
Determinants of unemployment in a country in perpetual conflict : the case of the Central African Republic

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Abstract

The objective of this article is to analyse the determinants of unemployment in the Central African Republic. Indeed, the unemployment rate in this country is one of the highest in Sub-Saharan Africa (SSA). Over the period 2010-2018, the unemployment rate as defined by the International Labour Office (ILO) averaged 6.7%, compared with 5.1% in Central Africa and 3.6% in low-income SSA countries. The situation is aggravated by a very high level of underemployment (34%) and vulnerable employment (93%), which characterises disguised unemployment. The context of the Central African Republic is particular in that not only is the economic fabric embryonic, but the country has been confronted since its independence with an upsurge of socio-political crises marked by coups d'état and armed rebellions (Seleka, Anti-balaka). This study was carried out using an econometric model that examined political instability, public spending, inflation and trade openness. The results show that in the short term, unemployment is negatively and significantly explained by political stability, public expenditure and trade openness. On the other hand, in the long run, in addition to the variables mentioned above, inflation has a positive and significant effect on unemployment. These results lead us to propose some economic policy recommendations to reduce this problem in the Central African Republic.

Keywords— Determinants, Unemployment, Armed conflicts, Labour.

1. Introduction

Among the final objectives of economic policy as defined by Kaldor's magic square, the fight against unemployment appears to be a priority not only for the international community but also and above all for the political authorities of developing countries. In 2015, the United Nations (UN) members adopted a list of 17 Sustainable Development Goals (SDGs) for the year 2030, among which the promotion of economic growth and employment is ranked 8th. Unemployment in general, and youth unemployment in particular, appears to be a gangrene with harmful effects on the economic development of a country. An unemployed youth represents a threat to the stability of the nation (Guèye, 2014). The Arab Spring and

rebel movements around the world are a perfect illustration of this.

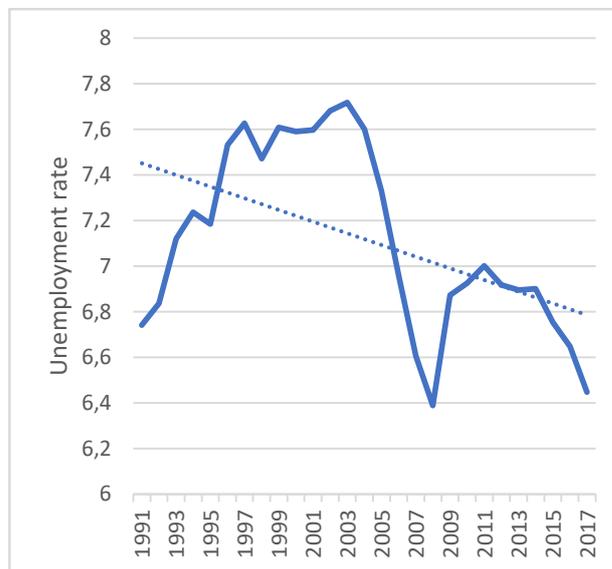
Unemployment is defined by the International Labour Office (ILO) as all persons above a specified age who, during the reference period, were: (i) strictly without work, that mean not in paid employment or self-employment, (ii) absolutely available for work "in paid employment" or not during the reference period (the availability period is two weeks and in the case of sickness leave, (ii) absolutely available for work "in paid or unpaid employment" during the reference period (the period of availability is two weeks and in the case of sickness leave it can be extended to four weeks) and, (iii) looking for work " meaning who had attested to actual job-seeking efforts, in other words, who had taken

specific steps during a specified recent period, to look for paid or unpaid employment". However, this definition is very narrow if we consider, for example, the case of developing countries (DCs) in general and the Central African Republic in particular. Indeed, in the CAR, there are no formal mechanisms for unemployment insurance or unemployment assistance. In such a context, individuals cannot afford to remain unemployed. They are forced to take up vulnerable jobs that are often very poorly paid and may not have reliable social protection. These marginal occupations, which can be described as underemployment, are akin to 'disguised unemployment' (Bourdon, 1971; Danielle, 1994).

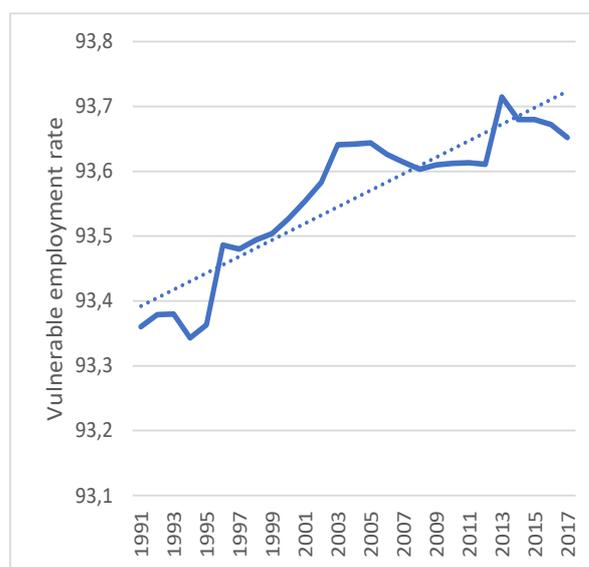
According to these clarifications, unemployment appears to be a crucial social scourge in the Central African Republic. Indeed, even if the proportion of the active population that is unemployed according to the ILO's definition fell slightly between 2000 and 2019 (from 7.59% in 2000 to 6.5% in 2019), it is one of the highest in Africa. Over the period 2010-2018, the unemployment rate averaged 6.7 per cent per year in this country, compared to 5.1 per cent in Central Africa, 3.6 per cent in low-income countries in Sub-Saharan Africa, respectively 2.3 per cent in Benin, 4.3 per cent in Sierra Leone and 14.4 per cent in Somalia (ILO, 2019). In 2018, for example, the rate was about 6% compared to 2.5% in Côte d'Ivoire, 4.2% in the Democratic Republic of Congo (DRC), 6% in Nigeria and 6.7% in Ghana. Worse still, the majority of workers are underemployed or recruited into vulnerable jobs, which do not allow them to have a secure regular income and a decent life. The rate of vulnerable employment is estimated about 93.6% in 2012, 93.72% in 2013 and around 93.70% on average between 2014 and 2018 (WDI, 2019). Unemployment affects women more than men, people living in rural areas more than in urban areas, younger people more than adults and increasingly those who are educated.

Facing with this problem, an abundant literature has tried to analyse its determinants based on two major ideologies, namely classical theory and Keynesian thinking. Many empirical works have supported these analyses in the case of developing countries (Bouriche, 2013; Ebaidalla, 2016; Folawewo and Adeboje, 2017; Moussavou, 2017; Tsurai, 2020). However, these studies have been carried out in contexts that differ somewhat from that of the CAR. Indeed, the Central African Republic is a country with an embryonic entrepreneurial fabric and has been experiencing political instability since it

gained independence on 13 August 1960. This political instability is characterised by an endless succession of coups d'état, armed conflicts and intercommunity tensions. More than 2/3 of the national territory is beyond the control of the political authorities.



Graph 1 : Evolution of the unemployment rate in CAR



Graph 1 : Evolution of the vulnerable employment rate in CAR

Thus, the objective of this work is to analyse the determinants of unemployment in a country in perpetual conflict such as the CAR. This objective is driven by the following research question: "What are the factors that explain unemployment in CAR ?"

The answer to this question requires first of all a review of the literature which will allow the implementation of the methodology and the identification of the data necessary for the analysis (1). The econometric regression will then allow the results obtained to be interpreted in relation to existing work (2). The formulation of economic policy recommendations will finally conclude the study (3).

Overview of the unemployment

Analysis of unemployment in CAR: some important facts

The analysis of unemployment in CAR is biased by the very high rates of vulnerable employment (ILO, 2019) and underemployment, which hovers around 34% (UNDP, 2019). Graphs 1 and 2 reveal the evolution of this scourge from 1991 to 2018 in CAR.

Looking at these graphs, we can see that there is a strong negative correlation between the unemployment rate and the rate of vulnerable jobs. This means that in CAR, unemployment is hidden by the vulnerable employment.

Unemployment in CAR may have been exacerbated by the various socio-political crises that the country has experienced, but it remains an essentially structural phenomenon due mainly to the following factors :

- the economic growth rate has averaged around 2.3% since 2008. This rate is low in several aspects; A rate of around 8% would have been needed not only to bring down the unemployment rate, but it is even lower than the population growth rate of 2.6%, which is correlated with the growth rate of the youth population entering the labour market;
- the Central African economy is structurally less creative of jobs than it could have been if employment incentives had been put in place, notably tax benefits for primary product processing units (wood, minerals, etc.); this missing link means that the sub-sectors driving growth are operating below their job creation capacity; consequently, the manufacturing sector, which is the most creative link in terms of employment, remains embryonic...
- The labour force entering the labour market is young and poorly qualified to fulfill the jobs that the national market offers, both at rural and urban/peri-urban level, due to the many deficiencies in the training mechanism (poorly

qualified general training, insufficient technical training, etc.);

- the cyclical crises that the country has gone through and which each time lead to stoppages, closures or even destruction of production units.

In addition to these factors, as far as young people are concerned, there is the following :

- the lack of qualifications ;
- the weakness of the entrepreneurial spirit.

The disparate measures taken have not yielded good results due to the absence of a coherent overall strategy within the framework of a national policy linking employment and vocational training. These sub-sectors did not create enough jobs to match the pace of their growth in the absence of a proactive policy to turn them into major job-providing sub-sectors. Finally, the national labour force was also ill-prepared to seize the job opportunities offered by the market, especially in the case of the urban jobs created and requiring technical qualifications at middle management level.

2. Review of the literature

Unemployment is one of the themes in economics that has been the subject of an abundant literature. Authors have analysed it in its various facets, trying to highlight its main determinants. On the theoretical level, the classical doctrine thinks that unemployment is more voluntary and supposes that it is linked to the rigidities that weigh on the labour market, in particular the downward rigidity of wages, the setting of a wage floor, the granting of unemployment benefits and union pressure. The Keynesians believe that unemployment is due to insufficient effective demand, which can be assimilated to aggregate demand emanating mainly from consumers.

Based on these theories, several studies have tried to examine the empirical validity of the explanatory factors of unemployment through macroeconomic and microeconomic analyses. The microeconomic analyses have studied the impact of socio-demographic variables such as age, gender, human capital, social capital and place of residence (Cisse, 2005; Msigwa and Kipasha, 2013; Issoufou Njifen, 2015; Ouedraogo, 2017). These studies, almost all conclude that the variables mentioned have a significant effect on unemployment. They are therefore less controversial than the macroeconomic analyses.

Macroeconomic analyses have indeed focused on two main categories of factors, namely labour market institutions and macroeconomic shocks (Blanchard and Wolfers, 2000; Bassanini and Duval, 2006). The authors show that the level and duration of unemployment benefits, the interest rate, the inflation rate and the growth rate of aggregate productivity have a significant impact on unemployment (Scarpetta, 1996; Nickell, 1998; Elmeskov et al. 1998; Blanchard and Wolfers, 2000; Nunziata, 2002). This is similar for labour taxation (Belot and van Ours, 2004; Nickell, 1997), spending on active labour market policies and home ownership rates. However, there is no agreement on the magnitude of these effects (Scarpetta, 1996; Nickell, 1997, 1998; Green and Hendershott, 2001, Boone and van Ours, 2004, Nickell et al. 2005). There are more mixed views on the effects of employment protection legislation, union bargaining power and the collective bargaining system on unemployment.

On this basis, Bassini and Duval (2006) will study the impact of structural policies and institutions and the role of interactions between these policies on aggregate unemployment. Their study differs from most of the previous literature by the particular care they take in assessing the robustness of the results. The analysis was conducted on a sample of 20 Organisation for Economic Cooperation and Development (OECD) countries over the period 1982 to 2003. The authors generally find that labour and product market reforms can have significant effects on unemployment. A reduction in the tax wedge by 10 percentage points, a reduction in unemployment benefits by 10 percentage points and/or a reduction in product market regulation by two standard deviations will, on average, be associated with a fall in the unemployment rate of 2.8, 1.2 and 0.7 percentage points respectively. The interaction analysis shows that no firm conclusions can be drawn about the robustness of the coefficients. This depends, among other things, on the sample selected, the country specificities and the specification of the model.

Beyond these results, this work mainly concerns developed countries. Unlike these countries, developing countries in general and the Central African Republic in particular are characterised by a labour market that does not integrate several institutions and policies. Moreover, the Poverty Reduction Strategy Paper (2011-15) mentions several weaknesses with regard to the employment situation in general. These include: (i)

the virtual absence of a real national employment and vocational training policy; (ii) the absence of a policy of empowerment and means of creating one's own job for vulnerable groups; (iii) the absence of an appropriate policy for strengthening the technical and operational capacities of the managers and agents of the ministries in charge of employment issues; (iv) the failure to integrate the cross-cutting dimension of employment into development projects and (v) a low capacity to take on the private sector as well as the non-diversification of the economy, which limits employment opportunities and reduces the capacity to protect against risks and economic and social shocks. For example, the unemployed do not receive unemployment benefits as is the case in most OECD countries.

Aware of this state of affairs, some authors will try to examine the macroeconomic determinants of unemployment in African countries (Tsaourai, 2020), particularly in the sub-Saharan region (Ebaidalla, 2016), in the Economic Community of West African States (Folawewo and Adeboje, 2017), in Algeria (Bouriche Lahcène, 2013) and in Congo (Moussavou, 2017). Unemployment would be explained by, among other things: (i) labour productivity, gross national expenditure and the discount rate (Bouriche Lahcène, 2013); (ii) the GDP growth rate, trade openness, foreign direct investment, education, corruption and natural resource endowments (Ebaidalla, 2016); (iii) the inflation rate, population growth rate, foreign direct investment, external debt and labour productivity (Folawewo and Adeboje, 2017); (iii) foreign direct investment, trade openness and population growth (Tsaourai, 2020); and (iv) structural adjustment programmes, devaluation of the CFA franc and weakness of the education system (Moussavou, 2017). It can be seen that the determinants of unemployment are a function of the sample selected and neglect a particular aspect that is specific to the Central African Republic, namely an environment characterised by political unrest, social tensions and recurrent armed conflicts. These crises and armed conflicts can have direct and indirect effects on unemployment.

With regard to direct effects, the entrepreneur decides to invest if and only if his expected gain is greater than the expenditure that this investment will generate. The investment is largely irreversible because, in addition to the cost of purchasing the new goods, there are the costs of installing and adapting to the new equipment. The addition of these expenses can make the cost of

disinvestment prohibitive (Sédillot et al. 1997). Because of this irreversibility, the climate of uncertainty created by the persistence of armed conflict will discourage investments, which may be of internal or external origin.

Indeed, the persistence of political instability punctuated by repeated coups d'état and armed rebellions occupying a large part of the national territory generates a climate of uncertainty and risk which can manifest itself through (i) the destruction of production tools, (ii) the kidnapping of managers and other employees for ransom, (iii) the confiscation of property and the establishment of illegal tax collection points at the whim of the rebel forces involved. For example, in the forestry sector, three companies, namely the Lebanese-owned Société d'exploitation forestière centrafricaine (Sefca); the French-owned Industrie forestière de Batalimo (IFB); and the Chinese-owned Vicwood, were obliged to pay the Seleka 3.4 million euros for the protection of their facilities.

With regard to indirect effects, situations of crisis and permanent armed conflict force the state to direct its resources towards spending on securing the territory and supporting the populations that are victims of exactions. This is why military spending tends to crowd out spending on human capital, particularly education. In CAR, military spending (as a percentage of public spending) has been well above education and health spending since 2008. Their proportion increases over time to the detriment of the other two categories of expenditure. In 2013, for example, military spending accounted for 21.15% of overall public spending, compared with 7.08% for education spending. The shares in 2005 were 9.68%, 6.35% and 6.74% for education, health and the military respectively (WDI, 2020).

In addition, armed conflicts contribute to the destruction of schools, the looting of textbooks, equipment and school supplies and the loss of students and teachers in almost all of the country. For example, during the 2013 crisis, 358 schools were destroyed at the level of Basic 1 and 13 schools at Basic 2 and general secondary level. This crisis also destroyed 3 of the 22 vocational schools in the country and 9 out of 28 higher education institutions are no longer functioning following the events of 2013 (AfDB, Country Strategy Paper 2017-2021).

Furthermore, armed conflicts and political unrest lead to a disintegration of socio-cultural organisation, the most obvious manifestation of which is the breakdown of family structures and the

uprooting of local communities, as well as the intensification of inter-ethnic and religious tensions. Among other things, they lead to: (i) migration of populations from insecure productive areas to peaceful areas, (ii) distrustful behaviour towards each other, and (iii) predatory behaviour with the emergence of rebel or self-defence groups (Antibalaka, Seleka) that engage in violence and take advantage of the situation to monopolise local resources or substitute themselves for the state by setting a local tax to finance their activities.

3. Methodology and data

3.1 Methodology

The methodology for analysing the determinants of unemployment in the Central African Republic is based on the basic model proposed by the International Monetary Fund (IMF, 2003), although an attempt has been made to include a variable that takes into account the situation of recurrent armed conflict in the country. The choice of this basic model is notably due to its use in most of the work on African countries (Bouriche Lahcèn, 2013 and Moussavou, 2017). Indeed, the IMF (2003) specified its model of the determinants of unemployment as follows:

$$U_{it} = \alpha_i + \lambda U_{i,t-1} + \sum_{j=1}^J \beta_j X_{j,i,t} + \sum_{k=1}^K \gamma_k Z_{k,i,t} + \varepsilon_{i,t} \quad (1)$$

Where :

- U_i is the unemployment rate at time t in country i ;
- α_i is a country-specific effect;
- X_j is a set of macroeconomic variables (productivity growth, real interest rate, terms of trade, inflation);
- Z_k is an institutional labour market identification vector;
- ε_i is the error term.

Contrary to the IMF model and those of Bouriche and Moussavou, the econometric model is constructed by admitting that the unemployment rate is influenced by the following variables: armed conflicts, public expenditure, inflation and trade openness. Equation (1) is thus rewritten as follows:

$$\Delta CHOM_t = \alpha_0 + \sum_{i=1}^p \alpha_{1i} \Delta CHOM_{t-i} + \sum_{i=0}^q \alpha_{2i} \Delta Dummy_{t-i} + \sum_{i=0}^q \alpha_{3i} \Delta INF_{t-i} + \sum_{i=0}^q \alpha_{4i} \Delta DpseTot_{t-i} + \sum_{i=0}^q \alpha_{5i} \Delta OUV_{t-i} +$$

$$\beta_1 CHOM_{t-1} + \beta_2 Inst_{pol} + \beta_3 INF_{t-1} + \beta_4 OUV_{t-1} + e_t \quad (2)$$

Where :

- **CHOM** is the unemployment rate ;
- **Pol_inst** refers to armed conflicts ;
- **INF** is the inflation rate ;
- **DpseTot** is total government expenditure ;
- **OUV** is the trade openness ;
- Δ and α_0 represent the first difference operator and the constant respectively;
- $\alpha_1, \alpha_2, \alpha_3, \alpha_4$ and α_5 are the short-term effects;
- $\beta_1, \beta_2, \beta_3, \beta_4$ and β_5 evaluate the long-term dynamics of the model ;
- e is the error term.

3.2 Data

In equation (2), the explained variable is measured by the unemployment rate whose data is available in the ILO database. As for the explanatory variables, the data are taken from the World Bank database, except for the variable capturing armed conflict. These variables are defined as follows:

Political instability (Pol_Inst) is measured by a dummy variable that takes the value 0 if there is armed conflict, war and 1 if there is a lull.

Inflation (INF) is captured through the rate of price change (consumer price index). According to the Phillips curve, an increase in prices should lead to a reduction in the unemployment rate.

Trade openness (OUV) is measured by the logarithm of the openness rate which is obtained by dividing the sum of exports and imports by the gross domestic product. The effect of trade openness on unemployment can be positive or negative. According to Marcelo (2020), it depends on the sector of activity. In some sectors (e.g. automotive or metallurgy) the labour market is less fluid and long-term unemployment may develop. In others (communication, television or radio equipment, medical instruments), jobs are filled more quickly. The country may therefore experience a net gain in jobs if the latter sectors develop at the expense of those with a less fluid labour market.

Public expenditure (DpseTot) is measured as the logarithm of total government expenditure as a % of GDP. According to Keynesian theory, government spending leads to a long-term

increase in employment through the Keynesian multiplier effect.

The data cover the period from 1987 to 2018.

Two statistical tests are performed on these data, which are presented in the form of time series. These include the unit root test and the cointegration test. The unit root test is used to detect the presence of unit roots in a series. We have chosen the Augmented Dickey-Fuller (ADF) test, Phillips and Peron and Andrews and Zivot (AZ). The ADF test is effective in the case of error autocorrelation, the PP test is suitable in the presence of heteroscedasticity and the AZ test is used for a series that shows a break in structure or an endogenously identified regime shift.

As the series are integrated at different orders, the Engle and Granger (1987) and Johansen (1991) cointegration tests are ineffective and it would be relevant to use the Pesaran et al. Contrary to the first two which require that all variables are integrated of the same order, the last one requires that all variables are integrated of the same order. Thus, to verify the existence of a cointegrating relationship between the variables of the ARDL model, we use the "ARDL approach to cointegration" or staggered lag test. In this approach, the calculated test statistic (Fisher's F-value) is compared to the critical values that form the bounds as follows:

If Fisher > Upper bound, cointegration exists;

If Fisher < Lower bound, cointegration does not exist;

If Lower bound < Fisher < Upper bound, there is no conclusion.

The estimation of the unemployment model is done once the test results have been obtained. This estimation also allows us to obtain the coefficients of the different explanatory variables as well as their significance.

4. Results and discussion

We have two sets of results, namely the results of the statistical tests and the results of the estimated model.

4.1 Results of the statistical tests

Table 1 below presents the results of the unit root or stationarity test of the variables.

Table 1: Results of the stationarity test of the variables

| Variable | Niveau | | Différence 1ère | | Constat |
|-----------|-------------|-------------|-----------------|-------------|---------|
| | Statistique | Probabilité | Statistique | Probabilité | |
| CHOM | -2.5114 | 0.3207 | -3.5424* | 0.0528 | I(1) |
| Pol_inst | -2.4815 | 0.3342 | -5.237*** | 0,0010 | I(1) |
| InDpseTot | -3.4702* | 0.0605 | / | / | I(0) |
| InOUV | -0.40645 | 0.983 | -5.378*** | 0.0007 | I(1) |
| Inflation | -5.48*** | 0.0005 | / | / | I(0) |

Table 1 shows that the series linked to the inflation and public expenditure variables are stationary in level. On the other hand, the variables unemployment, political instability and trade openness are stationary in first difference, i.e. integrated of order 1. Consequently, the variables of the unemployment model taken in level are not all stable. On the other hand, the ADF test carried out on

the first differences of the non-stationary variables in level confirms the hypothesis of stationarity at the 5% threshold.

Table 2 below presents the results of the cointegration test at the bounds obtained using the Eviews software.

Table 2: Results of the Pesaran et al. (2001) cointegration test

| Variables | CHOM, Inst_Pol, InDpseTot, INF, InOUV | |
|-----------------|---------------------------------------|-------------------------|
| F-Stat calculée | 7.22 | |
| Seuil critique | <i>Borne Inférieure</i> | <i>Borne Supérieure</i> |
| 1 % | 3.74 | 5.06 |
| 5 % | 2.86 | 4.01 |
| 10 % | 2.45 | 3.52 |

Table 2 shows that there is indeed a cointegrating relationship between the series studied, as the value of the F-stat is higher than the upper bound for all levels of significance. This result makes it possible to estimate the long-term effects of political instability, inflation, trade openness and public spending.

4.2 Results of the estimation of the staggered lag model

Table 3 below shows the estimated values of the short-run coefficients of the ARDL model.

Table 3: Short-term coefficients

| Variable dépendante : Taux de chômage | | | | |
|---------------------------------------|-------------|------------|-------------|--------|
| Variables explicatives | Coefficient | Std. Error | t-Statistic | Prob. |
| <i>D(Pol_inst)</i> | -0.049301 | 0.019471 | -2.531990 | 0.0298 |
| D(INF) | -0.001261 | 0.001430 | -0.881872 | 0.3985 |
| D(INF(-1)) | -0.001763 | 0.001229 | -1.434323 | 0.1820 |
| D(INF(-2)) | 0.002098 | 0.001417 | 1.480883 | 0.1694 |
| <i>D(INF(-3))</i> | -0.004519 | 0.001194 | -3.784946 | 0.0036 |

| | | | | |
|---------------------------|------------------|-----------------|------------------|---------------|
| <i>D(ln_DpseTot)</i> | -2.326300 | 0.300179 | -7.749709 | 0.0000 |
| <i>D(ln_DpseTot (-1))</i> | 0.314906 | 0.260283 | 1.209859 | 0.2542 |
| <i>D(ln_DpseTot (-2))</i> | 1.127777 | 0.313271 | 3.600007 | 0.0048 |
| <i>D(ln_DpseTot (-3))</i> | -0.703690 | 0.376562 | -1.868722 | 0.0912 |
| <i>D(lnOUV)</i> | -0.163502 | 0.078398 | -2.085547 | 0.0636 |
| <i>D(lnOUV(-1))</i> | -0.036853 | 0.128037 | -0.287834 | 0.7794 |
| <i>D(lnOUV(-2))</i> | 0.190384 | 0.079267 | 2.401811 | 0.0372 |
| <i>CointEq(-1)</i> | -0.696361 | 0.112933 | -6.166171 | 0.0001 |

It can be seen from Table 3 that the adjustment coefficient (force of recall) is statistically significant. It is negative and between zero and one in absolute value (-0.69). This guarantees an error correction mechanism, and consequently the existence of a long-term relationship (cointegration) between the variables. We also note that :

- The variable Political Instability has a negative effect on unemployment in the short term reflecting that when there is less armed conflict (peace and security), the unemployment rate falls in CAR. An increase in the Inst-Pol variable of 1% (i.e. an improvement in peace and security stability) reduces unemployment by 0.049% in the short run.
- Current year inflation has no immediate effect on unemployment, while current year government spending has a significant negative impact on unemployment in the short run, which is less than proportional. Indeed, an increase in current year government spending of 1% reduces unemployment by 0.023%.
- Trade openness also negatively and significantly affects unemployment in a less

than proportional way. An increase in current year openness of 1% leads to a decrease in the unemployment rate of 0.0016%. This effect is rather reversed over time as the trade openness of two years ago no longer acts as a brake on unemployment. The increase in openness in that year by 1% leads to an increase in the unemployment rate of 0.0019%.

However, the time dimension is an important variable that should not be neglected. Over time, the effects of these variables are mixed. While public spending two years ago had a positive impact on unemployment in CAR, spending three years ago had a negative impact. At least three years must pass before inflation can be expected to reduce unemployment in CAR. However, this effect is very small. An increase in the inflation rate of that year by 10% leads to a decrease in the unemployment rate of the current year by 0.045%. This result shows that there is indeed an inverse relationship between unemployment and inflation as described by the Philips curve.

Table 4 provides the long-term coefficients or elasticities from the ARDL model estimates (1, 1, 4, 4, 3).

Table 4: Long-term coefficients

| Long Run Coefficients | | | | |
|-----------------------|-------------|------------|-------------|--------|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| Pol_inst | -0.213596 | 0.033862 | -6.307808 | 0.0001 |
| INF | 0.014458 | 0.006710 | 2.154539 | 0.0566 |
| L_DpseTot | -4.097231 | 0.461681 | -8.874584 | 0.0000 |
| L_OUV | -0.547024 | 0.084386 | -6.482415 | 0.0001 |
| C | 24.628398 | 2.081830 | 11.830166 | 0.0000 |

Table 4 shows that, like the short-term impact, the effects of political instability, trade openness and public spending on unemployment in CAR are negative in the long term. Conversely, the effect of inflation on unemployment is positive in the long run. However, the magnitude of the effects is higher in the long run than in the short run. An increase in the political instability variable (i.e. an improvement in political stability) of 1% reduces unemployment by 0.21% in the long run. An increase in government spending by the same amount reduces unemployment by 0.041%.

An increase in openness by 1% reduces unemployment by 0.0054%. An increase in the inflation rate of 10% leads to an increase in the unemployment rate of 0.14%. This result is in contradiction with the Phillips curve which shows the inverse relationship between inflation and unemployment.

5. Conclusion and policy recommendations

The CAR is a country in which not only the unemployment situation is alarming but also economic agents are subject to permanent political instability punctuated by repeated coups d'état, rebel movements and ethnic conflicts. The aim of this study was to analyse the determinants of unemployment in the Central African Republic, in particular by attempting to highlight the effect of armed conflicts. It was based on time series data. The results of the statistical tests show that the variables are integrated at different orders over the period studied (1987-2018). The estimation of the Autoregressive Distributed Lag model (ARDL) reveals that, in the short term as well as in the long term, the main determinants of unemployment are political instability, public spending and trade openness. Inflation explains unemployment in the long run. We therefore make the following policy recommendations:

- Tackle the root causes of armed conflict, namely poverty and social inequality: this involves setting up development companies in all regions of CAR. The objective of these companies will aim not to make a profit but to employ the country's youth. In view of this objective, the financing of this type of company could be achieved through the introduction of a development tax which should be levied on large fortunes as well

as on potentially rich sectors such as mining and forestry. In addition, the state should promote the use of local materials and labour-intensive techniques in the construction of public infrastructure.

- Rationalise public spending and increase public revenue: this involves combating corruption and the misappropriation of public funds, as well as restoring confidence in the taxpayer. To this end, the Central African Republic can follow the example of Rwanda by (i) setting up institutions and laws aimed at fighting corruption; (ii) strictly applying its laws; and (iii) increasing the share of the budget devoted to public investments in sensitive areas (energy, water, roads, education, health, ICT). The authorities should also promote public-private partnerships in sectors that are profitable enough to cover the investments made quickly
- Improving the trade balance: this involves, among other things (i) the implementation of laws prohibiting the export of products in their unprocessed form, such as raw wood; (ii) the adoption of a national programme for the certification of products for export in the mining and forestry sectors; and (iii) the creation of industrial free zones to exploit the potential of the various regions.
- Fight inflation: a large part of inflation in CAR is due to the absence of a dense entrepreneurial fabric capable of satisfying the national demand for goods and services (imported inflation). In this respect, in addition to the actions mentioned above, the state should provide support for the financing of the activities of young Central African entrepreneurs through the establishment of a guarantee fund to enable them to obtain bank loans easily, as well as an investment fund that will provide funds directly to those with projects with a high impact on the economy. These funds could also be provided through the above-mentioned development tax.

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