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# The Cyclicity and the contra cyclicity of the economic affairs in CEMAC Community under the Covid-19: an assessment with Panel VAR

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**Abstract.** *An Obvious and certainly misleading statement in economics relationship is that the set of components imbedded into an economic Model as those of poverty explanation are unrelated. This statement have give raised to the Lucas Critique that asserts this is false because in the real world the variables are Structural in the meaning that they belong on the individual behavior of the components people's considered in this kind of Model. Thus is this that the results about the econometric assessment of covid-19 for an individual country as in the previous works can be feasible for a broad set of countries especially those where the geographic area belong into the Sud Hemisphere? Otherwise with Panel data is be abled to recognized the main stylized facts about covid-19 in CEMAC community caracterized with prosperity in larger country as Cameroon and the aberration in consideration of one another as Congo Republic? These are the main question we are trying to answer, here. Globally Speaking the Obtained Results suggest well that Panel (data) VAR Methodology is an suitable and equivalent engine to realize this king of exercise especially considering to taking into account the homogeneity in data about the Temperature. In fact with the improvement made by panel data unit root and cointegration it's is now possible to take into account unit root with the hypothesis of correlated individual (Pesaran 2007) thus this can change dramatically the obtained consideration compare to a case of first generation of panel data unit root test where the individual are considered unrelated so that the possibility of correlation made by the econometric Model gives place to a more emphasis on the chronological value of the Variables. Thus the relevance of the present study where the variables on Temperature is the one where a positive chock explains the occurrence and the propagation of the Covid-19.*

**Keywords :** *economic activity cyclicity panel*

**Jel Classification Codes :** *C33 O47*

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## 1. Introduction

By the Adoption of the well known initiative on the adoption of vaccine for the common states in subsaharan african region's commonly called covax initiative the African states have well recognized the relevant role playing by the necessity to industrialize the process the manufacturing the output of clinical research on the covid-19' resilience. This have give raises to an ambiguous role between natural medicine and modern medicine. Globally speaking the ambiguity lies on the alerts gives by the modern medicine relies to it's capability of existence of some variant to the Sars-Cov-2 so that the treatment belongs in these diffrences contrary to the natural therapy where the research are invariant to these kind of consideration. This kind of Statement is relevant not only for Cameroon but for a relevant set of sub-Saharan African country engaged on this process of clinical teherapy availability as Madagascar. This simple Observation is as heart of our consideration on the relevance

on panel data use for the assessment of covid-19' impact on the economic activity especially when this is for a set of relevant countries in the Hemisphere sud namely those of CEMAC for the two reasons that these are together in the consideration of "natural reserves" as considered by UNESCO (Cameroon and Congo) and also in the Lac Thad (Cameroon, Central African Republic, Tchad).

Considering this consideration on the suitability of panel data use for covid-19 economic assessment it's there straightforward to infer on the plausible and probably expected effect for those countries in CEMAC. In fact, with these considerations in geographic area these countries share this common economic activity as fishing, to consider this only. With the main constraint of terrorism in this area equivalent to those made for keeping meats or human animals. This is extremely severe in the extreme north of Cameroon with the Islamic secte Boko Harm coming from Nigeria. At this effect conjointly to the belonging in the area entering the national patrimoin of United nation's is thus convenient to have the idea on the covid-19 propagation due to constraint on the same Temperature as represents by the data on the Hemisphere Sud. But nevertheless contrary to the commonly believe the covid-19 have produce different economic issue in CEMAC with the representative of the Major namely Cameroon and Congo. Because if her production as well driven by petroleum products at the difference of Congo in Cameroon the production is largely diversified with the existence of one of this essence use for the crisis namely cotton. Thus is this difference that can have drive the difference in trend on economic activity between these two Major as designed by the chain value created by the second the cotton, namely textile, clothes, and for this particular case of crisis sanitary the confection of mask (Biboum et Essono 2020). Another ambiguity is that contrary to the Major Cameroon in Gabon as relatively Major the agriculture is so well depending of those producing in the area as equatorial guinea this later consider as an recent emerging country in the area much concerned by a fact not readily concerned by the nature namely Money because of these 6 countries equatorial guinea is the one that where the colonial link with the anchor economy coming just for the incoming cfa zone area. For this another fact is thus relevant and convenient to the use of panel data to assess the covid-19 economic impact for the area defines in cemac. It's readily conceive to have a positive economic impact for all of those set of countries where the cameroonian economy with stimulated activity by the climate change otherwise change in temperature (or shock) is also the leading country in the area. Considering that at this time the presidency of CEMAC is now played by his head of states in the other hand the electoral calendar is cyclical in the area considering the recent reelection of Touadera in Central

African republic and the incoming presidential election in Tchad where the stability is presumed with the well statement of an “5ème République”.

The Rest of this paper is thus Organized as follow, in the next section we will discuss on the feasibility of panel data on the use for VAR Methodology in a suitable and convenient way corresponding to the cases of standard Time series, at section 3 the econometric results on the date use of cemar’s individual countries, in section 4 a supplement of the results with the panel data cointegrating techniques on the same set of data used precedently, finally a resum of the main results in conclusion at section 5.

## **2. Panel VAR Usage**

Most of the Package in statistics and econometrics dispose now the suitable procedure and framework to realize VAR Methodology with the difference between one to another mainly on the comutation on the confidence Interval those who represents the set of plausible Results on the schock made for the corresponding objective variable in the instrumental variable. In the case of Covid-19’s assessment the instrument variable namely Temperature have the particularity to have a same chronological value due the same corresponding area for the six countries in the CEMAC. Thus this characteristic correspond to the attitude adopt here to implement panel data with VAR Methodology. In fact, panel data, use mainly dummies variables to playing in the difference between to different cross sections in the panel data at this effect we will play on the differences on placement of component in the dummies variables to define our panel data VAR. If this is not well suitable admit for the data on the Temperature consider the another acomponents of the VAR (inflation and standard living) to evaluate this matrix operation as an engine to implement panel data with VAR methodology. In particular 1 place in the variable means just that at this point of time the vaue of the variable is for an another cross section. Because this this the only and equivalent way to place difference in Temperature value in a convenient way corresponding to the time series in a context or for adaption in the use for panel data. The main advantage eof this adaptability is that the econometric method correspond always to the use of OLS like in Times series use of the techniques corresponding the dummies approach with the 1 places to designe an another cross section.

An another advantage of this adaptability is that is give us the ability to have impulse response for each variables corresponding to the consider cross section. Thus for the computation of confidence interval the main assumption is that so far from the value 1 the impulse have not relevant significance

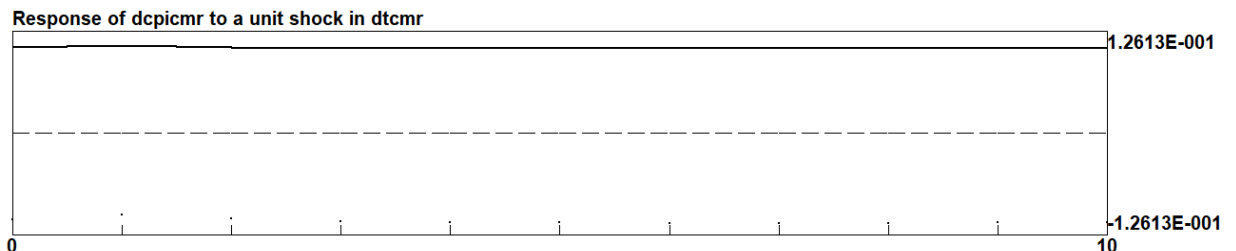
considering the altruism that the instruments variable as another kind of exogenous variable is now invariant. Case not taking into account in the VAR Methodology. Since the VAR Methodology reposes on the stationarity hypotheses the necessity to taking into account the first differences in the variables designs also the significativity of this unconvenience to not play on the Objective since the instruments change to an ordinary value to the null 1 because this is also nevertheless a variation. With these Broad consideration these variables are thus taking in first differences. Nevertheless this convenient adaptation lies on the question about the VAR Representation as VARMA because the main Thorem to realize this inversion is the Wold Theorem applicable in the literature in the time series cases.

### 3. Panel VAR assessment of covid-19 in CEMAC

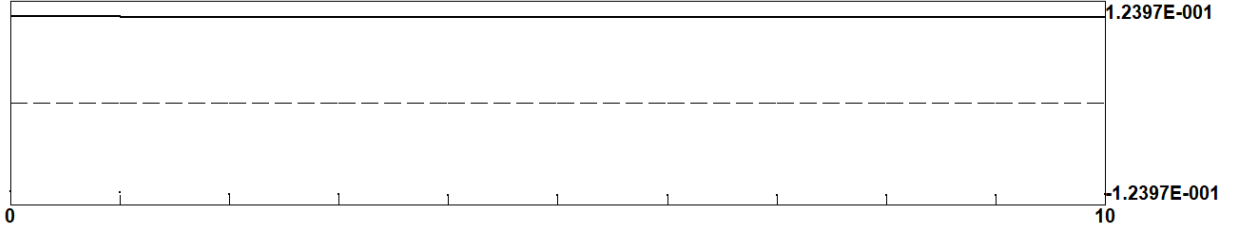
The data are coming from the World Development Indicators (WDI) the Online World Bank Database's. The data span the period of time between 1985 and 2018 following the data availability. the frequency is annual and thus we have 33 numbers of annual Observations in the time. Confronting to the difficulty imbedded by the heavily weight of calculus made in particular for the computation of confidence intervals who have not yet been possible because meanwhile he have been able to have FIML results the variance matrix of the structural parameters where suridentified and the use of the simplex method to obercome this and get standard implulse with confidence interval around them have not been possible. This is for the simpliestr case of a Bi-VAR with Cameroon and Gabon as the cross section. The results are presented as follows for each of the respective economy with the data on the temperature coming from the University of East Anglia:

#### Decomposition with the mean of the temperature (T)

##### CMR

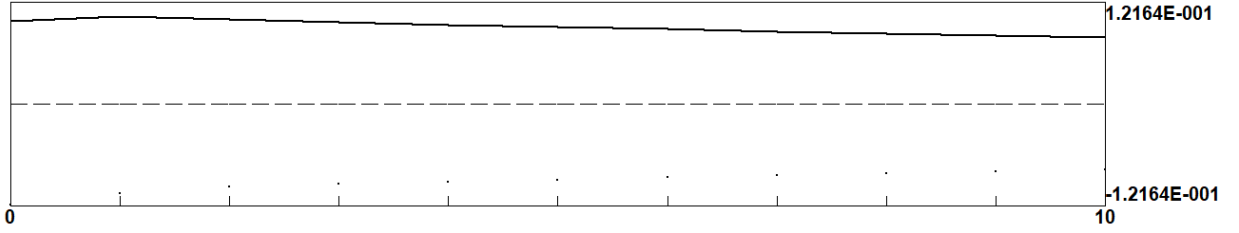


Response of dpibrcmr to a unit shock in dtcmr

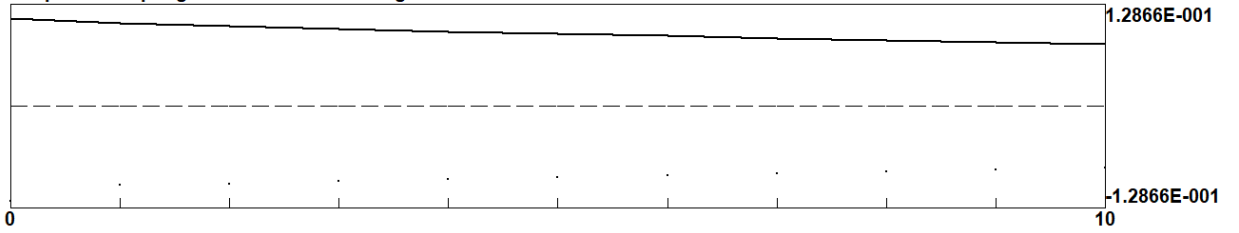


### GAB

Response of dcpigab to a unit shock in dtgab



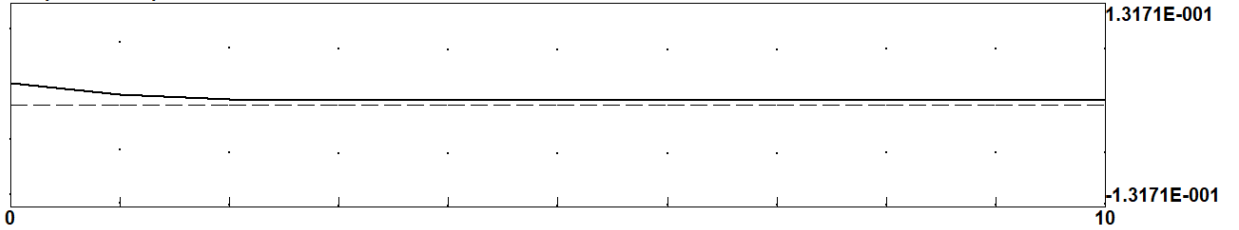
Response of dpibrgab to a unit shock in dtgab



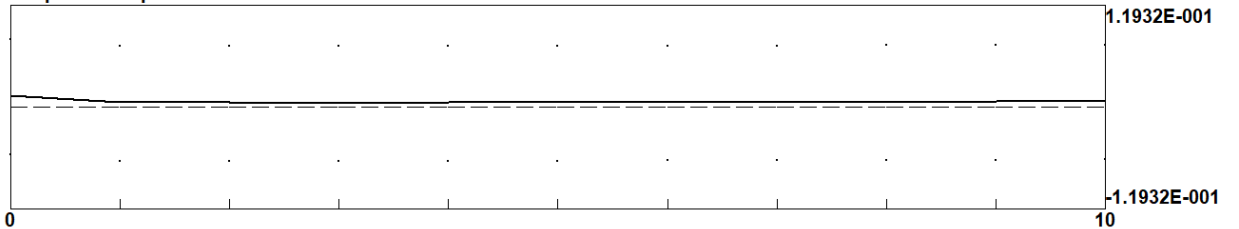
### Decomposition with the aberrance in temperature (AT)

### CMR

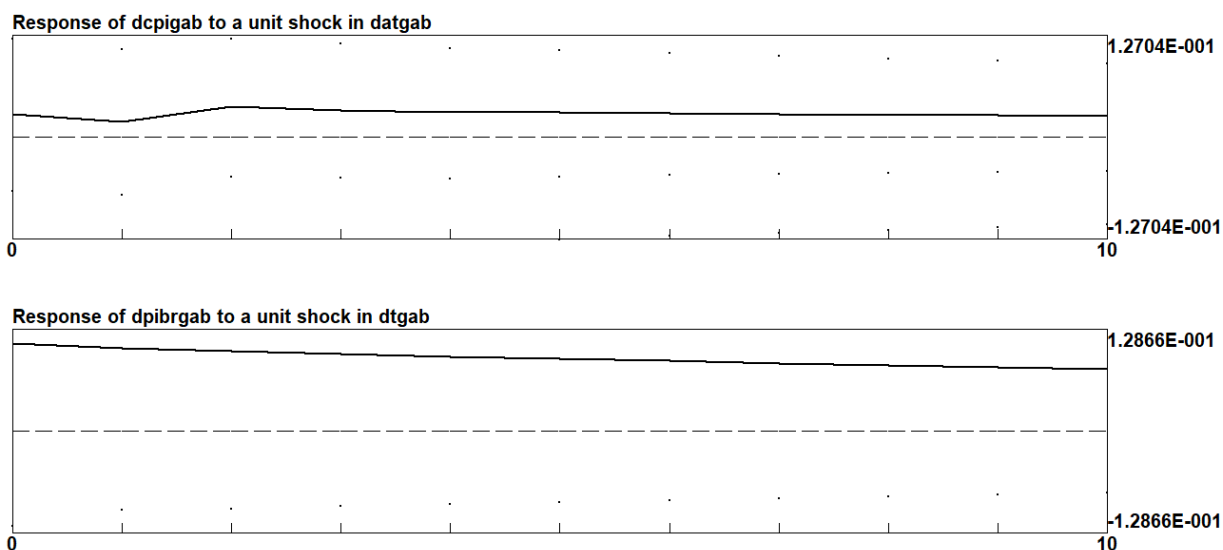
Response of dcpicmr to a unit shock in datcmr



Response of dpibrcmr to a unit shock in datcmr



### GAB



#### 4. Panel data cointegration techniques

An obvious question in economy is whether it's better to use heterogeneous estimates compared 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 tables 1 for data on T and 2 for data on AT:

Table 1: panel cointegration test with data on T

	LGDP
LCPI	-0.15509 (0.09675)
LT	0.9241 (0.8767)
Statistics	
<i>Nobs</i>	66
<i>Adf stat</i>	-3.442** 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. GDP = Gross domestic product, T = temperature

Table 2: panel cointegration test with data on AT

	LGDP
LCPI	-0.20344 (0.1398)
AT	-0.047063

	(0.2968)
Statistics	
<i>Nobs</i>	66
<i>Adj stat</i>	-3.247** 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. GDP = Gross domestic product, AT = aberrance on temperature

The obtained results complement the preceding one's when we use data on AT (Table 2) contrary to the test with data on T (Table 1). In this later case we retrieve the past results on the basis of Vectorial Auto Regression on times series techniques (Kuikeu 2021) who give inside to an positive effect of the Covid-19.

## 5. Conclusion

The Results of the following estimation confirm well those used in Kuikeu (2020a) in an relevant time series approach with the same use of the VAR Methodology in fact he shows that under the Covid-19 the Business cycle is cyclical into the area with the supplementing results that the trend about the consumer price index or his change means inflation is a significance of this trend. Thus this result call for a joint effort of the Community in implementing available an corresponding policy of adptability to climate change for the reasons well emphasise into the literature those of the belonging in the same Hemisphere and in the regions of natural reserv and fishing activities as the basic activity of the position of his countries around the "lac tchad". This event of Cyclicity is readily well observed with the electoral cycle who is conformed to the aim of the cyclical affair into a Community as clearly state into the introduction. The adaptability policies against climate change is on the corner stone of policy debate of national and international institution at this time considering the engage issue of the desirability of natural therapy compare to those called modern who necessary imply the necessity to adherence on Covax initiative for the administration of adequate vaccine to the civil agent but with some inconvenient due to the case of co-morbidity who is severe for the area as hyper or under crisis of unadequate temperature, the resurgence of recent epidemic as those due to a scarcity in clean xater in numereous areas of the country, in the sense that of the well accepted idea but discutable that the fighting against a pandemic lied also on the adequacy of the available and readily infrastructure. An interesting approach made by the author for the case of Reproductive Health clearly show that there is an positive economic impact (Kuikeu 2020b) but what would be for the Other hillness as the mental disorder one of those disease engage by the climate change. Thus this econometric Model show that on some assumption mainly of "contagion effect" the pandemic can have unacheive effect on the



economy with the decreasing price contrary to the recent trend as after the re opening of the national border. In fact his increases the demand addresses to the national structure. An another reason for the implementing policies against climate change is the affordable question “the factsheets of the lockdowns: what I sthe real expected effect?”. In other words it’s why the unemployment have been address as an reason of misleading measures against Coronavirus. Otherwise considering the recent trend on unemployment data (as available on the World Bank’s WDI ) this Econometric Models shows that the basic consideration on Phillips curve’s “inflation increasing – unemployment decreasing” ca,n be rejected in support of idea of crisis but Great Crash with thowe upcoming event of “Stagflation” or “decreasing price – decreasing output (or unemployment increasing)” contrary to the confronting data readily observed on the unemployment who is in favor of an adequacy of the policy. ***Thus in other to not conclude in favor of a “Great Crash” due to the pandemic it’s therefore relevant to assess on the idea of a plausible Cyclical affair in the CEMAC area.*** And this hypothesis is readily strong because the recent trend about the security of civil person have engage the Community as a Whole in a convenient dialogue to carактерize the historical links beteween them with the assertion of existence of people’s in the NOrth West and the SOuth West (called NOSO) even in equatorial guinea since the common border in this geographic place who is called “Kioosi”. To conclude realize that these result is fragile with the hypothesis coming from the recent trend on panel data’s literature on the interest of use of Correlation between Cross section who have not been readily feasible with our VAR Representation in panel data.

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