

Economic growth between the epidemic Maltus' idea and political instability for some countries in North Africa and the Middle East

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Abstract— *The objective of this paper is to study the impact of the rate of demographic growth via the the epidemic Maltus' idea on economic growth on the one hand. And on the other hand, we examine the effect of political stability on economic growth. This work follows a methodology describing empirically while using the GMM dynamic panel method on five-year cross-sectional data (2016-2020) for some countries of North Africa and the Middle East.*

Keywords— *Political instability, Epidemic, Demographic, Growth, GMM*

I. INTRODUCTION

Many countries, in particular, third world countries suffer from socio-economic and political problems due to the emergence of the Coronavirus epidemic on the one hand and on the other hand to political instability according to international organizations namely IMF, WHO etc. First of all, the existence of the Coronavirus epidemic shows that demographic control policies revolved around the idea that demographic growth will no longer be proportional to resources, which is confirmed by the weakening of the population according to the Malthusian demographic control.

Indeed, the discourse of the decrease in the population by the epidemic such as the example of Coronavirus for some countries of North Africa and the Middle East which reflects a decline in the demographic rate which has an effect on economic growth, favors the idea of Malthus.

According to existing theories of the epidemic Maltus' idea, high population actually resulted in high value of economic output. In addition, the real production almost depends on the favorable climate and the absence of epidemics (famine, Coronavirus,...), so the current situation is a phenomenon of death of a large population. It was always the interesting exception and the debate that can lead to controversy between economists and experts.

These will give significance to the position of the population as an ideological argument influencing economic growth.

With regard to the Malthusian interpretation of the relationship between population growth and well-being, reproaching the

Malthusians for neglecting real processes (in particular the technical progress of growth theory exogenous and endogenous) and for wanting to make growth demographic responsible for unemployment and other vices arising from

the very nature of capitalism. Secondly, political instability also presents a handicap for economic growth and for the creation of wealth, especially the absence of an investment climate and of project creation given the political disruption. According to the United Nations High Commission, from 1975 to 2015, the most politically disturbed region was sub-Saharan Africa, with 1,814 events of political instability, representing 35.03% of the world total. In second position, Latin America with 1230 events of political instability or 23.75%; for some countries in North Africa and the Middle East region recorded 1002 incidents of political instability during this period, ie 19.35%; finally, Asia and Eastern Europe with 944 and 138 events, respectively, or 19.19% and 2.66% .

Political instability lead Campos and Karanasos (2008) to distinguish between two forms of political instability, namely: the formal which groups together, the number of legislative elections, the number of major constitutional changes, government crises.

Then, the informal political instability manifested by unconstitutional political upheavals and social tensions between civil society and political power.

The definition of political instability remains controversial in the economic literature, its sources are also multiple.

According to the work of Alesina and Perotti (1996), Alesina et al. (1996) and Rodriguez and Rodrik (2000), the roots of political instability are essentially economic. Thus, it is adverse economic shocks that would cause political instability . On the other hand, other authors; namely, Easterly and Levine (1997), Collier and Hoeffler (1998), and Blanco and Grier (2009) found an explanation for political instability through the level of democratization and especially in political fragmentation and factionalism, in the nature of the political regime; this is particularly the case for countries governed by authoritarian regimes. In our work, we will admit that the demographic growth rate is more or less decreasing during the study period which describes the thesis of Malthus on the one hand and on the other hand, the assumptions of validity surely require a comparison with the rate real demographic for having noticed the difference while also admitting that political instability persists for some countries in North Africa and the Middle East

In total, we will deal with Malthus 'contribution of theoretical hit points on the one hand. And on the other hand, we will analyze the articulation between the demographic rate in the presence of the epidemic and economic growth while developing the determinants of political instability.

Finally with a methodology that will be developed by an empirical test for a few countries of North Africa and the Middle East during a well-defined period with the Malthusian population growth rate taking into consideration the indicator of political instability. Also, we will show to what extent the real demographic aspect can promote economic growth to conclude in an objective academic way.

II. LITERATURE PAPER

Our review of the literature emphasizes the steady state of demographic rates and its economic changes, ultimately the determinants of instability.

The epidemic Maltus' idea: Effect on Growth

According to the endogenous growth theory with Romer (1986) and Lucas (1988), it is a question of extending and even going beyond the classical growth model (Solow, 1956). The empirical explanation of growth phenomena is based on the introduction of a number of explanatory factors such as the existence of increasing returns, the level of capital.

Regarding the economic consequences of strong population growth, the most pessimistic and optimistic debates seem contradictory in the face of the uncertainty of the empirical results; in other words, they are not sufficiently reliable to establish the link between the two dynamics of GDP and population growth.

Within the framework of the neoclassical model (extension of the model of Solow, 1956), the growth of production depends on two factors, capital and labor, which are substitutable between them. It is explained not only by the quantitative progression of these factors (extensive growth) but also by the increase in their overall productivity (intensive growth).

Population growth leads to an increase in the labor force, is expected to have a positive effect on extensive growth. However, the solution then lies in an increase in savings since the current standard of living is temporarily declining. Thus, for example, under the assumption of a 2% increase in total factor productivity (exogenous technical progress), "an acceleration of one point in economic growth, at a given savings rate, results in by a decrease of 6.25% in the level of product per head, and therefore a drop of the same magnitude in the wage rate ".

The idea of viewing population growth as a stimulus to innovation was put forward in the 1960s by Esther Boserup (1965 and 1981).

Subsequently, Boserup's thesis was developed by Darity (1980) and Pryor and Maurer (1981): to the Malthusian vision of a demography which acts as a brake on growth, this approach opposes a framework in which they are exogenous demographic shocks that push for the adoption of new technologies beneficial to growth.

The positive results of population growth on economic dynamics are also evident in the experiential learning models of Arrow (1962) and Phelps (1966). In these models, the positive effect of population growth results from the proportional relationship observed between the size of the population and the effort devoted to research.

Changes in the world economy according to political stability

The world economy will save the traces of the epidemic (Coronavirus). This virus presents, according to the OECD "the greatest threat to the world economy since the 2008 financial crisis". Moreover, it will have mutations already underway, namely:

- The regionalism of company production;
- Investment does not become a priority;
- Debt will become the great economic debate;
- Economic stagnation expected soon;
- The existence of global inflation;
- Coordination becomes a priority between economic decision-makers;

In addition, to avoid any confusion, Gouenet (2009) identified, within this framework, three forms of political instability: Elite or executive instability which encompasses, coups d'état, changes and crises of government; Mass instability which corresponds to social movements such as strikes, demonstrations or riots and Armed or violent instability which takes into account civil war, guerrillas and any violent political action.

The determinants of political instability

Several fundamental factors re-enter the determinants of political instability: Human resources (demographic), transparency of public policies, etc. We are organizing the literature review around these essential points.

Political instability: Conditional sources

- Articulation between bad governance and corruption

Several authors confirm that bad governance introduces uncertainty for economic agents and increases political instability. Shleifer and Vishny (1993) show that socio-political turmoil such as coups and political assassinations can have its origins in poor governance, which results in, among other things, violence and disrespect for property

rights. In the same context, Kew (2006) shows that bad governance of the political class can cause political instability which remains the main source of bad governance. Recent studies confirm the adverse effect of governance on political instability while considering transmission channels and implications for economic growth.

- Corruption and political stability

Farzanegan and Witthuhm (2017) tested the link between corruption and political stability on a panel of 100 countries and over a period from 1984 to 2012. They first show that one of the main transmission channels between corruption and growth is political instability. They add that political instability accounts for 53% of the negative effect of corruption on economic growth. Next, the authors show that corruption only presents destabilizing political effects when a society experiences a demographic change in its basic structure with a critical youth threshold that exceeds around 20%. The events of political instability in the MENA region of 2011 present a case for these results. In addition, Karnane and Quinn (2017) argue that through the channel of political instability generated by corruption and ethnolinguistic fragmentation that negatively affect economic growth. In addition, corruption and poor governance are often present in developing countries with natural resources. The latter, sources of greed, in poor institutional contexts, engender political instability; The most edifying example is that of the Democratic Republic of the Congo, in the grip of serious crises of political instability for decades.

Favorable macroeconomic conditions maintain political stability

An economic crisis can generate protest movements and even revolutions. The same is true for anti-government demonstrations that may push an authoritarian power to change economic policies in order to meet public needs, whose poor economic performance is considered a major cause of several events of political instability. Unfavorable economic conditions increase popular discontent, which in turn feeds into the level of political instability.

In 2010, Greece also saw strong anti-government protests following the public debt crisis. Also, the countries of North Africa, such as Tunisia, Libya, Egypt underwent popular revolutions in 2011. These countries recorded unfavorable macroeconomic conditions for political instability.

The work of Collier and Hoeffler (2004) also uses exogenous variables such as the growth rate of GDP and exports of primary materials in relation to GDP, in order to test the role played by economic conditions in the triggering of events of

political instability. . They find that an increase in the rate of growth decreases the likelihood of having to endure internal conflicts or events of political instability.

Other findings highlighting a negative relationship between economic growth and political instability. Cuzan et al. (1988), Booth (1991), Annett (2000) and Blomberg and Hess (2002) are among the authors who do this type of research. The authors call for a change of government, either through constitutional means or through political violence such as revolutions gold coups (Auvinen and Nafziger, 1999)

III. METHODOLOGY

Our empirical attempt is based on the application of cross-sectional data over a five-year period (2015-2019) with demographic control and political instability. In order to control for this bias, and to account for persistence in political instability, we use the two-step dynamic panel system GMM estimator from Blundell and Bond (1998).

The validity of the generalized moment estimator is based on two assumptions: the validity of the instruments and the autocorrelation of the error terms. In order to test these two hypotheses, the Sargan-Hansen instrument over identification tests are used, as well as the autocorrelation tests of order one and two.

Assumptions

Among the hypotheses that may arise in this case of work, we can cite the following:

H1: For country i at date t , the population growth rate takes Malthus' logic as this rate gradually decreases and the GDP growth rate increases over the study period for some countries in North Africa and the Middle East.

H2: We assume that political instability is the result of poor governance as a result of adverse macroeconomic conditions resulting from the existence of corruption.

H3: We accept that the Coronavirus epidemic actually describes five years of declining population growth rates.

H4: Probably, the GDP can be representative of wealth and production to have the possibility to verify the Malthusian hypothesis.

Sample and Period

We considered that the demographic rate of the countries of our study region during a period of five years (2016-2020) cross-sectional data which takes on the one hand the perspective of Malthus and on the other hand, no and we We will then compare the results obtained in the two cases

(economic growth rate without and with demographic control: the pessimism of Malthus). Our sample is formed by 09 countries.

Estimation model

In our econometric analysis on the effect of structural variables, human and institutional capital in certain groups of countries and especially for some countries in North Africa and the Middle East, we are in the framework of conditional convergence; the equation takes the following general form:

$$Y_{i,t} - Y_{i,t-1} = \theta Y_{i,t-1} + \Phi K_{i,t} + \varphi Z_{i,t} + \mu_t + \varphi_i + \varepsilon_{i,t}$$

$$Y_{i,t} - Y_{i,t-1} = \theta Y_{i,t-1} + \beta X_{i,t} + \mu_t + \varphi_i + \varepsilon_{i,t}$$

With: $Y_{i,t}$: noted ($GDP_{i,t}$). The growth rate of per capita GDP at time t .

$X_{i,t}$: The vector of standard variables of growth ($Inv_{i,t}, Trade_{i,t}, HK_{i,t}$) time t .

$Z_{i,t}$: noted ($CPI_{i,t}, PIS_{i,t}$). The vector of institutional growth variables time t .

$K_{i,t}$: noted ($PopMalthus_{i,t}$). The vector Structural indicators time t .

μ_t and φ_i are respectively the unobservable and identifiable factors that affect all countries in the sample.

- The second equation is defined by: $X_{i,t} = (K_{i,t}, Z_{i,t})'$ and $\beta = (\Phi, \varphi)$.

Growth indicator

We have chosen the GDP growth rate per capita (Levine et al., 2000, Beck et al., 2000, and Beck and Levine, 2004).

Independent indicators

Among the variables that can be independent, we cite:

***TRADE:** Following the example of Berthélemy and Varoudakis (1998), we

introduce the logarithm of the trade openness coefficient, measured by the sum of imports and exports as a percentage of GDP.

***INV:** This is the logarithm of domestic investment measured by the percentage of gross fixed capital formation relative to GDP. Abu-Bader and Abu-Qarn (2008) include the investment / GDP ratio while increasing the investment resources noted **Inv** (**Invest / GDP**).

Structural indicators:

***Pop Malthus:** This variable corresponds to the logarithm of the number of the total population of the country (i) at time (t). This is Malthus' reformulation and his perspective

Human capital indicators:

*The rates that may reflect the quality of education are

***HK:** This is the stock of human capital, measured by the tertiary education enrollment ratio. The contribution of Barro et al. (1990) favors the human qualification indicator

Institutional variables:

***PIS :** represented the governance quality index: "ICRG indicator of quality of government: The mean value of

ICRG variables "law and order" and bureaucracy quality ". Kraay, Mastruzzi, and Kaufmann (2003).

***CPI:** represented represents the perception index of corruption

IV. DESCRIPTIVE ANALYZES, PRESENTATION OF RESULTS AND COMMENTS

Descriptive Statistics and Correlation Matrix
Descriptive Statistics

Table 1: Descriptive statistics of the variables

Variables	Observations	Moyenne	Ecart- type	Minimum	Maximum
GDP	45	4.150974	3.775687	-4.82588	16.73156
INV	45	2.45705	6.241217	0.1881774	23.55618
FDI	45	2.085287	1.9726	-.2045333	9.678341
TRADE	45	6.687789	0.4748052	0.474805	57.995
HK	45	29.32727	16.36106	6.09751	60.6836
CPI	45	-0.39664	0.22219	-0.96102	-0.03081
PIS	45	0.5335328	0.0766466	0.3214541	0.6143519
Pop Malthus	45	4.153395	4.260188	.9212846	16.49351

Source: Authors' output of Stata15.1

Correlation Matrix

In order to detect a possible relationship between the different variables, we present the different correlation coefficients in the following table to test the correlation between these variables.

- A high correlation coefficient (close to 1 in absolute value) indicates a strong correlation between the variables used.
- A low correlation coefficient (close to 0) indicates a low correlation between the variables used.

Table 2 : Correlation Matrix

Variables	GDP	INV	FDI	TRADE	HK	CPI	PIS	Pop Malthus
GDP	1.0000							
INV	-0.0011	1.0000						
FDI	0.2568	-0.0872	1.0000					
TRADE	-0.0536	0.4938	-0.0849	1.0000				
HK	-0.1577	0.6081	-0.0873	0.6005	1.0000			
Pop Mal	-0.0650	0.3678	0.0625	0.3600	0.3212	1.0000		
CPI	0.0247	0.4015	-0.1069	0.4093	-0.1623	0.2439	1.0000	
PIS	0.2819	0.2358	0.1680	0.2438	0.2450	0.1664	0.2855	1.0000

Source: Authors' output of Stata15.1

Generally, values that are greater than or equal to 0.5 indicate that the variables are strongly positively or negatively correlated depending on the effect of the variable under consideration on the other. According to the table which represents the different correlation coefficients, we notice a strong positive correlation between INV and HK of (0.6088), and other correlations which are weakly correlated for example GDP and INV of (-0.0011). Also, there are negative correlations between the dependent and independent variables.

Presentation of results

We proceed, first of all, by estimating the basic growth equation including the explanatory variables usually used in previous work, particularly before the epidemic (Pop Malthus) and before political instability the variables (INV, TRADE, FDI and HK). Then, we introduce respectively, in the regression with political instability, the variables namely corruption (CPI) and then the quality of governance (PIS). Finally, we introduce after the epidemic (population of Malthus) (Pop

Table 3: Effects of structural and institutional variables on economic growth for some countries in North Africa and the Middle East without Epidemic and without political instability, with Corruption, with political instability and with political Instability and with Epidemic

Regressions Variables	Regression N°1	Regression N°2	Regression N°3	Regression N°4
CST	(-1.33) -0.035	(-3.13)*** -3.96	(-1.59)* -1.73	(-1.28) -1.13
<i>GDP_{t-1}</i>	(-3.88)** -2.30	(-6.18)* -1.71	(-6.12)* -1.98	(-3.28)* -1.75
INV	(1.08) 1.23	(5.90) 0.03	(1.89) 0.60	(2.88) 0.55
FDI	(6.28) 1.15	(2.21)** 1.97	(6.53)** 2.03	(1.84) 0.07
TRADE	(1.03)** 2.34	(1.23) 1.39	(6.95) 0.45	(5.95) 0.29
HK	(1.01) 0.87	(5.46)** 2.23	(-1.08)** -2.16	(6.86) 1.10
CPI		(-1.00)* -1.76	9.30 0.72	(-1.36)* 1.69
PIS			(2.55)* 1.75	(-6.87)*** -3.47
Pop. Malthus				(-2.07)* -1.73
N. of Obs.	45	45	45	45
N. of groups	9	9	9	9
N. of instruments	11	12	13	14
Prob>chi2	0.0000	0.0000	0.0000	0.0000

Source: Author' output of Stata15.1

- ❖ The dependent variable is the growth rate of real GDP per capital.
 - ✚ Equation N°1 : Sample without the epidemic Maltus' idea and without political instability
 - ✚ Equation N°2 : Sample with Corruption
 - ✚ Equation N°3 : Sample with Corruption and political instability
 - ✚ Equation N°4: Sample with political instability and with the epidemic Maltus' idea
- *** Significant at 1%, ** Significant at 5%, * Significant at 10%.

V. DISCUSSION

By using the GMM method over a period of five successive years for some countries in North Africa and the Middle East whose model has an explanatory power $R^2 = 0.57$. The model estimate in Table 3 deals with four cases. The first does a study on a sample without the epidemic Maltus' idea and without political instability, the second is based on a sample without epidemic and with corruption, while the third case focuses on a sample without epidemic and with corruption and with political instability. The last case focuses the study on a sample with corruption and political instability and without epidemic (demographic rate of Population controlled under a constant assumption).

Sample without the epidemic Maltus' idea and political instability

Regression n°1 describes a significant for a few purely economic variables, namely the positive significance (1.03) of 5% between trade openness (TRADE) and growth (GDP). An increase in trade openness (TRADE) of 5% reflects an increase in (GDP) almost 1 point for some countries in North Africa and the Middle East. In fact, Caupin and Saadi-Sedik (2003) analyze the effects of open trade policy on the instability of economic growth rates for the countries of the Middle East and North Africa from 1960 to 1999. Based on this study, the author concludes that the opening policy has a beneficial effect on the resilience of countries which outweighs the negative effect caused by the increase in exposure to external shocks.

This last result really describes the theory of endogenous growth with Romer (1986) and Lucas (1988), it is a question of extending and even going beyond the classic growth model of Solow (1956) whose population is justified as capital human.

Sample without epidemic and corruption

The estimate of Equation N ° 2 shows that there is a significant negative link (2.21) of 10% between economic growth (GDP) and the corruption perception index (CPI), including an increase of (CPI) of 10% reflects a decrease in economic growth (GDP).

Indeed, this result found collaborate the review of the literature especially the work of Mauro (1996) and also Karnane and Quinn (2017) expose that through the channel of political instability

generated by corruption that negatively affect economic growth. In addition, the estimate shows a significant 5% positive (2.21) between economic growth (GDP) and foreign direct investment (FDI) including an increase in GDP growth of 3 points when foreign direct investment (FDI) increases by 5% on the one hand. And on the other hand, also the articulation between human factor (HK) and growth (GDP) is significant by 5% and positive (2.23). Moreover, Romer (1988) showed the nature of physical capital in endogenous growth with physical capital (technical progress) and Lucas (1990) showed the nature of human capital in endogenous growth with human capital.

Sample with Corruption and political instability

The model estimate for the third case regression of a sample without epidemic and with corruption shows a significance of 10% and positive (2.55) between political instability (PIS) and growth (GDP). A 10% increase in political instability (PIS) translates to an increase in (GDP) almost 3 points. However, according to Sanders (1981) and Jong-A-Pin (2009) focus on four dimensions of political instability, they still reflect the two basic dimensions: politically motivated violence and mass civil protest that reflects the socio-political unrest; while political instability within the regime reflects the political instability that stems from a change of regime, or government. In addition, Khan and Saqib (2011) studied the effect of political instability on inflation in Pakistan, applying the method of generalized moments using data from 1951 to 2007. They found that the effects of factors Monetary rates such as money supply growth, are rather marginal, while non-monetary factors such as political instability strongly and positively affect inflation in Pakistan. Contrary to popular belief, they also state that, as Pakistan moves towards a democratic form of government, inflation is increasing. The result found really describes the political situation for some countries in North Africa and the Middle East whose political instability can lead to economic

growth in a context of a non-institutional economy through the channel of parallel trade and in this way

the action of the public power remains sterile and inefficient as one of the determinants of growth for planning, directing and controlling the economic circuit. In addition, regression N°3 clarifies the relationship between Foreign Direct Investment (FDI) and GDP growth rate (GDP) which was positive 6.53 and significant by 5% confirming the review of the economic literature cited in the explanation of the model of the second regression. In this context, Haddad and Harrison (1993) highlight the insignificant effect of FDI in the case of the economies of Morocco. As for the authors, the structural characteristics of the host countries and industries can influence the occurrence of spillover effects and external effects of FDI. Also, for example, successful investments in R&D could lead to time-lagged hardware investments and enterprise software complements investments in capital goods related to information and communication technologies (TIC).

Sample with political instability and with the epidemic Malthus' idea

The regression N° 4 of the model shows a negative effect (-2.07) and significant 10% between the epidemic (The demographic rate of population controlled or stop according to the hypothesis of Malthus) noted (PopMalthus) and growth (GDP). An increase in the population demographic rate (PopMalthus) of 10% translates to a decrease in (GDP) of almost 2 points for some countries in North Africa and the Middle East. For our study sample and in a well-defined period, Malthus' idea concerning the demographic rate of population controlled or stopped by the epidemic remains invalid and not validated since this mass of population presents consumption for these countries in consideration that stimulates economic growth. This estimate shows a negative significance (-6.87) of 1% between political instability (PIS) and growth (GDP). A 1% increase in political instability (PIS) translates to a decrease in (GDP) of almost 7 points. Also, corruption (CPI) has a negative (-1.36) and significant effect of 10% on economic growth, so an increase in the corruption perception index (CPI) of 10% favors a decrease in the growth rate of the GDP noted (GDP) almost 2 points. The results found describe an economic reality in these countries and collaborate on previous literature (confirms the review of existing literature).

VI. CONCLUSION

Empirically and by using the GMM method over a period of five successive years for some countries in North Africa and the Middle East the first of all, by estimating the basic growth equation including the explanatory variables usually used in previous work, particularly before the epidemic (Pop Malthus) and before political instability the variables (Inv, TRADE, FDI and HK). Then, we introduce respectively, in the regression with political instability, the variables namely corruption (CPI) and then the quality of governance (PIS). Finally, we introduce after the epidemic (population of Malthus) (Pop Malthus). The control or the stationarity of the rate of population growth (In the presence of the epidemic like coronavirus: The pessimism of Malthus) represents another real reproductive contribution. This idea is valid in economic context based on an empirical attempt is based on application of cross-sectional data during a period of five years (2016-2020) without and with the control of the rate of population growth (describing the population). In this sense, the first two hypotheses H1, H2 and H3 are validated since the results found in our empirical test are too relevant and explanatory. However, the validity of the other hypotheses remains provided that the population is completely stationary in the context of the epidemic. With regard to this work, we report that the great mass of population in the majority of MENA countries presents the consumption of the illegal economy in the presence of political instability in a corrupt system even in the event of the epidemic like coronavirus.

Moreover, if by admitting that the demographic growth rate presents a concrete reality at the level of participation in economic growth in the first case and in the second case this rate is controlled according to Malthus' idea and we therefore choose the methodology based on assumptions to construct our sample while using a cross-sectional panel estimate. The population remains essential for the creation of wealth but on condition the participation will be strong. Overall, the stationary or controlled rate of population growth in the face of the epidemic in the face of the epidemic favors a closed economy for a country or set of countries which have the same characteristics and specificities.

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