Impact of rising oil prices on the living cost in Burkina Faso

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Fluctuations of the world oil prices affect economic performance. Outside the impact on the sector of energy production, the rising oil price has consequences on inflationary pressures and a deteriorating fiscal position of Burkina Faso. In this context, studying the impact of rising oil prices on the economy, especially the cost of living of its population has a great interest because although many studies have attempted to link «oil prices» and «cost of living», very few have focused on the specific case of Burkina Faso. This allows us to make our contribution to this construction literature. This contribution will consist to highlight the relation between changes in oil prices and the cost of living in Burkina Faso. Also to be reached, we will find the best indicator to reflect the cost of living in Burkina Faso, identify the suitable econometric model for estimating the correlation and verify the existence of the relation between oil prices and the cost of living. For a better approach to this study, we used a VAR (Vector Auto-Regressive) model. Also, we will use documentary research that will make an assessment on the existing in terms of theoretical debates around the theme, descriptive statistics that will help to introduce and describe the variables used in the study, and econometric analysis will analyze and estimate the parameters of our objective function using Eviews.

Key Words: Inflationary pressure, Vector autoregressive

1. Introduction

For members of UEMOA, Burkina Faso in particular, fluctuations of the world oil prices affect economic performance. Outside the impact on the sector of energy production, the rising oil price has consequences on inflationary pressures and a deteriorating fiscal position of these states. This creates a drop in corporate profitability and affects thereby their capacity to invest. The worst is that developments in previous years will continue. Indeed, the continuing rise in global energy demand expected to increase until 60% between 2002 and 2030. So that the subvention efforts of state to contain the effects on the population remains limited. The recent rise in oil prices by 7% per liter caused an increase in the cost of transport and all other goods requiring more or less the use of this product. This shows how a change in oil prices can't remain without effects on the cost of living in Burkina Faso. In this context, studying the impact of rising oil prices on the economy of Burkina Faso, especially the cost of living of its population has a great interest because although many studies have attempted to link "oil prices" and "cost of living", very few have focused on the specific case of Burkina Faso. This allows us to make our contribution to this construction literature.

2. Methodology

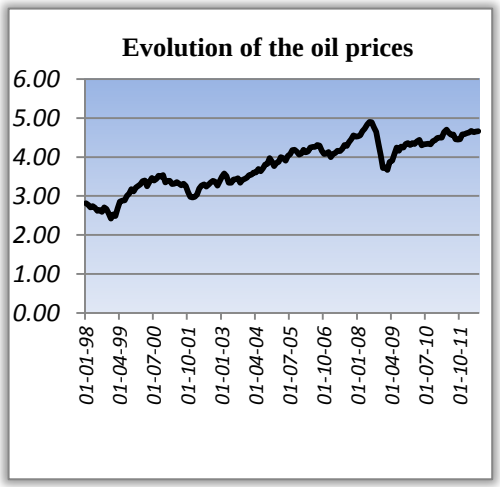
The methodology is based on the following approach:

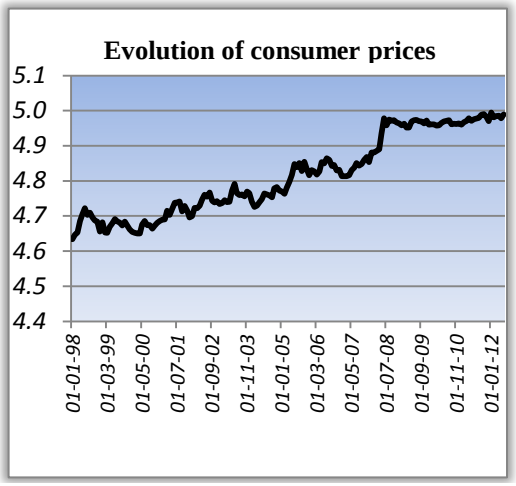
- If x_t and $y_t \rightarrow$ I(0) and $y_t - x_t a - b \rightarrow$ I(0) : It is estimated a VAR model in levels.
  $\begin{pmatrix} y_t \\ x_t \end{pmatrix} = \begin{pmatrix} c_1 \\ c_2 \end{pmatrix} + \begin{pmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{pmatrix} \begin{pmatrix} y_{t-1} \\ x_{t-1} \end{pmatrix} + \begin{pmatrix} \varepsilon_{1t} \\ \varepsilon_{2t} \end{pmatrix}$

- If x_t and $y_t \rightarrow$ I(1) and $y_t - x_t a - b \rightarrow$ I(0) : It is estimated a VECM model.
  $\Delta y_t = \gamma \Delta x_t + \delta(y_{t-1} - a x_{t-1} - b) + v_t$ avec $\delta < 0$

- If x_t and $y_t \rightarrow$ I(1) and $y_t - x_t a - b \neq$ I(0) and Δx_t , $\Delta y_t \rightarrow$ I(0) with causality link: It is estimated a VAR model in first differences.
  $\begin{pmatrix} \Delta y_t \\ \Delta x_t \end{pmatrix} = \begin{pmatrix} c_1 \\ c_2 \end{pmatrix} + \begin{pmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{pmatrix} \begin{pmatrix} \Delta y_{t-1} \\ \Delta x_{t-1} \end{pmatrix} + \begin{pmatrix} \varepsilon_{1t} \\ \varepsilon_{2t} \end{pmatrix}$

3. Evolution of the oil prices and the index of consumer prices





4. Estimation of the VAR model

The two (02) series are integrated of the same order and there is a causal relation between them. Because they are not cointegrated indicates that the suitable model is the VAR model.

Table 1: Estimation of the VAR model

VARIABLES	***DLPRIX_PETR***	***DLIHPC***
DLPRIX_PETR(-1)	0.16997	0.004961
	-0.07743	-0.01231
	[2.19501]	**[3.40310]**
DLPRIX_PETR(-2)	0.071002	0.003288
	-0.0783	-0.01244
	[1.90681]	**[1.26418]**
DLPRIX_PETR(-3)	-0.01972	0.012915
	-0.07797	-0.01239
	[-0.25292]	**[1.04218]**

DLPRIX_PETR(-4)	-0.019833	0.014785
	-0.07823	-0.01243
	[-0.25353]	**[1.18912]**
DLPRIX_PETR(-5)	0.01699	-0.010935
	-0.07798	-0.01239
	[0.21788]	[-0.88232]
DLPRIX_PETR(-6)	-0.078299	-0.008379
	-0.0764	-0.01214
	[-1.02483]	[-0.68996]
DLIHPC(-1)	-0.256753	-0.109816
	-0.50209	-0.0798
	[-0.51137]	[-1.37608]
DLIHPC(-2)	-0.055397	0.012122
	-0.4994	-0.07938
	[-0.11093]	[0.15271]
DLIHPC(-3)	-0.168676	0.02371
	-0.49356	-0.07845
	[-0.34175]	[0.30224]
DLIHPC(-4)	-0.952184	-0.047308
	-0.48322	-0.0768
	[-1.97051]	[-0.61596]
DLIHPC(-5)	-0.72056	-0.039796
	-0.49009	-0.0779
	[-1.47027]	[-0.51089]
DLIHPC(-6)	-1.818323	-0.162309
	-0.49431	-0.07857
	[-3.67848]	[-2.06586]
C	0.018098	0.002111
	-0.00694	-0.0011
	[2.60888]	[1.91459]
R-squared	0.189836	0.075531
Adj. R-squared	0.126707	0.003494
Sum sq. resids	1.055442	0.026663
S.E. equation	0.082786	0.013158
F-statistic	3.007086	1.048506
Log likelihood	185.8841	493.0324
Akaike AIC	-2.070468	-5.748891
Schwarz SC	-1.82775	-5.506173
Mean dependent	0.012071	0.001711
S.D. dependent	0.088588	0.013181
Determinant resid covariance (dof adj.)		1.17E-06
Determinant resid covariance		9.98E-07
Log likelihood		679.8752
Akaike information criterion		-7.83084
Schwarz criterion		-7.345404

5. Results

Interpretation of the information of estimated VAR can retain the following key points:

- The change in the harmonized index of consumer prices is influenced by changes in oil prices of the four (04) previous months.
- The variation of oil prices depends on the variation of the oil prices of the two (02) previous months.
- The change in the harmonized index of consumer prices does not depend on its previous changes.
- Fluctuations in oil prices do not depend on previous changes in the harmonized index of consumer prices.

6. Conclusions

This study shows a relation between oil prices and the harmonized index of consumer prices. In reality, it was expected that the price of oil influences the harmonized index and not the reverse. This hypothesis was confirmed by the study. Indeed, this is justified by the fact that economically Burkina Faso is a "small country" and therefore is a "price taker" in oil prices. Moreover, its size in the global economy is such that its standard of living can't influence the price of oil.

The recent increase of fuel prices at the national level around 7% has caused an increase of the transport cost, food and all products incorporating fuel in their production process. In short, the rising price of fuel has only worsened the phenomenon of "high cost of living" that was already happening.

Unfortunately, the absence of recent data on the consumer prices index does not allow us to take into account the influence of this recent rise of oil prices in our estimates.

The Burkina Faso government should increase subsidies on the price of oil, which is the engine of "high prices", to mitigate its impact on the living standards of citizens. Otherwise, he could face social unrest.

7. References

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