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Colonial legacies on employment: comparisons between some former Anglophone and French colonies

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Abstract

Purpose – In this paper, the author assesses if the effect of structural policies, macroeconomic indicators and demographic factors on employment elasticities over the period 2000–2017 can distinguish the former French colonies from the Anglophone ones.

Design/methodology/approach – Using a panel of 44 countries taken from Africa and Middle East Area, elasticities are estimated in the first stage by rolling regression. Then, both static and dynamic panel models are investigated.

Findings – Results suggest big difference between the former French colonies and Anglophone ones. For the French colonies, product and labor market flexibility are found to have significant and positive impact on elasticities, while for Anglophone ones, only foreign direct investment and government size are found to have significant and positive impact. Besides, all reforms and/or economic measures need to be complemented by macroeconomic policies aimed to increase economic stability.

Originality/value – The results presented in this study highlight some of the factors that appear to drive the relationship between employment and some structural policies, macroeconomic indicators and demographic factors for two groups of former colonies. The paper provides policy conclusions based on these results for the two groups. This analysis may indeed help to inform future policy discussions, yet much additional work is needed to identify macroeconomic "best practices" for encouraging employment in the post-2019 covid crisis period.

Keywords Dynamic panel data model and GMM, Employment to product elasticity and rolling regression, French vs Anglophone colonies from Africa and Middle East Area

Paper type Research paper

1. Introduction

The presence of European colonial powers in African and in Middle East Area has certainly left a long-lasting legacy that has affected their development trajectories. Particularly, it is well known that the former Anglophone and French colonies are countries with increased unemployment alongside increased/decreased economic output. The key question in this context is about the direct or indirect specific lingering impacts of colonization on economic performance, in particular with regard to employment. Moreover, the impacts may depend on the diverse characteristics displayed by British and French colonial administration [1].

JEL Classification — C23, E24, J21

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Studies examining colonial legacies on employment in African and Middle East Area are scarce. By contrast, comparisons between British and French colonialism and their legacies have long interested social scientists and historians. In Africa and Middle East Area, most have compared and *contrasted institutions of colonial rule* or have examined whether one set of institutions was better, or less bad, for *political reform and economic development*.

Although researchers have deeply analyzed the impact of real shocks on overall unemployment and the determinants of unemployment, only a few have tried to explain the determinants of employment-output elasticities [2]. Our study attempts to bridge the gap and gives an investigation on employment elasticities in $N = 44$ countries from Africa and Middle East Area. Precisely, in our sample, we consider two group of countries – 20 French colonies and 24 Anglophone colonies – to be compared in terms of employment determinants over the period from 2000 to 2017. This study differs from the previous ones as it attempts to distinguish between Anglophone and French colonial legacies on employment. Particularly, we concentrate on examining how several factors might influence employment intensity of growth of the present-day countries for each group of colonies.

We will estimate the overall employment elasticity of growth for each considered country and utilize some determinants in former British and French African and Middle East colonies to further discriminate between employment elasticities post-independence.

Even conflict and political instability has not been similar between these two sets of colonies, Anglophone Africa and Middle East Area's higher economic growth and development in this period is clear and evident. But, a simple comparison based on the average of some economic indicators can give a better idea. To do so, by rolling technic, we get in first stage a panel data of the elasticities, $\varepsilon_{i,t}$, for each country i and time t. The *employment intensity of growth* (dependent variable $\varepsilon_{i,t}$) is then grouped on elasticities for French colonies and elasticities for Anglophone colonies. We consider the average for these elasticities and for some macroeconomic indicators including GDP growth, productivity growth and employment growth. Each of these point estimator is illustrated in Figure 1.

From Figure 1, it is clear that GDP growth (GDPG), employment growth (EMPG), productivity growth (PG) and *employment intensity of growth* $(\varepsilon_{i,t})$, all taken in average, take higher values for Anglophone colonies than for French ones, while *employment intensity of growth* in average is larger for French colonies.

These comparisons can be conducted rigorously by Student τ and ANOVA test statistics. For testing H_0: on average, employment growth is the same for both Anglophone and French colonies.

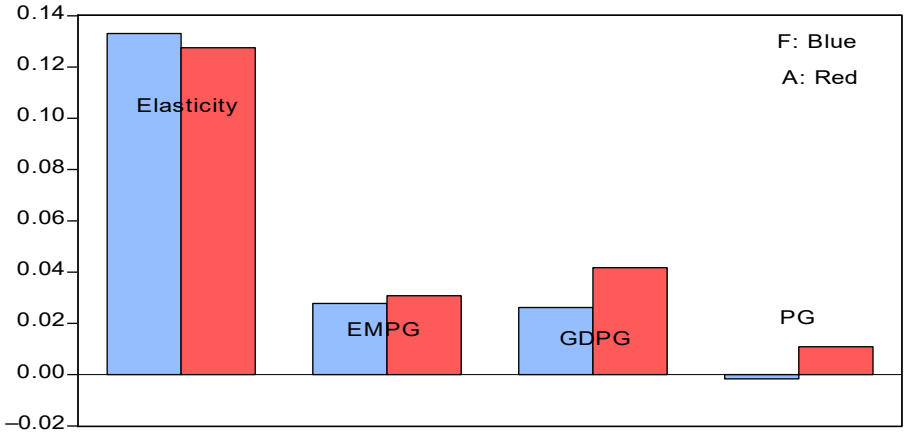

Figure 1.
Elasticities, EMPG, GDPG and PG in average for Anglophone (A) and French (F) colonies

Table 1 reports the results of these tests. Hypothesis of equality of means is rejected by these tests (p-value = 0.0083 << 5%). Also, for testing H_0: on average, GDPG is the same for both Anglophone and Francophone countries; Table 1 reports the results of the same tests. Hypothesis of equality of means is not rejected by these tests (p-value = 0.4810 > 5%). Looking at Figure 2, EMPG and GDP growth, on average, have different patterns for these group of colonies.

The elasticities on average, the employment growth (EMPG), the GDP growth (GDPG) and the productivity growth (PG) on average (in time and throw countries) are illustrated at Figure 3 for all countries, for French, for Anglophone colonies and for MENA zone. From Figure 3, all averages are positive except GDPG and PG for MENA and PG for French colonies. The highest elasticity, on average, is in MENA and French colonies where GDPG, EMPG and PG are the lowest in average. PG, on average, is negative for MENA zone and French colonies. Then, an econometric model is needed to address why a group of colonies with equal economic growth in mean has different EMPG on average and then have difference in their employment intensity. We try to pinpoint some of the broad structural, macroeconomic and demographic factors that might influence employment intensity of growth for each group. The first broad objective of this present study is to outline the data and methodological requirements for generating estimates of employment elasticities. The second objective is to form a better understanding of the key determinants (structural, macroeconomic and demographic) of employment elasticities themselves. An econometric panel model will be developed to address why Anglophone and French colonies have substantial differences in their employment intensity.

This paper is organized as follow. After introduction, we give a literature review for determinants of employment intensity. We explain how to create panel data for employment intensity, and then present data analysis. Then, methodology will be presented for both static and dynamic panel model. We present empirical application for 44 countries from Africa and Middle East Area. And, we conclude by recommending governments to promote employment.

2. Literature review: determinants of employment intensity

This section gives a brief literature review on some of the theoretical and empirical determinants of employment intensity. There is a large literature that examines macroeconomic determinants of employment and labor productivity growth, but little investigative work has been done to identify the relationship between structural and policy variables, macroeconomic variables and demographic variables and the overall employment intensity of growth explicitly (represented by the employment elasticity). Economic theory and previous empirical studies have identified a number of labor market policies and institutional determinants of unemployment.

Previous empirical evidence has in general concluded that more rigid labor market institutions may obstruct job creation and the response of employment to economic activity, (e.g. Blanchard and Wolfers, 2000; Bassanini and Duval, 2009). Botero *et al.* (2004) found that more rigid employment laws are associated with high unemployment. Belot and Ours (2004) concluded that high labor taxes tend to increase unemployment rates. Economic theory suggests also that product market regulations, like labor market regulations, may affect labor demand. In addition, product market institutions may also affect productivity growth over

Table 1. Average comparison tests for French vs Anglophone colonies

Variables		GDPG			EMPG	
Tests	df	value	p-value	df	value	p-value
Student τ	746	−0.705087	0.4810	746	−2.648548	0.0083
ANOVA	(1, 746)	0.497148	0.4810	(1, 746)	7.014805	0.0083

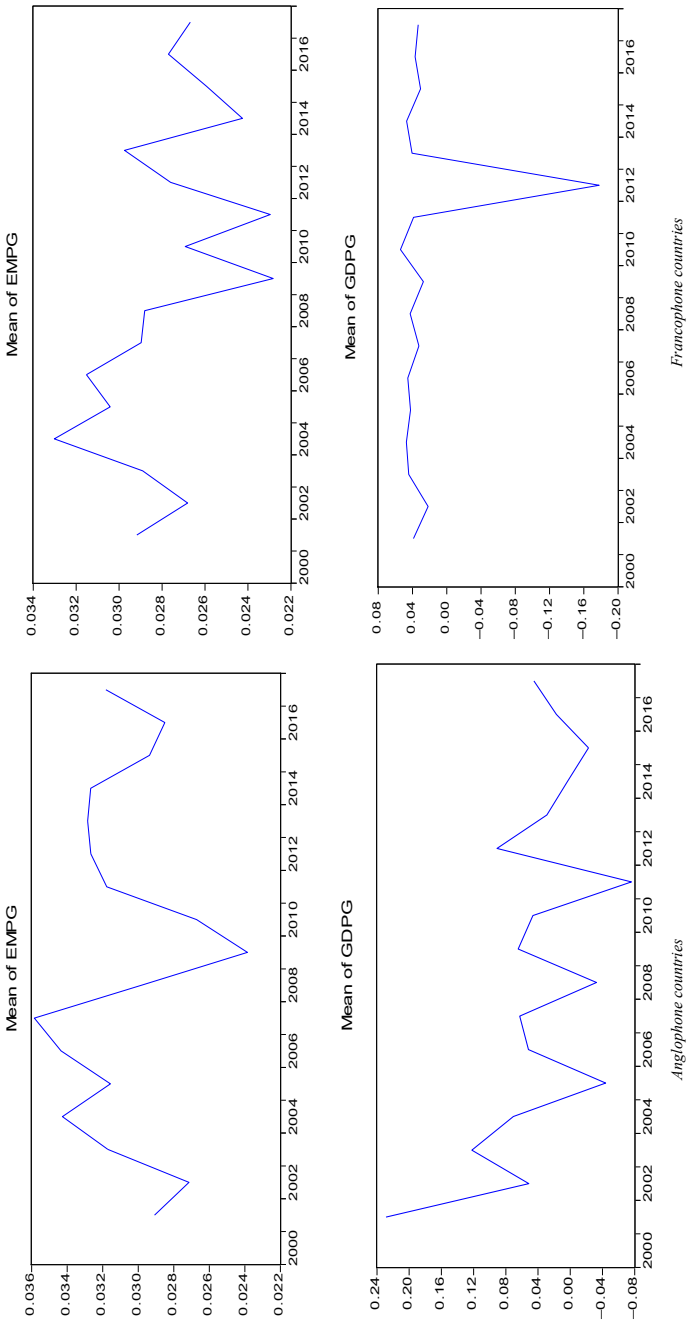

Figure 2.
Mean evolution of EMPG and GDPG for Anglophone and French colonies 2000-2017

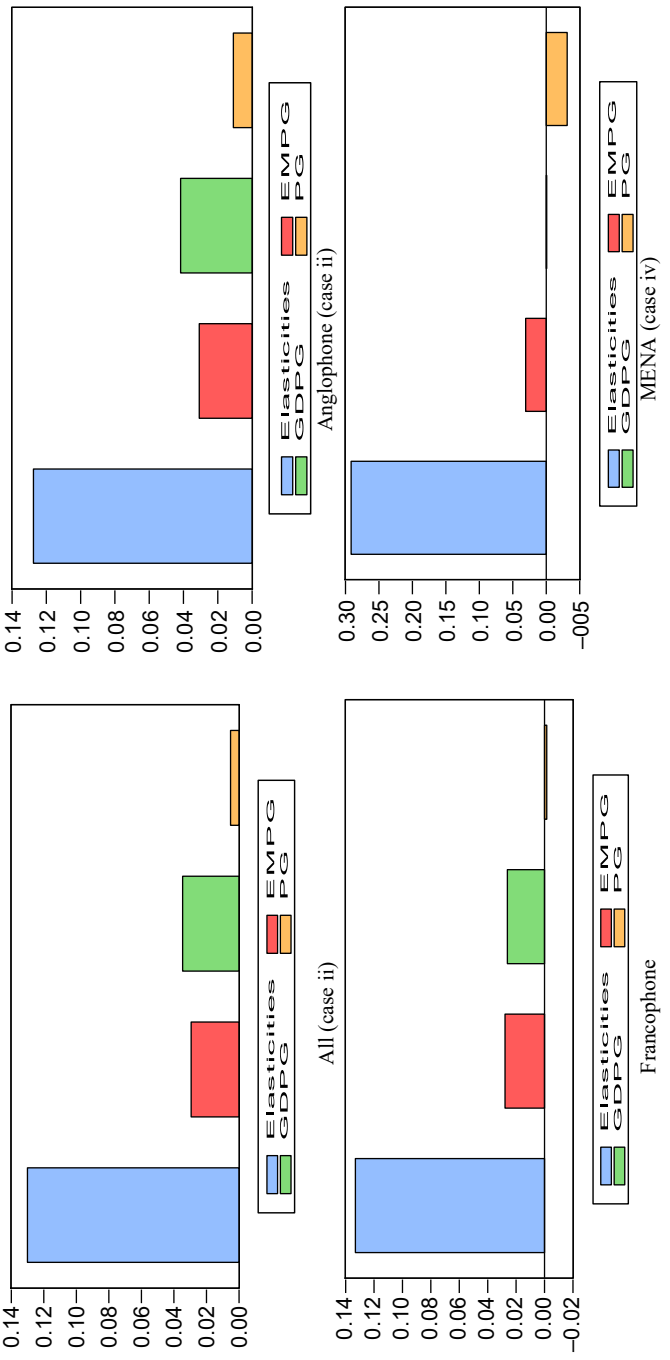

Figure 3.
Elasticities, employment growth (EMPG), GDP growth (GDPG) and productivity growth (PG) in average

the medium term, and, consequently, the relation between GDP and employment. Previous empirical evidence has confirmed the hypothesis that product market regulations are correlated with the persistence and the responsiveness of unemployment to GDP shocks (Bassanini and Duval, 2006, 2009).

Government size can also affect the elasticity between employment and GDP. Previous empirical evidence has confirmed the hypothesis that a larger government is associated with higher unemployment rates for three reasons (Feldmann, 2006). First, a large government sector often involves higher taxes, which can have a depressive effect on aggregate demand and on the labor market (Daveri and Tabellini, 2000). Second, because the private sector is smaller, its ability to absorb new labor force entrants is correspondingly smaller. Third, a large government sector tends to crowd out private investment and reduce productivity growth over the medium term (Afonso and Furceri, 2010).

GDP per capita can be examined to test whether employment elasticities vary with the level of economic development.

Some previous studies discuss the employment-output relationship on a cross-country basis for a specific region. Examples from previous studies includes (ILO, 2018) for 195 countries (Prieto *et al.*, 2017), for developing countries (Görg *et al.*, 2018), for OECD countries (Adegboye *et al.*, 2017), for countries from sub-Saharan Africa and (African Development Bank, 2018) for Africa as a whole.

Based on a sample of 37 countries from sub-Saharan Africa zone, Adegboye *et al.* (2017) concluded that employment elasticity of growth was higher during the period where growth was the highest during 2010–2014. Specifically, the mean employment elasticity was 0.16 during 1991–1999, 0.36 during 2000–2009 and 0.45 during 2010–2014. But, using a sample of 20 countries from OEDC zone, Görg *et al.* (2018) found that the long-term employment-output elasticity for the average country is around 0.8 during 1960–2014. In the same line, Prieto *et al.* (2017) found positive correlation between real GDP and total employment for 22 out of the considered 25 developing countries during 1981–2014.

From the African Development Bank (2018), an investigation on 47 African countries for the 2000–2014 period reveals that the fastest growing countries in the sample have the lowest elasticities. Whereas the slower growing countries have higher elasticities (the average employment elasticity with respect to GDP was 0.41. In all, 38% of the observed countries had an employment elasticity of growth below 0.41, 43% had an elasticity above 0.41 and the remaining countries had an elasticity above 1). Moreover, from the ILO (2018), based on 195 countries for various time periods, authors describe a trend of decreasing unemployment among developing countries during 2014–2017, which they expect to continue, and an increase in unemployment driven by major economic downturns for emerging economies for the same period.

Openness (via trade) and foreign direct investment (FDI) can also be included to test the role of trade and financial openness in affecting employment elasticities (Bruno *et al.*, 2001).

Growth volatility and inflation may affect employment elasticities as uncertainty due to the prices and economic activity may have a significant impact on growth and employment (Ramey and Ramey, 1995; Judson and Orphanides, 1999; Imbs, 2007; Furceri, 2010). The share of value added in services can be included to test whether the service sector is usually characterized by higher employment intensity (Padalino and Vivarelli, 1997; Mourre, 2004). The share of urban population and population density can be included to test whether agglomeration factors have an effect on employment elasticities. Total labor force and working-age population growth can also be included to assess the effect of labor market supply on employment elasticities.

In this paper, structural and policy variables (S) (labor market policies, product market policies and government size), macroeconomic variables (*M*) (including GDP per capita, openness [proxied by trade], CPI-based inflation rate, GDP growth volatility [computed as the coefficient of variation of real GDP growth] and the share of services' value added in total GDP), and demographic variables (*D*) (including the share of urban population, population

density, and 15–24-year-old participants in active population) are considered for the empirical study on 44 countries from Africa and Middle East Area.

3. Dependent variable creation (employment elasticity)

Our study is an application on $N = 44$ countries from Africa and Middle East Area. In this sample, we have 20 French colonies and 24 Anglophone colonies. The list of considered countries is given in Table A1 (see Appendix). Period of study is from 2000 to 2017 ($T = 18 < N = 44$). Most of the variables used in the empirical analysis, including employment E and real GDP, are taken from the World Bank Development Indicators (WDI) database.

Dependent variable in this study is the employment elasticity, which can be estimated from the following regression [3]:

$$\ln(E_{it}) = \alpha + \beta_{it} \ln(GDP_{it}) + u_{it},$$

where E is the employment and GDP is the gross production. By *rolling technic*, we can get a panel data of elasticities denoted by $\varepsilon_{i,t}$ for each country i and time t and a given p observations. This can be done by regressing by OLS the considered equation with p *successive observations* with $t = j + 1, \ldots, j + p, j = 0, \ldots, T-p$, for each i. Then,

$$\varepsilon_{i,t} = \beta_{i,t},\ t = (p + 1)/2,\ \ldots,\ T - (p + 1)/2,$$

where

$$\beta_{i,t} = \partial \log (E_{it}) / \partial \log (GDP_{it}) \text{ and } i = 1,\ \ldots,\ N,$$

is the estimator for country elasticity (individual i) at time t.

For the rolling technic, we choose a window size of $p = 5$ years. Hence, the first rolling regression would estimate the employment-growth elasticity $\varepsilon_{i,t} = \beta_{it}$ by OLS using the sample period from 2000 to 2004. The sample period is then moved forward one year, and the regression is reestimated to produce a second estimate, using data from 2001 to 2005, and so on. This process is repeated until the final estimates are made using the sample period from 2013 to 2017. Consequently, the first estimate of employment-growth elasticity corresponds to 2002, and the last one is related to 2015.

These elasticities $\varepsilon_{i,t}$ (dependent variable) will be grouped on elasticities for French colonies and elasticities for Anglophone colonies as illustrated in the introduction.

4. Methodology

Having compiled the list of employment elasticities for different countries (as explained above in section 3), it is of interest to examine how different factors can affect these elasticities by group of countries. To examine possible determinants of the elasticity, this paper utilizes the methodology used by Kapsos (2005) [4], with some deviations in the variables examined. The elasticity of each country and time period will be used as the dependent variables in either the static or the dynamic regressions.

4.1 Static specifications

The evolution of dependent variable, $\varepsilon_{i,t}$, can then be investigated in two dimensions (i and t). Considered model is then

$$\varepsilon_{i,t} = F(D_{i,t} \text{ and/or } M_{i,t} \text{ and/or } S_{i,t}),$$

where F(.) is a linear function of D, M and S, which are, respectively, the following vectors of the demographic (D), the macroeconomic (M) and the structural (S) variables;

$$D = (\mathrm{POP}_U\,,\ \mathrm{POP}_\mathrm{D},\ \mathrm{Tx1524})',$$

$$\mathrm{M} = (\mathit{Inflation},\ \mathit{FDI},\ \mathrm{VA\_s})',$$

$$\mathrm{S} = (\mathrm{Lmp}\,,\mathrm{Pmp},\ \mathrm{Size})',$$

that are defined as follow in Table 2.

The relationship between elasticities $\varepsilon_{i,t}$ and the independent variables may have different specifications depending on the considered independent variables. Then, in the first stage, we propose to study the following three models:

$$M1:\ \varepsilon_{i,t} = \delta' D_{i,t} + u_{i,t}, \tag{1}$$

$$M2:\ \varepsilon_{i,t} = \mu' M_{i,t} + u_{i,t},$$

and

$$M3:\ \varepsilon_{i,t} = \theta' S_{i,t} + u_{i,t}.$$

And, we consider four other different specifications for different combinations of the independent variables as follows:

$$M1.2:\varepsilon_{i,t} = \delta' D_{i,t} + \mu' M_{i,t} + u_{i,t},$$

$$M1.3:\ \varepsilon_{i,t} = \delta' D_{i,t} + \theta' S_{i,t} + u_{i,t},$$

$$M2.3:\ = \theta' S_{i,t} + \mu' M_{i,t} + u_{i,t},$$

and

$$M1.2.3:\ \varepsilon_{i,t} = \delta' D_{i,t} + \mu' M_{i,t} + \theta' S_{i,t} + u_{i,t}.$$

Variables	Notations	Sources	Expected signs
(D): Demographic variables			
Urban population	$\mathrm{Pop\_U}$	WDI	+/−
Density of population	$\mathrm{Pop\_D}$	WDI	+/−
15–24-year-old participants in active population	Tx1524	WDI	+/−
(S): Structural and political variables			
Product market politic	Pmp	EFW	+
Labor market politic	Lmp	EFW	+
Size of government (% of PIB)	Size	WDI	+
(M): Macroeconomic variables			
Inflation based on CPI	Inflation	WDI	−
Entries of FDI (% of PIB)	FDI	WDI	+
Added values for service sector	Va_s	WDI	+
Volatility of GDPG	$\mathrm{VOL\_B}$	Author calculation	

Note(s): WDI: World Bank World Development Indicators. EFW: Fraser Institute's Economic Freedom of the World Database. CPI: consumer price index

Table 2. List of variables: sources and expected signs

In all, seven static models are defined. In these models, the fixed effects (FE) or the random effects (RE) are contained in the error term, which consists of the unobserved country-specific effects, α_i,

$$u_{i,t} = \alpha_i + e_{it},$$

where e_{it} is the specific errors (WN). Country time-invariant characteristics (fixed or random effect) may be correlated or not with the independent variables. Using Hausman test, we can then decide if the FE model or the RE model is the more adequate specification.

4.2 Dynamic specifications

Static models suffer from specification problem if the employment elasticities, $\varepsilon_{\mathrm{i,t}}$, are significantly autocorrelated with correlation ρ. The adequate model in this case is the dynamic panel data (DPD) model if $|\rho| < 1$.

The following model will examine the impact of labor and product structural variables as other determinants on employment to production elasticities in the general DPD framework:

$$\begin{gathered} \varepsilon_{i,t} = \rho\varepsilon_{i,t-1} + \theta' S_{i,t} + \beta' X_{i,t} + u_{i,t},\ \mathrm{i} = 1,\ \ldots,\ \mathrm{N},\ \mathrm{t} = 2,\ \ldots,\ \mathrm{T}, \\ X_{i,t} = (D_{i,t},\ M_{i,t}), \\ u_{i,t} = \alpha_i + \mathrm{e_{it}},\ \mathrm{e_{it}} \sim \text{i.i.d.},\ |\rho| < 1, \end{gathered} \tag{2}$$

where $\varepsilon_{i,t}$ is the observation for country i at time t, $\varepsilon_{i,t-1}$ is the observation for the same country at previous period, $S_{i,t}$ are predetermined regressors (structural and political variables), α_i is the unobserved specific individual time invariant effect, $\mathrm{e}_{i,t}$ is a disturbance term, ρ, θ', β' are unknown real parameters and $X_{i,t}$ denotes the remaining independent variables (D for demographic indicators and M for macro indicators). Several econometric problems may arise from estimating this model. A serious difficulty arises with one-way FE model in this context because the lagged dependent variable is correlated with the error. This correlation creates a large sample bias in the estimate of ρ, which is not mitigated by increasing N. The same problem affects the one-way RE model. The error component α_i makes the lagged dependent variable not independent of the composite errors. Since the presence of the $\varepsilon_{i,t-1}$ gives rise to autocorrelation problem, then the model in first difference is to be considered for this problem, where both the constant and the individual effects are removed;

$$\begin{gathered} \Delta\varepsilon_{i,t} = \rho\Delta\varepsilon_{i,t-1} + \theta' \Delta S_{i,t} + \beta' \Delta X_{i,t} + \Delta e_{i,t}\, \mathrm{i} = 1,\ \ldots,\ \mathrm{N},\ \mathrm{t} = 3,\ \ldots,\ \mathrm{T}, \\ \Delta = 1 - B,\ \mathrm{e_{it}} \sim \text{i.i.d.},\ |\rho| < 1, \end{gathered} \tag{3}$$

where B is the lag operator. But, correlation still exists between differenced lagged dependent variable $\Delta\varepsilon_{i,t-1}$ and the disturbance process $\Delta\mathrm{e}_{\mathrm{i,t}}$ (which is an MA(1) process). Instrumental variable estimation is then the available method. By exploiting all of the information available in the sample, Arellano and Bond (1991) give an efficient estimator in the GMM context for DPD model named difference GMM estimator. Later, Arellano and Bover (1995) and Blundell and Bond (1998) revealed a potential weakness in Arellano–Bond estimator. Their modification of the estimator includes lagged levels as well as lagged differences as instruments. This expanded estimator is commonly termed as *system GMM*. Both the difference GMM and the system GMM estimators have one-step and two-step variants.

For the null hypothesis of the validity of the instruments, we apply Sargan test. Serial correlation in the first-differenced errors at an order higher than 1 implies that the moment conditions used are not valid. When the idiosyncratic errors $e_{i,t}$ are independently and identically distributed (i.i.d.), the first differenced errors are first-order serially correlated. Arellano and Bond (1991) proposed a test for the hypothesis that there is no second-order serial correlation for the disturbances of the first-differenced equation. The Arellano–Bond

test will be applied to the differenced residuals. Serial uncorrelated error hypothesis at first order is rejected at conventional significant levels if p-values < 5% for AB(1). Serial uncorrelated error hypothesis at second order cannot be rejected if p-values > 5% for AB(2)).

5. Empirical results

The set of panel data is of 44 countries for 18 years (2000–2017). List of considered countries is given in Appendix Table A1. By rolling method, elasticities ($\varepsilon_{i,t}$) for each country are estimated with $p = 5$ successive observations as given previously [5].

From pairwise correlation matrix, there are no significant correlations between independent variables (table is not reported here but is available upon request). So, no collinearity problem can occur. In addition, from Table A2 in Appendix, all considered independent variables are stationary (I(0)).

5.1 Results from static models

Fixed and random effect models are considered for the *seven static* specifications (M1, M2 M3, M1.2, M1.3, M2.3 and M1.2.3). For each case, adequate model is selected by Hausman test. Table 3 gives results of all these investigations. Having the right models, we sum up in Table 4 only the significant variables (at 5 or 10% level) in each considered specification (details for Table 4 are available upon request). Clearly from Table 4, there is an important difference between French and Anglophone colonies. For French colonies (20 countries), elasticities evolution depend on Lmp and Pmp (structural variables). Both factors have positive and significant effects (respectively about 4.5% and 10%). For Anglophone colonies, size (structural variable) is the only factor which has *positive* and significant effect on elasticity (about 12%).

Specification	French		Anglophone		All countries	
Model/p-value	Model	p-value	Model	p-value	Model	p-value
M3	FE	0.0974	RE	0.06179	FE	0.0445
M1.2	RE	0.8294	RE	0.2101	RE	0.7708
M1.3	FE	0.06951	RE	0.3969	FE	0.0674
M2.3	FE	0.0506	RE	0.1573	FE	0.052
M1.2.3	FE	0.0251	RE	0.1561	RE	0.1003

Note(s): RE: random effect model, FE: fixed effect model. Results of M1 and M2 are removed from this table since all explicative variables in these models are not significant

Table 3.
Hausman test results for static models

Model/	French		Anglophone		All countries		
variable	Pmp	Lmp	Size	Size	Tx1524	Pmp	Lmp
M3	0.0842087	0.036532		0.0694246		0.0502761	0.0248994
	(0.076)	(0.077)		(0.001)		(0.091)	(0.085)
M1.2					−0.003202		
					(0.088)		
M1.3	0.0974857	0.0430889	0.1124318	0.0706622		0.0513968	0.0257363
	(0.053)	(0.051)	(0.000)	(0.001)		(0.088)	(0.078)
M2.3	0.0896221	0.0396828	0.1213782	0.0733885			
	(0.067)	(0.097)	(0.000)	(0.001)			
M1.2.3	0.1014945	0.0492073	0.1206563	0.0498469			
	(0.049)	(0.052)	(0.000)	(0.011)			

Note(s): (.) is the p-value

Table 4.
Significant variables in static specifications

For the totality of our sample (44 countries), we find that besides positive and significant effects of structural factors Lmp and Pmp (respectively about 3% and 5%), Tx1524 (demographic factor) has a negative significant effect (about −0.3%). Government size also has a role in explaining employment elasticities (about 7%). This result is not in line with previous empirical results, suggesting that countries with larger government size tend to have lower employment elasticities (Feldmann, 2006; Afonso and Furceri, 2010).

Yet, one should not make too much of these results since elasticities are significantly correlated with their past; $\text{corr}(\varepsilon_{i,t}; \varepsilon_{i,t-1}) = \rho = 0.5647 << 1$ and $\text{corr}(\varepsilon_{i,t}; \varepsilon_{i,t-2}) = 0.4236$ [6]. Then, if the true model is dynamic, the FE and the RE estimates are biased. To eliminate the bias, we will rather consider the panel dynamic models as developed previously.

5.2 Results from dynamic models

We consider here the dynamic panel data (DPD model); equation (2). Following Arellano and Bound (1991), we use GMM method to get consistent estimates for unknown coefficients. We first take differences to get rid of the country time invariant effect, α_i, so we consider equation (3). This model allows as to use the values of $\varepsilon_{i,t-j}$ (lagged twice or more) as instruments (Anderson and Hsiao, 1982; Arellano and Bond., 1991). Under the assumption of serially uncorrelated $e_{i,t}$, the first difference error term $\Delta e_{i,t}$ follows an MA(1) process, so the $\varepsilon_{i,t-j}$ ($j = 2, 3, \ldots$) are valid instruments for the $\Delta\varepsilon_{i,t-1}$.

Because system GMM uses more instruments than the difference GMM, it may not be appropriate to use system GMM with a data set of a small number of countries. Table 5 sums up estimation results by *one-step difference GMM method* for all countries (first column), for French colonies (second column) and for Anglophone colonies (third column). We provide also the results of diagnostics tests for the validity of the used instruments in the same table. The Sargan tests cannot reject the validity of instruments in all case at 5% level (p-values are >5%). Serial correlation at an order higher than 1 in the first-differenced errors implies that the moment conditions used by GMM are not valid. From AB(1) results, in all cases, there are significant evidence of serial correlation in the first-differenced errors at order 1. From AB(2) results, in all cases, we found no significant evidence of serial correlation in the first-differenced errors at order 2.

	All countries		French		Anglophone	
Variables	Coeff	St err	Coeff	St err	Coeff	St err
Pmp	0.115**	(0.0491)	0.110**	(0.0512)	0.0551	(0.0407)
Lmp	0.157	(0.106)	0.129*	(0.0639)	0.103	(0.133)
FDI	0.00260	(0.00353)	−0.00409	(0.00387)	0.0111*	(0.00644)
Vol_B	−0.00572**	(0.00261)	−0.00804	(0.00695)	−0.00258	(0.00582)
Size	−0.000702	(0.0304)	−0.0526	(0.0473)	0.0260	(0.0420)
Pop_U	0.0198	(0.0160)	0.0396	(0.0284)	0.000275	(0.0213)
Tx1524	−0.0380**	(0.0187)	−0.0525**	(0.0224)	−0.0165	(0.0212)
Inflation	0.00432	(0.00268)	0.00861	(0.00624)	0.00238	(0.00222)
F	3.30129		1.35226		0.996362	
N	467		241		226	
Sargan	0.475		1.000		0.999	
AB(1)	0.003		0.024		0.049	
AB(2)	0.158		0.133		0.537	
Instruments	43		81		43	

Table 5.
One-step difference GMM results from Eq (3)

Note(s): *$p < 0.05$; **$p < 0.1$; ***$p < 0.01$. AB(1) is p-value for Arellano–Bond test for AR(1) in first differences. AB(2) is p-value for Arellano–Bond test for AR(2) in first differences. Sargan is p-value for Sargan test of overid restrictions. Robust standard errors in parentheses

For French colonies, elasticities evolution depends on Lmp and Pmp (structural variables) and on Tx1524 (demographic variable). Both structural factors have positive and significant effects (respectively about 13% and 11%), while demographic factor has significant negative effect (−5.25%). For Anglophone colonies, only FDI has positive and significant effect (about 1.1%).

For the 44 countries, elasticities depend on Lmp (structural variable), volatility of macro variable GDPG (Furceri, 2010) and demographic variable Tx1524. Pmp has positive and significant effect (about 12%). Both macroeconomic and demographic effects have negative and significant effect (respectively about −0.6% and −3.8%). Then, macroeconomic policies aimed at reducing macroeconomic volatility have a significant and a positive impact on employment elasticities for all countries.

6. Conclusion

This paper contributes to the literature by providing new set of employment-output elasticities for a panel of 44 countries (from Africa and Middle East Area) over the period 2000–2017. Point estimates of elasticities by rolling regression have the majority ranging typically in the [−1, 1] range. Having a sample of 20 French and 24 Anglophone colonies, we assess the role of structural and policy variables in affecting these elasticities within these two groups. Results were built from an econometric models aimed at providing insights into some of the structural, macroeconomic and demographic determinants of the employment intensity of growth by type of countries. There is an important difference between French and Anglophone colonies.

For the 20 French colonies, elasticities evolution depends on structural variables; on product market indicator (Pmp) and labor market factor (Lmp), and on demographic variable; and *15–24-year-old participant in active population* (Tx1524). Then, structural policies aimed at increasing labor market flexibility and product market flexibility have a significant and positive impact on employment elasticities for French colonies. A clear implication is that high economic growth may not necessarily lead to a substantial decline in unemployment unless it is accompanied by structural changes in the labor market and product market.

For the 24 Anglophone colonies, only foreign direct investment (FDI) has positive and significant effects (about 1.1%). Then, macroeconomic policies aimed at promoting FDI have a significant and positive impact on employment elasticities for Anglophone colonies (Bruno *et al.*, 2001). So, maintaining high rates of growth to promote employment requires higher rates of investment and improvements in the efficiency of FDI.

For the totality of countries (44), elasticities depend on labor market indicator (Pmp), on volatility of GDPG (macroeconomic variable) and on Tx1524 (demographic variable). Pmp has positive and significant effect (about 12%). Both macroeconomic and demographic effects have negative and significant effect (respectively about −0.6% and −3.8%). Then, macroeconomic policies aimed at reducing macroeconomic volatility have a significant and positive impact on employment elasticities for all countries. This implies that structural reforms have to be complemented by macroeconomic stability policies.

The results presented here highlight the factors that appear to drive the relationship between employment and some structural policies and/or macroeconomic indicators for both groups of former colonies. The paper provides these policy conclusions.

(1) For the French colonies, structural changes in the labor market and product market are necessary for employment promotion, while investment and improvements in the efficiency of FDI are the solutions for the Anglophone ones.

(2) Macroeconomic stability policies are needed in addition to complement specific group policy.

In order to improve employment in French (Anglophone) colonies, government policy should focus on labor market and product market policy promotions (investment improvements and

FDI efficiency). Other policies should be implemented for job creation in both former colonies, which will lead to macroeconomic stability and stable political and economic climate and will encourage new investments as there would be transparency, best governance and democratic environment.

This analysis may indeed help to inform future policy discussions, yet much additional work is needed to identify macroeconomic "best practices" for encouraging employment in the post-2019 covid crisis period and during the actual Ukraine–Russia war.

Notes

1. In an Asian view, the British colonial administration devised a system of indirect rule in which they relied on local norms, social organizations and were controlled by the British through treaties. Colonial states used patronage to govern, creating dependencies between local authorities and the colonial state, and also creating economic, legal and social structures that, along with patronage, divided society vertically (Nasr, 2001). In addition, colonial legacies are very much alive and well across the African continent. Even the term "colonial legacies" implies the influences and outcomes of colonialism are in fact over, yet contemporary economic, political and social structures across regions in Africa continue to be shaped by their distinctive experiences from the period of colonialism. Assessing the long-term effects of colonialism through public investment decisions illuminates the interplay between colonial interventions and domestic decision-making in contemporary policy-making (Barker, 2018).
2. Employment-related economic indicators, particularly those that measure the ability of economies to generate sufficient employment opportunities for their populations, often provide valuable insights into economies' overall macroeconomic performance. Among the most widely publicized indicator is the employment intensity of growth, or elasticity of employment with respect to output.
3. The most basic definition of employment elasticity is the percentage change in the number of employed persons in an economy associated with a percentage change in economic output, measured by gross domestic product. Within this broad definition, two methodologies are frequently utilized for calculating a panel of elasticities. The first technique gives the *arc* elasticity of employment, $\varepsilon_{i,t} = \frac{(E_{i,t} - E_{i,t-1})/E_{i,t-1}}{(GDP_{i,t} - GDP_{i,t-1})/GDP_{i,t-1}}$, $i = 1, \ldots, N$, $t = 1, \ldots, T$. The numerator simply gives the percentage change in employment in country *i*, while the denominator gives the corresponding percentage change in output, *GDP*. The second technique is the rolling method.
4. Rolling technic is easily applied by EViews 10 or by Stata 15.
5. Based on a sample of 139 countries for the period from 1991 to 2003, Kapsos (2005) concluded that the most employment-intensive growth was recorded in Africa and the Middle East. Asia and the Pacific experienced great economic growth during the observed time period, and this was shown to be accompanied by strong growth in employment. The employment elasticity of growth moved in opposite directions for North America and Western Europe, with a recorded decrease for the former and increase for the latter. Labor supply share of service industry was proven to have a positive, significant effect of the elasticity measure, whereas high tax rates had a negative significant impact. The results showed no empirical relationship between employment elasticity and export-orientation.
6. The same result is get for Anglophone colonies and French colonies.

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Appendix

French colonies	Anglophone colonies	French colonies	Anglophone colonies	French colonies	Anglophone colonies
Algeria (AN)	Egypt	Congo, Dem rep.. (AC) of	Angola	Senegal	Namibia
Marocco (AN)	Iran, Islamic republic	Ivory Coast (AO)	Erythree	Togo	Nigeria
Benin	Iraq	Gabon (AC)	Gambie	Tchad	Ouganda
Burkina Faso (AO)	Jordan	Guinea	Ghana	Tunisia	Rwanda
Burundi (AE)	Libanon	Guinea-Bissau	Kenya		Sierra Leone
Green-Cap(AO)	Libya	Madagascar	Lesotho		Tanzanie
Comores (AE)	Oman	Mauritania	Malawi		Zambia
Congo (AC)	Yemen	Nigeria	Mozambique		Zimbabwe

Table A1. List of countries

Variables/TEST	LLC	IPS	ADF-Fisher χ^2	PP-Fisher χ^2	Conclusion
$\varepsilon_{i,t}$	0.0	0.0	0.0	0.0	I(0)
Size	0.0334	0.0439	0.1706	0.0	I(0)
Pmp	0.0	0.0	0.0	0.0	I(0)
Lmp	0.0007	0.0045	0.0055	0.0	I(0)
Inflation	0.0	0.0	0.0	0.0	I(0)
FDI	0.0	0.0	0.0	0.0	I(0)
Vol_B	0.0015	0.0019	0.0047	0.3777	I(0)
Pop_U	0.0	1.0	0.0	0.0	I(0)
Tx1524	0.0	0.0247	0.01	0.0	I(0)
Pop_D	0.4631	1.0	0.0363	0.0	I(0)
Va-s	0.0	0.0	0.0	0.0	I(0)

Note(s): Only *p*-values are reported. LLC is Levin, Lin & Chu *t**, IPS is Im, Pesaran and Shin W-stat

Table A2. Unit root tests results for panel data

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