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Nexus between healthcare financing and output per capita: Analysis of countries in ECOWAS sub-region

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Abstract: The performances of African countries particularly in West African Sub-region on global-human development indices had been abysmal over the years and have worsened in the face of COVID-19 pandemic. This is a source of concern to scholars. Expenditure on health and education are recognized by experts as key predictors of human capital development. The latter is theoretically adjudged as a major driver of socio-economic development. This study investigated the relationship between health financing and economic performance (proxied by per capita GDP) among the 15 member countries of Economic Community of West African States (ECOWAS). Data spanning the period 1985–2017 were used and Panel Autoregressive Distributive Lag (PARDL) technique was adopted for the analysis. Results show that both private and public expenditures on healthcare were statistically significant to grow output per capita in the long-run. Further findings also suggest that other socio-economic covariates that affected the outcome of aggregate economic performance like price level of capital formation and population growth rate implicitly affected output per capita in the Sub-region. Recommendation points to all critical stakeholders to show more commitment and allocate more resources towards improved

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PUBLIC INTEREST STATEMENT

Considering the importance of healthcare particularly to an individual and the total output of any nation, this study explores how healthcare financing influences average output as a proxy for economic performance among and across the countries within the West African sub-region. It becomes necessary because it stands to guide policy choices within the sub-region and emphasized the need for a fair scale between the private and public sectors in bearing the cost of financing healthcare. Though there are evidences that improved health induces economic growth but it is unfortunate that the pool of related previous studies (most times country-specific) within the sub-region overwhelmingly never seek to specify welfare status, what each citizen stands to gain when healthcare improves. This study with annual data range of 1985–2017 therefore not only fills this gap but also built-in in the model the cost of investment.

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health care in the Sub-region if the cycle of stunted economic development will be broken.

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JEL classification: F15; H51; H53; H75; I12; I190; Q56

1. Introduction

There has been a growing concern among researchers and development experts about the downward trajectory of the performance of countries in sub-Saharan Africa on the global human development indicators (Human Development Indices and Indicators (HDI), 2018). This worry stems from the fact that most experts have proposed that Africa should jettison its over-reliance on natural resources and leverages its abundant human resources to speed up development (Onodugo et al., 2013; The Next Generation Report, 2010). There is however a world of difference between population growth and an increase in human resources, or simply put human capital. The former comprises all the available number of persons in a particular place, while the latter deals with those that have been invested in by way of education and healthcare facilities in such a way that they are healthy and possess the requisite skills and competencies to contribute to meaningful development.

Expenditure on health and education has long been recognized by experts as key predictors of human capital development (Barro, 1996; Becker, 1964; Goldin, 2016). The latter is theoretically adjudged as a major driver of socio-economic development. Consequently, there has been a plethora of studies that investigated how good health impacted socio-economic productivity of the population and thus accelerated development (Bloom & Canning, 2008; Cutler & McClellan, 2001; Deaton, 2006; Licchetta & Stelmach, 2016; Rice & Aragón, 2018; Schultz, 2005). The notion of capital in economics presupposes investing in an asset that will be deployed to increase productivity (Fisher, 1896). Therefore, building the human capital of any population entails deliberate spending on its healthcare and education. This is done in the hope that such investment will translate to competence and sustained output that flows from people with a healthy and longer life span. All these will in turn translate to productivity, income growth, and development (see: Agbarakwe et al., 2018; Onodugo et al., 2013)). This position is corroborated by World Health Organization (World Health Organisation (WHO), 2015) when it reports that a major (about 50%) determinant of economic growth differentials between/among nations can be attributable to health status and life expectancy. This seems to suggest that sufficient healthcare financing could be seen as key policy-element in promoting broad-based national, sub-regional, and regional development.

Sequel to the foregoing analysis, it appears there is an inextricable link between healthcare and aggregate economic performance. Building on the hypothesis that sound health is a critical determinant of the quality of human capital, it is as well appropriate to assume that it is a necessary factor that can facilitate economic growth and development. Quite many studies in health economics identified expenditure in health as a crucial determinant that accounts for differences in health outcomes and by extension, economic performance (see: Grossman, 1972; Ichoku et al., 2011; Odior, 2011; Wagstaff, 1986). In the same vein, adequate health-related expenditure, as observed by Anyanwu and Erihijakpor (2009), can commonly be considered complementary in the enhancement of health status. The argument above supports the view of Aboubacar and Xu (2017) that investments in the health of the workforce are expected to enrich and improve the human capital of the population and ultimately increase output.

Health financing as defined by World Health Organisation (WHO) (2015) refers to mobilization, accumulation, and allocation of money in the health system to cover the health needs of the people (individually and collectively). It entails the assemblage of funds from different sources with the aim of accessing improved health services. Available statistics show that state funding of healthcare in countries within the Economic Community of West African States (ECOWAS) is evidently below 15% recommended by United Nation Education Scientific and Cultural Organization (UNESCO) to meet the then Millennium Development Goals (MDGs, 2000–2015) and its successor, Sustainable Development Goals (SDGs, 2015–2030). Public expenditure on health in ECOWAS according to WHO 2017 statistics accounts for about 30% of total health expenditure whereas out-of-pocket (households) expenditure accounts for the rest of 70%. In this study: Private (out-of-pocket) healthcare expenditure consists of direct household spending, direct service payments by private institutions, charitable donations, and private insurance. On the other hand, public expenditure on healthcare comprises governments' (Central, Provinces and Local) capital and recurrent spending, external sources (grants, aids, and borrowing), and social health insurance funds.

The literature on health economics is replete with studies that focused on health financing, only a few, however, focused on the relationship between healthcare-financing and the quality of health outcome (see: Anowor et al., 2019; Fosu, 2001; Onwujekwe et al., 2010; Riman & Akpan, 2012). Specifically, some studies estimated the impact of healthcare-financing on economic growth (see: Hartwig, 2006; Dormont et al, 2007; Balaji, 2011; Lin et al., 2017); some others investigated the redistributive and impoverishing effects of healthcare financing (e.g.: Ichoku & Fonta, 2006; Omotosho & Ichoku, 2016); and yet a few others examined the demand for health-care services/the willingness to pay for medical care (e.g.: Gertler & van der Gaag, 1990; Grossman, 1972; Ichoku & Leibbrandt, 2003), there is a dearth of studies that investigated output per capita (as a measure of economic performance) particularly within the ECOWAS Sub-region. Since the directions of earlier literature seemed yet to weigh in on the impact of healthcare financing on output per capita (as a measure of economic performance) with particular reference to ECOWAS, it, therefore, becomes pertinent for this study to explore the relationship between the two variables within the countries across ECOWAS Sub-region.

ECOWAS countries are geographically located west of the north-south axis lying close to 10° east longitude. The Atlantic Ocean forms the borders of the west and south of the region. The Sahara Desert forms the northern border of the region while the eastern border lies between the Benue Trough and a line running from Mountain Cameroon to Lake Chad. This region occupies an area above 6,140,000 KM^2 which is almost one-fifth of entire Africa. Fifteen (15) Countries that make up the Sub-region are: Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo. These countries are all politically independent from their former colonial masters. They have both cultural and geographical ties and share a common economic interest. This economic interest is evident as they formed a sub-regional bloc that is christened ECOWAS. The underdevelopment challenges of these countries include inadequate infrastructure, high mortality rate, deplorable inequality gap, pitiable unemployment situations, and the vicious cycle of the poverty trap. Before the COVID-19 pandemic that is still ongoing and evolving, the Ebola outbreak has been the biggest upset to the healthcare system in the Sub-region in recent times.

One significant aftermath of the COVID-19 pandemic is that it has unearthed the fragility of the health systems of countries in sub-Saharan Africa and particularly in ECOWAS Sub-region. This fragility derives from poor financing that has characterized the sector over these years. Consequently, a study that highlights the relationship between health financing and economic development in as many as fifteen countries that make up the sub-region is apt, timely, and fill an important gap in the literature. Specifically, the study sought to provide answers to the following objectives: i) To what extent do expenditures (public and private) on health have a significant

impact on output per capita among ECOWAS? and ii) What is the effect of private (out-of-pocket) healthcare expenditure on output per capita across the ECOWAS? In answering these questions, other socioeconomic covariates that affect the outcome of output per capita (as a measure of economic performance) such as the price level of capital formation as a measure of the price of investment across the ECOWAS; and the population growth rate as a measure of demographic tendencies across the ECOWAS were analyzed.

2. Brief review of related literature

Healthcare expenditure is a topical issue that deserves scholarly discourse. For this reason, it becomes noteworthy to explicate how this kind of expenditure affects economic factors like aggregate income, health system, income per head, output, growth, socio-cultural factors, and output per capita (as we attempted in this study), etc. Grossman (1972) argued that a significant bulk of stock of health as a form of human capital widens the time available for productive activities in any economy. This seems hypothetically true because a healthy workforce supposedly with the willingness to work is expected to put in more hours of work than an unhealthy one who apparently would spend most available time to seek or desire healthcare. Empirical shreds of evidence from Bloom and Canning (2000); Bloom & Canning (2003); 2004), Gyimah-Brempong and Mark (2004), Anyanwu and Erihijakpor (2009), Li et al. (2017), Hartwig (2006), Dormont et al. (2007), Balaji (2011), and Lin et al. (2017) suggested that health as a macroeconomic indicator influences aggregate output positively. Corroborating the above position, study by Piabuo and Tieguhong (2017) on health expenditure and economic growth between the Central African States and selected African countries using Panel OLS, Full Modified OLS and Dynamic OLS techniques showed that health expenditure has a significant and positive impact on economic growth and there exists a long-run relationship between the two variables for both groups of countries. Similarly, the work of Rana et al. (2018) revealed a positive relationship between healthcare expenditure and health sector performance for 30 OECD countries. Though, outcomes of some studies suggested healthcare financing does not always have a desirable effect on the economy. A study by Burnside and Dollar (1998) found that healthcare expenditure has an insignificant impact on infant mortality. This is similar to the finding of the World Bank (2004) employing panel data on Indian states from 1980 through 1999.

More empirical pieces of evidence however have been found concerning positive effects of expenditure in health on macroeconomic indicators. Rahman et al. (2018) with evidence from the SAARC-ASEAN region found that health expenditure significantly reduced infant mortality rate. The results also revealed that private expenditure on health played a significant role in reducing the crude death rate and as well had a greater impact than the public expenditure on health. It further revealed that per capita income growth and improved sanitation facilities have significant positive effects in improving population health in the region. Anyanwu and Erihijakpor (2009) in a study of 47 African countries showed that there was a respective decrease of 2.1% and 2.2% in under-five and infant mortality rates for every 1% increase of total health expenditure per capita. Raghupathi and Raghupathi (2020) using the visual analytics statistical technique examined healthcare expenditure and economic performance with insights from the United States and the results indicated there is a positive association between expenditure in healthcare and income, gross domestic product, labour productivity, and personal spending. Consequently, recommended that healthcare expenditure should be increased as it would boost income and aggregate output and as well promotes socioeconomic welfare like alleviating poverty. Abdul et al. (2018), applied Pool Mean Group (PMG) with data from 1990 to 2015, investigated the effect of healthcare and education expenditures on the economic growth of Organisation of Islamic Countries (OIC). The short-run effect suggests that healthcare expenditure per capita significantly impacts the economic growth of member countries of OIC. Notwithstanding the short-run specific effect, there exists a long-run relationship between healthcare expenditure, education expenditure, technology, and economic growth in thirty-six out of 56 OIC countries.

Barro (1996) put forth that health affects output indirectly through the influence it has on investment in education. When children and/or parents are chronically ill, the household(s) is/are likely to pay more attention to investment in health than in education then labour productivity is likely to plummet because investment in education dropped.

Nevertheless, despite many scholarly shreds of evidence demonstrating positive and most times the significant relationship between healthcare and economic growth, some studies established a negative or no significant relationship. Chen et al. (2014) in their study on health and wealth in developing countries found a negative correlation between healthcare expenditure and economic growth. Investigating the impact of healthcare expenditure on health outcomes (using data based on an individual and regional level) of Europeans aged above 50, Becchetti et al. (2015) found out that healthcare expenditure to gross domestic product and healthcare expenditure per capita has a negative relationship. Maitra and Mukhopadhyay (2012) in examining the role of government expenditures on education and health in promoting the gross domestic product of twelve Asian and Pacific countries, ascertained that the impact of healthcare expenditures on the gross domestic product for three countries: Kiribati, Maldives, and Vanuatu were negative. To verify the relationship between healthcare expenditure and economic growth in Turkey, Kar and Taban (2003) established there exists a negative relationship between healthcare expenditure and economic growth. The work by Yumusak and Yildirim (2009) for Turkey corroborated Kar and Taban (2003): there exists a negative relationship between healthcare expenditure and economic growth. Similarly, Ogundipe and Lawal (2011) investigated the impact of healthcare expenditure on economic growth in Nigeria and observed that healthcare expenditure has a negative effect on economic growth.

3. Methods and data

Solow's (1956) growth model helps in understanding why incomes differ significantly between countries/regions in the long run. It was built upon aggregate constant-returns-to-scale production function that combines labor and capital (with diminishing marginal returns) in the production of a composite good. Suppose the production function is a specialized Solow, so that:

$$Y = AK^{\beta}L^{1-\beta} \quad , 0 < \beta < 1 \tag{1}$$

Where,

Y = Total output,

L = Number of workers employed in the production process,

K = Stock of capital

A = level of technology

Output per capita (y = Y/L) is thus given as:

$$y = Ak^{\beta} \tag{2}$$

Where *k* denotes the capital-labour ratio.

Capital accumulation is given as

$$k = sy - (n - \delta)k, \quad 0 < s\delta < 1 \tag{3}$$

Where,

S = propensity to save

n > 0 = exogenous rate of population growth

δ = rate of depreciation of physical capital

While the Solow model is widely used as a baseline model of economic growth, it is still considered by many to be unsatisfactory as a description of the process leading to economic growth. This is because the model views improvements in total factor productivity (technological progress) to be the ultimate source of growth in output per worker, but does not explain as to where these improvements come from. This implies that long-run growth is determined by something exogenous in the model.

The new growth models in modifying the Solow's exogenous model proposed the endogenous model. The endogenous model assumes that in the first instance, production methods result in internal economies of scale once output reaches a sufficiently high level.

In its functional form, the endogenous growth theory is based on the idea that output in an economy is produced by a combination of labor (L) and capital (K), under increasing returns, distinguishing physical capital from human capital. This can be expressed as

$$Y = f(L, K, A) \tag{4}$$

The aggregate production function above is assumed to be characterized by increasing returns to scale, resulting in a special case of Cobb-Douglas production function in a given time t,

$$Y_t = K_t(A_t L_t)^{1-\alpha} \tag{5}$$

Where

Y = quantity of output

A = productivity of labor which grows overtime at an exogenous rate,

L = Labour

K = Stock of capital

In this study, annual data (sourced from World Bank databank) ranging from 1985 to 2017 was used for 15 West African countries that make up members of Economic Community of West African States (ECOWAS). These countries include Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo.

Invoking (2) in a normalized linear form, which is also same as dividing through (4) by L, therefore:

$$Y = \text{Output per capita} \tag{6}$$

Therefore,

$$Y = AK \tag{7}$$

The framework of the New Endogenous Growth Theory arising from the modification by Romer (1986), Lucas (1988), and Rebelo (1991) of the old neoclassical growth theory formed the base of this study. The endogenous growth theory recognizes the vital importance of the endogeneity of human capital in the growth process (Mallick & Moore, 2006).

In this study, dynamic panel models are specified in line with Mankiw et al. (1992), as adopted in Islam (1995) and Armah and Nelson (2008) to estimate the effects of healthcare financing (as human capital investment variable) on the output per capita across ECOWAS.

In a combination of the previous literature, it can be found that model (7) can be modified to include variables that capture the relevance of this study and as well have significant economic and statistical contributions to the improvement of the social and economic output of the dependent variable. Health as an input can guarantee the efficiency of labor in the production of social goods and has a significant contribution to economic output (Soares, 2014).

The dependent variable of this study is output per capita (GDPPC). We conceptualized the independent variables as the government expenditures on health (GEXH) and private expenditures on health (PEXH) as a percentage of total health expenditure, respectively, in any given country. We included another socioeconomic covariate that may affect the outcome of the dependent variable (GDPPC). These control variables include price level of capital formation (PLCF) and population growth rate (PGR).

The general dynamic of the above function is presented in the following format:

$$GDPPCit = \alpha_0 + \alpha_k X_{it} + \sum Z_{it} + v_t \tag{8}$$

Where

$GDPPC_{it}$ = output per capita (a measure of economic performance) in country i, at time t.

X_{it} = vector of human capital investment variables (government expenditures on health (GEXH) and private expenditures on health (PEXH) respectively).

Z_{it} = a number of controlled variables: price level of capital formation (PLCF) that shows the price level of the share of output-based GDP that is represented by capital formation (investment), relative to the price level of output-based GDP, and structure of the population growth rate (PGR) that captures the demographic tendency.

α_0 = the intercept

v_{it}= stochastic error terms

The dynamic panel model of this study is explicitly expanded into the following format:

$$ln(GDPPC) = \lambda_0 + \lambda_1 lnGEXH_{it} + \lambda_2 lnPEXH_{it} + \lambda_3 lnPLCF_{it} + \lambda_4 PGR_{it} + \rho_{it} + v_t \quad (9)$$

Where

$GDPPC_{it}$ = output per capita (a measure of aggregate economic performance) in country i, at time t

$GEXH_{it}$ = government expenditures on health in country i, at time t

$PEXH_{it}$= private expenditures on health in country i, at time t

$PLCF_{it}$ = price level of capital formation, that captures the price of investment (see: https://rdrr.io/cran/pwt9/man/pwt9.0.html), in country i, at time t

PGR_{it} = population growth rate, that captures the demographic tendencies, in country i, at time t

ρ_{it} = country and period-specific effects.

λ_0 = the intercept

v_{it} = the stochastic error terms

The panel data set is established based on the variables above.

4. Results

Results of the panel unit-root tests show all the variables to be stationary after differencing once except for PGR, which was stationary at level. We estimated the Panel Autoregressive Distributed Lag (PARDL) model since at least one of the variables was level stationery. The estimation results are reported in Table 1 and 2.

The panel ARDL approach in this case offers some statistical advantages over other cointegration techniques. The reason is that other techniques require all the variables to be integrated of the same order, whereas panel ARDL test procedure provides valid results whether the variables are I (0) or I(1) or mutually cointegrated and it as well provides very efficient and consistent test results in both small and large sample sizes (see: Pesaran et al., 2001).

The error correction coefficient is negative as expected. The result showed that 9% of the error among per capita GDP (GDPPC), government expenditure on health (GEXH), private health expenditure (PEXH), population growth rate (PGR), and price of capital formation (PLCF) in the short run is significantly corrected yearly and the variables adjusted and converged to equilibrium in the long-run across the countries within the ECOWAS region. Though, the convergence process is quite slow.

On the other hand, the long-run coefficient of government expenditure on health is 0.1154 with a t-value of 4.1915. Since the t-value of 4.1915 is greater than 2 in the absolute sense, the null hypothesis of government expenditure on health has no significant impact on per capita GDP is rejected at the 5 percent level. This means that government expenditure on health has a significant long-run effect on per capita GDP across the countries within the ECOWAS region. Specifically, a 1% increase in government expenditure on health in the long run increases per capita GDP by 11.54%. That is, health facilities and conditions improve with an increase in government expenditure on health, therefore, aiding labour productivity in the long run across the countries within the ECOWAS region. The increased productivity brings about an increase in per

Table 1. Panel unit root tests

Variable	Levin, Lin & Chu t* (Common unit root Process)		Breitung t-stat (Common unit root Process)		Im, Pesaran and Shin W-stat (individual Unit root process)		Order of integration (~I(d))
	Level	1st Difference	Level	1st Difference	Level	1st Difference	
GDPPC	0.1396	−6.5953**	−2.0033	−7.4925**	1.1073	−9.4045**	I(1)
GEXH	−0.0543	−8.7544**	−1.6934	−6.6519**	−0.8604	−11.9548**	I(1)
PEXH	0.0081	−9.1457**	−1.9609	−6.1036**	−0.6675	−10.5946**	I(1)
PGR	−15.788**	-	−4.1236**	-	−17.0907**	-	I(0)
PLCF	−0.1664	−8.1794**	−1.7515*	−8.7177**	0.1197	−10.8853**	I(1)

** denotes significant at 5% (<1%) critical level.

Source: Author's computation.

Table 2. ARDL model estimates of the long run and short-run

Variables	Coefficients	Standard Errors	t-Statistics	P-value
Speed of Adjustment	−0.0916	0.0235	−3.8975	0.0001
Long-Run				
LOG(GEXH)	0.1154	0.0275	4.1915	0.0000
LOG(PEXH)	0.4784	0.1661	2.8799	0.0045
PGR	0.1581	0.2267	0.6976	0.4864
PLCF	−0.4734	0.3319	−1.4260	0.1556
Short-Run				
DLOG(GDPPC)	−0.3247	0.0979	−3.3181	0.0011
DLOG(GEXH)	−0.1817	0.1013	−1.7925	0.0748
DLOG(PEXH)	−0.5368	0.1765	−3.0409	0.0027
D(PGR)	−0.3714	1.6807	−0.2209	0.8254
D(PLCF)	0.5446	0.2675	2.0359	0.0433
Constant	−1.4200	0.3811	−3.7261	0.0003

Source: Author's computation.

capita GDP in the long run. An opposite result found in the short run, showing that an increase in government expenditure on health reduces per capita GDP by 18%, though not statistically significant at the 5 percent level.

Private expenditure on health in the long run, also, showed a positive coefficient of 0.4784 with a t-value of 2.8799. This means that a 1% increase in private expenditure on health increases per capita GDP by 47.84 percent. This is because; productivity is associated with quality health. Expenditure on health leads to sound health and, therefore, increases productivity and per capita income. Having a t-value of 2.8799 means that private expenditure on health, in the long run, is significant in improving per capita GDP across the countries within the ECOWAS region. This is not the case in the short run. In the short run, the coefficient is negative and significant. This means that an increase in private expenditure on health in the short run negatively affects the per capita GDP across the countries within the ECOWAS region.

The long-run coefficient of population growth is also positive but statistically insignificant at the 5 percent level. This means that an increase in the population would in the long run result in to increase in the labour force, which would make output to increase through productivity increase and, thus, increase in per capita GDP across the countries within the ECOWAS region. In the short run, on the other hand, the population growth coefficient showed a negative coefficient of −0.3714 with a t-value of −0.2209. Though, both in the long and short runs, the t-value are insignificant. More so, the negative coefficient in the short run indicates that population growth is inefficient in determining per capita GDP in the short run. This is not surprising because, in the short run, the growth in population (labour force growth) is not fully absorbed in sectors of the economy to engage in productive macroeconomic activities that would increase GDP per capita across the countries within the ECOWAS region.

The long-run coefficient of PLCF is −0.4734 with a t-value of −1.4260. This shows that an increase in PLCF leads to a 1.43 percent decrease in per capita GDP in the long run across the countries within the ECOWAS region. However, it is not significant at the 5 percent level. The p-value of 0.1556 shows that there is a significant error in rejecting the null hypothesis of PLCF having no significant effect on per capita GDP in the long run. Thus, in the long run, PLCF has no significant impact on per capita GDP. An

entirely different result found in the short run. In the short run, a positive coefficient with a significant t-value of 0.5446 and 2.0359, respectively, found. This means that in the short run, an increase in PLCF leads to a 0.54 percent increase in per capita GDP. The increase is statistically significant, as indicated by the significant t-value. Thus, the null hypothesis of PLCF having no significant effect on per capita GDP is rejected at the 5 percent level in the short run. The significant p-value of 0.0433 means that there is no significant error in rejecting the null hypothesis.

Further diagnostic and stability test results show that there is no evidence of serial correlation and heteroscedasticity in the specified Panel Autoregressive Distributed Lag (PARDL) model. The Cumulative Sum of Recursive Residual (CUSUM) and the Cumulative Sum of Square of Recursive Residual (CUSUMSQ) are within the boundaries of five percent significant level indicating that the coefficients of the specified PARDL model are stable.

5. Discussion of findings

From the results above, it has been established even as the convergence process is slow with 9% speed of adjustment that expenditures in healthcare in any form (whether public or private) in ECOWAS sub-region have a positive effect on economic performance and also there exists a long-run relationship between healthcare financing and output per capita (a proxy for economic performance) within and across ECOWAS. However, we must be mindful not to implicitly assume that there might not be a sort of negligible disparities among these outcomes within individual countries. Considerations should be given to, as also noted by Sahn and Stifel (2003), Moser and Felton (2007), challenges of non-sampling errors and lack of reliable regional price index and all that.

This result is consistent with the reports of the findings by Piabuo and Tieguhong (2017), Rana et al. (2018), Abdul et al. (2018), which showed that expenditures in healthcare significantly and positively affect the growth of an economy; and that there exists a long-run relationship between the two variables. More so, the results of this study are consistent with the theory put forward by Romer (1986), Lucas (1988), and Rebelo (1991) that investment in health as a form of human capital positively influences desirable advancement of an economy especially the welfare and performance of the population. The work of Raghupathi and Raghupathi (2020) corroborated this as it revealed that there is a positive association between expenditure in healthcare and income, gross domestic product, labour productivity, and personal spending. More so, poor quality of health decreases number of people of economically productive age (Arif et al., 2019; Şoşea, 2014).

The policy implication of this study is that countries and/or regions particularly developing ones that desire a sustained expansion of her productivity over a long period can achieve that by consistent and efficient investment in the stock of human health.

6. Conclusion and recommendation

This study establishes that both public and private (out of pocket) healthcare expenditures have significant long-run effects on per capita GDP (output per capita) across the countries within the ECOWAS Sub-region.

Implications for policymakers: following the theoretical expositions as presented in this study and the empirical findings, this paper corroborated the postulations that expenditures in healthcare have significant long-run effect on economic performance. The policy implications of this for policymakers, investors, planners and entrepreneurs are that a healthy workforce offers the competitive advantages that could spur output and drives the economy towards stable growth and economic development. That is to say that proficient disbursement in healthcare leads to sound health and, therefore, enhances productivity and economic performance (output per capita). Hence, efficient spending in healthcare offers the opportunities of significant long-run positive effects towards increasing real-

valued added per inhabitant. The reason is that a healthy worker would be readily available and likely to put in more time and energy in productive activities than an unhealthy worker; and this expectedly on the aggregate would raise per capita performance. Another important policy implication of the result is the potential contribution of the increase in labour force (population growth) to the expansion of per capita GDP of the Sub-region if it is used efficiently.

This study inter alia recommends that all sectors, especially the public sector to lessen the burden of the private sector given the deplorable inequality gap existing within the ECOWAS Sub-region, should improve their commitment towards providing adequate healthcare; and that incentives to the private sector are of the essence to strengthen the healthcare system since they (out of pocket healthcare expenditure) bore 70% of the total cost of healthcare in the region.

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