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***Real Exchange Rate Misalignment : concepts and measurement in the context of coronavirus crisis for developing countries as central African Republic knowing civil war***

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**Abstract.** *One of the most relevant economic subject during these last decades especially accompagned with the publication of Hinkle and Montiel (1999) on the related subject of Real Exchange Rate Misalignment has been the Operationalization of a well concept and Method to assess the effective size of Over/undervalued currency called in general Real Exchange Rate Misalignment. This assessment is Relevant in particular for selected African countries labelled as cfa franc area considering the influence and intense debate that accompagned the lessons learned from the collapse of an Oldest arrangement concerning currencies namely the fixed exchange rate system of Bretton Woods. Considering that since the Rejection of the ppp as norm for the RER the upcoming event of covid-19 crisis have necessarily engaged new prospect concerning the effectiveness of this measure this by weighting relatively some of fundamentals of the economy comparatively to the others, in the sense that the works of Edwards (1989) have demonstrated that the RER is well governed by economic phenomenom called fundamentals the aim of the present study is to show how the current covid-19 crisis have give new emphasis to the measurement of Real Exchange Rate Misalignment especially for the selected countries in the cfa franc area.*

**Keywords:** *Real Exchange Rate Fundamentals Misalignment Coronavirus civil war*

**Jel Classification Codes:** *C32 F33*

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## 1. Introduction

With the upcoming event of covid-19 crisis some emphasis have raise the consideration of the External RER comparatively to the Internal RER. This emphasis have notably take the form of interrogation on the expansive cost of the life due to the crisis in the sense that this consideration embedded the consideration lied on the conceptualization of the External RER namely the basket of goods who consider the consumer in general called the *consumer price index*. At this end an increasing of this index compare to the foreign seems for the home country an Overvalued currency measured in terms of the External RER.

It's difficult to debate on the opportunity of an Overvalued currency but at the event of the coronavirus we can assert something for developing countries. We know well that the crisis have give emphasis to natural resources sectors considering the need to satisfy on Barrier's measures. Considering again he need for some of these selected countries to Achieve a process of economic convergence in terms of relatively decreasing in standard living among us this interest give to the natura ressources sectors by the crisis have give interest to reconsider the definition of Region the basis for the assessing of the Old concept of economic convergence. At this end when we thus take the region in terms of those Corporation or countries where natura ressources have a valuable weight on the basis

of panel data stationarity test we show that there is no need for a country to not align his Exchange Rate. In fact, considering the data provided by the international monetary fund on commodity terms of trade named *ctot* we can consider this as design of *RER* for tradable sectors especially those most related to the covid-19 crisis the natural resources sectors. Thus with the proof of stationarity on these *ctot* we have the proof that the *ppp* hypothesis is well asserted on External *RER*. This has been achieved by Kuisseu (2021a).

But what can be the Relevance of this hypothesis for a Broadset consideration of External *RER* those who is effectively calculated on the basis of the *consumer price index*. This has been achieved by Kuisseu (2021b) who showed that at a Broad level there is no need of consideration for the *ppp* in fact the traditional panel data unit root tests confirmed the null of unit root in this External *RER*.

This caveat gives opportunity to the consideration of the covid-19 crisis on the prospect lied in the *RER*. In fact, we know well that the basis for the rejection of the *ppp* is the Balassa Samuelson effect the effect following the difference in competitiveness among the home and the foreign will enhance *RER* Overvaluation. At the event of the coronavirus crisis this difference is playing in the Broadset consideration of price inflation. In fact, it's now well asserted that the covid-19 crisis with the obligatory concern on the old literature of Barriers measures (lockdown, reorganization of working place, ...) have mainly engaged the economies into adjustments between supply and demand with the main effect on price inflation. In front of price inflation another broad consideration lied on the prospect of coronavirus crisis in relation with *RER* is Investment. In fact, government faces to the crisis have intended to employ the factor by stimulating investment notably the argument off money as arm against coronavirus have been well assess. And finally the third concept playing as fundamental in the line of the contemporaneous crisis is the external position of the country in general labelled as *debt* in fact the argument of money as arm against coronavirus means that his government have engaged his population and national institution into foresable plan concerning the national and the fiscal balance of the country, with the occurring term of coronabond or most recently of Eurobond as effort to finance these strategies of refinancing the economies most affected by the Adjustment made by the crisis. If it's well expected that the volume of investment undervalued the *RER* because this give to the foreign an expression of a country most attractive and competitive for the business affairs the prospects lied on the debt are most related to the sustainability of the broad account embedding him namely the Current Account. It's why we will asserted on "Stochastic Optimal Control" analysis (SOC).

Because we have asserted on the two major of his selected African countries in the sub region in central Africa namely Cameroon and Gabon our aim now is to extend the study for the remaining countries for which the data are available those in the sub region in central Africa. For te need of comparability of results we asserted on the same cointegration techniques the Residual Based approach of cointegration.

Thus the present study will be Organize as follows, in the next section we present estimate of the cointegrating relationship between the *RER* and it's fundamentals (section 2), after the estimate Misalignment (section 3), and to conclude some guidance concerning the conduct of the economic policy (section 4).

## 2. The cointegrating relationship between the RER and it's fundamentals

With the availability of data the concern is just for one of the four remaining countries, central African republic. The data are taken from the World Development Indicators (WDI) the Online DataBase of the World Bank and span the period between 1981 – 2015 in annual frequency, thus 35 Observations in the time. The volume of Investment is measured by the share into GDP of the Gross Fixed Capital Formation (GFCF), inflation as the annual change in the consumer price index, the Current Account balance as the annual change in the net foreign asset country.

Considering the Johansen cointegration technique capability of determine the rank or the number of cointegrating relationship we begin by enhance on these tests. The results are resume in the following table 1:

Table 1: Johansen cointergartion test

<i>r</i>	Eigen values	Trace Test	Lambda max Test
0	0.62	63.33 (0.00)*	33.45 (0.00)*
1	0.37	29.84 (0.17)	15.86 (0.32)
2	0.28	13.98 (0.29)	11.13 (0.25)
3	0.08	2.84 (0.61)	2.84 (0.61)

Source: \*(\*\*, \*\*\*) null hypothesis is rejected at the 1% (5%, 10%) level. *r* cointegrating rank.

Thus we convene on one cointegrating relation between the *RER* and it's fundamentals. That's the following:

$$LRER = -5.09 - 0.18LGFCF + 0.15inf - 7.1547e-011CA$$

### 3. Misalignment estimate

The following figure 1 and 2 give the estimate of equilibrium RER and the Misalignment:

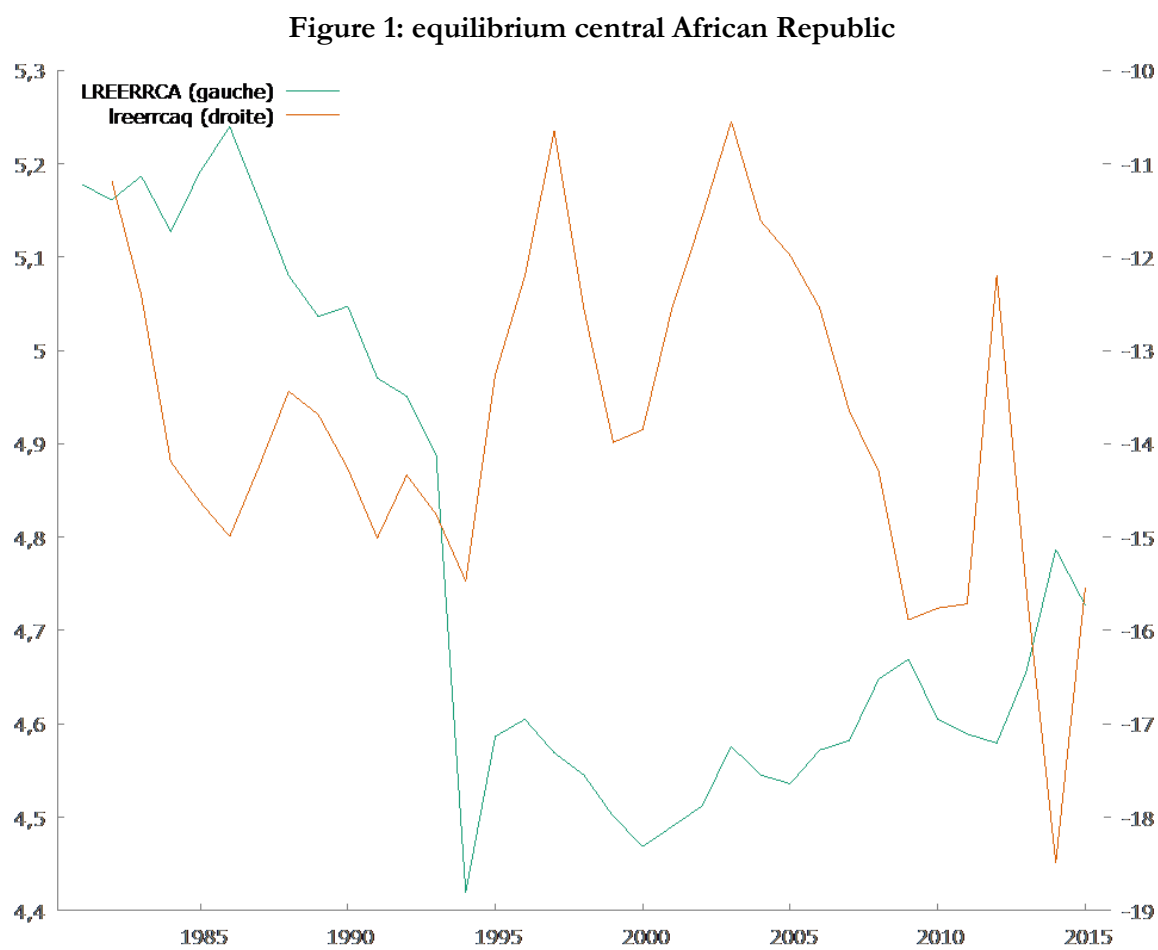
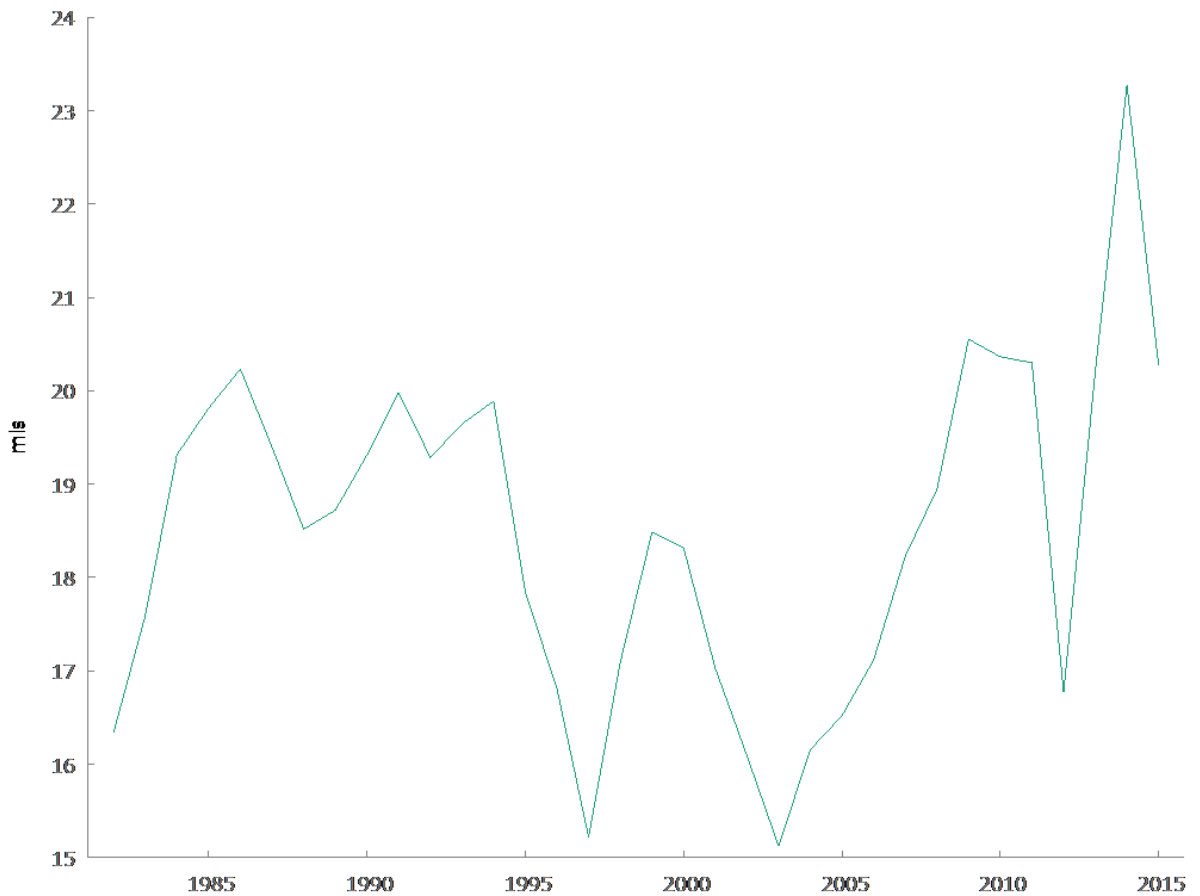
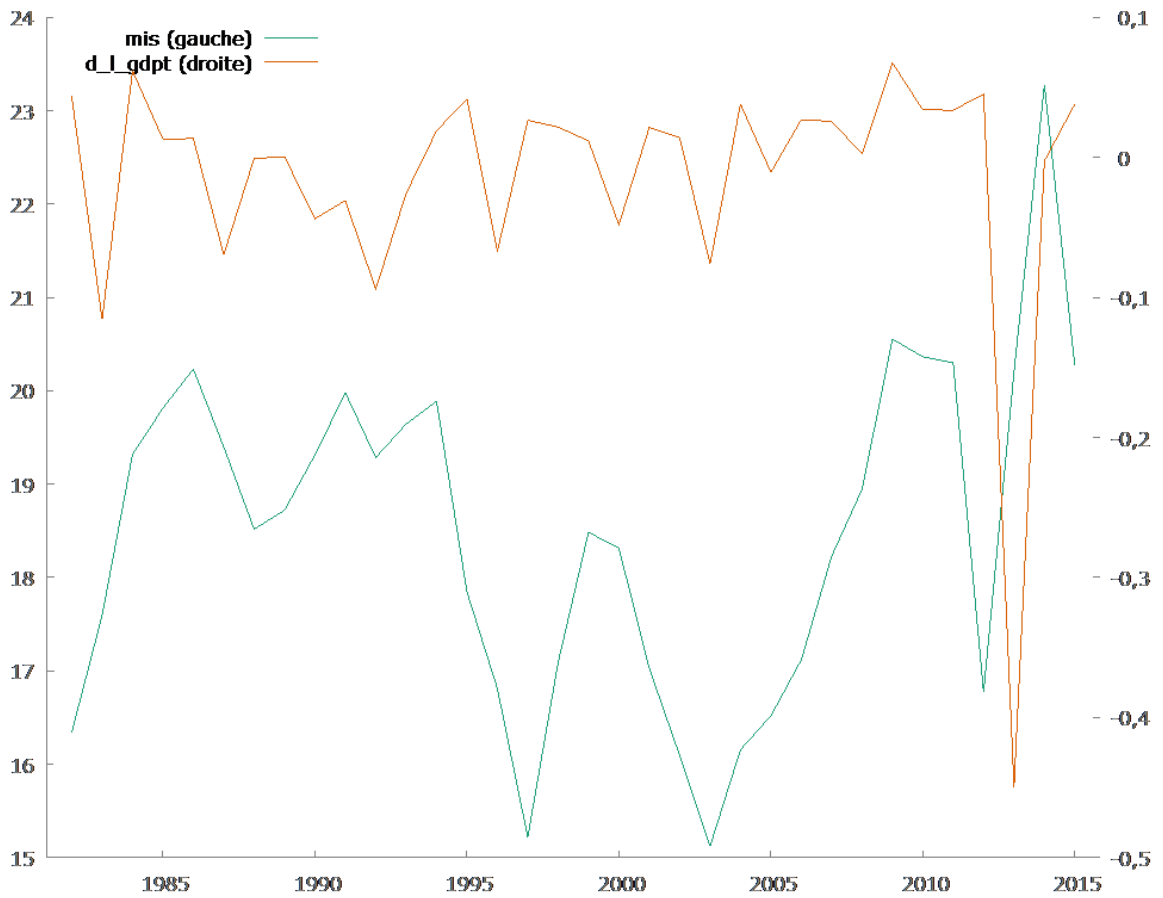


Figure 2: Misalignment central African Republic



The Results are straightforward the devaluation of January 1994 was relevant as confirmed by the value of the RER over its equilibrium between the period before the adjustment. Thus the Overvaluation currency is much sizeable before the devaluation than after to justify the adjustment undertaken in 1994. Despite this Result seemingly significant it appears necessary to assess on the significance of the Results. In fact, in central African Republic the *RER* seems always Overvalued. One road to do this is to assess on the relation between the *RER* Misalignment and economic growth. For a specific country as central African Republic this can give rationale to the fact that the episodes of expansive living life (or standard) are those who explains much the occurrence of such civil war that knows the population in this country and contemporaneously between israelit and Palestinian people. The figure 3 below graphs these two series Misalignment and economic growth in central African Republic.

Figure 3: Misalignment vs GDP Growth



Because it's difficult to infer on the correlation between these two series we now move on empirical assesment with GMM regression between the growth rate and the Misalignment in order to take into account the need of endogeneity make by the necessary taking into account into the regression of the initial level of growth such varaibale who explains the initial conditions who can be nevertheless (highly) correlated with the other part of the regression thus the use of an instrumental variable regression as the GMM. We use lag of order 7 for each variable as instruments. The (obtained) results are the following:

Table 1: GMM estimation of the relation Misqlignment vs economic growth in central African Republic

	Coefficients
$\beta$ convergence	2.42 (0.01)*
Misalignment	-0.00 (0.33)

Constante	-0.37 (0.01)**
Statistics	
Pseudo R-square	0.19
<i>Nobs</i>	27

Source: \* (\*\*, \*\*\*) null hypothesis is rejected at the 1% (5%, 10%) level of significance. *Nobs* number of available observations.

#### 4. Conclusion

The central African Republic case is not distinct for the other consider into the area of countries in the sub region in central Africa, Cameroon and Gabon the two major. In fact he seems that the *RER* of it is effectively Overvalued during the preceding period having justify the devaluation undertaken in January 1994. Nevertheless as country now destabilize by civil war as now the conflict of Palestinian people against israelit on the basis of the outcoming regression made on the relation between *RER* Misalignment and economic growth in this country there is no seems of proof that the civil war originate from mainly or also the expensive living standard (or life) because we have not make a significant negative relationship or associatioin between the *RER* Misalignment in central African Republic and his economic growth. This fact is intrinsingly because in the real terms we have observed the raise in the price of primary nutrition duties during the Holy time of Aïd (Ramadam) before the occurrence of conflict that oppose Palestinian to israelit people and national forces.

#### 5. References

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