
**OUT OF POCKET HEALTH EXPENDITURE AND UNIVERSAL HEALTH
COVERAGE IN CAMEROON: AN EMPIRICAL ANALYSIS ON THE
AFFORDABILITY OF HEALTH SERVICES FOR THE POOR AND VULNERABLE**

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ABSTRACT

This paper explores how the poor and vulnerable can afford free health services as the government intends to enhance universal health coverage attainment in Cameroon by 2035. The Autoregressive Distributed Lag (ARDL) approach is employed time series data spanning 28 years. Focusing on Out of Pocket Health Expenditure (OOPHE), Household per capita income (HpCY), Household per capita Health Expenditure (HCHExp), Income tax (Ytax) and Private Health Insurance (PrivHIins) as explanatory variables, the paper explains how long life (proxy to Universal Health Coverage(UHC)) emanates from national health expenditures. With adjusted R-squared value of 0.86, it indicates that about 86% variations in universal health coverage in Cameroon are jointly accounted for by variations in the variables included in the regression model. Other results show that the mean of OOPHE as a percentage of total health expenditure stands at 72.7%, which could be very prohibitive to financial access on UHC given the huge rate of unemployment and the burden of poverty in Cameroon. As a result, it is recommended that health policy reforms should focus on optimizing financial risk protection on the poor and vulnerable and increasing national health expenditure as a proportion of the national budget of Cameroon to 15 percent as per the Abuja Declaration. Finally, the reduction of poverty as an appropriate stepping stone towards the attainment of universal health coverage in Cameroon is both a strategy and pathway policy recommendation.

Keywords: Out of Pocket Health Expenditure, Universal Health Coverage, Autoregressive Distributed Lag Approach, Private Health Insurance, Poor and vulnerable.

1. INTRODUCTION

Africa has made significant progress in health outcomes, particularly since the year 2000, though out of pocket health expenditure creates financial barriers to access health services and puts people at risk of impoverishment, slowing down poverty reduction strategies and exacerbating inequalities among the population. Government expenditure on health in all but two African countries (Algeria and Namibia) is less than the minimum of 5 percent of Gross Domestic Product, which is considered necessary for ensuring adequate health coverage for at least 90 percent of the population. On average, countries need to increase public spending on health by 2.5 times. On current trends, and with numerous competing demands for public resources, governments are unlikely to be able to meet the health financing requirements (Songwe *et al.*, 2019).

On average, healthcare in Africa is predominantly financed through out-of pocket expenses (36 percent) and domestic resources (35 percent), with external aid accounting for 22 percent of total health expenditure. National health systems in most countries struggle with insufficient and inequitably distributed resources and the poorest countries bear a disproportionately high share of the burden of disease and injury, yet, have fewer resources for financing healthcare. Resource mobilization for health financing is therefore imperative if universal health coverage needs to be attained in any country. Africa's tax-to-GDP ratio is among the lowest in the world. Tax revenues are the most important component of domestic resources, and raising them has been at the centre of many domestic reforms and regional and international initiatives. These efforts helped increase on average, the total taxes to up to 19.3 per cent of GDP in 2015 in Africa. In general, low-income countries and non-resource-rich countries place a greater reliance on indirect (as opposed to direct) taxes than do high-income countries and resource-rich countries. This could be a result of the low levels of formal sector employment in lower-income countries and non-resource rich countries.

In six African countries, military spending as a percentage of GDP exceeds public spending on health. Countries have their own security requirements, but given the importance of improved health outcomes for the future well-being of their populations, governments could consider prioritizing health in their budgetary allocations. Results-oriented innovative financing mechanisms such as Development Impact Bonds and Social Impact Bonds have been launched in some countries. For example, important lessons can be learned by other countries from the Cataract Bond in Cameroon. The formal sector is represented by salaried workers in the public and private sectors of the economy of Cameroon. The bulk of the salaried workers are civil servants: 340,957 (MINFOPRA, 2021) of the public sector, the National Social Insurance Fund (NSIF, 2021) captures approximately 321,000 salaried registered workers of the private sector, and 22,000 salaried workers belong to the Cameroon Development Corporation (CDC) and a host of others (MINFI, 2021). The formal sector therefore is less than a million. The informal sector on the other hand constitutes the bulk of the Cameroon workforce, which is 40 percent of the total population. The working population of the informal sector is involved in business operations that create self-employment. Agriculture predominantly is the main source of employment to the population of the informal sector with an underemployment rate of 70 percent. According to Multiple Indicator Cluster Survey (MICS, 2014), the poverty rate is 37.5 percent while the rate of underemployment is 70 percent and the rate of unemployment is 5.7 percent.

In line with the Sustainable Development Goals (SDGs), the National Health Development Plan for Cameroon 2016 to 2027 has as objective to reduce household direct payments through an equitable and sustainable financing policy as a strategy to attain UHC for all Cameroonians. Thus, "achieving UHC and equity in health care are central to reaching the global goals to end extreme poverty by 2030 and boost shared prosperity" (Kim, 2013). UHC means everyone can access the quality health services they need without financial hardship. It implies that all people, including the poorest and most vulnerable can enjoy full range of essential health care services, including prevention, treatment, hospital care and pain control. With UHC, cost is shared among the entire population through prepayment and risk pooling, rather than shouldered directly by the sick. Access is based on need and unrelated to ability to pay. UHC is therefore a means to promote the human right to health (Tafor, 2014). 'Universal Health Coverage is the single most powerful concept that health has to offer' UHC, therefore, helps to lift people out of poverty and drives economic growth (Chan, 2014).

It is with these dynamics and realities that this paper explores the tradeoff between out of pocket health expenditure and universal health coverage in Cameroon. According to the Lancet Commission on Investing in Health: Global Health 2035, every 1 US Dollar invested in health would produce 9 to 20 US Dollars of growth in full income over the next 20 years. Hence, health improvements drove a quarter of full income growth in developing countries between 2000 and 2011, (The Lancet, 2013). The core pillars of UHC include primarily, prioritising the poorest. The second pillar of UHC is to develop the health system of the country. Strengthening health system with its six building blocks of health financing, robust health management information system, skilled human resources for health, accessible supply chain management for medicines and medical consumables, effective health service delivery and strong governance structures are very instrumental for the attainment of UHC. Thirdly, public financing is essential for UHC as opposed to user fees to cover people who cannot contribute financially and thereby meet financial hardship when in need of health care delivery. This involves augmenting government resource generation and allocation to health and more efficient spending. According to Garcia-Diaz *et al.*, (2011), Mexico moved towards UHC by increasing public spending on health by an average of 5 percent annually from 2000 to 2006. In the Abuja Declaration of 2001, African governments recognised increased in health expenditures by pledging at least 15 percent of public spending to health, although these targets have hardly been met. Again, the Johannesburg Declaration of 2007, called on African countries to progressively provide universal access to essential health care for her citizens. This paper has attempted to explore and investigate how much Cameroon's health policy and processes towards UHC adhere to the declarations she signed.

The main objective of this paper is to assess how Out of Pocket Health Expenditure affects the attainment of Universal Health Coverage in the Cameroon.

2. LITERATURE REVIEW

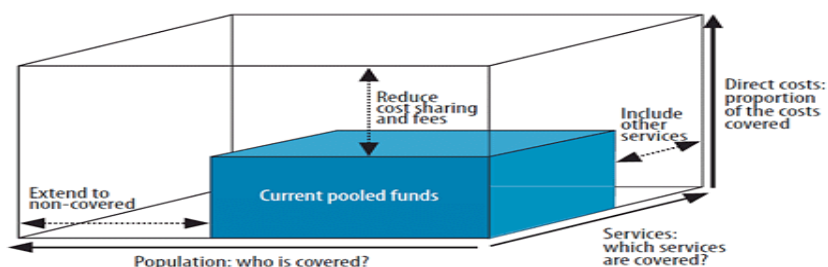
2.1 Universal Health Coverage cube

WHO (2010) popularised the “UHC cube” to explore how to chart a path towards UHC attainment in a country. The cube depicts three dimensions of coverage - the population (who is covered?), services (which are covered?), and cost sharing (what proportion of costs are covered?). It conceptualises the journey towards UHC attainment as a task of making progress along each of these dimensions to help “fill” the cube. UHC Cube seeks to explore the population that is covered, which services are covered and the proportion of the direct costs covered by the services. This cube raises the real world dilemma of which dimension to prioritise, given the inevitable trade-offs; should more people get a smaller benefit package or fewer people a larger package? Is a costing of the programme needed? Are revenues earmarked? Do participating health facilities have to be accredited? What, if any, new institutions should be created? If so, to whom are they accountable? How do people enrol, or should enrolment be required at all? Do beneficiaries get an Identity Card or not? What are the information reporting requirements? How will the public express their views?

These more specific questions have arguably received inadequate attention thus far during policy discussions on UHC attainment, which have instead focused on “macro issues” such as whether to adopt an insurance model or not. But most countries pursuing UHC reforms have already made

these macro decisions, and so it is on these more specific components that they need greater guidance in charting a path towards a successful attainment of UHC.

As countries declare their commitment to achieving UHC and introduce policies, approaches and programmes to achieve this goal, there is a need to establish guidelines and develop indicators to measure and monitor progress. WHO, (2010) outlined a conceptual framework for UHC that suggested three broad dimensions as illustrated in Figure 1: UHC Cube.



Three dimensions to consider when moving towards universal coverage

Figure 1: UHC Cube; Three Dimensions of Universal Health Coverage

Source: WHO, (2010)

The three board dimensions included: the range of services that are covered (service coverage); the proportion of the total costs covered through health insurance or other risk pooling mechanisms (financial coverage); and the proportion of the population covered (population coverage).

2.2 Health Inequality

The poor get much less from their health systems than the rich especially in countries where UHC is not operational. Unequal health systems are unequal in many different ways. The poor are often in a different subsystem where they are, managed by the government's Ministry of Health rather than by a social insurance agency with less funding per person. They may not have access to the same health care providers as the rich, and get substandard health care as a result. Those providers turn the poor people away because of the financial barrier. The poor often cannot pay for even small costs for health care if they are not covered, such as drugs or medical supplies that are out of stock. When there is implicit rationing, the rich can often use their connections and money to jump the queue. The poor may live in rural areas where good health care is hard to find. Or public spending may be heavily concentrated on a tertiary hospital in the urban areas.

Inequalities in utilisation of essential health services between rich and poor have many causes: public expenditure skewed to be a pro rich bias of government health spending, and measures of financial protection point to the common risk of catastrophic and impoverishing health spending by the poor and vulnerable (Filmer 2003; Wagstaff *et al.*,2014). When policy makers faced with the reality of pro rich bias of government health spending, the imperative is to mount an attack on inequality. The attack will attempt to adopt one of two broad approaches to bottom up UHC.

2.3 Segmented Populations and Fragmented Health System

The formal sector is composed of salaried workers and their families. These families tend to be in the upper half of the income distribution. A key characteristic is that they are relatively easy to tax

via payroll taxes. A Social Health Insurance (SHI) programme based on salaried workers' compulsory payroll taxes is operational with this segment of the population. These taxes that are easily deducted in the formal sector are earmarked to provide health coverage to these workers and their families. The non poor informal sector is composed of non salaried workers and their families with incomes above the vulnerability line. The income of this segment is harder to tax than salaried workers' income, and at the richest income poorest vulnerability line and lowest highest need for public subsidisation poverty line.

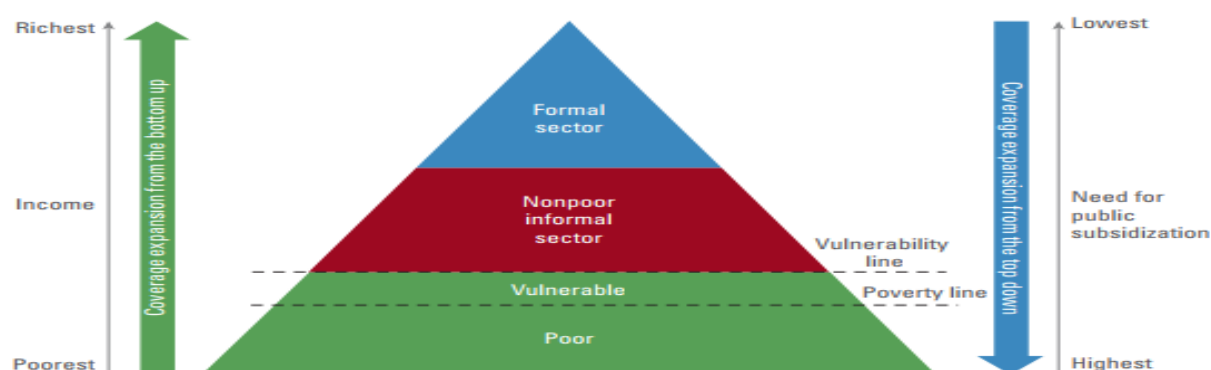


Figure 2: Trickle Down and Bottom Up Expansion of Health Care.

Source: Adopted from Bottom Up Approach to UHC, (2009)

Fragmented health systems had developed compulsory contribution systems for this non poor informal sector subpopulation. As a result, people in this segment would normally pay for health services out of pocket, using private providers or higher end services offered by public and private health providers. The poor cannot afford to pay for health care and risk falling deeper into poverty if they have to pay for health care costs. The vulnerable are above the poverty line but health care expenditures can easily drag them below it. Achieving UHC is primarily about covering all people. It is individuals and households who suffer the consequences of poor access to health care services and a high financial burden when they seek care. Reflecting this, the most common metrics of UHC involve counting people for example, how many do or do not have coverage, or how many face catastrophic or impoverishing OOPHE. How to cover more people is therefore a good path to discuss the implementation of UHC attainment?

2.4: Focus on the Poor and Poverty

Universal Health Coverage today cannot be examined without mentioning the issue of poverty. In conceptualising poverty, this study moved beyond the World Bank (2002) definition which emphasises the lack of economic opportunities, the empowerment and security to examine the lack of initiative, economic and financial means and the absence of efficient institutional mechanisms to take advantage of existing opportunities especially within the poor. Resources are available that can eradicate poverty and stimulate socioeconomic development, yet the above factors have made it impossible for the poor to move out of poverty (Forbe, 2019). Identifying the poor across the vast landscape of a country is not easy.

3. METHODOLOGY

The methodology used to capture the main objective of the paper is broken into a specification of an econometric model. The data used in the analysis are derived from the World Development Indicators (WDI) of the World Bank (2018), for a period of 27 years (1990-2018). The study employed the Pesaran *et al.* (2001) Autoregressive Distributed Lag (ARDL) approach to cointegration. Econometric model is developed to predict the variables associated with OOPHE in general and specifically the components of OOPHE which is linking Out of Pocket Health Expenditure and financial access to health care.

$$\text{OOPHE} = f(\text{HpCY}, \text{HCHExp}, \text{Ytax}, \text{PrivHIns}) \dots \dots \dots 1$$

Where, OOPHE stands for Out of Pocket Health Spending, HpCY represents Household per capita income, HCHExp is Household per capita Health Expenditure, Ytax stands for Income tax while PrivHIns stands for Private Health Insurance. Econometrically, this can be expressed as:

$$\text{OOPHE} = a + b\text{HpCY} + c\text{HCHExp} + d\text{Ytax} + e\text{PrivHIns} + \xi \dots \dots \dots 2$$

A priori expectation; where $a \neq 0$, b , c , d , and $e \geq 1$ and ξ is the stochastic term.

Out of Pocket model seeks to find out how each of the variables are relevant and contribute to financial access to health care and invariably UHC in an economy. This research found out how each of the sources of health financing are significant and contribute to overall national expenditure on health deliverables and invariably on UHC.

4. ANALYSIS OF DATA AND DISCUSSION OF RESULTS

This section covers the various tests run with respect to the time series data before addressing the specific objectives of the paper. The findings on the out of pocket health expenditure (OOPHE) model illustrate how out of pocket expenditures by households affect financial access to health care in Cameroon.

4.1 Summary of Descriptive Analysis for OOPHE Model

Table 1: Summary of Descriptive Statistics for OOPHE Model

Variables	Observations	Mean	Standard Deviation	Minimum	Maximum
Oophe	28	72.73333	4.667816	51	79
Hpcy	28	.131	3.478663	-10.54	3.94
Dah	28	5.066667	2.638355	0	14
Ytax	28	29.9	2.61758	23	35

Source: Authors, (2025)

The summary of descriptive analysis presented above shows the observations which is the number of years used in the study, mean which is the average values for the variables, the standard deviations which shows the extent to which the data points deviate from the mean values, the minimum values and the maximum values for each of the variables used in the study. The results for out of pocket health expenditures, it has a mean of 72.73333 percent of total health expenditure with a standard deviation of 4.667816 percent a minimum of 51 percent and a maximum of 79

percent of total health expenditure. For household per capita income, the mean growth rate is 0.131 percent with a standard deviation of 3.478663 percent, a minimum growth rate of 10.54 percent and a maximum growth rate of 3.94 percent. Also for development assistance for health, the mean is 5.066667 percent of total health expenditure with a standard deviation of 2.638355 percent, a minimum of 0 percent and a maximum of 14 percent. On the part of income tax, the mean is 29.9 percent of total taxes for the 28 years period with a minimum of 23 percent and a maximum of 35 percent of total taxes.

4.2: Pairwise Correlation Analysis for OOPHE Model

Table 2: Pairwise Correlation Matrix for OOPHE Model

Variables	Oophe	Hpcy	Dah	Ytax
Oophe	1.0000			
Hpcy	-0.0615	1.0000		
Dah	-0.8357	0.0511	1.0000	
Ytax	-0.1405	0.2017	0.2457	1.0000

Source: Authors, (2025)

The objective of the correlation analysis was to examine whether there are very strong relationships between the pairs of the independent variables used in the model. The findings in the correlation analysis table reveals that there was none of such relationships very strong to directly depict the presence of multicollinearity implying that there are no issues of multicollinearity among our variables. This thus validates the technique of analysis as an appropriate one for this paper even though a post test for multicollinearity was also conducted to confirm this assertion.

4.3: Bounds Test for Cointegration for Out of Pocket Expenditure Model

Table 3: Bounds Test for Cointegration for Out of Pocket Health Expenditure

H_0 : no levels relationship

F = 5.083	[I_0] L_1	[I_1] L_1	[I_0] L_05	[I_1] L_05	[I_0] L_025	[I_1] L_025	[I_0] L_01	[I_1] L_01
k_3	2.72	3.77	3.23	4.35	3.69	4.89	4.29	5.61

accept if $F < \text{critical value for } I(0) \text{ regressors}$

reject if $F > \text{critical value for } I(1) \text{ regressors}$

t = -4.435	[I_0] L_1	[I_1] L_1	[I_0] L_05	[I_1] L_05	[I_0] L_025	[I_1] L_025	[I_0] L_01	[I_1] L_01
k_3	-2.57	-3.46	-2.86	-3.78	-3.13	-4.05	-3.43	-4.37

accept if $t > \text{critical value for } I(0) \text{ regressors}$

reject if $t < \text{critical value for } I(1) \text{ regressors}$

Source: Authors, (2025)

Looking at the Pesaran *et al.*, (2001), ARDL Bounds Test for cointegration above, it is observed that the F-statistic is greater than the critical values for $I(1)$ and so it is therefore concluded that there exist long run relationships amongst the variables in the model. In other words, there is the presence of cointegration in the model. In the same light, it is observed that the t-statistic is less than the critical values for $I(1)$ and so it is therefore concluded that there exist long run relationships amongst the variables in the model. In other words, there is the presence of

cointegration in the model.

4.4: ARDL Regression Results for Out of Pocket Health Expenditure

Table 4: ARDL Regression Results for Out of Pocket Health Expenditure

	(1)	(2)	(3)
Variables	ADJ	LR	SR
LD.oophe			1.040***
			(0.322)
L2D.oophe			1.350***
			(0.343)
L3D.oophe			0.631**
			(0.275)
D.hpcy			-0.322
			(0.202)
D.ytax			0.533*
			(0.252)
LD.ytax			0.376*
			(0.193)
D.dah			0.724
			(0.612)
LD.dah			0.671
			(0.445)
L2D.dah			1.664***
			(0.510)
L3D.dah			0.928*
			(0.458)
Hpcy		-0.492**	
		(0.212)	
Ytax		-0.269**	
		(0.122)	
Dah		-1.117***	
		(0.115)	
L.oophe	-2.241***		
	(0.505)		
Constant			195.3***
			(45.92)
Observations	26	26	26
R-squared	0.8642	0.8642	0.8642

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Authors, (2025)

4.5: Short Run Estimates of Out of Pocket Health Expenditure

From the short run regression results above, it is observed that the lag of the dependent variable - out of pocket health expenditure (OOPHE) has a positive relationship with the variables. Specifically, a unit change in the lag of out of pocket health expenditure leads to a 1.040 change in out of pocket health expenditure in Cameroon. This result is statistically significant at 1 percent level of significance.

The results also reveal that the second lag of OOPHE has a positive relationship with out of pocket health expenditure in the present period. Specifically, a unit change in out of pocket health expenditure two years behind leads to a 1.350 change in the out of pocket health expenditure in Cameroon in the present period. This result is statistically significant at 1 percent level of significance.

In the same light, the results reveal that the third lag of OOPHE has a positive relationship with out of pocket health expenditure in the present period. Specifically, a unit change in out of pocket health expenditure three years behind leads to a 0.631 change in the out of pocket health expenditure in Cameroon in the current period. This result is statistically significant at 5 percent level of significance.

Furthermore, it is observed that the coefficient of the constant term is positive, indicating that there will still be some level of out of pocket health expenditure if all the variables included in the model are set to zero. Specifically, out of pocket health expenditure stands at 195.3 if all variables of this model are set to zero; furthermore, the result is statistically significant at 1 percent level of significance.

The results also reveal that household per capita income has a negative effect on out of pocket health expenditure in Cameroon. This implies an increase in household per capita income leads to a fall in out of pocket health expenditure while a fall in household per capita income will lead to a fall in out of pocket health expenditure. This is not in line with the *a priori* expectation. The regression coefficient indicates that a unit change in household per capita income leads to a -0.322 change in out of pocket health expenditure in the same direction. This result is statistically insignificant.

Furthermore, the coefficient of income tax in the current period is positive, indicating a positive relationship between income tax and out of pocket health expenditure in Cameroon. Specifically, the results reveal that a unit change in income tax leads to a 0.533 change in out of pocket health care expenditure in the Cameroon in the current period. This result is statistically significant at 10 percent level of significance.

Again, the result reveal that the coefficient of the lag of income tax is also positive, indicating a positive relationship between income tax and out of pocket health expenditure in Cameroon. Specifically, the results reveal that a unit change in income tax in the previous period or one year behind, leads to a 0.376 change in out of pocket health expenditure in the current period which is not in line with the *a priori* expectation. However, the results indicate that it is statistically significant at 10 percent level of significance.

Furthermore, the coefficient of the development assistance for health (funding and donations) is positive and thus indicates a positive effect of development assistance for health on out of pocket health expenditure. Specifically, the results reveal that unit change development assistance for health leads to a 0.724 change in out of pocket health expenditure in Cameroon. This result is in line with the *apriori* expectation. However, this result is statistically insignificant.

The first lag (LD) of development assistance for health indicates a positive relationship with out of pocket health expenditure in Cameroon. Specifically, the results reveal that a unit change in development assistance for health in Cameroon a year behind leads to a 0.671 change in out of pocket healthcare expenditure in Cameroon in the current period. This result is in line with the *apriori* expectation. However, the result is statistically insignificant.

The coefficient of the second lag (L2D) of development assistance for health also indicates a positive relationship between development assistance for health and out of pocket health expenditure in Cameroon. Specifically, the results reveal that a unit change in development assistance for health leads to a 1.664 change in out of pocket health expenditure which is in line with the *apriori* expectation. This result indicates that it is statistically significant at 1 percent level of significance.

In the same light, the results reveal that the third lag of development assistance for health has a positive relationship with out of pocket health expenditure. Specifically, a unit change in development assistance for health three years behind leads to a 0.928 change in the out of pocket health expenditure in Cameroon in the current period. This result is statistically significant at 10 percent level of significance.

Finally, the coefficient t of lagged error correction term has the correct sign (negative) and significant at 1 percent level. This confirms the established long run relationship between the variables. Additionally, the value of the coefficient of ECT can be interpreted as the speed of adjustment or convergence towards long run equilibrium. More specifically, about 224.1 percent of disequilibrium from the past year will be corrected in the next year. This indicates an over correction or an oscillatory convergence in the long run.

4.6: Long Run Estimates of Out of Pocket Health Expenditure

Looking at the results of the long run estimates presented above, the coefficient of household per capita income is negative, which indicates that it has a negative effect on out of pocket health expenditure in the long run. Specifically, the results reveal that a unit change in household per capita income in the long run leads to a -0.492 change in out of pocket health expenditure which is not in accordance with the *apriori* expectation. Furthermore, the p -value shows that this result is statistically significant at a 5 percent level of significance.

Furthermore, the coefficient of income tax in the long run is negative thus indicating that it has a negative effect on out of pocket health expenditure in the long run. Specifically, the results show that a unit change in income tax leads to a -0.269 change in out of pocket health expenditure which is in accordance with the *apriori* expectation. Furthermore, the p -value shows that this result is statistically significant at 5 percent level of significance.

Finally, the long run estimates show that the coefficient of development assistance for health is

negative, which indicates that it has a negative effect on out of pocket health expenditure in the long run. Specifically, the results reveal that a unit change in development assistance for health in the long run leads to a -1.117 change in out of pocket health expenditure which is not in agreement with the *a priori* expectation. Furthermore, the p-value shows that this result is statistically significant at a 1 percent level of significance.

4.7: Diagnostic Tests for Out of Pocket Health Expenditure

The adjusted R-squared value of 0.8642 indicates that about 86.42 percent variations in out of pocket health expenditures in Cameroon are jointly accounted for by variations in the variables included in the model of this study. This implies therefore that only about 13.58 percent of these variations are accounted for by variations in variables out of the model.

Table 5: Diagnostic Tests for Out of Pocket Health Expenditure

Test	F/ chi2(1)	Prob > chi2/Prob > F
Breusch-Godfrey LM test for autocorrelation	2.756	0.1279
Durbin's alternative test for autocorrelation	1.186	0.3018
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity	0.10	0.7497
White's test for heteroskedasticity	26.00	0.4076
Skewness/Kurtosis tests for Normality	2.17	0.3384

Source: Author, (2025)

The test for autocorrelation in this model was equally carried out with the aid of the Breusch-Godfrey (1979) test for autocorrelation. It was hoped that there exists no autocorrelation in the variables. In this study, our Breusch-Godfrey (1979) test statistic stands at 2.756 and the p-value indicates that the test is statistically insignificant; hence we fail to reject the null hypothesis of no autocorrelation and conclude that there is no autocorrelation in the sample or autocorrelation does not pose a problem in our sample. This result is further confirmed by the Durbin's alternative test for autocorrelation.

Finally, the Skewness/Kurtosis tests for Normality of the model is normally distributed and the results revealed that the test statistic of 2.17 is statistically insignificant.

Discussion of Results for Out of Pocket Health Expenditure (OOPHE)

The paper postulates that there is no direct relationship between Out of Pocket spending and financial access to health care in Cameroon. The adjusted R-squared value of 0.8642 in the OOPHE model indicates that about 86.42 percent variations in out of pocket health expenditures in Cameroon are jointly accounted for by variations in the variables included in the model of this study. Based on the fact that the short run and long run estimates for OOPHE have positive effects on UHC attainment, there is enough empirical evidence to illustrate trade-off between OOPHE and financial access to health care in Cameroon. Based on the results, inherent in the model, the p-value shows that these results are statistically significant at a 1 percent and 5 percent level of significance.

WHO (2008) based patients' out of pocket costs, appears to incur social costs and may explain persisting differences in access and utilisation by social groups (Judge A. *et al*, 2010). Substantial evidence shows that lower income families are more likely to bear the burden of constraints on financial resources for health. User fees create cost barriers and do not really increase resources to improve availability (Lagarde, 2009). Even when mechanisms such as fee exemptions exist, the target groups (Coronini Cronberg *et al.*, 2010) do not always take up health services when they are in need since cost of health which is paid by the user is spontaneously out of the pocket. Thus, the paper ascertains the trade-off between out of pocket spending and financial access to health care in Cameroon.

Furthermore, in the model, the mean of OOPHE is 72.7 percent of total health expenditure. This average could be very prohibitive to financial access on UHC in Cameroon given the huge rate of unemployment and the burden of poverty. The findings of Frenz and Vega (2010) concluded that poorer social groups experience less health care than their needs require given the inadequate financial accessibility. Consequently, the paper brings substantial evidence to illustrate that probably there exist a direct relationship between OOPHE and financial access to health care in Cameroon.

Also in the model, out of pocket health expenditure has a minimum of 51 percent and a maximum of 79 percent of total health expenditure in Cameroon. Van Doorslaer *et al.*, (2006), compared 21 OECD countries, finding the highest inequities for need adjusted use of total physician services in the US and Mexico, followed by Finland, Portugal and Sweden. In all these countries where data was available, specialist care had a pro rich distribution, considering need. This simply illustrates that the poor and vulnerable may be unable to afford specialist health care despite the dire need for health care when sick and therefore, the trade-off between out of pocket expenditure and financial access to health care in Cameroon.

In addition, a systematic review by Hanratty *et al.*, (2007) identified 26 studies from 12 individual countries which conducted a country comparison in an attempt to examine equity in the distribution of curative services in universal health systems. They found out that there exists a pro rich bias in specialist hospital services and reasonably equitable access to primary care across social groups, adjusted for health needs. Considering that curative health services are more unavoidable than preventive health services, this paper notes that out of pocket health expenditure is directly related to financial accessibility to health care given that ill health provokes sporadic health expenditure which has the tendency to impoverish vulnerable and poor households in Cameroon.

Considering financial accessibility to health care in an economy within the context of UHC, Luong *et al.*, (2007) in a tracer study of health service access and affordability developed a more encouraging study in the Vietnam context that have applied more comprehensive UHC frameworks, including the affordability, availability and accessibility frameworks. Their findings provided a more in-depth understanding of the interaction between supply and demand factors to inform efforts to achieve more productive interaction aimed at more equitable access: "Productive interactions, although important to all those who are ill, are most important for the poorest because their limited resources and vulnerable livelihoods often prevent them from persisting in their search for illness understanding and relief from symptoms from the health system." The results of

the findings of the paper are in line with Luong *et al.*, (2007) and so we therefore acknowledge the trade-off between out of pocket expenditure and financial access to health care in Cameroon.

Furthermore, according to WHO (2008), inequitable access means that less advantaged groups, use and experience less health care services than their needs require, resulting in personal, community and societal health losses. Lamentably, it has been shown repeatedly that the better off tend to receive more and higher quality health care services even though the worst off have greater need for health care services. Consistently, this is demonstrated and elucidated by Tudor (2007) as a “law” known as the inverse care law typically illustrates the trade-off between OOPHE and financial access to health care in Cameroon.

Other empirical findings that are linked to the paper on direct relationship between out of pocket expenditure and financial access to health care in Cameroon include Cespedes-Londono *et al.*, (2008) analysis in Colombia where they revealed the impact of the new national health insurance system on access to, and use of, health services, adjusting for need. Further focusing on the utilisation of specific procedures or elective services which confirm consistent patterns of pro rich bias in UHC systems, Judge *et al.*, (2010), found evidence of inequity in geographic access by ward for total hip and total knee replacement in England, considering predicted need. Houweling *et al.*, (2007) used Demographic and Health Survey (DHS) data from 45 developing countries in describing poor and rich inequalities by wealth quintiles in maternity care such as professional delivery care and antenatal care, full childhood immunisation coverage and medical treatment for diarrhoea and acute respiratory infections. They found out that poor and rich inequalities in maternity care in general, and professional delivery care in particular, were much greater than those in immunisation coverage or treatment for childhood illnesses most probably because maternity care and professional delivery care were out of pocket. In another similar study, maternal care was also the focus of two studies in Brazil. Again, Gonçalves *et al.*, (2009) assessed utilisation of specific services of the Programme for Humanisation of Prenatal and Delivery Care (PHPN), which increased proportionally with family income; quality of care for women in the lowest income quartile was inferior to that of women in the highest quartile. All of these empirical findings are linked to confirm that out of pocket health expenditure and financial access to health care in Cameroon are important to the attainment of UHC.

The proposition that user fees prohibit financial access to health care in Cameroon has been tested variedly. Using the affordability, availability and accessibility framework, Groudge *et al.*, (2009) combined household survey data with qualitative longitudinal research that followed 30 case study households over 10 months to describe in depth the experiences of poor households attempting to access chronic care in a rural area of South Africa. This household survey study concluded that low livelihood assets, including low income, and limited social networks prevented consultation by patients with chronic conditions which to be similar to rural communities in Cameroon. Based on these empirical findings, there is a trade-off between out of pocket health expenditure and financial access to health care in Cameroon.

The evidence that emerges from the research on household out of pocket health spending, suggests that free care at the point of delivery is one of the most effective facilitators for improving equity in utilisation of services (Souteyrand *et al.*, 2008). Kamgnia (2007) demonstrated that the government of Cameroon, like many other African countries, had to put in place a health cost recovery system as of the early 1990s to sustain the health system probably because user fees has been and remain a nuisance to financial accessibility to health care in Cameroon. Based on this

empirical evidence, therefore there is a trade-off between out of pocket expenditure and financial access to health care in Cameroon.

Gertler and Hammer (1997) pointed out that the combination of general government budget financing of health care and user fees affects how public subsidies are allocated across programmes and who gets the subsidies. The findings of Gertler and Hammer (1997) concluded that poor patients only avoid traditional and self-healing when the cost of health care is subsidised by the government to confirm that user fees prohibit their access to health care when in dire need.

5. CONCLUSION AND RECOMMENDATIONS OF THE PAPER

Universal Health Coverage (UHC) has emerged today as a key area of intervention to the attainment of Sustainable Development Goal (SDG) 3, which is to ensure healthy lives and promote wellbeing for all at all ages. In fact, SDG n°3 target 8 talks of achieving UHC, including financial risk protection, access to quality essential health care services and access to safe, effective, quality and affordable essential medicines and vaccines for all and reducing household direct payments through an equitable and sustainable financing policy by 2030. The politics of UHC does not allow any single country to stay indifferent. That is why Cameroon desires a sustainable strategic nexus for UHC by 2035.

This paper strongly upholds that UHC positively impacts and improves healthy lives which breeds longevity. There is therefore a strong evidence in a stagnant contribution of a huge out of pocket spending on health and a weak health insurance participation in Cameroon that could jeopardise financial protection for the poor, sick and vulnerable. These are the people who fall into poverty whenever they attempt to access health care. Information asymmetry allows the rich and the educated to benefit more than the poor and less educated in the present dispensation of out of pocket health expenditure and UHC stands as a *sine quo non* for sustainable health outcomes in Cameroon.

For the right path towards UHC to be maintained, the government and other stakeholders in the health sector must focus on making health care affordable and accessible. Life certainly is meaningless without a healthy environment that stabilises the productivity of the economy. According to Shin Young-Soo (2013), attaining UHC requires strong, efficient and well managed health systems that ensure equitable access while Chan Margaret (2013) believed that UHC is the single most powerful concept that public health has to offer to attain development in an economy. UHC is inclusive, unifies services and delivers them in a comprehensive and integrated way, based on PHC strategy. In fact, Drewnowski (1974) considers access to health care as the basis of measuring and planning the quality of life which are the foundational perspective of social and economic development in an economy. Nobel Laureate Schultz (1979) emphasised the merits of investing in health postulating population health as the decisive factor of production.

Policy Recommendations

Based on the empirical findings inherent in the paper, the following recommendations are proposed for policy consideration by the government to resolve the trade-off between OOPHE and UHC in Cameroon:

In reversing the trends so that UHC policies, laws and programmes positively support sustainable health interventions, impact and outcomes in Cameroon, a trust based health system is

recommended to policy and law makers. Gilson (2002) argues that trust matters to health systems and trust based health systems matter to society. People value health systems not only for the care they themselves receive in times of sickness but also for the contribution the systems make to the broader wellbeing of society.

The second policy recommendation is for the state to play a central role in the Cameroon health system. State actions should be central in all health systems regardless of funding arrangements or configuration of provider networks (Frenk *et al*, 2005), but it can only function effectively if its actions are seen as legitimate. At one level, such legitimacy is important in persuading patients to cooperate with health providers in coproducing health. At another level, such legitimacy provides the foundation for the coordination among relatively autonomous (public and private) health care providers and regulation of their dealings with citizens that is necessary to benefit and protect citizens (Offe, 1999; Rothstein, 1998). Rothstein (1998) suggests that the legitimacy of a public policy or intervention rests on its being seen as generally fair, funded through a fair level of contribution levied on everyone and implemented in a fair manner.

The third policy recommendation is for the government of Cameroon to sign Public Private Partnership (PPP) Conventions and Memorandum of Understandings (MoUs) with Confessional and Private for profit health care providers. Recognising that trust among public and private health institutions can be taken for granted, this paper recommends actively produced and negotiated PPP Conventions and MoUs. Williams specifically suggests that universalism should be seen not solely as a matter of redistributive strategies which seek to bring about equality in material resources between social groups, but also as “the commitment to the equal moral value of all and inclusion of all” (Williams, 1999). Thus, the PPP policy recommendation should be on equal geographical, service and financial access to health services for all and at all ages.

One recommendation should be a strategy to define as a priority the generation of systematic reviews in specific dimensions of equity relating to UHC, in particular in the areas where gaps need to be filled especially in the interplay between demand side, supply side and contextual factors in the implementation of UHC in Cameroon. Thus, the paper proposes trusted state authority to institute a Health District Progress Report on UHC to be presented to the Regional Review Committees at regular basis with quarterly, bi annually or annually.

In collaboration with some of the nation's most influential health care providers and organisations, the paper recommends the government to help prevent 10 of the nation's most common chronic diseases and offer financial protection and free treatment to the 10 leading common diseases and causes of death. Such prevention strategies may include free vaccination and immunisation against these 10 leading common diseases. This may strengthen demand side programmes as those in dire need will have free access to health care.

Given this background, policy recommendation goes for enrolling the non-poor informal sector through a non-contributory tax financed path. A merit of this path is that the expansion of coverage from the poor to the rest of the informal sector can be very rapid (given capacity of health care providers). A demerit is a trade-off between equity in the benefit package and fiscal sustainability (due to fiscal costs and increased informality). Resolving this trade off may require deep tax and health reforms whereby a percentage of basket of income generating import and export commodities go directly into the UHC Fund. The paper recommends a 5 percent proportional UHC tax on the 10 most imported and exported commodities as a strategy to fiscal sustainability for the attainment of UHC in Cameroon.

Enrolling the informal sector through a mandatory contributory path presents fewer risks of sustainability but involves a slower pace in coverage expansion. This is because it requires capacities to be built so as to identify incomes and collect contributions from the informal population. Considering that voluntary health insurance is not a viable path to UHC given the failures registered in Cameroon's community Mutual Health Insurance Schemes (MHIS), this paper recommends a 1,000 FCFA per month mandatory contribution per citizen into the UHC Fund and the payer is awarded a Free Health Access card. By instituting a 1,000 FCFA per month mandatory contribution per citizen in Cameroon into the UHC Fund may enhance the attainment of UHC and boost the demand side programme of health care delivery in Cameroon.

This paper strongly recommends that public health expenditure must be augmented to at least 11.5 percent of the GDP and/or move up to 15 percent per the Abuja Declaration of 2001. Strong advocacy is therefore imperative for the lawmakers both in the Upper and Lower Houses of Parliament to only vote for a health budget for the Ministry of Public Health that ranges between 11.5 percent and 15 percent and nothing less than this.

The road to UHC uses stepping stones, but they do not have to create path dependence. Some of the institutions have a transitional role, such as targeting only the poor and the use of voluntary health insurance to cover the non-poor informal sector. The road to UHC is long, consequently, the paper recommends a strong health system for Cameroon based on the values of PHC and focused on a vision of providing universal coverage for quality health services that can be an efficient and effective way to contribute to improved and equitable health outcomes as well as greater socioeconomic development. Strategically to advance UHC, the action domains must reflect the values of the WHO Constitution, the Health for All agenda set by the Alma Ata Declaration on PHC in 1978 and the principles and strategies for health system development. These are strategies that take care of the poor and vulnerable especially on health promotion and disease prevention. Levine *et al.*, (2004) observed that key elements of success are primordial for large scale public health interventions for the attainment of UHC in Cameroon. As John Maxwell puts; the pessimist complains about the wind, the optimist expects it to change and the leader adjusts the sails.

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