

Review of ‘Is inflation in South Africa a structural or monetary phenomenon?’

The author applies cointegration techniques to South African economics data. The stated aim is to decide upon the sources of inflation in this country, particularly whether inflation is caused mainly by monetary policy or rather by other economic influences.

I would like to point out three major issues in this manuscript that should be addressed appropriately. In its present form, I would not recommend this paper to be published as it would confuse the reader.

1. Inflation cannot be the logarithm of the consumer price index (line 171). Inflation can be the first difference of this logged price, in symbols $\Delta \log P$. If $\log P$ is $I(1)$, it may make sense to look for potential cointegration with other variables. A good model for prices also implies a model for inflation, as inflation is the growth rate of prices. Thus, it may be that fully accounting for this price vs. inflation problem does not imply estimating the whole model again. It just implies proper wording in the text. Similar remarks concern US inflation (line 173).

Response: Inflation is defined as the annual percentage change in the consumer price index

2. The formal representation of the error-correction model on page 7 is full of lesser typos and flaws. Equation (3) is not a ‘standardization’ of equation (2). Rather, (2) corresponds to a restriction on (3), assuming error correction to be absent ($R = 0$). ∂_I in (3) appears to be the (reduced-rank) impact matrix Π in line 248. The last index in line 246 cannot be t , it may be i . $I = 1, \dots, k - 1$ may be $i = 1, \dots, k - 1$. The lag orders k and ρ may coincide, only one letter should be used.

Response: Based on equation 1, we employ Error Correction Model (ECM) to investigate the short-run relationship between the dependent variable and the independent variables. The model is generally given as:

$$\Delta Z_t = \sum_{i=1}^{\rho-1} \psi_i \Delta Z_{t-i} + \alpha_0 + \eta_t \quad (3)$$

Assuming error correction to be absent ($R=0$), equation (2) can be rewritten as:

$$\Delta Z_t = \sum_{i=1}^{\rho-1} \Pi_i \Delta Z_{t-k} - \partial_I Z_{t-k} + \alpha_I + \varepsilon_t \quad (4)$$

Where,

$$\Pi_i = -I + \partial_1 + \partial_2 + \dots + \partial_i$$

$$I = 1, 2, 3, \dots, k-1 \text{ and } \partial = I - \partial_1 - \partial_2 - \dots - \partial_k$$

and p represents total number of variables considered in the model. The matrix Π captures the long-run relationship between the p variables (Shahbaz, 2009).

3. According to the tests reported in Table 4, all hypotheses of restricted ranks are rejected, and the system would be stationary, i.e. $R = 7$ in the author's notation. Even if $R = 6$ is imposed by common sense, the author should be aware that 6 cointegrating vectors have been detected. Thus, a single cointegrating vector, as estimated by FM-OLS in Table 5, is not representative of the full workings of error correction in the system. The approach is at odds with the logical flow in the sequence of results: for obtaining the test statistics in Table 4, eigenvalue problems have to be solved. The concomitant eigenvectors are already the suggested cointegrating vectors. Why are these vectors not used? Why is one cointegrating vector estimated by a different (though efficient) method? Why are the other cointegrating vectors ignored?

Response: This has corrected. Four significant determinants of inflation are now observable in Table 5. There are seven cointegrating relationships using Trace Test and Maximum Eigen Value. Both the Trace Test and the Maximum Eigen value test indicate seven cointegrating relationships. Eviews software produces the two results when one uses it to perform cointegration analysis.

Additionally, I have found the following minor points:

- The mentioned observation (line 127) that past inflation explains 20% of current variation in inflation does not yet imply that expectations play a key role. It just points to a certain amount of persistence.

Response: This is not our work. It is someone's report which we have cited

- I do not understand why negative inflation implies problems in the analysis. I presume that the (inappropriate) logarithm of inflation ($\log \Delta \log P$) is not used, while negative values do not cause any problem in error-correction modeling.

Response: We have purposively chosen inflation in the USA for the analysis

- It is unusual to take logarithms of interest rates. Rather, some authors use $\log 1 + r$, with r denoted in per cent notation, i.e. 0.1 for 10%.

Response: Studies such as Akinboade et al (2004) use prime lending rate.

- Usage of the word 'Prob. value' or 'probability' instead of the correct 'p-value' is to be avoided;

Response: This has been corrected. P-value has been used.

- In the test sequence mentioned in the text of lines 267–272, null hypotheses are $R = 0$, $R \leq 1$, etc., while alternatives are $R \geq 1$, $R \geq 2$, etc. They are not called 'alternate' hypotheses. Numbers with more than three decimal digits are to be avoided in the text;

Response: This has been corrected

- The wording 'has been found' in lines 282 and 284 is unclear. Do they refer to the current data set and to the current empirical analysis?

Response: They refer to the current dataset and to the current empirical analysis. However, they have been substituted with better phrases.

- If Table 6 reports estimates for the full error-correction model, why was $DM D$ omitted from the regressors? Why are five insignificant regressors kept but no lags excepting $\Delta \ln \pi_{t-1}$?

Response: The ECM has been re-estimated using all the variables in equation 1. Equation 1 does not contain dummy variables. Table 6 is now Table 8.