

Empirical Research on Nexus Between Inflation and Unemployment: In the Case of Sri Lanka

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Abstract: Through the use of a quantitative methodology that is based on an exhaustive examination of secondary data, this study conducts an in-depth investigation of the complex link that exists between unemployment and inflation within the context of Sri Lanka's one-of-a-kind economic environment. In the course of this comprehensive research, which spans the years 1959 through 2022, a wide range of macroeconomic variables are methodically investigated with the purpose of elucidating the intricate linkages that exist between them. These convincing results of this analysis demonstrate a considerable negative association between unemployment rates and inflation, throwing light on the numerous issues that are inherent in the process of designing successful economic policies within this framework. The research strongly supports for the implementation of policy frameworks that are balanced and successfully target both job creation and price stability. This is because the study acknowledges that both are key aspects for encouraging economic growth that is both long-lasting and sustainable. It is important to emphasize that the dependence on secondary data sources has always influenced the historical emphasis, and the availability of data has thus been restricted. On the other hand, in spite of these limitations, this study makes a substantial contribution to the understanding of the complex mechanisms that drive the link between unemployment and inflation. Insights such as these serve as a solid platform for additional in-depth investigations and policy considerations that are customized to Sri Lanka's particular economic environment. This paves the way for decisions that are better informed.

Keywords: Inflation, Unemployment, Sri Lanka

1. Introduction

The goal of the research was to verify the Phillips curve in the context of Sri Lankan economy by examining the relationship between inflation and unemployment rates. Although historically established, the Phillips curve which postulates an inverse link between inflation and unemployment rates has not undergone comprehensive testing within the context of Sri Lanka. The Central Bank of Sri Lanka's statistics reports from 1959 to 2022 provided the yearly time series data used in the inquiry. The research used multiple regression analysis, adjusting for money supply and interest rate and using the unemployment rate as the main independent variable and the inflation rate as the dependent variable, to evaluate this association [1].

In the field of macroeconomics, the relationship between inflation and unemployment continues to be an important topic of study, especially when considering the context of Sri

Lanka [2]. In Sri Lanka, the empirical evidence supporting the negative correlation between these two factors has been conspicuously lacking, even though it has been acknowledged globally. By completing a thorough analysis on the relationship between Sri Lanka's unemployment and inflation rates from 1959 to 2022, this research seeks to close this crucial gap [3]. The absence of empirical research specifically focused on Sri Lanka is a significant obstacle for economists and policymakers seeking to get a more comprehensive understanding of the country's economic dynamics. It is challenging to develop targeted policies with the objectives of achieving economic stability, managing inflationary pressures, and promoting employment opportunities due to this lack of factual evidence.

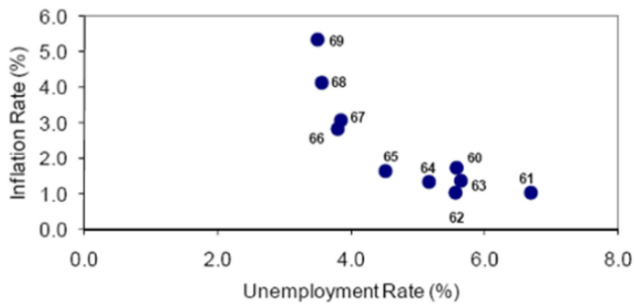


Figure 1. Unemployment and inflation rate.

The absence of a proven correlation between unemployment and inflation in Sri Lanka makes economic predictions and policy recommendations less effective, leaving the nation's economy vulnerable to fluctuations. In addition, because of the fluid nature of the economic circumstances, it is essential to have a current and accurate knowledge of the interactions between these factors in order to make decisions that are well-informed. Policymakers in Sri Lanka are hampered in their capacity to create policies that are customized to the complexities of the country's economy since there is no clear empirical base in this area. As a result, this research tackles a fundamental issue by providing an explanation of the connection between inflation and unemployment, establishing a foundation for policymaking that is founded on facts, and making a substantial contribution to the discussion of macroeconomic issues in Sri Lanka. The crucial objective of preserving price and economic stability is given top priority in contemporary central banking practices, especially in Sri Lanka. In this context, two basic macroeconomic ideas—unemployment and inflation—have a big impact on a country's overall economic aspects. A persistent increase in overall prices, or inflation, is measured in Sri Lanka using a variety of indices, including the producer price index, consumer price index, wage price index, and gross domestic product deflator. A crucial indicator of shifting consumer prices is the consumer price index, which expresses the yearly percentage change in costs for a typical consumer's basket of goods and services. In a similar vein, the wage price index monitors changes in employee job earnings and salaries, but does not account for fluctuations caused by changes in the structure of the labor market. Sri Lanka's inflation rate fluctuated in recent years, falling significantly between 1998 and 2017 and reaching 6% by that year.

On the other hand, those who are eager and actively looking for work but are not already employed are considered unemployed. The unemployment rate in Sri Lanka decreased from 4.7% in 2015 to 4.4% in 2016. The 1.2% rise in the labor force and the 5.4% decrease in the number of jobless people in 2016 suggest that there were more job possibilities in the economy that year. Short-term unemployment and inflation have an inverse connection, according to theoretical models like the Phillips curve. According to this idea, there is a trade-off between these two variables: increasing inflation tends to decrease

unemployment, whereas falling inflation correlates with higher unemployment. Although fundamental to theoretical frameworks, these macroeconomic principles actively influence Sri Lanka's economic operations and policies. Comprehending the way they interact serves as a basis for devising tactics that harmonize the two goals of maintaining prices and creating jobs.

The main objectives and the empirical questions to be addressed in this research are stated as below.

Research Objectives

- 1) To empirically examine the relationship between inflation and unemployment rates in Sri Lanka over the period from 1959 to 2022.
- 2) To assess the impact of inflation, interest rates, and money supply on unemployment in the Sri Lankan economy during the specified timeframe.
- 3) To provide empirical evidence validating or refuting the Phillips curve theory within the context of Sri Lanka's economy and its implications for policy formulation.

Research Questions

- 1) What is the nature and strength of the relationship between inflation and unemployment rates in Sri Lanka from 1959 to 2022?
- 2) How do inflation, interest rates, and money supply influence unemployment levels within the Sri Lankan economy over the specified period?
- 3) Does the empirical evidence gathered support the Phillips curve theory in the Sri Lankan economic context, indicating an inverse relationship between inflation and unemployment rates?

The contribution that this study makes to filling a significant vacuum in empirical research within the context of the economic landscape of Sri Lanka is the key reason for the relevance of this study. This study tackles a basic but insufficiently investigated part of the country's macroeconomic dynamics by analyzing the link between inflation and unemployment rates. Specifically, the research focuses on these two variables. Due to the fact that Sri Lanka is a developing economy that is confronted with certain socio-economic issues, it is necessary to have a complete grasp of the elements that influence the development and stability of its economy. Within the context of this discussion, the empirical confirmation or denial of the Phillips curve hypothesis has significant ramifications for policymakers, economists, and other stakeholders. In order to formulate economic policies that are successful, it is essential to have a solid understanding of the complex link that exists between inflation and unemployment rates. For the purpose of formulating measures that reduce the effects of inflationary pressures while simultaneously increasing job possibilities, policymakers depend on empirical research of this kind. A Phillips curve hypothesis that has been confirmed and is particular to Sri Lanka would give policymakers with a guiding framework that would allow them to manage the difficult balance that exists between managing inflation and maintaining optimum employment levels. It is thus possible that the results of this research may be used to guide the

design and execution of specific policies that are intended to encourage economic development and stability. In addition, the findings of this study have consequences for the precision and dependability of economic projections and models that are used by financial institutions, government organizations, and enterprises that are active in Sri Lanka. The accuracy of economic estimates would be improved if there was a well-established empirical link between inflation and unemployment rates within the setting of Sri Lanka. Businesses, investors, and financial institutions largely depend on these estimates in order to make educated choices about investments, expansions, and risk management measures. As a result, these projections contribute to the overall economic resiliency of the nation.

2. Literature Review

Since the beginning of economic discourse, the interweaving dynamics of inflation and unemployment have been focus points, and they have been responsible for defining macroeconomic policies and ideas all across the globe. Macroeconomic theory, which greatly influences the formulation of economic policy and the stability of the economy, is based on the relationship between inflation and unemployment rates. This literature review aims to investigate the intricate relationship between the two in detail, with a specific emphasis on Sri Lanka as the geographical location. To effectively promote economic growth and maintain stability, Sri Lanka, like many other emerging nations, has to have a firm understanding of the connection between unemployment and inflation. When combined, the dynamics of these two factors have a significant impact on the nation's monetary and fiscal policies, which in turn have an impact on interest rates, job-search tactics, and the overall state of the economy. In spite of the fact that it is of the utmost importance, there have been strikingly little empirical research that have been conducted to investigate this connection within the specific context of Sri Lanka.

The study starts out by looking into the theoretical foundations, which are mostly based on the Phillips curve hypothesis. This theory proposes that there is a negative link between inflation and unemployment rates in the near run. The stability and application of this theory within the context of Sri Lanka's economic environment, on the other hand, have not been sufficiently investigated. In light of the fact that theories serve as the foundation for economic forecasts and policy interventions, it is of the utmost importance to validate or disprove these ideas within the context of Sri Lanka. In addition to this, the empirical approach incorporates an analysis of previously conducted research all around the world, while simultaneously drawing attention to the scarcity of extensive empirical investigations conducted inside Sri Lanka itself.

There are a substantial number of research gaps in Sri Lanka as a result of the small amount of localized empirical data that exists inside the country, despite the fact that various worldwide studies have sought to validate or modify

the Phillips curve. It is difficult for policymakers and economists to develop individualized solutions that are in line with the complexities of Sri Lanka's economic environment because of the shortage of resources. The literature study emphasises the crucial relevance of explaining the link between inflation and unemployment rates within Sri Lanka, as stated in the conclusion of the review. In doing so, it throws light on the void in localized empirical studies, highlighting the demand for comprehensive research initiatives to influence policy development and economic strategies within Sri Lanka's distinctive economic setting. This is accomplished by combining theoretical viewpoints with empirical facts. These kinds of studies have the ability to rethink how economic theories are used in the real world and to pave the way for policymaking that is more nuanced and successful, and that is customized to the particular economic situation of Sri Lanka.

2.1. Theoretical View

The theoretical viewpoint on the link between inflation and unemployment rates, which is principally clarified via the Phillips curve, is established as a crucial cornerstone in the discourse on macroeconomics. A pioneering study done by A. W. Phillips in the late 1950s argued that there is an inverse link between inflation and unemployment in the near term [4]. This idea was innovative because it suggested that policymakers were confronted with a choice between these two important macroeconomic indicators. According to the first curve, there was a negative correlation between the two variables, which meant that when unemployment rates dropped, inflation would fall, and vice versa. around the course of many decades, this idea has been influential in influencing arguments about economic policy all around the world [5].

In spite of this, theoretical arguments about the Phillips curve have developed throughout the course of time, which has resulted in disputes and clarifications. There was a growing concern among economists, politicians, and academics over the stability of the curve, particularly in a variety of economic settings. In spite of the fact that the Phillips curve was originally relevant, its applicability was believed to have diminished over longer periods of time or in response to structural changes that occurred inside economies. It was thought that the trade-off was influenced by a variety of factors, including expectations, supply shocks, and institutional changes. These factors brought about fluctuations in the curve or challenged the linear structure of the trade-off [6].

In addition, the long-term link between inflation and unemployment, which is referred to as the "long-run Phillips curve," further complicates the theoretical approach. The argument put up by economists is that in the long term, this trade-off may not be maintained since expectations will adapt and the economy will eventually achieve a natural rate of unemployment [7]. The conclusion that may be drawn from this is that efforts to systematically manipulate one indicator in order to impact the other may be quite restricted over the

long run. When it comes to the particular context of Sri Lanka, the theoretical foundations of the Phillips curve and its relevance continue to be relatively underexplored [8]. In spite of the fact that the original theory offers a conceptual framework for comprehending the inverse connection that exists between inflation and unemployment, the validity of this theory within the complexities of the Sri Lankan economy requires empirical investigation [9]. There are a number of factors that need a more in-depth analysis of the stability and application of the Phillips curve within the context of Sri Lanka's economic dynamics. These factors include the country's distinctive structural features, regulatory measures, and foreign impacts [10]. The theoretical arguments that take place within the economic environment of Sri Lanka need a sophisticated approach that takes into consideration the historical, social, and institutional aspects that are present in the nation. In Sri Lanka, there are only a limited number of localized ideas about the link between inflation and unemployment rates. As a result, empirical study is required in order to verify or modify these theories. It is essential to have a solid grasp of the application of economic theories within Sri Lanka in order to formulate effective policies that are aimed at ensuring sustainable economic development and stability. Economic theories serve as guiding principles throughout the policymaking process.

2.2. Empirical View

The empirical perspective on the link between inflation and unemployment rates comprises a worldwide panorama of research that aim to confirm or improve the Phillips curve hypothesis and its consequences for policy and economic management. These studies are conducted all over the world. The empirical information within the unique context of Sri Lanka remains relatively rare, providing a major gap in comprehending the relationships between these essential macroeconomic variables inside the nation [11]. This is despite the fact that countless empirical investigations have been undertaken all over the world.

In the context of the global economy, empirical research that have been conducted to investigate the connection between inflation and unemployment rates have produced contradictory findings, which has contributed to the continuing arguments over the Phillips curve's stability and its application. A number of studies have shown evidence that these indicators have an inverse connection with one another in the short term, which is consistent with the fundamental assumption of the Phillips curve hypothesis. In spite of this, there have been observations of differences in the intensity and durability of this association across a variety of historical periods, nations, and economic situations [12]. Changes in monetary policy regimes, structural transformations, and variations in inflationary expectations are some of the factors that have altered the observed link between inflation and unemployment rates in a number of different economies. The number of research that have been conducted to investigate this association has been restricted, particularly within the South Asian area. Furthermore, there is a scarcity of

extensive empirical investigations in Sri Lanka. Although there are just a few studies that are now accessible, the most of them have concentrated on wider economic patterns rather than particularly examining the relationship between inflation and unemployment rates within the context of Sri Lanka [13]. The limited availability of empirical information that is specific to Sri Lanka makes it difficult to get a detailed knowledge of the ways in which inflationary pressures and unemployment levels interact within the context of Sri Lanka's distinct economic environment [14].

In addition, the empirical investigations that were carried out in Sri Lanka encounter difficulties in terms of the availability of data, the quality of the data, and the consistency of the data over lengthy periods of time. Researchers who are seeking to support or deny theoretical frameworks such as the Phillips curve within the context of the Sri Lankan economic environment face challenges due to the complications involved in acquiring and interpreting extensive time series data [15]. In light of the fact that there are no large empirical studies conducted within the framework of Sri Lanka's economy, it is imperative that thorough research initiatives be undertaken. In order for policymakers and economists in Sri Lanka to make informed decisions, it is essential for them to have a localized empirical knowledge of the link between inflation and unemployment rates [16]. This empirical information has the potential to give insights into the particular processes that are at play inside the economy of the nation [17]. This makes it possible for policy interventions and economic strategies to be more precisely targeted, with the goals of producing sustainable growth, maintaining price stability, and creating job opportunities [18].

Empirical studies conducted on a worldwide scale contribute to a more thorough knowledge of the connection between inflation and unemployment rates, the dearth of extensive empirical data inside Sri Lanka highlights the need of doing research that is more narrowly focused. In order to promote informed policymaking and efficient economic management in Sri Lanka, it is vital to validate or refine the Phillips curve hypothesis within the specific context of the economic dynamics of the nation.

3. Research Methodology

In this study, we explored the underlying components of the Phillips curve theory and its development throughout time. In particular, we focused on the theory's application within specific economic situations such as Sri Lanka.

3.1. Research Design

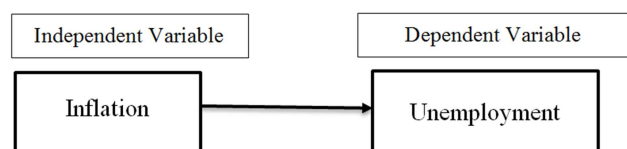


Figure 2. Conceptual Framework.

For the purpose of gaining a better knowledge of the

complex relationships that exist between inflation and unemployment rates in Sri Lanka, this study used a quantitative research methodology in the prior stages of its investigation. The use of a quantitative technique made it possible to conduct an in-depth investigation of the connection that exists between these significant macroeconomic indicators within the framework of Sri Lanka's economic history. The main aim of this study was to conduct a comprehensive time-series analysis covering a substantial time period from 1959 to 2022. Using such a large time span allowed for the identification of long-term patterns, oscillations, and trends that were encoded in the development of inflation and unemployment rates over several decades. The study methodology aims to provide light on significant macroeconomic variables' historical patterns with respect to Sri Lanka's economic environment. A time-series analysis was previously used for this purpose. Using this technique, it was possible to find complex trends, cyclical patterns, and possible correlations between historical rates of unemployment and inflation over a considerable amount of time. The historical association between these markers was better understood via the application of quantitative methodologies and long-term data analysis. This laid the groundwork for understanding past economic patterns and deviations.

All things considered, the quantitative research technique proved to be a helpful starting point for distilling the complex and dynamic link between rates of unemployment and inflation that has persisted throughout Sri Lanka's economic history. This method was based on a time-series analysis that was conducted over many decades. The study's goal in using this strategy was to further our knowledge of the past relationships between these crucial macroeconomic factors.

3.2. Data Collection

The research endeavor required the tedious collection of secondary data obtained from the Central Bank of Sri Lanka. The use of dependable sources enabled a comprehensive examination of the correlation between unemployment and inflation rates throughout Sri Lanka's economic chronicles, guaranteeing the acquisition of precise and uniform data. The dataset used for the research included annual records of important macroeconomic variables, including the rate of inflation and unemployment, interest rates, and the amount of money in circulation. This enormous dataset, which covered the years 1959 to 2022, made it possible to provide a comprehensive and in-depth research of the historical patterns and modifications in these significant economic indicators.

The study's validity and reliability were increased and a solid basis for the research was created by the use of secondary data from reliable sources in the past. By establishing a unified and consistent dataset using the databases and statistics reports of the Central Bank of Sri Lanka, any possible discrepancies were eliminated, and the accuracy of the empirical investigation was increased. This method of data collecting makes it possible to conduct a

thorough and comprehensive investigation of the historical patterns and linkages between inflation and unemployment rates within the framework of Sri Lanka's economy. The study's validity was strengthened since it was able to conduct in-depth analyses and analytical interpretations of historical patterns in macroeconomic data because it relied on trustworthy, independently verified sources.

3.3. Data Analysis

The research project used a wide range of rigorous data analysis approaches in the past. These techniques were specifically designed to investigate the link between inflation and unemployment rates over the course of Sri Lanka's economic history. The Augmented Dickey-Fuller (ADF) test was used in order to determine whether or not the variables were stationary. During the broad time period under consideration, which spanned from 1959 to 2022, this statistical instrument proved to be an invaluable resource in establishing whether or not the variables that were chosen demonstrated stationarity.

The research used the Ordinary Least Squares (OLS) estimation method to carry out numerous regression analyses. The purpose of these studies was to get a more in-depth understanding of the connection that exists between inflation and unemployment rates. The inflation rate was put into the regression equation as the dependent variable, while the unemployment rate, interest rate, and money supply were used as independent variables and controlled variables respectively. An in-depth investigation of the ways in which these elements interacted with one another over the course of time was made possible by this technique. The Breusch-Godfrey Serial Correlation LM test was used to ascertain whether or not the fitted model has serial correlation. Regression analysis dependability increased as a consequence of using this statistical technique, which allowed for the investigation of potential correlations between the residuals. Furthermore, the analysis's dependability was improved.

Throughout the extended research period, it was essential to guarantee that the fitted model would remain stable. The method known as the Cumulative Sum (CUSUM) plot was used in order to accomplish this goal. Using this approach, which offered a visual assessment, researchers were able to confirm the stability of the model and discover any possible structural changes or inconsistencies in the connections between the variables throughout the course of the historical era. This also made it possible for the researchers to determine how stable the model was. In light of Sri Lanka's macroeconomic climate, the research was carried out with the goal of obtaining significant empirical insights into the historical relationships that have existed between inflation and unemployment rates. This was accomplished in the past by using a wide variety of complex data analysis tools. The selection of these approaches was carefully considered to guarantee the validity, trustworthiness, and comprehensiveness of the study findings.

4. Data Analysis and Presentation

In macroeconomic analysis, the relationship between unemployment and inflation is one of the most fundamental concepts. Understanding the dynamics of an economy and developing economic policy depend on this relationship. This chapter examines and evaluates the historical relationship between these significant macroeconomic factors, concentrating on Sri Lanka as the study's setting. This chapter examines in detail the complex relationship between unemployment and inflation rates and the range of trade-offs that might arise between them in the context of Sri Lanka's economic climate. This chapter's goal is to provide nuanced insights into the historical dynamics of these components via the use of sophisticated statistical techniques and decades' worth of empirical study. The aim is to shed light on how these factors interact and what effects that has on policy formulation. The aim of this study is to enhance the overall understanding of macroeconomic dynamics and provide noteworthy recommendations for economic policy in Sri

Lanka.

4.1. Unit Root Test Analysis

Unit root test is carried out to test whether the selected variables are stationary or non-stationary. The most popular test of Augmented Dickey Fuller (ADF) test is employed to determine the status of the variables. Unit root test results for the inflation, interest rate unemployment rate and money supply are given in the table 1 below.

The purpose of these tests was to determine whether or not the variables that were being considered were stationary. When doing time series analysis, stationarity is an essential component that establishes whether or not the statistical characteristics of a variable stay unchanged throughout the course of time. The test statistics that were obtained from the ADF tests for each variable in both forms level and first difference provide insights into the stationarity properties of the variables.

Table 1. Unit root Test results.

Variables	Level form Test Statistics	1st Difference form Test Statistics
Inflation Rate	-4.0264	-9.6852
Interest Rate	-1.5705	-10.409
Unemployment Rate	-0.7148	-8.2088
Money Supply	3.8824	4.32793

Different test statistics are shown for each variable in the level form, which is the state in which the data is in its initial state given the figure 1. These variables include the rate of inflation, the interest rate, the unemployment rate, and the money supply. Particularly concerning are the data for inflation and interest rates, which are both negative, suggesting the possibility of non-stationarity. In contrast, the statistics for all variables are greatly reduced in the first difference form, which indicates that stationarity has been established. This occurs after the data has been subjected to differencing in order to eliminate trends. In particular, the

considerable decrease in statistics for inflation and interest rates implies that as a result of differencing, these variables display stable behavior, which is essential for conducting credible time series analysis. On the other hand, the Unemployment Rate and Money Supply both display stationary behavior in both their original and differenced versions, which highlights the fact that they are consistent throughout the time series data. In addition to laying the framework for more robust time series analysis and modeling, these findings provide an indication of the changes that are required in order to achieve stationarity.

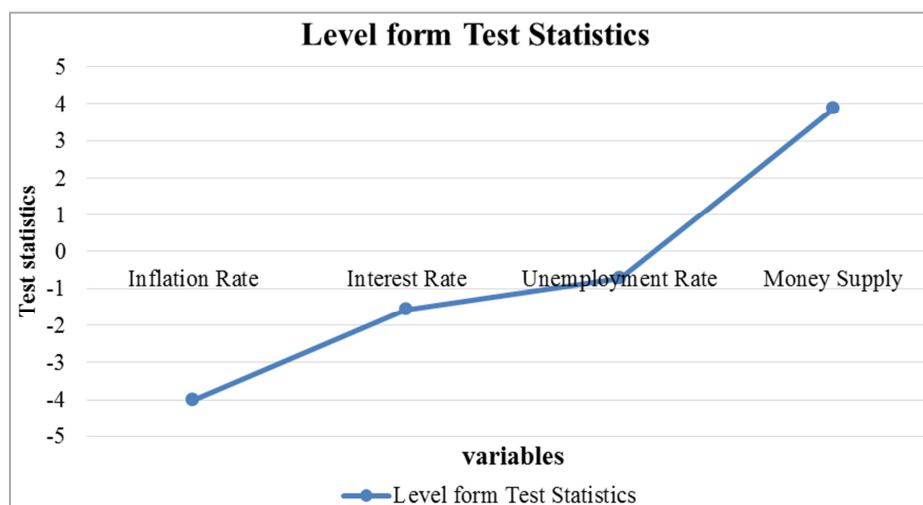


Figure 3. Level form test statistics.

Table 2. Unit True Results.

Variables	Level Form Test Statistics	1st Difference Form Test Statistics
Inflation Rate	-4.0264	-9.6852
Interest Rate	-1.5705	-10.409
Unemployment Rate	-0.7148	-8.2088
Money Supply	3.8824	4.32793

The results of unit root tests on various variables are shown in the table in two different formats: the level form and the first difference form. These tests are used to determine if variables are stationary. A variable is said to be stationary if its statistical characteristics, including its variance and mean, are steady across time. The test statistics for the unemployment rate, interest rate, and inflation rate in the level form show values of -0.7148, -4.0264, and -1.5705, respectively. The degree of non-stationarity in their initial condition is shown by these data. But when first differencing is used, the variables are transformed into their first difference form, and the test statistics significantly drop to -9.6852, -10.409, and -8.2088, respectively. This significant decline in test statistics below critical levels implies that these variables become stationary during differencing, indicating that their statistical characteristics are steady over time. In contrast, the Money Supply variable shows non-stationarity in both states due to its high test statistics in the level form (3.8824) and first difference form (4.32793). These findings are important for time series analysis because they help choose the right models and guarantee that stationary variables are used to make precise predictions.

4.2. Regression Analysis

$$\text{INFR} = \beta_0 + \beta_1 \text{INTR} + \beta_2 \text{UNEMPR} + \beta_3 \text{MONEYS} + \epsilon$$

The table 2 presents the coefficients, associated p-values, and t-statistics derived from a multiple regression analysis examining the relationship between various macroeconomic variables—Interest Rate, Unemployment Rate, and Money Supply—with respect to the Inflation Rate. The coefficient values indicate the estimated impact of each independent variable on the dependent variable, Inflation Rate, when other variables are held constant. Notably, the constant term stands at 0.56, suggesting a baseline impact on inflation when all independent variables are zero. In this regression model, the Interest Rate exhibits a coefficient of 2.29, indicating a positive relationship with inflation, although the result is not statistically significant at the conventional 5% level, as shown by the associated p-value of 0.6451. Conversely, the Unemployment Rate demonstrates a coefficient of -0.29, implying a negative relationship with inflation. This negative impact is statistically significant, evidenced by the low p-value of 0.0001, suggesting that an increase in the unemployment rate is associated with a decrease in the inflation rate. Additionally, the Money Supply variable exhibits a coefficient of 0.31, implying a positive relationship with inflation, although the statistical significance is inconclusive at the 10% level with a p-value of 0.1079. The overall model's goodness-of-fit is measured

by the R^2 value, standing at 0.54. This indicates that approximately 54% of the variability in the inflation rate is explained by the independent variables included in the regression model. These results provide insights into the specific impacts and statistical significance of each variable in influencing inflation within the studied context.

Table 3. Results for regression analysis.

Variables	Coefficients	p-values	t-statistics
Constant	0.56	0.8334	0.211
Interest Rate	2.29	0.6451	4.244
Unemployment Rate	-0.29	0.0001*	-0.463
Money Supply	0.31	0.1079	1.636
R^2	0.54	-	-

The table that follows shows the results of a regression study that looked at the relationships between different variables. It also includes the coefficients, p-values, t-statistics, and R^2 value. The estimated effects of each independent variable on the dependent variable are shown by the coefficient values. The null hypothesis, which states that there is no influence of the corresponding independent variable on the dependent variable in the population, is tested by the p-values linked to each coefficient. An asterisk (*) or a lower p-value, which is often less than 0.05, indicates greater evidence against the null hypothesis and points to a statistically significant association between the variable and the result.

With an exceptionally low p-value of 0.0001*, the unemployment rate coefficient in this table stands out and suggests that it has a statistically significant impact on the dependent variable. In contrast, the p-values for the Interest Rate, Money Supply, and Constant are greater, indicating a lower level of statistical significance in their respective impacts. Furthermore, the regression model's R^2 score, which indicates the percentage of variation it explains, is 0.54. This number suggests that the independent variables in the model account for around 54% of the variability in the dependent variable. Nonetheless, it is customary to not include p-values for the R^2 statistic as it assesses the general goodness of fit of the model rather than the importance of specific coefficients.

4.3. Serial Correlation LM Test Result Analysis

Breusch-Godfrey Serial Correlation test is a diagnostic instrument that is used to determine whether or not a regression model's residuals exhibit serial correlation relationships. Table 3 represents the outcomes of the. Both the F-Statistics and the probabilities that are linked with them are used in order to ascertain whether or not the residuals exhibit a pattern of serial correlation. With regard to this

particular investigation, the F-Statistics yields a value of 1.91269, which is associated with a likelihood of 0.15854. A similar pattern can be seen in the observed R² value, which is 3.98286, and the probability that is linked with it is 0.13649.

When it comes to determining whether or not residuals are independent in regression analysis, these statistical measures are absolutely necessary. The existence of serial correlation, which indicates that the residuals are not independent, is often shown by the fact that the probabilities associated with these statistics are below a preset threshold, which is typically 0.05 or 0.1. However, in this particular situation, the F-Statistics and the observed R² both show probabilities that are higher than the threshold that is often used. This suggests that the statistical data does not support rejecting the null hypothesis, which indicates that the residuals in the fitted regression model are fairly independent of one another. Consequently, on the basis of these statistical tests, it is possible to draw the conclusion that the fitted model does not have any major serial correlation concerns. This substantiates the reliability and independence of the residuals in the regression analysis.

Table 4. Test results for serial correlation.

Test	F-Statistics	Probability
F-Statistics	1.91269	0.15854
Observed R ²	3.98286	0.13649

We have undertaken a comprehensive investigation of the relationship that exists between inflation and unemployment rates within the context of Sri Lanka's economic history. Significant insights into the interrelationships and possible implications of these important macroeconomic indicators were provided in this chapter. These insights were obtained via rigorous empirical research and extensive examination of historical patterns. The findings of this research give useful empirical information that is distinctive to the economic environment of Sri Lanka. This is accomplished by revealing the subtleties of their correlations. The results highlight the significance of individualized economic strategies, which acknowledge the delicate equilibrium that exists between fluctuations in inflation and unemployment rates, in order to maintain economic development and stability throughout time. Moving ahead, these discoveries open the way for informed policy interventions and enhanced economic theories, with the ultimate goal of fostering a vibrant and sustainable economic future for Sri Lanka.

5. Conclusion and Recommendations

5.1. Conclusion

This research has shed light on the complex processes that characterize the link between inflation and unemployment rates within the setting of Sri Lanka's economy. This was accomplished via the comprehensive analysis that was performed. These crucial macroeconomic indicators have been shown to interact with one another, which has shed light on the deep significance that these indicators have for the

economic stability and development of the country. By using rigorous statistical approaches and a large historical dataset, this study has supplied vital insights into the historical patterns and the subtle relationships that regulate inflation and unemployment rates. These insights have been achieved via the use of this research. These results highlight how important it is to strike a fine balance between inflation and unemployment in order to achieve economic growth that is both sustainable and more equitable. The discovered negative association between unemployment and inflation rates is particularly noteworthy. This correlation serves as a signal of the possible trade-offs and complications that are inherent in the process of formulating strategies that are beneficial for the economy. These kinds of findings highlight the need of sophisticated interventions that emphasize not just the preservation of price stability but also coordinated efforts toward the creation of job prospects. Taking this nuanced approach becomes essential in order to cultivate an atmosphere that is favorable to sustained economic development in Sri Lanka. This strategy will provide stability while also tackling the myriad of issues that are faced by unemployment.

The findings of this research were analyzed, and the conclusions that were made argue for a comprehensive economic policy framework that can achieve both the goals of controlling inflation and creating job opportunities. The implementation of this all-encompassing approach would provide policymakers with the instruments they need to successfully traverse the complex terrain of Sri Lanka's economy, therefore creating resilience and sustainability in the face of dynamic economic circumstances both domestically and internationally. Ultimately, the findings of this research highlight the need of policy interventions that are both calibrated and diversified, with the goal of simultaneously addressing inflation and unemployment. These interventions would serve as a foundation for Sri Lanka's long-term economic growth.

5.2. Recommendations

- 1) Integrated Policy Approach: Policymakers should adopt a holistic and integrated approach that accounts for the dual objectives of maintaining price stability and fostering employment growth. This entails crafting policies that strike a balance between inflation control measures and initiatives focused on job creation and labor market enhancement. Such policies should be flexible enough to adapt to changing economic conditions while aiming for a sustainable equilibrium between inflation and unemployment dynamics.
- 2) Targeted Employment Initiatives: Implement targeted programs aimed at addressing specific sectors or demographics facing acute unemployment challenges. Tailored interventions, such as skill development initiatives, vocational training programs, and support for small and medium-sized enterprises (SMEs), can effectively mitigate unemployment issues by bolstering job opportunities and enhancing employability.

- 3) Monetary and Fiscal Policy Coordination: Foster synergy between monetary and fiscal policies to achieve overarching economic goals. Coordination between the Central Bank and fiscal authorities can optimize the impact of policies on both inflation and unemployment. Aligning monetary policy instruments, such as interest rates, with fiscal measures geared towards employment generation can yield more comprehensive outcomes.
- 4) Data Enhancement and Monitoring: Strengthen data collection mechanisms and enhance the availability and accuracy of economic indicators related to inflation and unemployment. Regular and robust data collection facilitates better decision-making and policy formulation, providing policymakers with a clearer understanding of economic trends and enabling more informed interventions.
- 5) Long-term Economic Planning: Encourage long-term economic planning that transcends electoral cycles, fostering consistency and continuity in economic policies. This sustained approach minimizes uncertainties and promotes stability, crucial for both inflation management and sustainable employment generation.

5.3. Limitations of the Study

While the purpose of this research was to give a complete understanding of the link between inflation and unemployment rates in Sri Lanka, it is important to acknowledge that there are some limitations to the present investigation. In the first place, the fact that the research relied on historical data that covered the years 1959 to 2022 may limit its application to the economic dynamics that are occurring now. It is possible that the dynamics between inflation and unemployment in modern times might be affected differently as a result of the evolution of economic landscapes, which are impacted by a variety of variables including technology improvements, global economic trends, and policy changes.

The second limitation of this research was that it was mainly concerned with the direct connection that exists between inflation and unemployment rates. It did not take into account any possible mediating factors or intricate interdependencies that may be present. The observed association may be intimately influenced by a variety of different economic, social, or political issues, which may pose restrictions to the depth and breadth of the investigation. Furthermore, the quantitative approach that was used in the research, despite the fact that it provided useful statistical insights, may not have encapsulated qualitative components or contextual complexities that might further illuminate the dynamics that exist between inflation and unemployment rates. It is possible that socioeconomic circumstances, cultural subtleties, or qualitative aspects of unemployment might have a substantial influence on the connection; however, quantitative analysis alone might not be able to sufficiently capture all of these aspects.

Furthermore, the analysis's comprehensiveness and

accuracy may have been affected by data restrictions or gaps in the datasets that were accessible. Having data that is either incomplete or erroneous has the potential to inject biases or limits into the results, which will have an effect on the robustness of the research. Furthermore, the methodology and statistical approaches that were used can have inherent restrictions or assumptions that might have an impact on the accuracy of the findings. For example, the models that are used may not be able to fully represent the intricacy of the link between inflation and unemployment rates, which might result in an oversimplification of the situation.

While the purpose of this research is to offer policymakers with recommendations that may be put into action, it is possible that the actual execution of these proposals might be hindered by political, institutional, or practical obstacles within Sri Lanka's economic framework. The acknowledgment of these limitations is of the utmost importance because they draw attention to areas that need more research and warn policymakers about possible limits that may arise when interpreting and putting the study's results and recommendations into practice.

Conflicts of Interest

The authors declare no conflicts of interest.

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