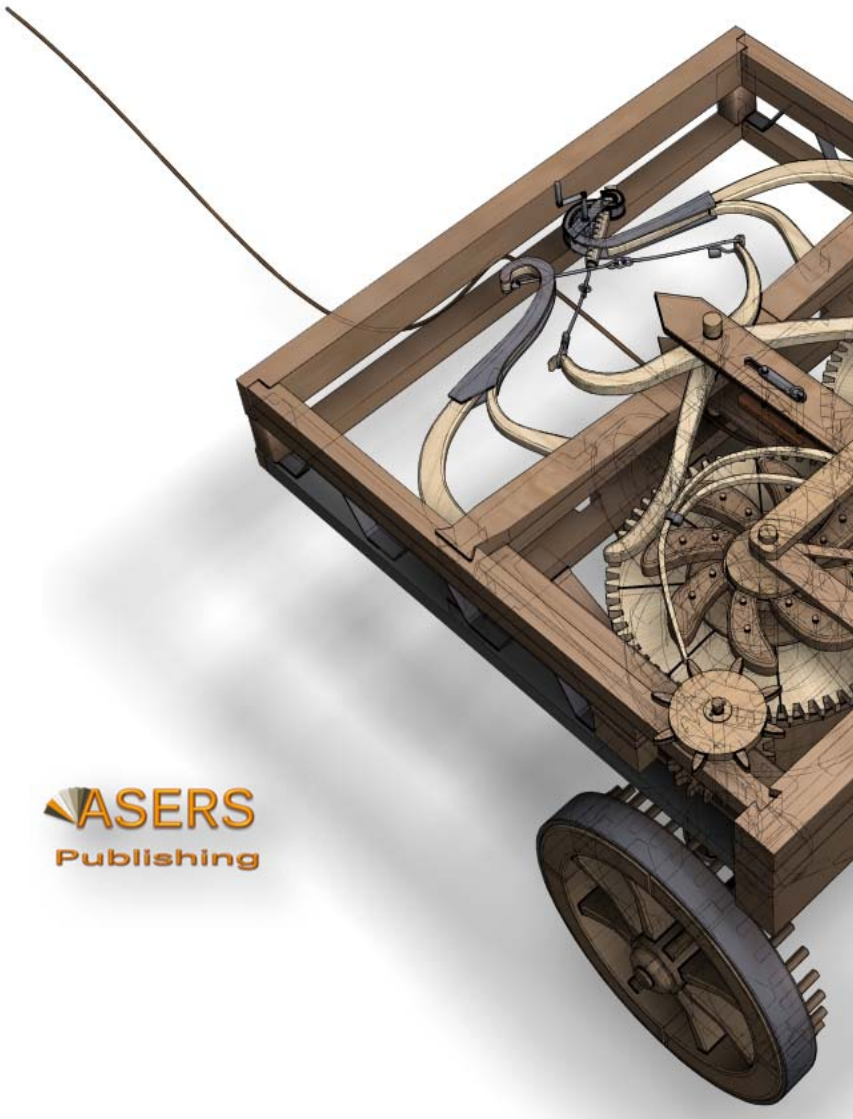
# Theoretical and Practical Research in Economic Fields



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# UNDERSTANDING CONSUMER PRICE INDEX DYNAMICS IN CANADA

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**Abstract:**

*This research uses annual time series data on Consumer Price Index (CPI) in Canada from 1960 to 2017, to model and forecast CPI using the Box – Jenkins ARIMA technique. Diagnostic tests indicate that the C series is I (1). The study presents the ARIMA (1, 1, 1) model for predicting CPI in Canada. The diagnostic tests further show that the presented parsimonious model is stable. The results of the study apparently show that CPI in Canada is likely to continue on a sharp upwards trajectory in the next decade. The study encourages policy makers to make use of tight monetary and fiscal policy measures in order to control inflation in Canada.*

**Keywords:** forecasting, inflation.

**JEL Classification:** C53; E31; E37; E47.

## Introduction

Inflation is one of the central terms in macroeconomics (Enke and Mehdiyev 2014) as it harms the stability of the acquisition power of the national currency, affects economic growth because investment projects become riskier, distorts consuming and saving decisions, causes unequal income distribution and also results in difficulties in financial intervention (Hurtado *et al*. 2013). Consumer Price Index (CPI) may be regarded as a summary statistic for frequency distribution of relative prices (Kharimah *et al*. 2015). CPI number measures changes in the general level of prices of a group of commodities. It thus measures changes in the purchasing power of money (Monga 1977, Subhani and Panjwani 2009). As it is a prominent reflector of inflationary trends in the economy, it is often treated as a litmus test of the effectiveness of economic policies of the government of the day (Sarangi *et al*. 2018). Precisely forecasting the change of CPI is significant to many aspects of economics, some examples include fiscal policy, financial markets and productivity. Also, building a stable and accurate model to forecast the CPI will have great significance for the public, policy makers and research scholars (Du *et al*. 2014). In this study we use CPI as an indicator of inflation in Canada and then attempt to model and forecast CPI in Canada using the Box-Jenkins ARIMA technique.

## 1. Literature Review

Zivko and Bosnjak (2017) studied inflation in Croatia using ARIMA models with a data set ranging over the period January 1997 to November 2015 and established that the ARIMA (0, 1, 1 )x (0, 1, 1)12 is the optimal model for forecasting inflation in Croatia. In Albania, Dhamo *et al*. studied CPI using SARIMA models with a data set

ranging over the period January 1994 to December 2007 and discovered that SARIMA models are satisfactory for a short-term prediction compared to the multiple regression model forecast. Nyoni (2018) studied inflation in Zimbabwe using GARCH models with a data set ranging over the period July 2009 to July 2018 and established that there is evidence of volatility persistence for Zimbabwe's monthly inflation data. In another study, Nyoni (2018) modeled inflation in Kenya using ARIMA and GARCH models and relied on annual time series data over the period 1960 – 2017 and found out that the ARIMA (2, 2, 1) model, the ARIMA (1, 2, 0) model and the AR (1) – GARCH (1, 1) model are good models that can be used to forecast inflation in Kenya. Nyoni and Nathaniel (2019), based on ARMA, ARIMA and GARCH models; studied inflation in Nigeria using time series data on inflation rates from 1960 to 2016 and found out that the ARMA (1, 0, 2) model is the best model for forecasting inflation rates in Nigeria.

## 2. Materials and Methods

### 2.1. Box – Jenkins ARIMA Models

One of the methods that are commonly used for forecasting time series data is the Autoregressive Integrated Moving Average (ARIMA) (Box and Jenkins 1976, Brocwell and Davis 2002, Chatfield 2004, Wei 2006, Cryer and Chan 2008). For the purpose of forecasting Consumer Price Index (CPI) in Canada, ARIMA models were specified and estimated. If the sequence $\Delta^d C_t$ satisfies an ARMA (p, q) process; then the sequence of $C_t$ also satisfies the ARIMA (p, d, q) process such that:

$$\Delta^d C_t = \sum_{i=1}^{p} \beta_i \Delta^d C_{t-i} + \sum_{i=1}^{q} \alpha_i \mu_{t-i} + \mu_t \quad (1)$$

which we can also re – write as:

$$\Delta^d C_t = \sum_{i=1}^{p} \beta_i \Delta^d L^i C_t + \sum_{i=1}^{q} \alpha_i L^i \mu_t + \mu_t \quad (2)$$

*where*: $\Delta$ is the difference operator, vector $\beta \in R^p$ and $\alpha \in R^q$.

### 2.2. The Box – Jenkins Methodology

The first step towards model selection is to difference the series in order to achieve stationarity. Once this process is over, the researcher will then examine the correlogram in order to decide on the appropriate orders of the AR and MA components. It is important to highlight the fact that this procedure (of choosing the AR and MA components) is biased towards the use of personal judgement because there are no clear – cut rules on how to decide on the appropriate AR and MA components. Therefore, experience plays a pivotal role in this regard. The next step is the estimation of the tentative model, after which diagnostic testing shall follow. Diagnostic checking is usually done by generating the set of residuals and testing whether they satisfy the characteristics of a white noise process. If not, there would be need for model re – specification and repetition of the same process; this time from the second stage. The process may go on and on until an appropriate model is identified (Nyoni 2018).

### 2.3. Data Collection

This study is based on a data set of annual CPI (C) in Canada ranging over the period 1960 – 2017. All the data was gathered from the World Bank.

### 2.4. Diagnostic Tests and Model Evaluation

#### *2.4.1. Stationarity Tests*

##### *2.4.1.1. The ADF Test*

**Table 1.** Levels-intercept

| Variable | ADF Statistic | Probability | Critical Values | | Conclusion |
|---|---|---|---|---|---|
| C | 0.089399 | 0.9622 | -3.552666 | @1% | Non-stationary |
| | | | -2.914517 | @5% | Non-stationary |
| | | | -2.595033 | @10% | Non-stationary |

**Table 2.** Levels-trend and intercept

| Variable | ADF Statistic | Probability | Critical Values | | Conclusion |
|---|---|---|---|---|---|
| C | -2.236151 | 0.4608 | -4.130526 | @1% | Non-stationary |
| | | | -3.492149 | @5% | Non-stationary |
| | | | -3.174802 | @10% | Non-stationary |

**Table 3.** Without intercept and trend and intercept

| Variable | ADF Statistic | Probability | Critical Values | | Conclusion |
|---|---|---|---|---|---|
| C | 2.110425 | 0.9910 | -2.606911 | @1% | Non-stationary |
| | | | -1.946764 | @5% | Non-stationary |
| | | | -1.613062 | @10% | Non-stationary |

Tables 1 – 3 indicate that C is non-stationary in levels.

**Table 4.** 1st Difference-intercept

| Variable | ADF Statistic | Probability | Critical Values | | Conclusion |
|---|---|---|---|---|---|
| C | -3.807637 | 0.0049 | -3.552666 | @1% | Stationary |
| | | | -2.914517 | @5% | Stationary |
| | | | -2.595033 | @10% | Stationary |

**Table 5.** 1st Difference-trend and intercept

| Variable | ADF Statistic | Probability | Critical Values | | Conclusion |
|---|---|---|---|---|---|
| C | -3.775706 | 0.0253 | -4.130526 | @1% | Non-stationary |
| | | | -3.492149 | @5% | Stationary |
| | | | -3.174802 | @10% | Stationary |

**Table 6.** 1st Difference-without intercept and trend and intercept

| Variable | ADF Statistic | Probability | Critical Values | | Conclusion |
|---|---|---|---|---|---|
| C | -10.15676 | 0.0000 | -3.555023 | @1% | Stationary |
| | | | -2.915522 | @5% | Stationary |
| | | | -2.595565 | @10% | Stationary |

Tables 4 – 6 indicate that the C series is stationary after taking first differences.

### 2.5. Evaluation of ARIMA models (with a constant)

**Table 7.** Model evaluation

| Model | AIC | U | ME | MAE | RMSE | MAPE |
|---|---|---|---|---|---|---|
| ARIMA (1, 1, 1) | **153.9987** | 0.48666 | 0.033196 | 0.67787 | 0.87766 | 1.8374 |
| ARIMA (1, 1, 0) | 154.07 | 0.52295 | 0.018302 | 0.67913 | 0.89392 | 1.9378 |
| ARIMA (0, 1, 1) | 163.8655 | 0.66239 | 0.0072621 | 0.74061 | 0.96917 | 2.2244 |
| ARIMA (2, 1, 1) | 155.8095 | 0.48723 | 0.03899 | 0.68168 | 0.87611 | 1.8464 |
| ARIMA (1, 1, 2) | 155.7938 | 0.48765 | 0.039006 | 0.68152 | 0.87601 | 1.8478 |
| ARIMA (2, 1, 2) | 157.7934 | 0.48763 | 0.033909 | 0.68161 | 0.876 | 1.8479 |

A model with a lower AIC value is better than the one with a higher AIC value (Nyoni 2018). Theil's U must lie between 0 and 1, of which the closer it is to 0, the better the forecast method (Nyoni 2018). The study will consider both the AIC and the U as the criterion for choosing the best model for forecasting CPI in Canada. Therefore, the ARIMA (1, 1, 1) model is eventually selected.

### 2.6. Residual and Stability Tests

#### *2.6.1. ADF Tests of the Residuals of the ARIMA (1, 1, 1) Model*

**Table 8.** Levels-intercept

| Variable | ADF Statistic | Probability | Critical Values | | Conclusion |
|---|---|---|---|---|---|
| $R_t$ | -7.015789 | 0.0000 | -3.555023 | @1% | Stationary |
| | | | -2.915522 | @5% | Stationary |
| | | | -2.595565 | @10% | Stationary |

**Table 9.** Levels-trend and intercept

| Variable | ADF Statistic | Probability | Critical Values | | Conclusion |
|---|---|---|---|---|---|
| $R_t$ | -6.943109 | 0.0000 | -4.133838 | @1% | Stationary |
| | | | -3.493692 | @5% | Stationary |
| | | | **-3.175693** | **@10%** | **Stationary** |

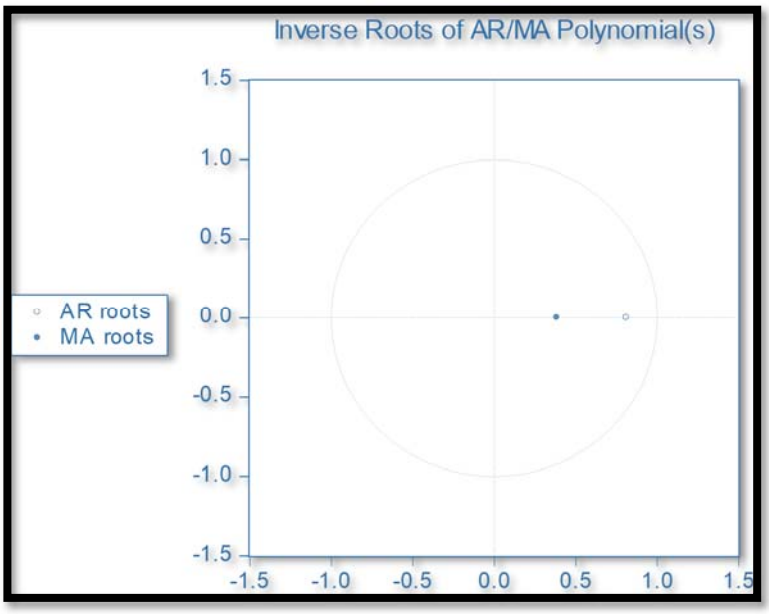
**Table 10.** Without intercept and trend and intercept

| Variable | ADF Statistic | Probability | Critical Values | | Conclusion |
|---|---|---|---|---|---|
| $R_t$ | -7.080735 | 0.0000 | -2.607686 | @1% | Stationary |
| | | | -1.946878 | @5% | Stationary |
| | | | -1.612999 | @10% | Stationary |

Tables 8, 9 and 10 reveals that the residuals of the ARIMA (1, 1, 1) model are stationary.

### *2.6.2. Stability Test of the ARIMA (1, 1, 1) Model*

**Figure 1**. Inverse Roots




Since the corresponding inverse roots of the characteristic polynomial lie in the unit circle, it illustrates that the chosen ARIMA (1, 1, 1) model is indeed stable and suitable for predicting CPI in Canada over the period under study.

## 3. Findings

### 3.1. Descriptive Statistics

**Table 11.** Descriptive Statistics

| Description | Statistic |
|---|---|
| Mean | 58.862 |
| Median | 62.5 |
| Minimum | 13 |
| Maximum | 112 |
| Standard deviation | 33.528 |
| Skewness | -0.032287 |
| Excess kurtosis | -1.4415 |

As shown above, the mean is positive, *i.e.* 58.862. The minimum is 13 while the maximum is 112. The skewness is -0.032287 and the most striking characteristic is that it is positive, indicating that the C series is positively skewed and non-symmetric. Excess kurtosis is -1.4415; showing that the C series is not normally distributed.

### 3.2. Results Presentation

**Table 12.** Results

**ARIMA (1, 1, 1) Model:**

$$\Delta C_{t-1} = 1.64731 + 0.816188\Delta C_{t-1} - 0.342036\mu_{t-1} \quad (3)$$

P: (0.0000) (0.0000) (0.0704)

S. E: (0.3709) (0.1138) (0.1891)

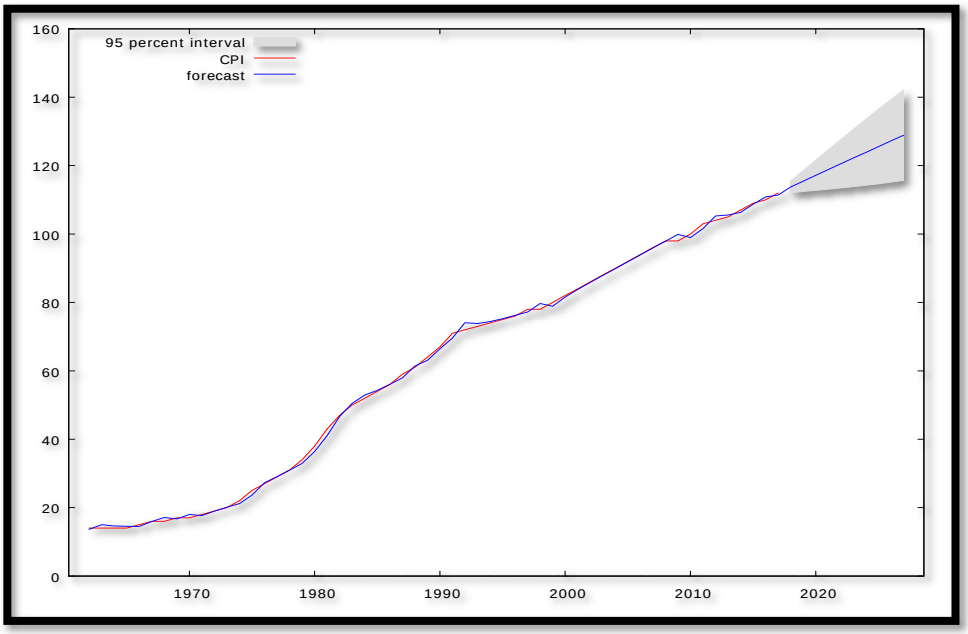
| Variable | Coefficient | Standard Error | Z | p-value |
|---|---|---|---|---|
| Constant | 1.64731 | 0.370874 | 4.442 | 0.0000*** |
| AR (1) | 0.816188 | 0.11383 | 7.17 | 0.0000*** |
| MA (1) | -0.342036 | 0.189055 | -1.809 | 0.0704* |

Author's calculation (*Note: *, **, *** refers to 10%, 5% and 1% levels of significance, respectively*

The model constant is positive and statistically significant at 1% level of significance. This points to the fact that CPI in Canada cannot go below 1.65 even if the effect of the MA and AR components were to be ruled out. The coefficient of the AR (1) component is positive and statistically significant at 1% level of significance. This basically points to the fact that previous period CPI indices are important in determining the current and future levels of CPI in Canada. For example, when previous period CPI was relatively high; it arguably causes economic agents to anticipate even higher inflationary pressures in the next period thereby inducing policy ineffectiveness: in the long-run inflation goes up. The results of the study indicate that a 1% increase in the previous period CPI will lead to approximately 0.8% increase in the current period CPI. The coefficient of the MA (1) component is negative and statistically significant at 10% level of significance. This implies that unobserved shocks to CPI have a negative effect on current CPI in Canada. Such shocks include but are not limited to monetary policy shocks and political events. The results actually show that a 1% increase in such shocks will lead to approximately 0.34% decrease in CPI, thus a reduced level of inflation. For example, if a new government or political dispensation is elected into power in Canada; it could lower inflationary expectations and thereby enable policy makers to smoothly engineer disinflation and hence lower CPI levels. The overall striking feature of these results is that the coefficient of the AR (1) component is positive while the coefficient of the MA (1) component is negative as conventionally expected.

### 3.2.1. Forecast Graph

**Figure 2.** Forecast graph




### 3.2.2. Predicted CPI in Canada

**Table 13.** Predictions

| Year | Prediction | Std. Error | 95% Confidence Interval |
|---|---|---|---|
| 2018 | 113.73 | 0.867 | 112.03 - 115.43 |
| 2019 | 115.45 | 1.544 | 112.42 - 118.47 |
| 2020 | 117.15 | 2.232 | 112.77 - 121.53 |
| 2021 | 118.84 | 2.923 | 113.11 - 124.57 |
| 2022 | 120.53 | 3.605 | 113.46 - 127.59 |
| 2023 | 122.21 | 4.272 | 113.83 - 130.58 |
| 2024 | 123.88 | 4.920 | 114.23 - 133.52 |
| 2025 | 125.54 | 5.547 | 114.67 - 136.42 |
| 2026 | 127.21 | 6.153 | 115.15 - 139.27 |
| 2027 | 128.87 | 6.737 | 115.67 - 142.07 |

Figure 2 (with a forecast range from 2018 – 2027) and Table 13, clearly show that CPI in Canada is indeed set to continue rising sharply, in the next decade.

## 4. Policy Implication and Conclusion

After performing the Box-Jenkins approach, the ARIMA was engaged to investigate annual CPI of Canada from 1960 to 2017. The study mostly planned to forecast the annual CPI in Canada for the upcoming period from 2018 to 2027 and the best fitting model was selected based on how well the model captures the stochastic variation in the data. The ARIMA (1, 1, 1) model, as indicated by the AIC statistic; is not only stable but also the most suitable model to forecast the CPI of Canada for the next ten years. In general, CPI in Canada; showed an upwards trend over the forecasted period. Based on the results, policy makers in Canada should engage more proper economic and monetary policies in order to fight such increase in inflation as reflected in the forecasts. Therefore, relevant authorities in Canada ought to rely more on tight monetary policy, which should be complimented by a tight fiscal policy stance.

## References


[1] Box, G.E.P., and Jenkins, G.M. 1976. *Time series analysis: forecasting and control*, Holden – Day, ISBN: 0816211043, 9780816211043, 575 p.

[2] Brocwell, P.J., and Davis, R.A. 2002. *Introduction to time series and forecasting*, Fourth Edition, Springer-Verlag New York, ISBN: 978-0-387-21657-7, 437 p.

[3] Chatfield, C. 2003. *The analysis of time series: An introduction*, Chapman and Hall Publishing, ISBN: 978-1584883173, 352 p.

[4] Cryer, J.D., and Chan, K.S. 2008. *Time series analysis with application in R*, first edition, Springer-Verlag New York Publishing, ISBN: 978-0-387-75959-3, 491 p.

[5] Dhamo, E.G., Puka, L., and Zacaj, L. 2018. *Forecasting Consumer Price Index (CPI) using time series models and multi-regression models* (Albania Case Study), 10th International Scientific Conference "Business and Management 2018" May 3–4, 2018, Vilnius, LITHUANIA, ISBN 978-609-476-119-5

[6] Du, Y., *et al*. 2014. A novel divide-and-conquer model for CPI prediction using ARIMA, Gray Model and BPNN, *Procedia Computer Science*, 31 (2): 842-851, DOI: http://doi.org/10.1016/j.procs.2014.05.335

[7] Enke, D., and Mehdiyev, N. 2014. A hybrid Neuro-Fuzzy model to forecast inflation, *Procedia Computer Science*, 36 (2): 254-260, DOI: http://doi.org/10.1016/j.procs.2014.09.088

[8] Hurtado, C., *et al*. 2013. *Forecasting Mexican inflation using neural networks*, CONIELECOMP 2013, 23rd International Conference on Electronics, Communications and Computing, 11-13 March 2013, IEEE, Cholula, Mexico, DOI: http://doi.org/10.1109/CONIELECOMP.2013.6525753

[9] Kharimah, F., *et al*. 2015. Time series modelling and forecasting of the consumer price Bandar Lampung, *Sci. Int (Lahore)*, 27 (5): 4119 – 4624.

[10] Manga, G.S. 1997. *Mathematics and statistics for economics*, Vikas Publishing House

[11] Nyoni, T., and Nathaniel, S.P. 2019. *Modeling rates of inflation in Nigeria: An application of ARMA, ARIMA and GARCH models,* Munich University Library – Munich Personal RePEc Archive (MPRA), Paper No. 91351.

[12] Nyoni, T. 2018. *Modeling and forecasting inflation in Zimbabwe: A Generalized Autoregressive Conditionally Heteroskedastic (GARCH) approach,* Munich University Library – Munich Personal RePEc Archive (MPRA), Paper No. 88132.

[13] Nyoni, T. 2018. *Modeling Forecasting Naira / USD exchange rate in Nigeria: A Box – Jenkins ARIMA approach*, University of Munich Library – Munich Personal RePEc Archive (MPRA), Paper No. 88622.

[14] Nyoni, T. 2018. Modeling and forecasting inflation in Kenya: Recent insights from ARIMA and GARCH analysis, *Dimorian Review*, 5 (6). ISSN: 2394-9163

[15] Nyoni, T. 2018. *Box – Jenkins ARIMA approach to predicting net FDI inflows in Zimbabwe,* Munich University Library – Munich Personal RePEc Archive (MPRA), Paper No. 87737.

[16] Sarangi, P.K., *et al*. 2018. Forecasting consumer price index using neural networks models, *Innovative Practices in Operations Management and Information Technology – Apeejay School of Management*

[17] Subhani, M.I., and Panjwani, K. 2009. Relationship between Consumer Price Index (CPI) and government bonds. *South Asian Journal of Management Sciences*, 3 (1): 11 – 17.

[18] Wei, W.S. 2006. *Time series analysis: Univariate and multivariate methods*, Second Edition, Pearson Education, ISBN: 0-321-32216-9, 605 p. Inc.

[19] Zivko, I., and Bosnjak, M. 2017. *Time series modelling of inflation and its volatility in Croatia*, Notitia Journal of Sustainable Development 3, Izvorni znanstveni rad/Original scientific paper UDC/UDK 336.748.12 (497.5)

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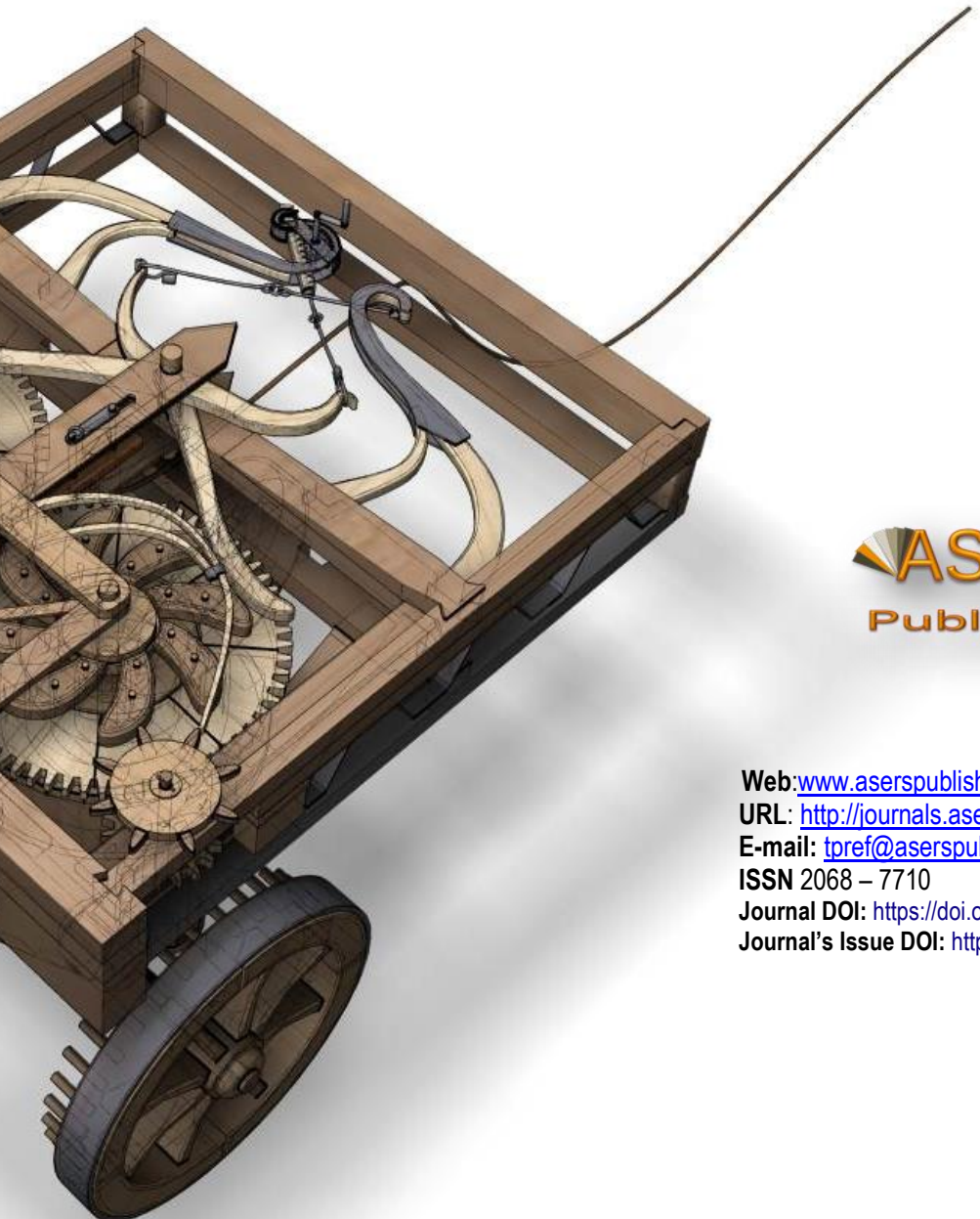

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