A Bird eye from covid-19 crisis on the Relevance of the cfa franc devaluation of January 1994 and the honeymoon effect: an assessment with the equilibrium real exchange rate. Cases of Cameroonian, Gabonese and Central African Republic economies

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Abstract. *The Relevance on policy orientation concerning currency have been assess in the past at the evening related to the cfa franc devaluation of January 1994 on Cameroon and Gabon. Once more it's relatively means that despite the amount of debate on the peg into the cfa franc zone in particular with the devaluation of January 1994 this system of currency arrangement gives to his members states a lot of benefit as the honeymoon effect? In other words, in the currently context of covid-19 what are the basis to assess on this issue? These are the main questions we are trying to answer, here. Globally speaking, considering the Results the Residual based approach of cointegration is an unvaluable engine to investigate on this kind of consideration about currency area. In fact, he have been able as well as to assess the effect of the peg on the currency arrangement but also to infer on the verifiability for the considering currency area of the honeymoon effect.*

Keywords : *Real exchange Rates equilibrium real exchange rates honeymoon effect cointegrate system*
Jel Classification Codes : *C32 F33*

1. Introduction

On the convenience of Approach for reliable policy assessment and orientation concerning the adjustment made for restaure the country's external competitiveness the most suitable and notable on the basis of it's interest and of it's relevance is those concerning "Equilibrium Real Exchange Rate". Since the Advent of Behavourial Equilibrium Exchange Rates (BEER) it's now noteworthy that the Rex is governing by economic phenomenom in generally called "fundamental" for the Rex. Among these the most influential have the Balassa Samuelson Effect because is at the light of the discovery of this broad concept of BEER In fact, this is a suitable assessment of the non equivalence of natural hypothesis as UIP (Yakhin, Yossi 2019).

The Balassa Samuelson effect holds if the differential inflation of prices governing the international competitivennes give thanks to overvalued currency. Who road to assess on this differentiated prices is *External terms of trade*. This differentiated price intrinsincely is at the heart of considerationlied on Rex prospect during the covid-19 episodes crises with a much great emphasis on External added value coming from Natura Ressources sectors. Thus the verifiability of one of the natural hypothesis on Rex namely the ppa or precisely the weak form of this hypothesis (Kuikeu 2021*a*). It's the Rejection of the strong form of this hypothesis (Kuikeu 2021*b*) who can stimulated debate like this on the convenience of economic policy for currency orientation, as well assess with the upcoming BEER Model's of *External Rex* with the Recognisism that most of the African States embroyed in the Structural Adjustment Program (SAP) contrary to the IMF Recomandation where in need in stimulation (Stiglitz 2002).

On Road of credibility 's for the need of stimulation is on the Balassa samuelson Effect because of prospects as the Okun's Law Inflation is the final Ouput of All Transactions in particular those related to the Monetary agreement as cfa franc with at the heart of policy orientation the price stability for prospects as economic growth in fact an Relevance of guideline for price stability prospect on the area is the comparison with the criterion coming from the *peg* of Anchorage inflation in the area mear to the anchor economies, namely the economies in the EMU project.

Concerning the EMU project the initiatives of some African States to subscribe on EUROBON have been follow by the initiative of the imf for allow a amount of DTS the imf'currency on the basis of country's participating to his activity for the financing of effort for fighting against covid-19, One another Road who revealed that the Relevance of economic policy for External Rex orientation as stated well at the beginning by the economic nobel price's 2002 Joseph Eugène Stiglitz (Stiglitz 2002).

Therefore the subsequent plagiarism on the relevance of equilibruim real exchange rates approach for assessing on peg's orientation with some emphasis on prospects lied to the need of stimulating countrie's. This propspects is well imbedded by the contemporaneous crisis with some emphasis on debt (Eurobond), on purchasing paritty (inflation), and on the employability of production's factors especially the most representative reproductible set of this namely the capital. (Investment); in fact in the standard economic growth theory the reproducible set of factor's for production is embedded in the ratio of Labor/Capita as the number of physical capital by workers as reprentate by the Labour force (L). Thus the convenience set of "fundamentals" to achieve this policy evaluation is (*debt inflation investment*). It's wait an currency Overvaluation by *inflation*, depreciation of it's by *investment* and uncertainty on the *debt* with the mainstream that evaluating his sustainable path is subject to the Appreciation of the user because some of this need have been carried out by exercise as "Stochastic Optimal Control (SOC)" analysis. Therefore not on considering on the expected effect of *debt* on *Rex* we focus on the evaluation of the path of his substainable values.

The subsequent sections are organized as follow, first (section 2) by give some advices on evaluating path for susbtainable values on the *debt*, second (section 3) the use of available data to achieve this policy evaluation with the mainstream that the two cases economies belong in the same area for prospect on currency, thirdly (section 4) the assessment on the Relevance of the "honeymoon effect" fourthly we supplement our results with panel data cointegrating techniques (section 5) and finally some prospects and guidelines on this policy orientation concerning the *peg* in the light of this empirical assessment as concluding Remarks (section 6).

2. Operiationality of Approach

To empiricaly design an approach of equilibruim real exchange rates the basis is to state on the substanability of the « fundamentals ». In general this substainability coming for statistical exercise as Moving average, HP filter, … . Nevertheless for inflation rate considering the precedent development it's straightforward to place some emphasis on prospects lied on price stability as authorized by the peg agreements to not have an inflation rate of most than 3% per annum. But what can be about the substainability of debt.

The prospect on Monetary Agreement thus gives once again some Advices to achieve this evaluating exercise. On the fiscal rules is against a price inflation developing prospects related to *debt*. Second the *peg anchorage* is preserved by the need to have just a fraction of the external assets on the *Current Account* the traditional the most evidence measure for the *External debt*. Therefore the calculus is the fractional part of about 33.33% of this external assets to achieve this operationality. In fact, improvement on Monetary agreement have permits the decrease of the part towards the French treasury with the recognition that there is need to simulating his economies (Jacquemot 2012) the Rationale to state on currency misalignment on the prospect and development made by the engaging Structural Reforms during this covid-19 episodes.

On strand of the operationality lied on the empirical assessment. It's noteworthy that due to data limitation and for the significance of empirical assessment the Residual Base Approach is the most revealing for emerging economies as in Central Africa. In fact, despite the position of these two countries cases for policy evaluation Cameroon and Gabon the countries remains so fragile in particular to the external environment as assess with the current covid-19 crisis. To this end these have engaged his economies into valuable structural Reforms during this covid-19 episode. The Argument for Monetary usage in the prospect of resilience have them been place at the heart of consideration on policy orientation, *Eurobond* subscription by Cameroon, emulation on the demand side with some prospects on *purchasing power* with the Gabonese economy where the agricultural sector have played the attempt or the expected Role during the covid-19 so relevance to contribute on the added value of this sector for another countries in the area as Cameroon surprisingly because in general is the reverse direction who is observed.

Thus the Relevance to assess on equilibrium real exchange rates with these broad prospects on structural reforms as those applied during this covid-19 crisis, *employment purchasing power external position*. At the glance there is belief with the BEER Model's on *Rex*. If it's notheworthy that economic fundamentals drive *Rex* the divergence is thus on the plurality of these fundamentals so that to the need reconciliation it's straightforward to state on a Broad set of these "fundamentals" who are common to the cases economies. Thus the relevance to base the prospect on the light of policy orientation engaged during the covid-19 crisis because as Structural Reforms there are therefore homogeneous and common to all economies or a broad set of these especially those in need in stimulation as the Central African States with the engaged dialogue and discussion on Monetary Agreements prospects with France since 2019 in the West sub region as in the central sub region.

3. Empirical assessment

We use annual data from 1980 to 2019 for Cameroon and from 1980 to 2005 due to data limitations for Gabon (respectively 40 Observations for the first and just 26 Observations for the later of the two cases economies, respectively Cameroon and Gabon) for Real effective exchange rate index (Base 100 = 2010) as representative of *Rex*, Gross Fixed Capital Formation (in percent of GDP) as representative of *Investment*, and the percent annual growth rate of consumer price index (*cpi*) as representative of *inflation*, the Current account Balance (in percent of GDP) as representative of *debt*. The data are taken from World development indicator's DataBase the (*online*) DataBase on world's development indicators coming from the World Bank.

The most popular Residual Based cointegration Test is the two steps Engle Granger's Test. The variables are taken in Logarithm (L) for the *Rex* and Gross Fixed Capital Fromation because the two others can take negative values. The Results for the two cases economies are imbedded in the following Table 1:

Table 1: Engle-Granger cointegration Test for *Rex*

	Cameroon (1)	Gabon (2)
Constante	6.87 (0.70)	3.68 (1.13)
CA	-0.04 (0.01)	-0.01 (0.00)
Inf	0.00007 (0.00)	0.004 (0.006)
LGFCF	-0.75 (0.22)	0.39 (0.34)
Statistics		
Nobs	40 (1980-2019)	26 (1980-2005)
Adjusted R^2	0.36	0.26
See	0.15	0.28
Adf-stat	-3.45*** a	-2.07 (0.84)
DW	0.82	0.63

Source: * (**, ***) the null hypothesis is rejected at the 1% (5%, 10%) significance level. GFCF = Gross Fixed Capital Formation, Inf = Inflation, CA = Current Account. L the Logarithm. (.) *standard error*, *see* standard error of estimate. (1) *Rex* equation's for Cameroon, (2) *Rex* equation's for Gabon. *Nobs* available observations. a McKinnon (2010) critical values.

We know well the EG cointegration test very sensitive to the small sample case with the critical values compute according to the tail of the sample and this apply for Gabon where the critical values of the test are compute for samples near than 50 Observations in particular for forecasting (Engle and Yoo 1987) and this is so far for Gabon compare to Cameroon. Therefore this is the basis for assess the Relevance of this estimate concerning the Gabonese economy with the well know Johansen cointegration technique who the most common statiscal package give the significance level independently of the sample size consider. We know just that this significance is on the ability of the user by different consideration on the lags terms and the deterministic components of the Model (constant, trend, restricted constant, restricted trend). Here we conduct this test with $k = 2$ lags and a restrict constant term. The available result are display as follow:

Table 2: cointegration rank's test for Gabon, 1984-2005

r	Eigen values	Trace Test	Lambda max Test
0	0.71	52.33 (0.07)***	30.27 (0.02)**
1	0.32	22.06 (0.59)	9.41 (0.86)
2	0.28	12.64 (0.40)	8.11 (0.54)
3	0.17	4.53	4.53

		(0.35)	(0.35)

Source: r is the rank of cointegration. (.) the significance level.

Considering the results as well as for the Trace and the Lambda max Test we assess on one cointegrating relation for Gabon's who is the following:

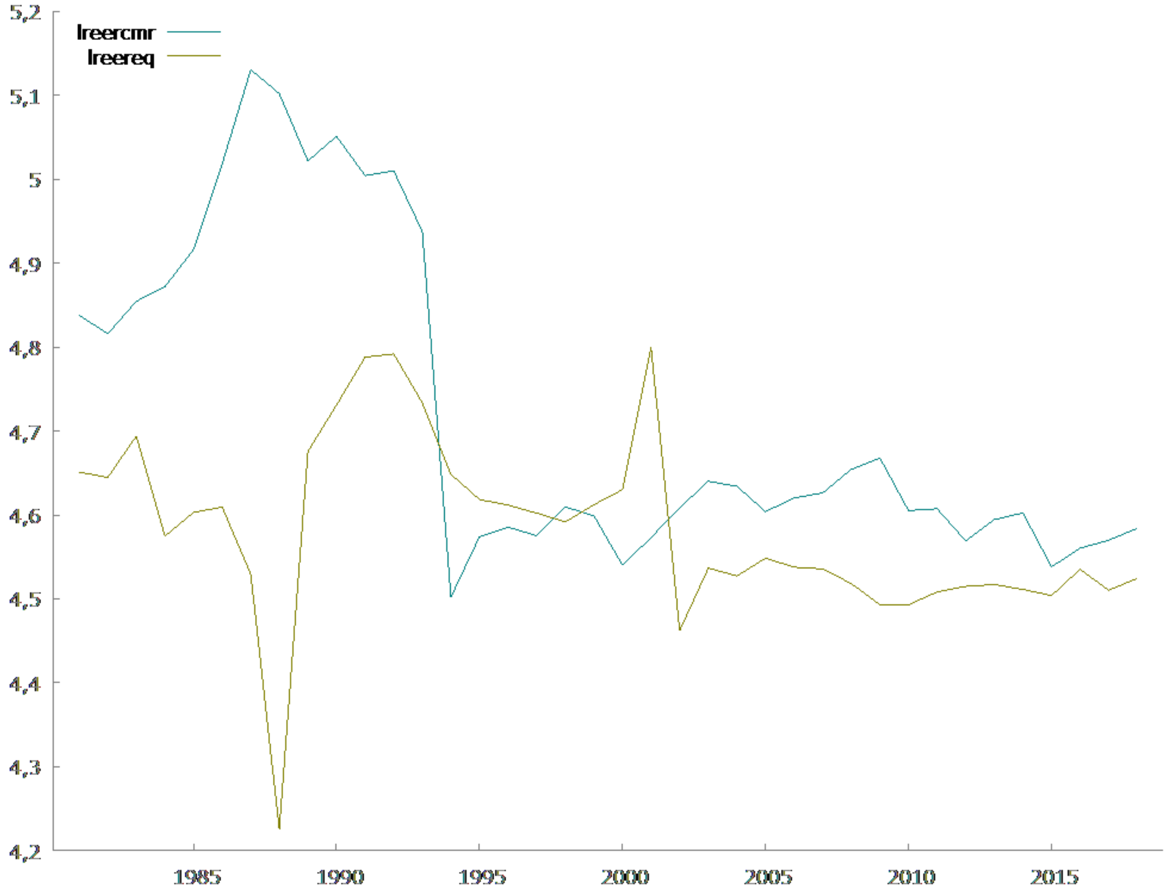
(2) $LREER = 13.09 - 2.66LGFCF + 0.15\text{inf} - 0.04CA$

GFCF = Gross Fixed Capital Formation, Inf = Inflation, CA = Current Account. L the Logarithm.

Now the Result seems reliable as the size of inflation is non null contrary to the preceding evidence but not significant for developing countries on the subsequent development about the Balassa Samuelson effect. An another strange of Result stand on the CA effect who is the same in Cameroon and Gabon in terms of direction for the effect with a negative sign to seem that accumulation of liabilities against foreign partners give strand for the non-sustainability of this Account.

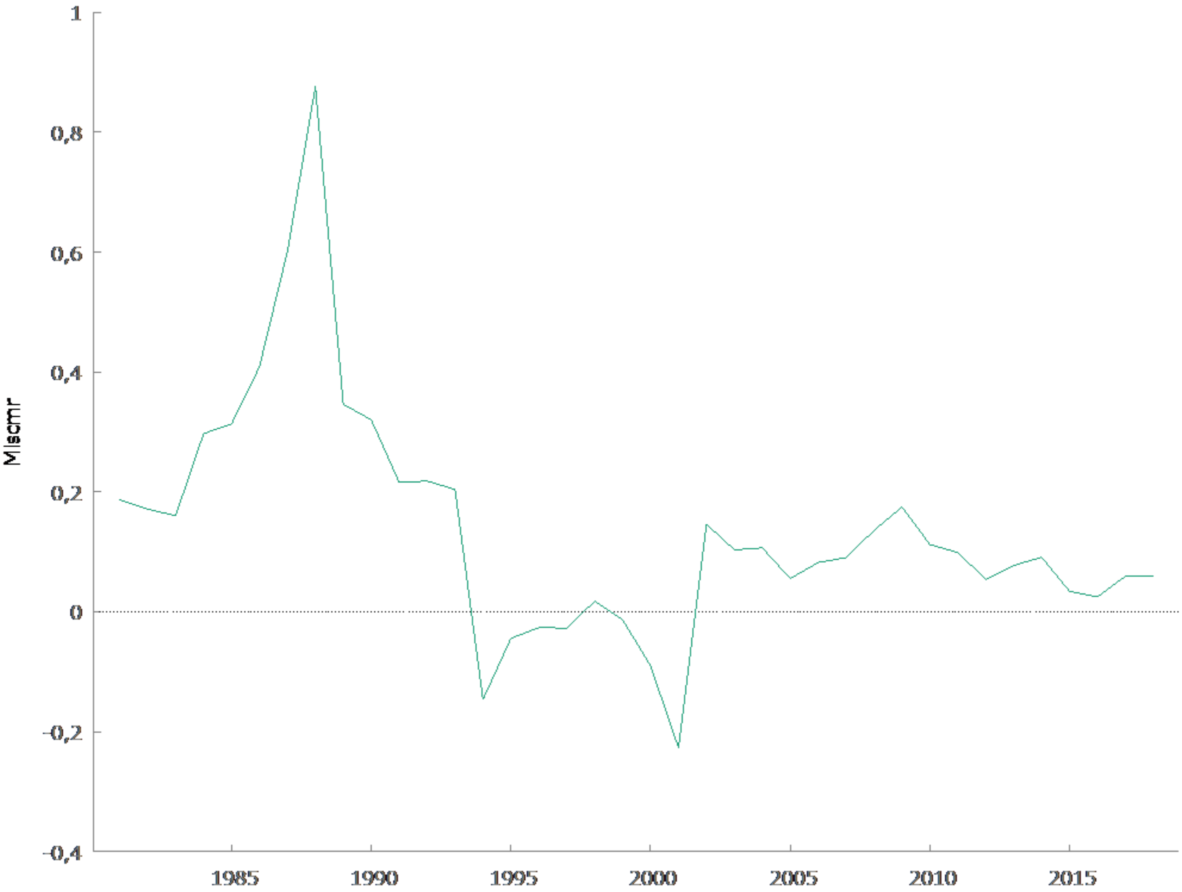
To speak on the non-sustainability of this Account the next step therefore is to operationalize the concept on equilibrium real exchange rate. This is doing by calculating substainable values for the right hand side variables namely the "fundamentals".

Figure 1: equilibruim Cameroon



The estimate seems accurate considering the estimate Real Exchange Rate's Misalignment for the country (Figure 2).

Figure 2: Misalignment Cameroon



With Gabon the following Results are obtained:

Figure 3: equilibruim Gabon

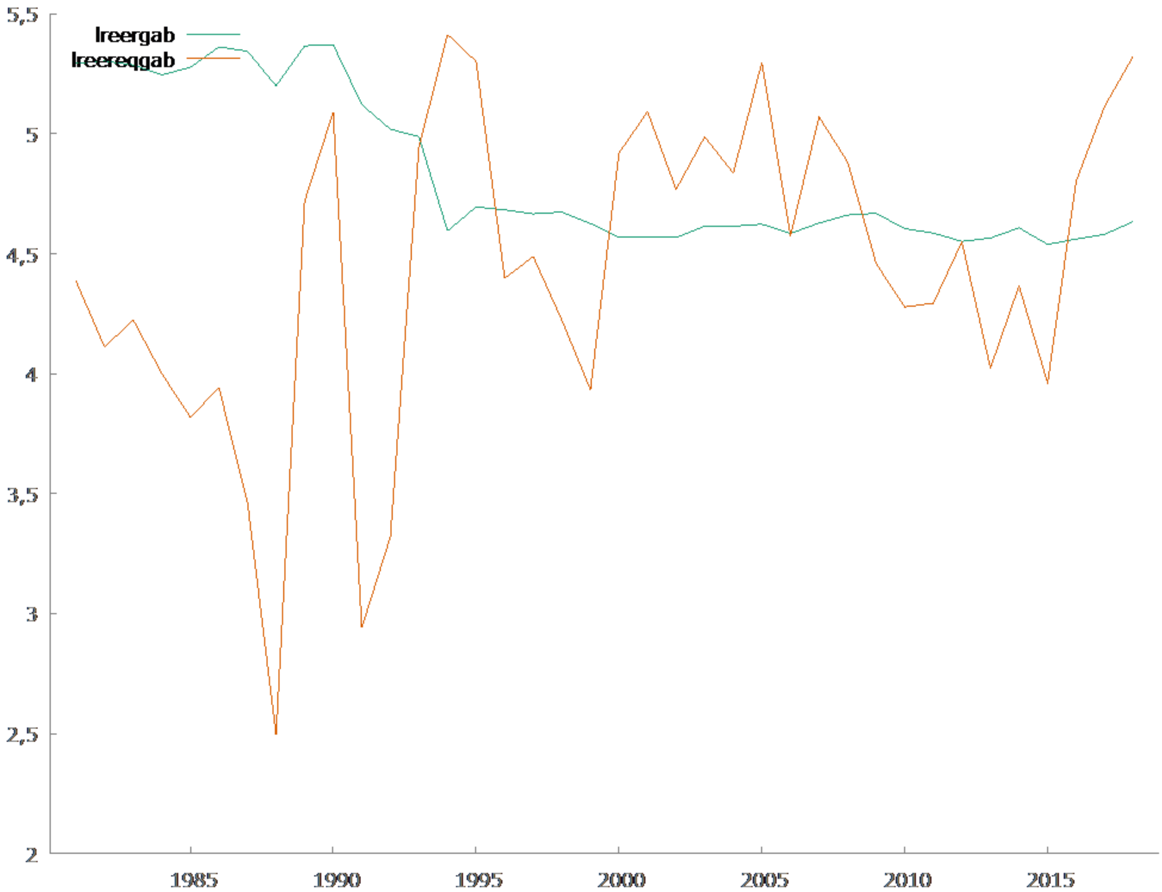
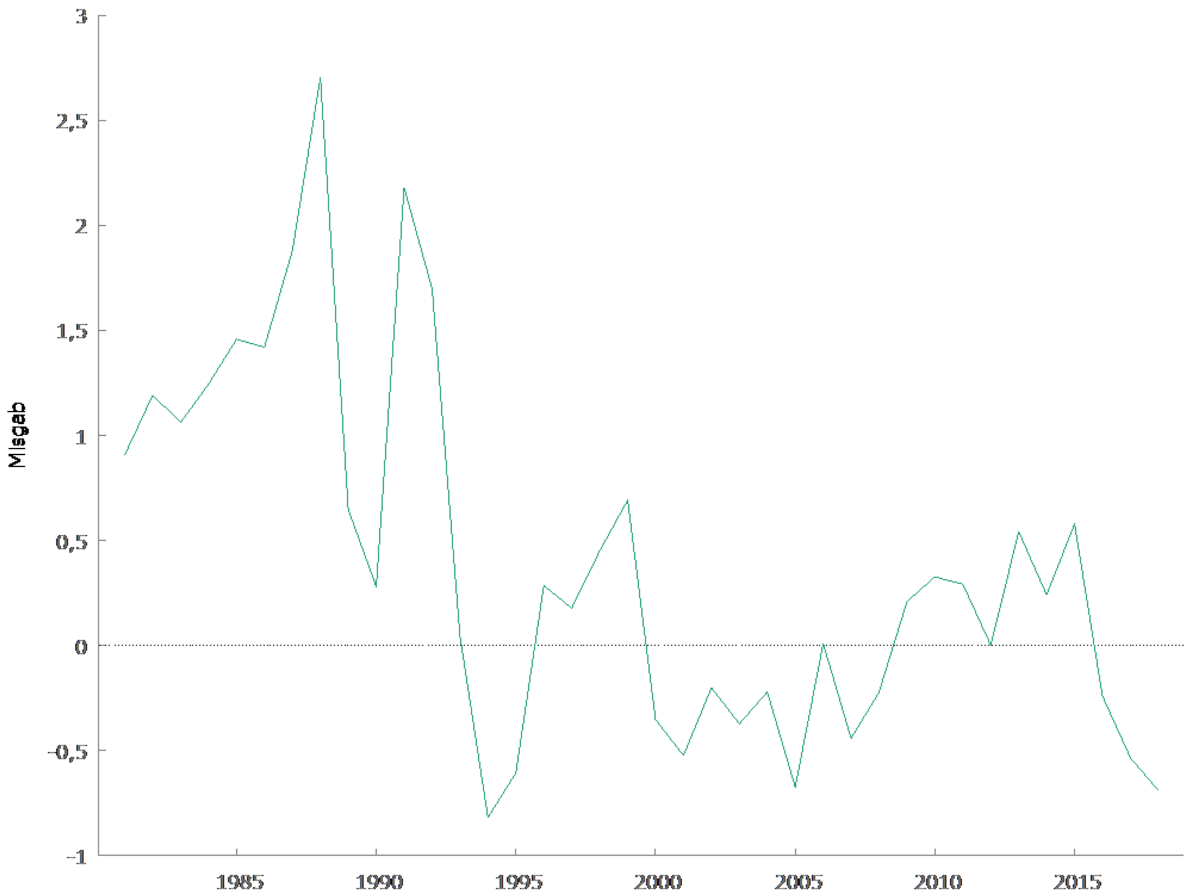


Figure 4: Misalignment Gabon



The appearance of Results seems significant for policy recommendation concerning Exchange Rate policy in the community in fact it's straightforward that we have an Overvalued currency in order to justify the devaluation. And about the preceding results (Kuikeu 2021*c*) he seems of beginning of upward trend in *Rex* since the Advent of single European currency in 2002. Thus the remaining question to know if the honeymoon effect holds. That is taking into account the debate on optimal exchange Rate arrangement the *peg* stabilizes the change better than the fundamentals otherwise than the arrangement of pure flexible exchange rates.

4. Is the honeymoon effect holds ? Cases of Cameroon and Gabon under Covid-19

It's now well documented that the current crisis is also one of currency Overvaluation, in fact considering the following stylized facts: in Algeria the decreasing petroleum rent have gives rise to the increasing price of foods stuffs during the holy time of Ramadam, in USA an cybercrimilaty attack have damage the distribution of product as issue by one of an most valuable infrastructure, in Cameroon the national institute of statistics revealed that the prices of foods stuff have well increase compare to the past two months, once more according to the magazine "EcoMatin" in the oriental region of the country the population facing a need of completeness on demand of foods on his regional markets. Thus we can consider all of these events as an evidence of currency Overvaluation in the light that an Overvaluation currency gives no more interest in producing face to better price offer by the partner.

In face to these dramastical trend of the current pandemic we have advocated in some past papers the relevance of stimulating the level of national investment (Kuikeu 2021*d*) but with preserving the purchasing power parity (Kuikeu 2021*e*). An another piece of evidence to assess on the preserving welfare of the population is to assert in the outcome of the currency agreement. An Old piece of evidence is that the currency agreement as a peg stabilizes better the Exchange Rate (*Rex*) than the fundamentals namely the pure floating Exchange Rate Regime. In fact, this is an incentive to give insurance to the agents about the currency orientation in particular those concerning the policy choice.

We have well established in an recent study that the current *Rex* is overvalued currently as well as in Cameroon than Gabon since the advent of single European currency unit in 2002. To explain this stylized fact it's straightforward in fact at the introducing of this currency in the market he have appeared that the single European currency unit is more strong than the dollar US the kind of policy choice that have give relevance to the cfa franc devaluation of January 1994 those to have a strong currency on the side of the anchor economy (France).

The respectives cases of Cameroon and Gabon are relevant to assess on the relevance of the "honeymoon effect". In fact, these two economies are those that are considered as the leading economy into the sub region of the cfa franc zone in central Africa (Kuikeu 2020) in the one hand, in the other hand these are the two economies on which the Relevance of tha cfa franc devaluation of January 1994 have been assess. To this end considering the same context of covid-19 the exercise is realize with a same subset of economic fundamentals for these two countries those fundamentals that are representative of an era of structural reforms play during this covid-19 crisis.

We will Organize this assessment as follows, in the next section (4.1) the operationalization of the procedure, after (4.2) the assessment on the relevance of the "honeymoon effect" for these two countries.

4.1. Operationalization of the procedure

To make operationality the procedure on the assessment of the relevance of the honeymoon effect we address the issue by adding dummy or intervening variable into the cointegrating relation, meanwhile the long run relationship between the *Rex* and it's fundamentals. In fact, because the long run relationship embedded an constant term these intervening variables will them belong into the constant term of the relationship by varying this slope parameter. Two intervening variable will be include one in consideration of the devaluation of January 1994 and another one in consideration of the introducing of euro since 2002. To this end the most appropriate and convenient procedure will be the residual Based approach of cointegration as introduced by Engle-Granger. In fact, since Gregory and Hansen (1996) it's straightforward that intervening variable play unvaluable role in explaining long run relationship as for example the Break into the cointegrating relationship, in the slope, the trend or the long-run parameters. But this procedure involve the need of critical values to determine the Break point. At this end, in the incapabability to achieve this statistical procedure the intervening variable are introduce here in considering the preceding prospects who gives weight to the event take place in 1994 with the devaluation and 2002 with the Advent of the single European currency unit. Thus the main procedure will be the Residual Based Approach of cointegration in two steps following Engle-Granger. At the end the honeymoon effect could be relevant if the currency misalignment tabulated on the basis on the taking into account of these intervening variables are less sizeable than in the case where this taking into account is not realize.

4.2. A Residual Based Approach of cointegration to assess the honeymoon effect

We use the same subset of fundamentals (Current Account, inflation, Gross Fixed Capital Formation) as precedently because the aim is to realize a counterfactual exercise on the basis of the long run relationship for the *Rex*. The data are coming from the (online) World Bank Database on the World development indicators (WDI). The period of data spam is 1980-2018 for Cameroon and 1980-2005 for Gabon. The following Table 1 incorpores the Results on the two steps EG procedure:

Table 3: EG two steps cointegration test

	Cameroon (3)	Gabon (4)
Constant	7.04 (0.69)	5.06 (1.05)
Current Account	-0.03 (0.01)	-0.01 (0.005)

Inflation	0.008 (0.004)	0.02 (0.008)
LGFCF	-0.80 (0.22)	-0.02 (0.32)
d94	-0.45 (0.15)	-1.00 (0.29)
d02	-0.06 (0.04)	-0.31 (0.07)
Statistics		
Nobs	40 (1980-2019)	26 (1980-2005)
see	0.15	0.26
Adjusted R^2	0.38	0.39
Adf stat	-4.27** a	-4.71** a
DW	0.74	0.79

Source: * (**, ***) null hypothesis is rejected at the 1% (5%, 10%) level. *see* standard error of estimate. d intervening variable with value = 1 in 94 and 0 otherwise for d94 and value = 1 in 2002 ad 0 otherwise for d02. L = Logarithm. (.) standard error, *Nobs* available observations. a. McKinnon (2010) critical values.

Each parameter have the expected sign as well for the intervening variable who suggested that nominal devaluation effectively depreciated the *Rex*. The subsequent development are concened by evaluating the equilibrium values for the *Rex* and thus of the Misalignment:

Figure 5: equilibrium Cameroon

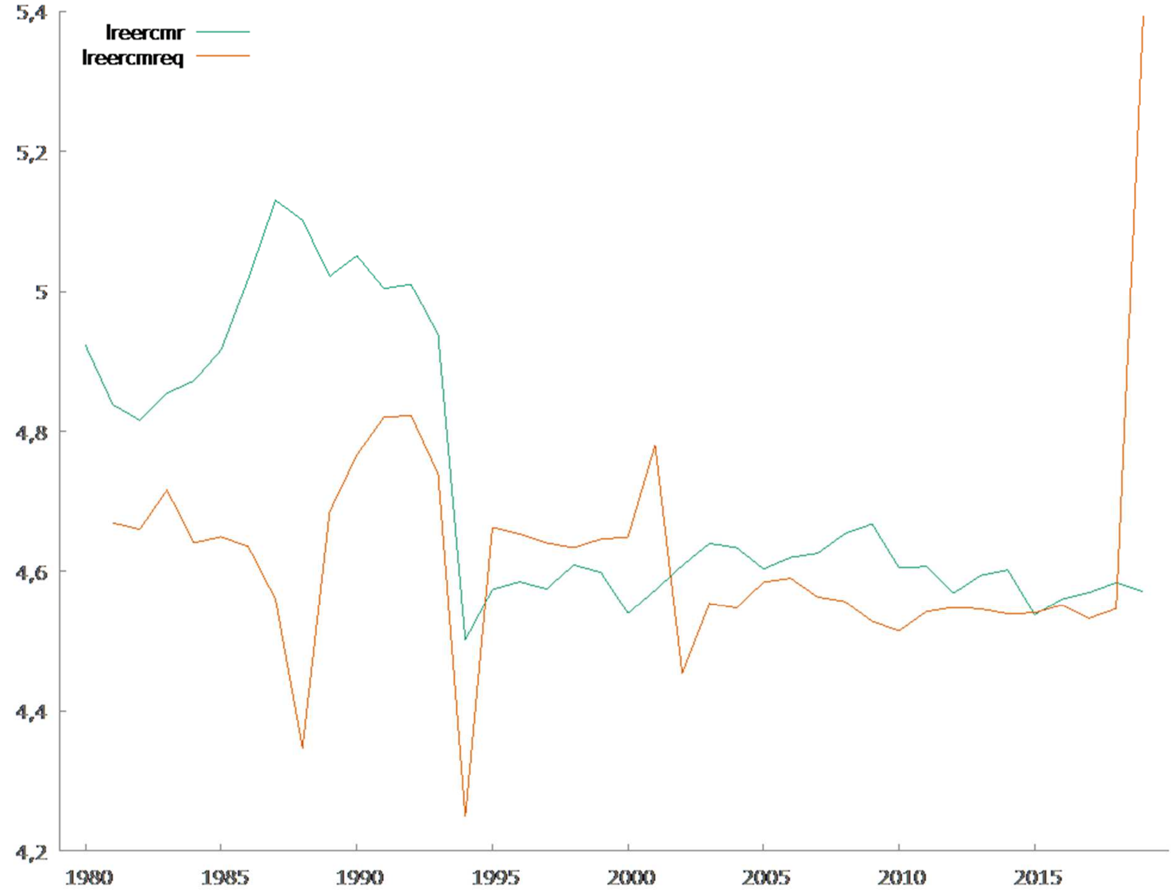


Figure 6: Misalignment Cameroon

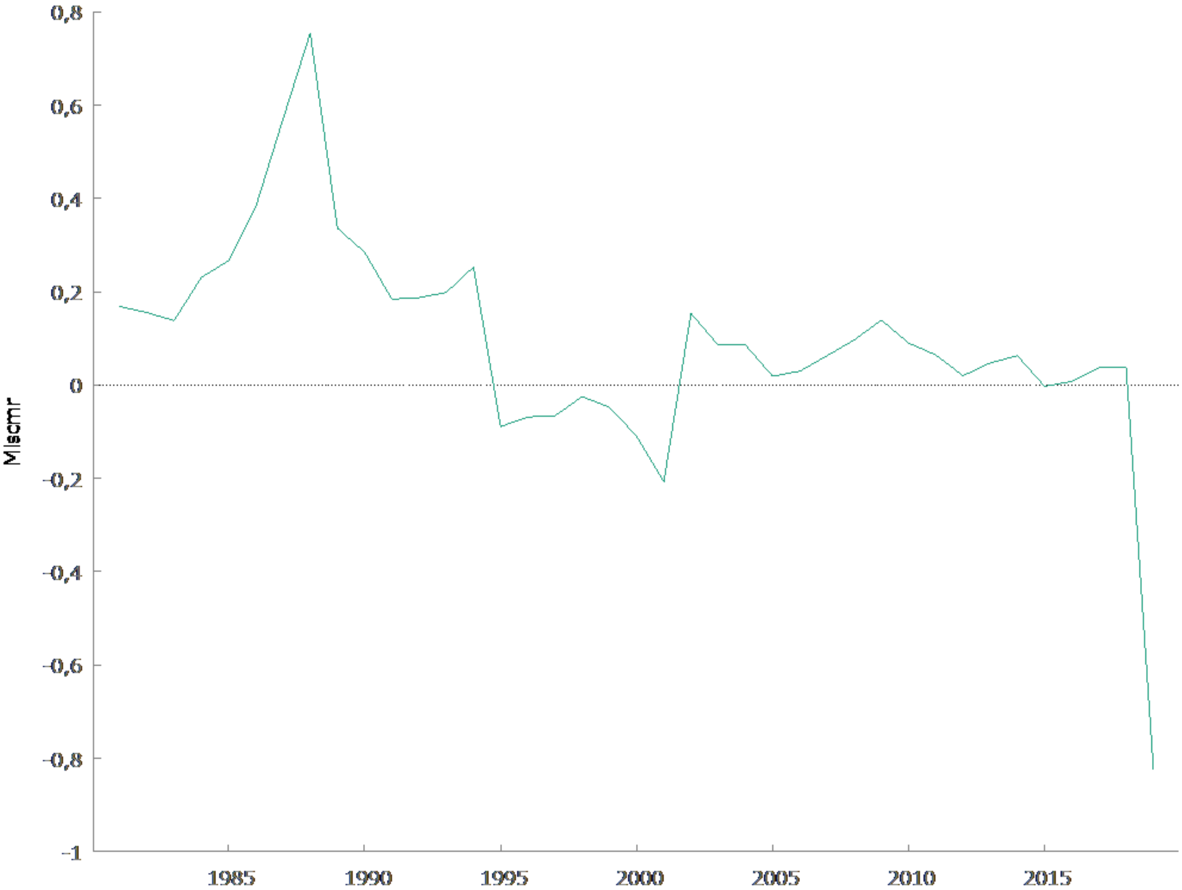


Figure 7: equilibrium Gabon

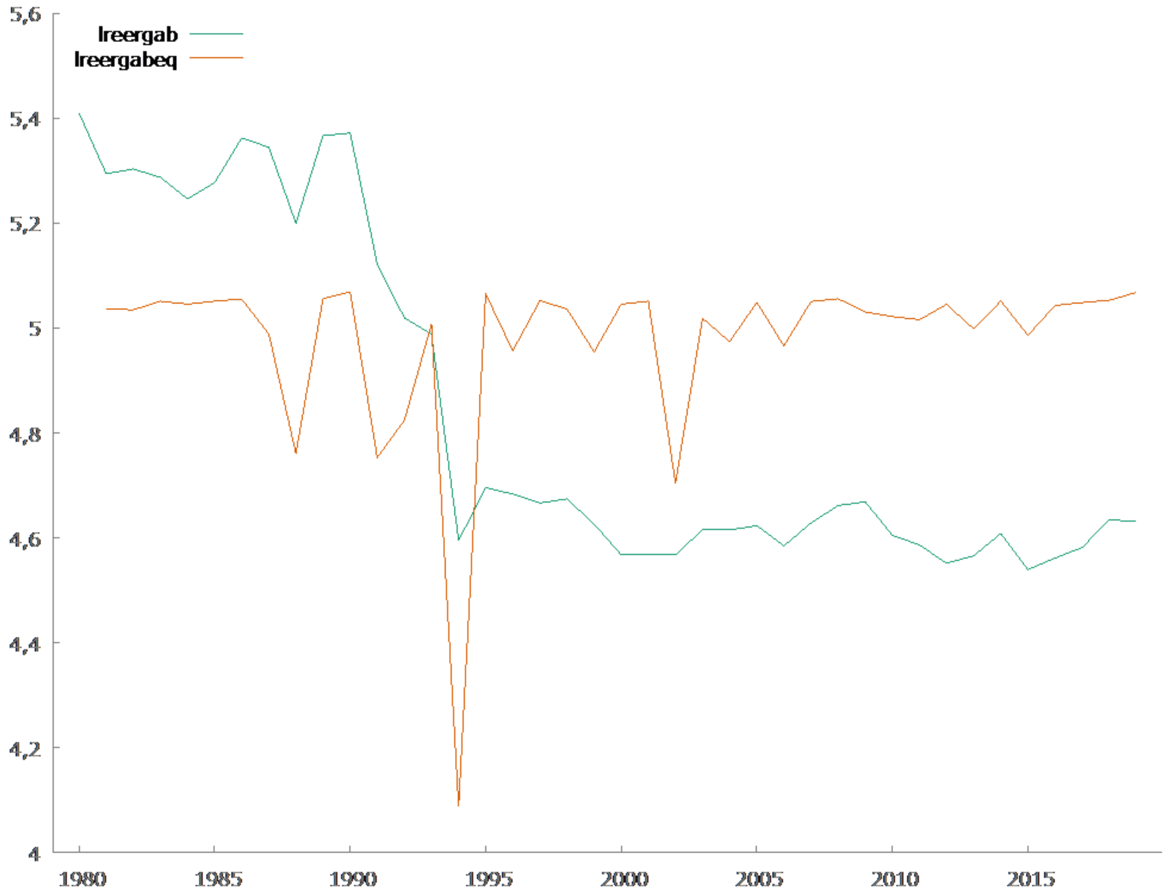


Figure 8: Misalignment Gabon

5. Panel data cointegrating approach

An obvious question in economy is wether it's better to use heterogeneous estimates compare to homogeneous estimates. In fact, sometimes in panel data the individual estimators are shrunk toward the pool estimator in the sense of this idea. To assess on this belief we supplement our results with the panel data's cointegration of Kao and Chiang (1997) with the taking into account of central African Republic among the individuals. The results are presented in the following table 4:

Table 4: panel cointegration test

	LREER
Inf	-0.003348 (0.006522)
Current Account	-2.8493e-12 (7.19e-12)
LGFCF	0.57909 (0.278)

Statistics	
Nobs	75
Adf stat	-2.717** a

Source: * (**, ***) null hypothesis is rejected at the 1% (5%, 10%) level. L = Logarithm. (.) standard error, *Nobs* available observations. a. Breitung et Meyer (1994) critical values.

6. Conclusion

Even with the taking into account on policy effectiveness on the nominal exchange rate Regime we find that the cfa franc devaluation of January 1994 was Relevant because for each of these two countries the *Rex* is Yet in an downward trend since 1995. And concerning the Relevance of the honeymoon effect following these results there is no doubt that the *peg* gives to his members states an lot of benefit as asserted by the degree of *Rex's* Misalignment at the date who the preceding result seems the beginning of an new upward trend in the *Rex*, 2002. In fact, just considering the Gabonese case the *Rex's* is clearly undervalued during the subsequent period after the devaluation suggesting that the taking into account of the operationality of nominal Exchange Rate Regime gives some concerns and relevance to the country contrary to the preceding Obtained results without this consideration.

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