhyaya, & Nepal, 2024, p. 143)

According to Keynesian theory, aggregate supply and demand for goods and services are fundamental factors in determining inflation rates. In the absence of flexibility in the productive system to respond to the increasing demand for goods and services, any rise in aggregate demand will lead to an increase in the general price level and, consequently, higher inflation rates. (Denden & Cherguia , 2025, p. 46)

Bank credit is considered one of the potential factors causing inflationary pressures, as a decrease in credit leads to a decline in commercial activities, and consequently, a reduction in aggregate supply in the long run. The finance–growth theory has indicated that financial intermediation positively affects GDP in the long term. (Tinoco-Zermeño, Torres-Preciado, & Venegas-Martínez, 2022, p. 2)

The decline in aggregate supply resulting from reduced bank credit, in the context of increasing aggregate demand due to other factors such as demographic growth, may lead to a rise in the general price level, and consequently, increased inflationary pressures.

On the other hand, if banks gave more credit to businesses that were productive, the overall production would go higher, and so would the aggregate supply. If this rise is more than the rise in total demand, it will cause prices of goods and services to go down, which will cut inflation rates in the economy.

The credit that private sector banks give out influences inflation rates by changing the total amount of demand or supply. On the demand side, too

much bank lending—especially to unproductive sectors, especially consumer sectors—leads to a growth in the money supply without a matching flexible increase in output to fulfill the increased demand for goods and services. This leads to increased costs since the amount of commodities on the market stays the same but people's money becomes more liquid, which makes inflation worse.

The rise of private bank credit focused toward financing investment and consumption expenditures adds to the increase in aggregate demand. If the economy is unable to raise aggregate supply in response to this increased demand, it will result in a rise in the price level, resulting to prolonged inflation.

The expansion of private bank credit directed toward financing investment and consumption expenditures contributes to the increase in aggregate demand. If the economy is unable to increase aggregate supply in response to this growing demand, it will result in a rise in the price level, leading to sustained inflation. (AL-Bdiere & Shendi , 2023, p. 359)

On the supply side, bank credit can play a pivotal role in absorbing the excessive flow of credit and the resulting liquidity, thereby contributing to price stability. This is achievable if credit flows are directed toward the most productive sectors, such as industry and agriculture, as this leads to increased production, which raises the aggregate supply of goods and services, resulting in a decline in the general price level and, consequently, a reduction in inflation rates. (AL-Bdiere & Shendi , 2023, p. 359)

Therefore, for bank credit to play a positive role in reducing inflationary pressures in the economy, the productive system must have sufficient flexibility to keep up with the increase in aggregate demand resulting from the rise in purchasing and financial capacities of individuals and investors benefiting from loans. In the absence of such flexibility, bank credit may have a negative impact on price stability, which in turn negatively affects overall economic stability.

Bank credit can also be an effective tool in stimulating economic activity if credit flows are directed toward sectors with high productive efficiency, such as agriculture and industry. This contributes to increasing the

supply of goods and services in parallel with stable demand, which would lead to lower prices and inflation rates and promote economic stability.

So, the success of monetary policy in keeping inflation down depends on how well the productive sector works. Increased productivity makes it easier to meet demand without causing inflation, which helps keep the economy stable as a whole.

Like other economies around the world, the Algerian economy has experienced the phenomenon of inflation. According to World Bank data, the period 2010–2024 recorded high inflation rates. Inflation rose to 8.9% in 2012 and reached 6.4% in 2016, but quickly climbed to higher levels in 2022 and 2023, reaching an average of 9.3%. This coincided with a rise in the share of private sector bank credit as a percentage of GDP. This share went up a lot during the same time, going from 13.7% in 2010 to 16.4% in 2014 and then to 26.11% in 2020.

These statistics reflect a positive correlation between private sector bank credit and the inflation rate. However, there are no studies that have addressed the impact of private sector bank credit on the inflation rate or the existence of a relationship between them in the case of Algeria.

Amid these considerations, the following research question is posed:

What is the impact of the volume of credit directed to the private sector in the economy on inflation fluctuations in Algeria?

In light of this research problem, the following hypotheses are proposed:

• Hypothesis 1: There is a statistically significant long-run positive response of inflation fluctuations to the volume of credit directed to the private sector in the Algerian economy.

• Hypothesis 2: There is a statistically significant short-run positive response of inflation fluctuations to the volume of credit directed to the private sector in the Algerian economy.

To answer the research question and test the validity of the hypotheses, a descriptive-analytical approach was adopted through a review of the relevant literature and an analysis of the evolution of the study variables. In addition, a quantitative approach was used by constructing a mathematical

model of the relationship between the study variables using the ARDL methodology.

This study aims to measure the impact of the volume of bank credit directed to the private sector (as a percentage of GDP) on the inflation rate in Algeria, and to analyze its role in achieving price stability and, consequently, enhancing overall macroeconomic stability.

2. Literature Review

Researchers and economists have been very interested in the subject of inflation and bank credit because of how it affects people and the economy. Applied studies have taken up more space than theoretical studies.

They have focused on modeling this economic phenomenon and figuring out what causes it. Some of these studies are:

Korkmaz (2015) looked at how domestic bank loans affect inflation and economic growth in European countries. The goal was to find out how financial deepening affects economic performance. The study used panel data from ten European countries from 2006 to 2012, which was collected every year.

The researcher concluded that bank loans have no significant effect on inflation, but they have a positive impact on economic growth in the studied countries. She stressed that moving money quickly and easily from the banking sector to the real sector can help the economy grow.

The goal of the study by Katusiime (2018) was to look at how private sector credit reacts to changes in macroeconomic factors like inflation and exchange rate volatility, as well as to look at Uganda's monetary policy. The researcher used ARCH/GARCH models to figure out how volatile inflation was, and then used the series that came out of that as explanatory variables in an OLS model. In this model, current and lagged inflation volatility and the exchange rate were used as explanatory variables for the growth of private sector credit. The study used yearly data from 1981 to 2015.

The researcher discovered that the growth of private sector credit responded significantly and favorably to both the exchange rate and one-period inflation volatility. Nevertheless, the findings also showed that inflation had a detrimental impact on the expansion of private sector credit, indicating that inflation impedes credit growth. The researcher emphasized

how well Uganda's exchange rate regime works to lessen the effects of outside shocks.

A Vector Autoregressive (VAR) model was used in an applied study by Al-Oshaibat & Banikhalid (2019) to examine the sensitivity of inflation to bank credit in Jordan using annual data spanning the years 1968–2017.

The researchers came to the conclusion that bank credit and the rate of inflation are correlated in both directions. They found a positive and statistically significant response of inflation fluctuations to bank credit in Jordan, attributing this to the fact that bank credit in Jordan is directed toward all sectors of the economy.

The goal of the study by Ali, Abbasi, Abbas, & Dastgeer (2020) was to determine whether interest rates, exchange rates, inflation, and private sector credit in Pakistan had an equilibrium relationship over the long and short terms. The (ARDL) model was used in the study, which used annual data from 1975 to 2018.

The findings showed that while the exchange rate had no discernible impact, changes in inflation had a positive impact on private sector credit, while interest rates had a negative impact over the short and long terms. The study came to the conclusion that raising inflationary pressures could result from lowering interest rates to boost economic activity.

Mihaylova-Borisova's (2022) study sought to examine the factors that influence bank credit dynamics in ten countries in Central and Eastern Europe, with an emphasis on the connection between bank credit and economic growth. Using annual data from 2008 to 2021, the study used a balanced dynamic panel model that covered these ten countries.

The findings demonstrated that while inflation had no statistically significant impact on bank credit growth, economic growth is one of the primary drivers of bank credit growth. The study also discovered that the amount of deposits and the non-performing loan ratio have a major impact on the banking industry's performance.. The researcher anticipated that inflation rates may become increasingly important in influencing bank credit as inflationary pressures intensify.

In the case of the Algerian economy, there are no studies that have

examined the bidirectional relationship between private sector domestic credit and inflation. The study by Bendahmane & Kerrouche (2021) sought to examine the impact of both total bank credit directed to the economy and credit specifically directed to the private sector on GDP. This is one of the few studies that have examined the connection between credit and economic growth. Based on yearly data from 1990 to 2018, the study employed a linear regression model with the Ordinary Least Squares (OLS) method.

The study found that while GDP has a negative and significant impact on total credit to the economy, it has a positive and significant impact on credit to the private sector. The economic inefficiency of loans made to public institutions was the reason given by the researchers for this.

The majority of earlier research, as evidenced by studies on Uganda, Pakistan, Mexico, Malaysia, and several Eastern European nations, concentrated on examining the effect of inflation on bank credit, according to the literature review. However, there hasn't been as much focus on the analysis of how bank credit affects inflation. Only a few studies have looked at this topic, Al- Oshaibat & Banikhalid (2019) in Jordan, and Korkmaz (2015) in Europe.

These studies' findings differed; some Ali, Abbasi, Abbas, & Dastgeer (2020) suggested a positive correlation between credit and inflation, while others Katusiime (2018) suggested an inverse one. Furthermore, some studies—like the one by Korkmaz (2015)—found no meaningful correlation between the two variables. The majority of these studies concur that there is a dynamic and intricate relationship between bank credit and inflation. Regarding the Algerian economy, some research Bendahmane & Kerrouche (2021) concentrated on how bank credit affected economic growth rather than how it affected inflation.

Therefore, this study seeks to fill this gap by analyzing the sensitivity of inflation to the volume of domestic credit granted to the private sector in the Algerian economy during the period 1990–2024, using the (ARDL) model, which allows for analyzing the dynamic impact of the relationship in both the short and long run.

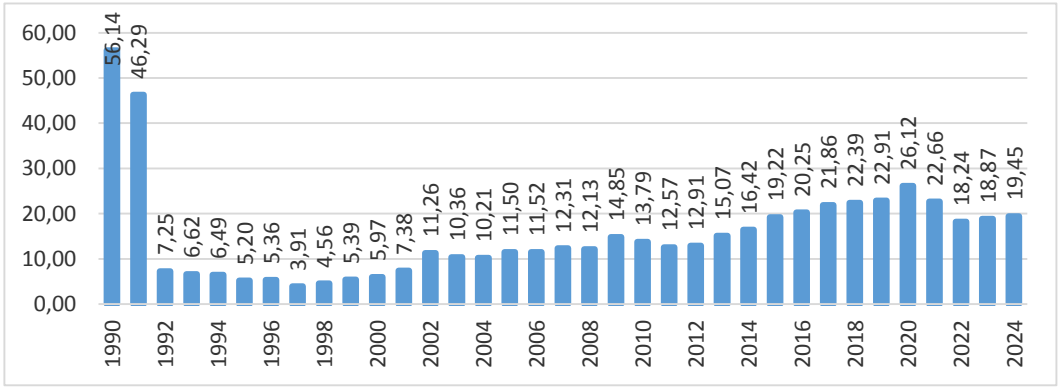
3. An Analytical Study of the Evolution of Private Sector Bank Credit and Inflation:

In order to study the behavior of the variables and understand their trends, it is essential to analyze their evolution over the study period. This allows us to identify the influencing factors, the shocks they have experienced, and consequently determine the most appropriate mathematical model for the study.

3.1 Analysis of the Evolution of Private Sector Bank Credit:

To analyze the evolution of bank credit directed to the private sector, we deemed it necessary to study its size as a percentage of Gross Domestic Product (GDP), considering that such credit represents a portion of national savings—i.e., the non-consumed part of income (the purchasing power not used for consumption)—which is redirected to finance economic activities in the private sector. Therefore, this relative indicator is essential for understanding the extent to which bank financing contributes to economic activity, and consequently, to inflation.

Fig.1. The Evolution of Private Sector Bank Credit (as a Percentage of GDP)



Source: Prepared by the researchers, based on World Bank data

From Fig.1, it can be observed that the evolution of private sector credit went through five main phases. The first phase, which spanned the years 1990 and 1991, was marked by high levels of private sector credit, ranging between 56% and 46% of GDP during the study period. This indicates strong support from the banking sector for the private sector during that time, reflecting efforts to boost economic activity in Algeria.

The second phase, which extended from 1992 to 1999, was characterized by a gradual decline in the credit-to-GDP ratio, dropping from 7.25% to 5.39% in 1999, with the lowest level recorded in 1997 at 3.91%. The average credit level during this period was 5.6%, reflecting a decline in the role of the private sector in economic activity and the dominance of the public sector and the state over the economy.

In contrast, the third phase (2000–2012) witnessed some fluctuations in the share of private sector credit, but overall showed a slight improvement, rising from 5.97% in 2000 to 12.91% in 2012, with an annual average of 11.29%. The highest level was reached in 2009 at 14.85%, before it dropped in the following year to 13.79%.

This improvement reflects greater openness to the private sector in the economy, supported by policy incentives, as well as a significant increase in oil prices, which enhanced the country's financial resources and boosted liquidity in economic activity. In 2011 and 2012, oil prices reached record levels of $111.36 and $108.62 per barrel, respectively.

The fourth phase, spanning the years 2013 to 2020, witnessed a notable expansion in credit directed to the private sector. The share of credit increased from 15.07% in 2013 to 26.12% in 2020, with an annual average of 20.53%. This growth is attributed to a greater reliance on the private sector to boost economic performance and a shift toward private investment as an alternative to public spending, which was subject to austerity measures during this period due to the decline in oil prices and a consequent drop in public revenues. The average oil price during this phase was approximately $55.60 per barrel.

The fifth phase, covering the period from 2021 to 2024, shows a clear decline in the share of private sector credit. It dropped from 22.66% in 2021 to 18.24% in 2022, but then slightly rebounded to reach 19.45%. This decline can be attributed to the slowdown in economic activity caused by the COVID-19 pandemic, which subsequently led to weakened demand for credit.

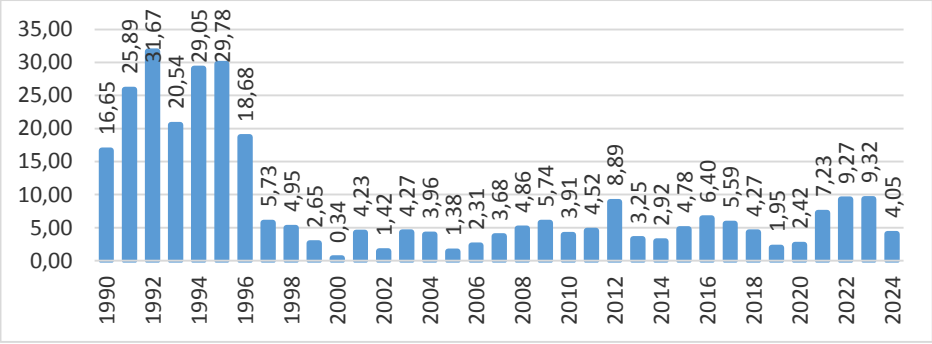
Overall, bank financing to the private sector experienced significant fluctuations influenced by both internal and external factors throughout the study period. However, it followed a generally upward trend, especially

during the 1992–2024 period, with its share rising from 7.25% in 1992 to 19.45% in 2024. The highest level was recorded in 1990 at 56.14%, while the lowest value was in 1997 at 3.91%, with an annual average of 15.35%. Nevertheless, these levels of private sector credit remain limited relative to the scale of economic activity.

3.2 Analysis of the Evolution of Inflation:

Inflation reflects the purchasing power of individuals in the economy: the higher the inflation rate, the lower the purchasing power, and vice versa—when inflation declines, individuals' purchasing power increases. Thus, inflation represents the percentage change in the general price level from one year to another. The following figure illustrates the evolution of inflation rates in Algeria over the period from 1990 to 2024.

Fig.2. The Evolution of the Inflation Rate in Algeria during the Period 1990–2024



Source: Prepared by the researchers, based on World Bank data

From the above figure, it is evident that inflation in Algeria during the study period went through three main phases. The first phase occurred between 1990 and 1996, characterized by sharp fluctuations and record-high inflation rates, ranging from 16.65% to 31.67%, with an annual average of 24.61%. This was primarily due to the depreciation of the national currency against foreign currencies, as the exchange rate of the Algerian dinar against the US dollar rose from 8.95 in 1990 to 54.74 in 1996, representing more than a sixfold increase in value.

The second phase, which extended from 1997 to 2019, was marked by sharp fluctuations in inflation rates. The highest rate was recorded in 2012 at 8.89%, while the lowest was in 2000 at 0.34%, with an annual average of 4%.

Despite the volatility, inflation remained relatively stable during this period.

In the third phase, spanning the period 2020–2024, inflation rose significantly, jumping from 2.42% in 2020 to 9.32% in 2023, before declining to 4.05% in 2024. The average annual rate during this phase was 6.45%.This increase is attributed to the slowdown in economic activity caused by the COVID-19 pandemic, which weakened domestic production, as well as the depreciation of the Algerian dinar due to a surge in exchange rates to record levels, ranging between 126 and 141 dinars per US dollar during that period.

Thus, it is observed that the inflation rate during the period 1990–2024 experienced significant instability and fluctuations. The highest rate was recorded in 1992 at 31.67%, while the lowest rate occurred in 2000 at 0.34%, with an annual average of 8.47%. This volatility can be attributed to several factors, most notably exchange rate fluctuations, which are influenced by both domestic and international factors.

4. Measuring the Impact of Private Sector Bank Credit on Inflation in Algeria During the Period 1990–2024:

To measure the impact of bank credit to the private sector on inflation in Algeria, we will rely on the ARDL (Autoregressive Distributed Lag) approach to estimate the short- and long-term responses between the independent and dependent variables included in the model. This methodology stands out from other cointegration methods due to several advantages, most notably that it does not require the time series to be integrated of the same order, particularly of the first order. To address the research problem and test the study's hypotheses, and based on the literature review, theoretical framework, and the analysis of the trends and dynamics of the key variables—along with identifying their influencing factors—the exchange rate will be included as an additional independent variable in the model. This aims to strengthen the explanatory power of the independent variables in capturing the behavior of the dependent variable. To model the relationship, we use annual time series data sourced from the World Bank database (https://data.worldbank.org) covering the period from 1990 to 2024 (35 observations). To linearize the model and express the sensitivity of the dependent variable to the independent variables in terms of elasticities, thus

facilitating the interpretation and discussion of results—and to ensure data homogeneity and minimize the effect of outliers—the natural logarithm (log) will be applied to the model. The model will be specified as follows:

$$LINF_t = a + \beta_1 LATS_t + \beta_2 LNEXCH_t + \varepsilon_t \qquad (1)$$

Where:

- LINF: Natural logarithm of the inflation rate
- LATS: Natural logarithm of the share of private sector credit (% of GDP)
- LEXCH: Natural logarithm of the exchange rate (DZD per USD)
- a: Constant term.
- β□, β□, β□: Elasticities of the respective independent variables.
- ε: Stochastic error term.
- t: Time period.

4.1 Stationarity Test:

Testing the stationarity of the time series is essential for modeling economic phenomena in order to avoid spurious results. Therefore, we will use (ADF) test, which is the most commonly used among other tests

Table 1. ADF Test Results

At Level				
		LINF	LAST	LEXCH
Intercept	t-Statistic	-2.7264	-2.6117	-6.3339
	Prob.	0.0800	0.1005	0.0000
Trend and Intercept	t-Statistic	-2.7654	-4.8415	-2.5669
	Prob.	0.2190	0.0023	0.2967
None	t-Statistic	-1.5513	-1.0963	2.3047
	Prob.	0.1120	0.2419	0.9937
At First Différence				
		d(LINF)	d(LAST)	d(LEXCH)
Intercept	t-Statistic	-7.8846	-4.8222	-6.5738
	Prob.	0.0000	0.0005	0.0000
Trend and Intercept	t-Statistic	-7.8643	-5.1016	-6.5589
	Prob.	0.0000	0.0012	0.0000
None	t-Statistic	-7.9759	-4.8791	-6.1737
	Prob.	0.0000	0.0000	0.0000

Source: Author estimation (EViews output)

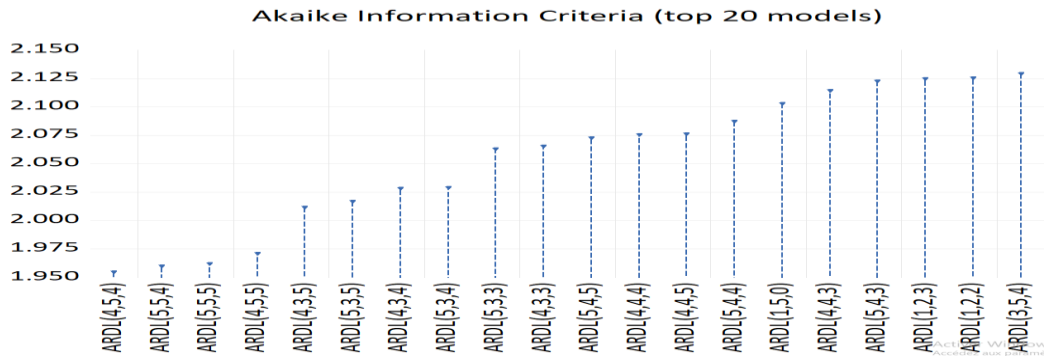
Based on the results of Table 1, we observe that the probability values (Prob.) for all the study variables, in their various forms, are greater than 0.05 at level, except for the variable LEXCH when a constant is included only. Accordingly, we accept the null hypothesis which states the existence of a unit root in the time series at a 5% significance level. Thus, we conclude that all the variables are non-stationary at level.

However, when taking the first difference of the variables, the results indicate that all the series become stationary, as the probability values for all variables are less than 0.001, i.e., at a 1% significance level. Therefore, we reject the null hypothesis and confirm the absence of a unit root after taking the first difference. This indicates that all the variables are integrated of order one I(1), which allows us to use the ARDL methodology to model the relationship.

4.2 Optimal Lag Length

Figure (3) shows that the ARDL(4, 5, 4) model represents the optimal lag lengths among the 20 estimated models, as it has the lowest Akaike Information Criterion (AIC) value, making it the most suitable model for analysis.

Fig.3. Akaike Information Criterion (AIC)



Source Author estimation (EViews output)

The preliminary estimation results of the ARDL model indicate the goodness of fit of the model, as reflected by the coefficient of determination R^2, which reached 0.776. This indicates that the model explains about 77.6% of the variations in the inflation rate. This level of explanation is acceptable given the complex nature of inflation, which is influenced by several factors that cannot all be included in the model. Moreover, the p-value of the F-

statistic is 0.016674 (less than 5%), indicating the overall significance of the model and confirming that the explanatory variables are statistically significant and not spurious.

4.3 ARDL Bounds Test

Table 2. ARDL Bounds Test

Null hypothesis: No levels of relationship						
Test Statistic			Value			
F-statistic			8.362728			
	10%		5%		1%	
Sample Size	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
30	2.915	3.695	3.538	4.428	5.155	6.265
Asymptotic	2.63	3.35	3.1	3.87	4.13	5.000

Source: Author estimation (EViews output)

Table 2 shows that the F-statistic value is 8.362, which is greater than the upper bound critical values associated with integration of order one I(1) at all significance levels (10%, 5%, and 1%). Based on the Bounds Test approach, This result indicates the existence of a long-run equilibrium relationship in the model.

4.4 Estimation of the long-term relationship:

Table 3 shows that the coefficient of the variable LAST is 0.559 and is statistically significant at the 5% significance level (p-value = 0.0379), indicating a statistically significant and positive long-run equilibrium relationship between the inflation variable (LINF) and the private sector credit as a percentage of GDP (LAST). This means that in the long run, a 1% increase in private sector credit leads to a 0.559% increase in the inflation rate.

As for the coefficient of the variable LEXCH, the p-value is 0.0704, making it statistically significant at the 10% level, indicating a relatively weak long-run relationship between the exchange rate and inflation.

Table 3. Long-term Relationship Estimation Equation

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
LAST	0.559871	0.244194	2.292732	0.0379
LEXCH	-0.678223	0.346308	-1.958435	0.0704
C	2.932073	1.074300	2.729287	0.0163
EC = LINF - (0.5599*LAST -0.6782*LEXCH + 2.9321)				

Source: Author estimation (EViews output)

3.5 The Error Correction Model

Table 4. ECM Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CointEq(-1)*	-2.275645	0.357059	-6.373301	0.0000
D(LINF(-1))	0.919975	0.245361	3.749469	0.0022
D(LAST)	-0.964701	0.768809	-1.254799	0.2301
D(LEXCH)	0.597583	1.720968	0.347237	0.7336

Source: Author estimation (EViews output)

As shown in Table 4, the error correction term CointEq(−1) is −2.275, which is both negative and statistically significant at the 1% level. This implies that the model effectively corrects deviations from the long-run equilibrium among the study variables, adjusting back toward equilibrium at a speed of 2.275 per year. This finding confirms the presence of a stable long-run relationship. In the short run, the variables D(LAST) and D(LEXCH) are not statistically significant at the 5% level, with p-values of 0.2301 and 0.7336, respectively, indicating that neither variable exerts a meaningful short-term influence on inflation. Conversely, the coefficient of the one-period lag of inflation, D(LINF(−1)), is statistically significant at the 1% level (p = 0.0022), suggesting a strong short-run dynamic. Specifically, a 1% increase in the previous period's inflation rate results in a 0.919% increase in current inflation.

4.6 Diagnostic Tests

After estimating the model, it is necessary to assess its quality and suitability by conducting a set of diagnostic tests.

Table 5. Diagnostic Tests.

Jarque-Bera Test			
Jarque-Bera	0.860447	**Prob**	0.650364
Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.428527	Prob. F(2,12)	0.2776
Obs*R-squared	5.769087	Prob. Chi-Square(2)	0.0559
Heteroskedasticity Test: ARCH			
F-statistic	2.124048	Prob. F(14,20)	0.1565
Obs*R-squared	2.115001	Prob. Chi-Square(14)	0.1459

Source: Author estimation (EViews output)

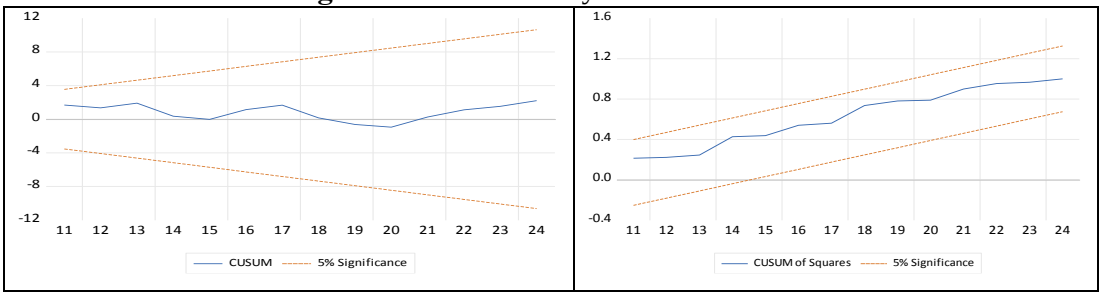
Based on the results presented in Table 5, the p-values of the diagnostic tests (Jarque-Bera, LM, ARCH) are greater than 0.1, which exceeds the 10% significance level. Therefore, the null hypotheses of these tests cannot be

rejected, indicating that the residuals are normally distributed, free from serial correlation, and exhibit homoscedasticity. Accordingly, the model is free from major econometric problems, which supports the validity and reliability of its results."

4.7 Structural Stability Test of the Model

Fig.5 shows that the plotted curves for both the CUSUM and CUSUMSQ tests lie within the 95% confidence bounds, indicating that the model enjoys structural stability. This confirms the existence of stability among the study variables and consistency in the model between the short-run and long-run error correction results.

Fig.5. Structural Stability Test of the Model



Source: Author estimation (EViews output)

5. CONCLUSION

Through our analytical and econometric study of the role of private sector credit in explaining the dynamics of inflation in Algeria during the period (1990–2024), we examined various theoretical and empirical reviews related to the subject, which confirmed the existence of a relationship between private sector credit and inflation rates. We also analyzed the evolution of the study variables during the study period to understand their trends and behavior, and to identify the influencing factors in order to determine the appropriate variables for the model. By applying the ARDL methodology to model the relationship, we demonstrated the existence of both long-run and short-run dynamic relationships between the volume of private sector credit in the economy and inflation in Algeria. Additionally, we verified the quality and validity of the model by ensuring it was free from econometric problems and confirming its structural stability.

The study concluded that the dynamics of inflation have a positive and

significant long-term response to the volume of domestic bank credit to the private sector in the Algerian economy, with the elasticity of inflation with respect to bank credit amounting to approximately 0.56. This indicates that a 1% increase in credit granted to the private sector leads to a 0.56% rise in the inflation rate in the long run. In contrast, there was no statistically significant relationship between the two variables in the short term. This confirms that the explanation of inflation dynamics through credit directed to the private sector is not immediate but requires a period of time.

This demonstrates that the effect does not appear directly upon financing the private sector but rather emerges gradually through various economic channels, which is supported by economic theory. The financing may follow the production path, leading to increased investment in productive activities, which results in an increase in the aggregate supply of goods and services, thereby lowering prices and reducing inflation rates. Alternatively, the financing may follow the consumption path, leading to increased consumer spending, especially by households, which results in a rise in aggregate demand for goods and services, thereby increasing prices and intensifying inflationary pressures.

Therefore, the results indicate that a large portion of this credit is directed toward financing household consumption expenditures rather than being channeled into productive activities. Hence, it can be concluded that there is a low allocative efficiency of financial resources, as these resources are not directed toward the most strategic productive sectors that contribute to achieving sustainable development, such as renewable energy, agriculture, and industry.

This result reinforces what is suggested by economic theory, which asserts that the expansion of consumer credit leads to an increase in aggregate demand for goods and services. Given the low elasticity of the productive apparatus in the Algerian economy and its inability to respond quickly and adequately to this increase in aggregate demand, this imbalance between supply and demand in the market leads to rising prices, and consequently to an increase in the general price level and inflation rates.

Based on this, we can confirm the validity of the first hypothesis, which states that there is a statistically significant positive long-term response of

inflation fluctuations to the volume of credit directed to the private sector in the Algerian economy. Conversely, we reject the second hypothesis, which suggests that there is a statistically significant positive short-term response of inflation fluctuations to the volume of credit directed to the private sector in the Algerian economy.

In light of the study's results, which revealed the low allocative efficiency of credit allocated to the private sector and its greater orientation toward consumption rather than financing productive activities, the study recommends establishing incentive mechanisms to direct credit toward the most strategic and high value-added sectors that require a large labor force, such as agriculture, industry, and renewable energy, in order to enhance the allocative efficiency of economic resources in Algeria.

In parallel, consumer credit should be regulated by imposing certain restrictions, especially on goods for which the supply is weakly responsive to rising demand. Additionally, the flexibility of the productive apparatus should be enhanced by modernizing the technology used in the production chain to increase the efficiency of the response to rising aggregate demand. The study also emphasizes the need to strengthen coordination between fiscal and monetary policy to achieve price stability and sustainable development.

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