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Qualitative Analysis of West African Economic and Monetary Union Decades' Economic Growth

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ABSTRACT

The study analyses the long growth rate period contribution to human development in West African Economic and Monetary Union (WAEMU) from 1996 to 2019 introducing time and institutional indicators effects analyses. Time and institutional effects both greatly improve model's diagnostics statistics. Time effects reduce growth variable coefficient and its significance, but not institutional effects. Combined effects inhibit growth contribution to human development. It appears essential to increase the resiliency of growth and the efficiency of government institutions.

KEYWORDS

HDI; GDP per capita; Time effects; Institutions effects; WAEMU

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1. Introduction

HDI (Human Development Index) in plain language can be taken as an estimate of the development of a country. Falsely there is a limitation of gdp as a measure of country's overall well being ^[1]. It cannot be captured by gdp per capita alone ^[2-5]. It is rather the geometric mean of normalized ratios for three key areas from health, education and standard of living. The United Nations Development Programme (UNDP) reports a fuller picture giving indicators and informations required to analyze and determine the level of a country's Human Development Index (HDI). Table 1 below gives the main aspects of HDI.

The human development index then represents the uniformly weighted sum with a 1/3 contribution from each of its component dimensions. It provides a composite measure combining living a long and healthy life (measured by life expectancy), having acceptable knowledge level (measured by education index determined by schooling enrolment at the primary, secondary and tertiary level) and having a decent standard of living (measured by purchasing power parity, PPP, income). Deeply analyzed, the 3 dimensions of the HDI seem to depend on wealth created, which explains why the HDI is misidentified through economic growth. Quantitative growth is not enough even if it is essential; it must be given a qualitative dimension leading to development or at least to human development. ^[6] conceptualize economic development as the development of economic wealth of countries for the well being of their inhabitants. Economic development designated or proxied by human development index appears a process implying economic, political and social well-being improvements according to [6]. The political perspective is important for our study. We consider this aspect in the human development process as the perception people has from the government in making efforts to improve their life quality.

Mere economic growth concerns goods and services production. The result of this process is the availability of financial resource or income for consumption. From this point of view, simple economic growth seems to rather have quantitative aspect. Countries with high economic growth haven't necessarily high human development index and vice versa. These contrasts initiate discussions about countries abilities to give economic growth qualitative virtues.

After independence in the 1960s, Africa opted for a centralized mode of governance, copied from its mother cities in political, economic, institutional and other fields. More than half a century later, there are limits in the implementation of these practices. International indicators of governance measure the effectiveness of the centralization of State management. Six synthetic indicators give the scores of the governments, thus measuring their efficiency in their management. These are control of corruption, government effectiveness, rule of law, political stability, voice and accountability, regulatory quality. Africa is overall ranked at the bottom of the table.

West African Economic and Monetary Union (WAEMU) is ranked as a low-income area with low human development index even if it has been in a strong growth dynamic at least for the three last decades. The average growth rate exceeds 3% during the first decade and more than 5% for the second decade of the 21st century. Regarding gdp per capita (GDPh), figure 1 shows that WAEMU is at a lower level compared to mean level of Sub-Saharan Africa, world and OECD until 2011 but at the higher level since 2011. However, on the HDI side, WAEMU is far from OECD and the world mean level along the study's period as shown in figure 1.

Three decades of sustained economic growth in WAEMU contrasts with the weak improvement in the quality of life, measured through HDI, over the same period. This study tries to explain the contrast focusing on growth resiliency on one hand and executive powers efficiency on the other hand. The first analysis channel is based on time effects. The second analysis channel focuses on institutional effects through government abilities to give economic growth qualitative virtues. Do institutions matter in human development and growth nexus? Otherwise, are governments catalysts or inhibitors in economic growth and human development nexus in WAEMU?

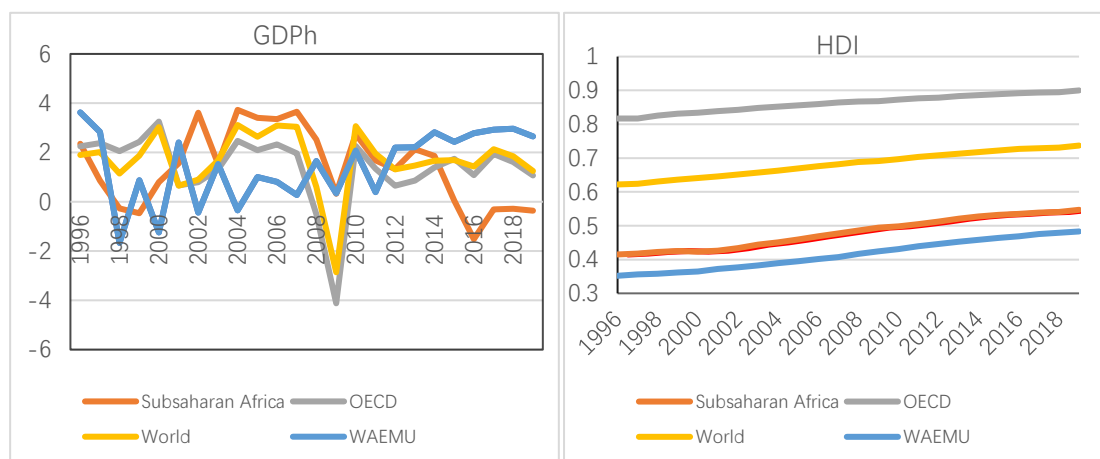


Figure 1. GDPH and HDI comparisons.

2. Literature review

The literature investigating the link between economic growth and human development is provided. On this link, one's established both the unidirectional relationship from one to the other and the bidirectional relationship between them. The consideration of governance in this link is less treated. However, there is a link between good governance and economic growth and between good governance and human development.

From economic growth and human development nexus, economic theory argues that sustained economic growth leads to economic development, [7]. [8] defined economic growth as the increase (or growth) of specific measures such as real national income, gross domestic product, or per capita income. [9] define human development as a human capital formation process that refers to acquiring and increasing the number of persons who have skills, education, and experience that are crucial for economic growth and development of a country.

After recognizing the difference between the two concepts, researchers studied their linkage. [10] discussed that human development may be a necessary prerequisite for long-term sustainable growth. He thinks that a country must attain a certain human development level before future economic growth becomes sustainable introducing some threshold effects. [11] investigate the impact of socio-economic variables represented by the three dimensions of HDI on well-being in fifteen selected developing countries within a 5-year period (2010-2014). GDP per capita has a positive significant effect on HDI. [12] analyses 20 European countries economic performances from 2010 to 2014. With an average growth rate of 0.2 and an average HDI of 0.8, it appears that economic performances and the HDI have a correlation coefficient that reaches 0.8. [13] try to clarify the direction of the relationship between growth and HDI in the Vaal Triangle Region of South Africa. It appears that economic development proxied by HDI causes economic growth in the long and short term. [14] discusses the relationship between Growth Domestic Products (GDP), Human Development Index (HDI) and poverty rate in Malaysia from 1990 to 2012. The results show that in the short term, HDI and GDP have no relationship. [15] investigated relations between human development index and economic in Iranian provinces over 1996, 2006 and 2011. They find that HDI is positively influenced by Per capita GDP and to have high levels of quality of life, we need to dedicate a special consideration to economic growth in regional Policies across provinces. [16] shows that India experienced good economic growth between 2005 and 2010 with decreasing positive effects on human development over time, but the impact on other indicators of human development index is low. [17] examines the relationship between per capita real GDP and the human development index in high, medium and low human development countries. The sensitivity of the human development index to changes in per capita GDP is found to

be highest in low human development countries.

From good governance impact on economic growth and human development, [18] investigates the nexus in Indian and suggests that with better institutional mechanism and good governance the country can put its development process in the higher ladder of growth and human development. Increasingly, economists and policymakers are recognizing the importance of governance and institutions for economic growth and development, [19]. [19] demonstrate that without the establishment and maintenance of good governance, achieving the goals of the New Partnership for Africa's Development (NEPAD) will be hampered in Africa. Government management is made from its spending. [20] argued that government expenditure in the economy should regulate the distribution of income in order to achieve economic efficiency and to ensure human development at large. Human development being seen as the new concept for advancing human wellbeing and it is a qualitative phenomenon accepted worldwide. The major goal should have to achieve the desired levels of human development.

[21] highlights the instability in the relationship between governance and economic growth during the economic crisis. He therefore supports the need for long-term strategies to promote global and national good governance practices. [22], in their study based on 81 countries demonstrate a significant positive effect of government effectiveness on economic growth.

[23] finds in sub-Saharan Africa a significant relationship between the measures of good governance and human development. His findings suggest that policies and efforts aimed at improving government effectiveness and political stability would have the most significant impact on human development and poverty reduction efforts. [24] examine the causal relationship between government indicators and economic growth in Afghanistan. This study reveals causal relationship running from economic growth to government indicators improvement as corruption eradication, establishment of the rule of law, quality of regulatory, government effectiveness and political stability.

[25] investigate the influence of government spending on human development components in Indonesia. Results indicate a significant positive effect on education index, health index and income index. [26] examine how income-driven governance affects inclusive human development in Sub-Saharan Africa. Their main finding is that "middle income"-driven governance has a higher effect on inclusive human development than "low income"-driven governance. [27] assessed the effect government effectiveness on human development in sub-Saharan Africa countries. They find that government effectiveness, economic growth and government health spending had a significant positive effect on human development while corruption did not. [28] analyzed the factors that affect the human development index in the Special Regional of Yogyakarta. Findings are that, gross regional domestic product and government spending in the health sector positively and significantly affect human development index.

This literature review is far from being exhaustive. However, it gives the overview of the topic's investigation. This study chooses to deal with some specific ways in investigating the subject. First, the area in concern is West African Economic Monetary Union that members are Benin, Burkina Faso, Ivory Cost, Guinea Bissau, Mali, Niger, Senegal and Togo. Second, the relationship direction to be investigated is from economic growth to human development. The control variables effects to be testing in the chosen relationship are government indicators on one hand and times effect on the other hand. The investigation line in the study is justified by the fact that WAEMU experienced long-term growth but low human development index and political instability for almost four decades.

3. Methodology and data

3.1. Data and variables

To deal with economic growth qualitative analysis in WAEMU area, we use annual data from 1996 to 2019. There are eight countries in the study. There are nine variables including six institutional ones. The wall data are from the World Development Indicators database. Specifically, institutional variables are methodologically and analytically from [29] provided by the World Government Indicators (WGI).

3.1.1. Main variables

Human Development Index (HDI).

Human Development Index is a composite one measuring the average quality of a country's population life or well being. It measures achievements in three dimensions of human development that concern long and healthy life, knowledge and a decent standard of living.

Gross Domestic Product per capita growth (GDP_{Ph}).

GDP_{Ph} is the growth rate of gross domestic product (GDP) divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products.

Population growth (POP).

POP is the annual population growth rate for year t that is the exponential rate of growth of midyear population from year $t-1$ to t , expressed as a percentage.

Table 1. The underlying principles behind the Human Development Index.

Dimensions	Long & healthy life	Knowledge	Standard of living
Indicators	Life expectancy at birth	-Expected years of schooling - Mean years of schooling	Gini per capita (PPP\$)
Dimension index	Life expectancy index	Education index	Gini index

3.1.2. Institutional variables

The study names institutional variables the governance indicators summarizing the views on the quality of governance provided by a country's life players. There are six dimensions or indicators of good governance. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution, ranging from approximately -2.5 to 2.5.

Control of Corruption (CORR) captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.

Government Effectiveness (GOV) captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies.

Political Stability (STAB) and Absence of Violence/Terrorism measure perceptions of the likelihood of political instability and/or politically motivated violence, including terrorism.

Regulatory Quality (REGUL) captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.

Rule of Law (LAW) captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as

well as the likelihood of crime and violence.

Voice and Accountability (VOICE) captures perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media.

3.2. Model specification

HDI has three dimensions that have the same weight. To estimate the effective contribution of the long-time economic growth in WAEMU to that area's human development, we regress HDI on GDP. We first test the direct relationship (model (1)) and then introduce control variables as population growth that could impact both GDP and HDI and governance indicators to catch people perceptions about institutions that could impact their well-being. The estimated models are expressed as follow:

$$HDI_{it} = \alpha + \mu_t + \beta GDP_{it} + \varepsilon_{it} \quad (1)$$

$$HDI_{it} = \alpha + \mu_t + \beta_1 GDP_{it} + \beta_2 POP_{it} + \beta_3 CORR_{it} + \beta_4 GOV_{it} + \beta_5 STAB_{it} + \beta_6 REGUL_{it} + \beta_7 LAW_{it} + \beta_8 VOICE_{it} + \varepsilon_{it} \quad (2)$$

The variables are defined as specified previously. We included times effects to catch qualitative in life. We are therefore in a mixed effects model, times and fixed effects.

To estimate the models, we employ mixed effect method using maximum likelihood. Mixed model account here for both fixed and times effects. It is known in the literature as multilevel models and hierarchical linear models. The mixed model procedure allows a greater flexibility in modeling covariance structure for repeated measures data [30] and it deals better missing data. It has better abilities to handle missing observations than conventional approaches. It is considered superior and its analysis is more precise and therefore recommended, although assessing an appropriate covariance structure for the data is not easy [31].

4. Results and findings

The technical analysis has been done in three levels. We produce descriptive statistics, correlation coefficients and model (1) estimation coefficients.

4.1. Descriptive statistics

The descriptive statistics for the wall panel is given in table 2. It appears that the mean values of institutional variables are negative showing that people had in average negative perceptions in countries' institutions. The variability of variables is measured by the standard deviation. The standard deviation of gdp per capita growth (3.68) is the highest. It is fifty-two times the lowest standard deviation (0.07) that is for human development index. This means that human development index is more stable than gdp per capita. It indicates that the variations in gdp per capita are weakly transmitted to human development. Stability is the institutional variable that is more unstable, twice regulatory and corruption standard deviations.

Table 2. Global (WAEMU) descriptive statistics.

	IDH	GDP	POP	CORR	GOV	STAB	REGUL	LAW	VOICE
Obs	192	192	192	192	192	192	192	192	192
Mean	0.415	1.463	2.837	-0.659	-0.796	-0.470	-0.543	-0.674	-0.382
St. Dev.	0.070	3.688	0.446	0.379	0.390	0.698	0.320	0.422	0.509
Median	0.423	1.881	2.798	-0.669	-0.755	-0.344	-0.490	-0.631	-0.306
Max	0.545	12.047	3.907	0.176	0.076	1.048	-0.047	0.065	0.425
Min	0.244	-29.461	1.911	-1.562	-1.766	-2.264	-1.261	-1.802	-1.506

Table 3 gives descriptive statistics by country. Countries have negative governance variables' means. Human development index is stable for the individual countries but not gdp per capita. Guinea Bissau, Togo, Ivory Coast Mali and Niger are the most unstable respectively. Guinea Bissau has the lowest standard deviation of HDI and the highest standard deviation of gdp per capita higher than the area's one. Benin has the lowest variability index of the gdp per capita with one of the highest variability indexes of HDI. These results may indicate that there is no direct linear relationship between HDI and GDPPh.

Table 3. Descriptive statistics by country.

	HDI		GDPPh		POP	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
Benin	0.474	0.050	1.598	1.596	2.884	0.122
Burkina Faso	0.360	0.056	2.997	1.933	2.917	0.081
Ivory Cost	0.460	0.040	1.112	3.864	2.474	0.307
Guinea Bissau	0.429	0.028	0.071	6.914	2.365	0.251
Mali	0.372	0.051	2.003	3.128	2.992	0.224
Niger	0.315	0.049	0.844	3.095	3.744	0.129
Senegal	0.449	0.048	1.833	1.859	2.619	0.171
Togo	0.459	0.032	1.245	3.950	2.701	0.214
WAEMU	0.415	0.070	1.463	3.688	2.837	0.446

4.2. Correlation analysis

The correlation between variables allows studying their relationship. We perform Pearson's correlation coefficients to detect multi-collinearity between explanatory variables. Multi-collinearity problem exists when correlation coefficient is greater than 0.9 [32,33]. Table 4 presents correlation coefficients between variables.

Table 4. (continued): Descriptive statistics by country.

	CORRUP		GOV		STAB	
	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
Benin	-0.569	0.130	-0.457	0.142	0.412	0.371
Burkina Faso	-0.195	0.176	-0.643	0.115	-0.329	0.427
Côte d'Ivoire	-0.758	0.321	-0.843	0.358	-1.199	0.651
Guinea Bissau	-1.260	0.166	-1.294	0.234	-0.779	0.452
Mali	-0.689	0.120	-0.862	0.150	-0.485	1.030
Niger	-0.757	0.138	-0.802	0.175	-0.657	0.540
Senegal	-0.175	0.215	-0.260	0.195	-0.308	0.282
Togo	-0.869	0.116	-1.210	0.256	-0.412	0.327
WAEMU	-0.659	0.379	-0.796	0.390	-0.470	0.698

Pearson's correlation coefficients are all lower than 0.9 in table 3 showing that there is no problem of multi-collinearity with the data following [32, 33]. We are able to perform the regression model to estimate the contribution of explanatory variables to HDI. Only three out of eight variables significantly influence negatively

HDI in Pearson's correlation results.

4.3. Estimation results and analysis

The third step in analyzing the quality of WAEMU economic growth focuses on graphical analysis and models (1) and (2) estimates results analysis. The observations used are shown in table 5.

Table 5. Correlations.

	HDI	GDP _h	POP	CORRUP	GOV	STAB	REGUL	LAW	VOICE
HDI	1								
GDP _h	0.06 (0.41)	1							
POP	-0.48* (0.00)	0.08 (0.26)	1						
CORRUP	-0.06 (0.38)	0.23* (0.00)	0.20* (0.00)	1					
GOV	-0.01 (0.85)	0.16* (0.02)	0.24* (0.00)	0.80* (0.00)	1				
STAB	-0.13* (0.07)	0.17* (0.01)	0.21* (0.00)	0.29* (0.00)	0.37* (0.00)	1			
REGUL	-0.11 (0.12)	0.24* (0.00)	0.26* (0.00)	0.84* (0.00)	0.81* (0.00)	0.38* (0.00)	1		
LAW	-0.13* (0.06)	0.25* (0.00)	0.41* (0.00)	0.74* (0.00)	0.77* (0.00)	0.55* (0.00)	0.81* (0.00)	1	
VOICE	0.06 (0.35)	0.23* (0.00)	0.22* (0.00)	0.61* (0.00)	0.73* (0.00)	0.50* (0.00)	0.66* (0.00)	0.75* (0.00)	1

Notes: '*' indicates significant coefficients.

4.3.1. Graphical analysis

Decent standard of living is one of the three dimensions of human development index calculation tools. We therefore estimate the direct relationship first HDI with GDP_h that is the so-mentioned dimension proxy in the study. The scatterplot in figure 2 with the trend line and determination coefficient ($R^2 = 0.04$) not show graphically an obvious linear relationship in WAEMU. This result is in the same line with correlation result in table 4 (non-significant coefficient).

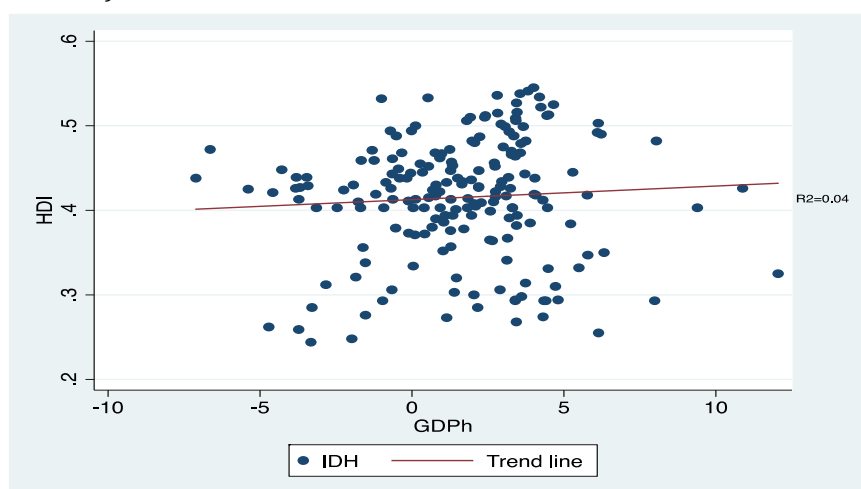


Figure 2. Scatterplot (HDI, GDP_h).

4.3.2. Models results analysis

Table 6 gives a global sight of the length of the study's data set. It about a panel with 8 countries covering 24 years; where model 1 concerns 2 variables and model 2 deals with 9 variables. The number of observations reaches 384 in model 1 and 1, 728 in model 2. Study's estimation results are given in table 7. Model (1) and model (2) are estimated twice, without times effects (columns A) and with times effects (columns B). Diagnostic statistics at the bottom of table 7 indicate and compare estimations' quality. The F-statistics tell us that jointly the regressions coefficients are significantly nonzero. Models with time effects fit better the dataset insofar as they have lower RMSE and RSS on one hand and higher determination coefficient (R^2). According to the same criteria, model (2) is better than model (1). There are time and institutional effects explaining the relationship between growth and human development in WAEMU. Time effects sharply reduce growth impact on human development (model (1)). They improve the model as R^2 increases from 0.02 to 0.82 and residuals sum of square (RSS) falls from 0.37 to 0.05. There is a lost in significance and intensity of growth variable effect on human development index variable. That is in line with [14] in their study where HDI and gdp have no relationship in the short time but not with [17] indicating that this is higher in poor countries. However, these time effects are increasing and significant as shown in table 7 and figure 3. These increases indicate the gain in human development without an improvement in growth. This gain can reach approximately 7% per year. It appears that there is a decrease in direct effect of growth on human development in WAEMU. On the institutional landscape, variables are mainly negatively significant at 1% level and they improve the model as diagnostic statistics indicate. There is no institutional effect alone on the contribution of growth on human development. However, the inadequacies of the executive powers in WAEMU countries expressed through the variables GOV and REGUL and generalized instability (STAB) have a negative impact on the human development index. Our results are opposed to those of [34] who directly analyzed the impacts of good governance variables on human development in Africa. Freedoms (VOICE) seems to have improved over the study period, which contributes positively and more strongly to well being in the area. The combined effects model (model (2) column (B)) has the best diagnostic statistics; they are useful in dealing with growth and human development index nexus in WAEMU.

Table 6. Observations by model.

Methods	Id number	Years number	Variables number	Observations
Graphical	8	24	2	384
Model 1	8	24	2	384
Model 2	8	24	9	1 728

As shown in results table 7, the time and institutional effects together inhibit growth impact on human development index. Its coefficient is not statistically significant in model (2 (B)). This suggests that time and institutions do not allow growth to fully play its theoretical role toward human development in WAEMU. The relatively high economic growth in WAEMU remains quantitative. It does not succeed in having directly qualitative virtues, or at least it is not oriented towards them. We observe that without economic and institutional improvements there is 5% gain per year in human development depict by the slope of time effects in figure 3. With time effects institutional variables lose in intensity and significance. It may be that over time the negative impact of institutions on human development is fading. This would reflect an improvement in the institutional perception of populations over time. It appears ultimately that growth in WAEMU is not directly translated in human development. That takes time and need some improvement in countries' institutions. We question the sustainability of the area's economic growth.

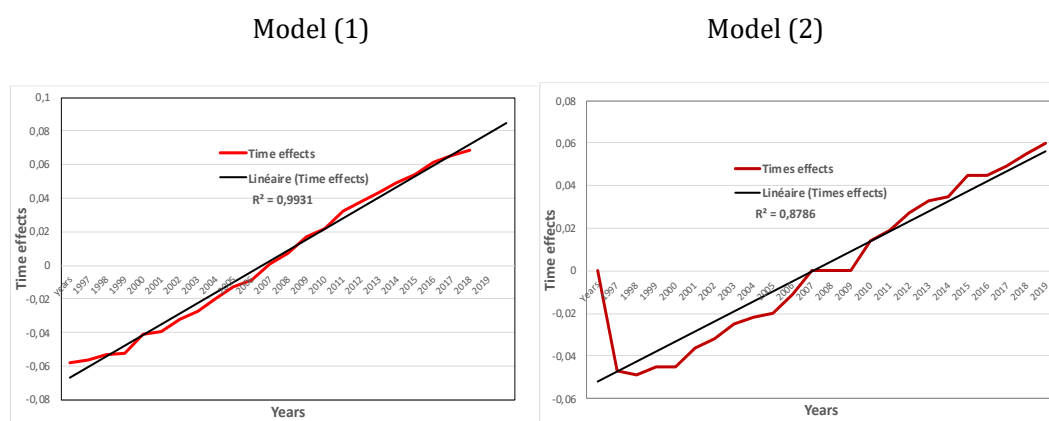


Figure 3. Time effects coefficients and the trend.

5. Conclusion and political implications

Human Development Index has three dimensions with the same weight that concern long and healthy life, knowledge and a decent standard of living. The last cited dimension is based on economic growth and WAEMU is one of the most dynamic economic areas with a relatively high growth rate. But his human development index is one of the weakest in the world. The qualitative virtues of growth in the area do not seem to be fully expressed. We analyze the growth and human development relationship in WAEMU focusing on time and institutional variables. Growth variable coefficient and R^2 are weak in the bivariate analysis model. Time effects introduced; reduce growth rate variable coefficient explaining that the long high economic growth doesn't accelerate human development. Institutional effects instantaneously have no impact on growth contribution to human development. However, combined with time effects they inhibit the qualitative virtue of growth that coefficient became non-significant. It appears that the growth and human development nexus seems not to be linear. The wealth created is diverted over time from the path that leads to human development, as introduce by theoretical and applied literature, through channels as institutional variables. Government indicators have global significantly negative impact in WAEMU. Their improvement over time becomes therefore a great way to give growth its qualitative virtues beneficial for human development. From results one's could deduct some recommendations:

1 - The inhibiting effect revealed by the time factor in our model on the theoretical positive impact of economic growth on human development can be avoided by at least national three-years public investment plans. These civic and political commitments in investment plans should be designed on the basis of growth forecasts. The idea is to determine in advance the destination of future wealth creation to reduce misappropriation.

2 - The practice of good governance must be reintroduced in the WAEMU zone through a deep change of mentality. This will make it possible to break the vicious dynamic of the financial mismanagement of public funds.

3 - Raising awareness and encouraging public officials to adopt the mindset of effective service delivery through citizen engagement.

4 - Strengthening security, ensuring the impartiality of justice and guaranteeing a more open political game will improve the ease of doing business and allow a better distribution of the created wealth.

Table 7. Mixed effects regression models results.

HDI	Model 1		Model 2	
	(A)	(B)	(A)	(B)
GDPH	0.002** (0.02)	-0.0008* (0.09)	0.002** (0.02)	-0.0006 (0.22)
POP			0.102*** (0.00)	0.028*** (0.00)
CORRUP			-0.002 (0.88)	-0.006 (0.47)
GOV			-0.071*** (0.00)	-0.003 (0.74)
STAB			-0.054*** (0.00)	-0.016*** (0.00)
REGUL			-0.050*** (0.00)	-0.0008 (0.94)
LAW			0.024 (1.56)	-0.005 (0.53)
VOICE			0.083*** (0.00)	0.027*** (0.00)
Years				
1997		-0.058*** (0.00)		-0.047*** (0.00)
1998		-0.056*** (0.00)		-0.049*** (0.00)
1999		-0.053*** (0.00)		-0.045*** (0.00)
2000		-0.052*** (0.00)		-0.045*** (0.00)
2001		-0.041*** (0.00)		-0.036*** (0.00)
2002		-0.039*** (0.00)		-0.032*** (0.00)
2003		-0.032*** (0.00)		-0.025*** (0.00)
2004		-0.027*** (0.00)		-0.022*** (0.00)
2005		-0.020*** (0.00)		-0.020*** (0.00)
2006		-0.013*** (0.00)		-0.011* (0.06)
2007		-0.009*** (0.00)		-0.007 (0.22)
2008		0.001*** (0.00)		0.002 (0.69)
2009		0.007*** (0.00)		0.008 (0.14)
2010		0.017*** (0.00)		0.014*** (0.00)
2011		0.022*** (0.00)		0.019*** (0.00)
2012		0.032*** (0.00)		0.027*** (0.00)
2013		0.038*** (0.00)		0.033*** (0.00)
2014		0.044*** (0.00)		0.035*** (0.00)
2015		0.049*** (0.00)		0.045*** (0.00)
2016		0.054*** (0.00)		0.045*** (0.00)
2017		0.061*** (0.00)		0.049*** (0.00)
2018		0.065*** (0.00)		0.055*** (0.00)
2019		0.069*** (0.00)		0.060*** (0.00)
R ²	0.02	0.82	0.58	0.85
F-stat	5.08** (0.02)	39.73*** (0.00)	34.4*** (0.00)	38.17*** (0.00)
RSS	0.3722	0.0572	0.1531	0.0457
RMSE	0.044	0.018	0.028	0.016

Notes: * $p < .05$; ** $p < .01$; *** $p < .001$.

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Conflict of interest

All the authors claim that the manuscript is completely original. The authors also declare no conflict of interest.

Author contributions

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