THE IMPLICATIONS OF COVID 19 ON RURAL HOUSEHOLD WELLBEING IN CAMEROON: EVIDENCE FROM NDOP IN THE NORTH WEST REGION OF CAMEROON

TAMIYA NCHOMANUI STATUS[1], & SONKEY LOUIS NTU[2]

College of Technology, University of Bamenda_Cameroon[1]

Faculty of Economic and Management Sciences, University of Bamenda_Cameroon[2]

ABSTRACT

COVID-19 has changed a lot in the way people carry out their daily activities, this change in their daily routine has affected some key indicators of household wellbeing. This study aimed at examining the impact of COVID-19 on some of the key household indicators of wellbeing in Ndop, which is a rural area with agriculture as the main activity. Specifically, the study seeks to; assess the impact of COVID-19 on household disposable income, and evaluate the consequences of COVID-19 incidence on healthcare expenditure. We adopted a convenient and purposive sampling technique and questionnaires were administered to 360 respondents. Data were analyzed using SPSS23 and the models were estimated using ordinary least square (OLS) regression estimation techniques. The result revealed that COVID-19 has a negative and significant effect on household disposable income, as results suggest a drop in household income by 50% due to Covid-19. Secondly, COVID-19 has a negative and significant effect on household healthcare expenditure. To enhance the deteriorating household wellbeing, there is a need for the government to ease the movement of foodstuff from the rural areas to the urban milieu, as this can increase household income in rural areas and hence household expenditure while enhancing the application of Covid-19 protection and treatment measures.

Keywords: COVID-19 Pandemic, Household Wellbeing, and disposable income.

1.0 INTRODUCTION

The COVID-19 pandemic has led to a dramatic loss of human life worldwide and presents an unprecedented challenge to public health, food systems and the world of work. The economic and social disruption caused by the pandemic is devastating: tens of millions of people are at risk of falling into extreme poverty, while the number of undernourished people, currently estimated at nearly 690 million, could increase by up to 132 million by the end of the year (McKibbin and Triggs, 2018). Millions of agricultural workers while feeding the world, regularly face high levels of working poverty, malnutrition and poor health, and suffer from a lack of safety and labour protection as well as other types of abuse. With low and irregular incomes and a lack of social support, many of them are spurred to continue working, often in unsafe conditions, thus exposing themselves and their families to additional risks. Further, when experiencing income losses, they may resort to negative coping strategies, such as distress sale of assets, predatory loans or child labour. Migrant agricultural workers are particularly vulnerable, because they face risks in their transport, working, and living conditions and struggle to access support measures put in place by governments. Guaranteeing

the safety, income and health of all agri-food workers who range from primary producers to those involved in food processing, transport and retail, including street food vendors will be critical to saving lives and protecting public health, people's livelihoods and food security. Countries dealing with existing humanitarian crises or emergencies are particularly exposed to the effects of COVID-19. Responding swiftly to the pandemic, while ensuring that humanitarian and recovery assistance reaches those most in need, is critical.

The state of the health systems in African countries is of great concern due to the increase in the number of confirmed cases. The WHO reported fewer than 700 confirmed cases in 34 African countries, but by May 2020, the Africa Centres for Disease Control and Prevention (CDC, 2020), a specialized technical institution of the African Union, recorded 41,330 confirmed cases, 1701 deaths, and 13,621 recoveries. According to the Africa CDC, as of 1st May 2020, Cameroon had the highest number of confirmed cases (i.e., 2069) in the central Africa subregion and the sixth-highest number of confirmed cases on the continent, behind Algeria, Egypt, Morocco, Nigeria, and Ghana. This was a significant increase, as the country recorded its first case on 5 March 2020. The rapid rise in the number of confirmed cases is also of great concern; as of 1 May 2020, tests had been administered to just 9254 people. There is a consensus among medical professionals that this figure is an underestimation of the number of cases in the country, as testing is limited. According to the Africa CDC, as of 1 May 2020, Ghana had 2169 confirmed cases and had conducted 113,497 tests. Certainly, the number of confirmed cases in Cameroon will be much higher if more tests are conducted. The outbreak and its spread pose an additional challenge for Cameroon due to the armed conflict in the Far North, and in the North West and South West Region.

Specifically, UNICEF notes that 34% of health facilities in the Northwest and Southwest regions are non-functional or only partially functional (absent health personnel, destroyed infrastructure, and lack of medical supplies), and access to health care is limited. The occurrence of COVID-19 and past deadly coronaviruses, together with the mode of spread of these viruses is difficult to handle in these two regions (WHO, 2020).

Ndop Central Sub-Division is an agricultural dominated area where the population depends mostly on farming. Here, groundnuts, maize, rice and tomatoes are cultivated. The rice produced in this area is one of the most consumed local rice in Cameroon. Inhabitants are also engaged in business activities which is mainly the buying and selling of basic needs. The COVID-19 pandemic has changed a lot in the way people carried out their daily activities in the Ndop Central Sub-Division. This change in daily routine might have an implication on their wellbeing

From our observation and according to the best of our knowledge, most studies carried out on Covid-19 make use of mainly exploratory research designs where most researchers were drawing conclusions based on observations without actually carrying out some econometric and statistical tests. Furthermore, some of the studies that made use of an inferential approach, were mostly carried out in areas that were severely hit by the pandemic, especially in urban areas of developed countries. Interested in the effect of Covid-19 on household welling is the study of Jaochem and Ofeh (2020). This study, however, fails to examine the impact on disposable income, and health expenditure at the level of the household. This study makes a difference as it will employ the use of the ordinary least square thereby deviating from the

analytical path of other studies and adding value to academic research in this area, hence the contribution of this paper.

In light of the above, the overall objective of this study is to investigate the effect of COVID-19 on some key indicators of household welfare in Cameroon while using the inhabitant of Ndop as the case study. Specifically, the study seeks to; assess the impact of COVID-19 on household disposable income, and evaluate the consequences of COVID-19 incidence on healthcare expenditure.

The remains of this paper will be divided into the following sections; section two focuses on literature review, section three handles methodology, section four present and discuss the findings, and finally section five rounds up with the conclusion and recommendations.

2.0 EMPIRICAL LITERATURE REVIEW

There is little empirical literature relating to Covid19 especially in developing countries like Cameroon since the concept is much resent. In this light, we review both the existing theoretical framework and a few empirical studies.

Bloom et al. (2005) use the Oxford economic forecasting model to estimate the potential economic impact of a pandemic resulting from the mutation of the avian influenza strain. They assume a mild pandemic with a 20% attack rate and a 0.5 percent case-fatality rate, and a consumption shock of 3%. Scenarios include two-quarters of demand contraction only in Asia (combined effect 2.6% of Asian GDP or US$113.2 billion); a longer-term shock with a longer outbreak and larger shock to consumption and export yields a loss of 6.5% of GDP (US$282.7 billion). Global GDP is reduced by 0.6%, global trade of goods and services contracts by $2.5 trillion (14%). Open economies are more vulnerable to international shocks.

Another study by the US Congressional Budget Office (2005) examined two scenarios of pandemic influenza for the United States. A mild scenario with an attack rate of 20% and a case fatality rate (. i.e., the number who die relative to the number infected) of 0.1% and a more severe scenario with an attack rate of 30% and a case fatality rate of 2.5%. The CBO (2005) study finds a GDP contraction for the United States of 1.5% for the mild scenario and 5% of GDP for the severe scenario.

McKibbin, & Sidorenko, (2006) used an earlier vintage of the model used in the current paper to explore four different pandemic influenza scenarios. They considered a "mild" scenario in which the pandemic is similar to the 1968-69 Hong Kong Flu; a "moderate" scenario which is similar to the Asian flu of 1957; a "severe" scenario based on the Spanish flu of 1918-1919 ((lower estimate of the case fatality rate), and an "ultra" scenario similar to Spanish flu 191819 but with upper-middle estimates of the case fatality rate. They found costs to the global economy of between $US300 million and $US4.4trillion dollars for the scenarios considered.

Hyseni & Hoxha (2020), examined the impact of COVID-19 on household disposable income and on household welfare in Kosovo and adopted the qualitative research design. For data collection, semi-structured interviews were used, which were conducted with 13 parents, and 11 households. Study participants were an active part of pre-university public institutions within 14 municipalities from 7 regions of Kosovo. According to the findings of this study, the

new circumstances created due to the spread of COVID-19, including changes in education which caused several concerns among students, parents, and teachers in Kosovo. The findings from the study confirm the common concerns of students being overloaded, with an online system that they were not gifted in. The findings of this study confirm the readiness and motivation of teachers to advance their knowledge and skills, as well as to contribute to advancing the quality of education.

Stojkoski (2020) examined the Socio-Economic Determinants of the Coronavirus Disease (COVID-19) Pandemic in which they contributed to the resolution of the debate by leveraging Bayesian model averaging techniques and country-level data to investigate the potential of 29 determinants. The study showed that the true empirical model behind the coronavirus outcome is constituted only of a few determinants, but the extent to which each determinant can provide a credible explanation varies between countries due to their heterogeneous socio-economic characteristics. To understand the relationship between the potential determinants in the specification of the true model, they developed the coronavirus determinants Jointness space. In this space, two determinants are connected if they can jointly explain the coronavirus outcome. As constructed, the obtained map acts as a bridge between theoretical investigations and empirical observations and offers an alternate view of the joint importance of the socio-economic determinants when used for developing policies aimed at preventing future epidemic crises.

Jaochem et al., (2020) were also interested in examining the effect of the Corona Virus Disease (COVID-19) on household welfare in Cameroon. This was done using data from a survey of 264 households in Cameroon in 2020. A linear regression model and Heckman sample correction bias were used and the results showed that COVID-19 reduces household welfare in Cameroon. These findings have implications of reducing the impact of COVID-19 on household welfare if households should develop new sources of income and food strategies by engaging more on agricultural activities and government can take a strategy of allocating grants either by reducing the cost of necessities (water, electricity, foodstuff, and housing). The triple helix approach is where government, institutions of technology, and businesses should develop a vaccine for the pandemic to bring back economic life to normal.

3.0 METHODOLOGY

This study adopted a causal multivariate research design. This design was adopted because the study was out to conduct a survey and investigate the cause-and-effect relation of COVID-19 on household welfare.

Every household in Ndop was given the same possibility to participate in the research as being considered in the sample. The study population was adults between the age group of 18-55.

A imply random sampling technique was employed to randomly select three hundred and eighty (380) farmers and households. This study targeted mainly farmers both in the formal and informal sectors and also households of various social classes in this rural area.

The data used for this study was mainly primary data obtained from the sampled farmers and households by the use of structured questionnaires to have information concerning the impact of COVID-19 on households' welfare.

3.1 Model Specification

To examine the impact of the coronavirus disease on household welfare inspiration was drawn from the study of Stojkoski et al. (2020) who examined the impact of COVID-19 on household welfare from a global perspective. Based on the above study, the following functional relationship was established;

Household welfare= f (Covid-19) …..………………….…………………… (1)

This equation is further expressed as follows;

HW= f (COV)………………………………………………………………... (2)

Since a Household's welfare is captured by two indicators which include households' disposable income, and Households' health expenditure, expressing the above equation more specifically and introducing control variables, we have;

HDI= f (COV, GEN, SUP, EDU) …………………………..……………………….. (3)

HE= f (COV, PM, SUP, EDU, GEN) …..…………………….....…………………...(4)

Transforming equations 3, and 4 into econometric form, we have;

$$HDI=\alpha 0 + \alpha 1\ COV + \alpha 2\ GEN + \alpha 3 SUP + \alpha 4\ EDU + \varepsilon \quad \text{……………………........ (7)}$$

$$HE=\beta 0 + \beta 1\ COV + \beta 2\ PM + \beta 3\ SUP + \beta 4\ EDU + \beta 5\ GEN + \varepsilon \quad \text{………………………... (8)}$$

Apriori

' ,

Where;

HW = Households welfare
COV = Covid-19
HDI= Household disposable income
HE = Household health care expenditure
GEN= Gender
SUP= Support for Covid-19
PM= Preventive measures
EDU= Educational Level
ε=Error term

Measurability of Variables

Table1: Measurement of Variables

Variable	Level of variable	Variable code

Dependent Variables		
Disposable income	Continuous	HDI
Households' healthcare expenditure	Continuous	HE
Independent Variables		
Covid-19 (Existence)	1: Yes 0: Otherwise	COV
Gender	1: Male 0: Otherwise	GEN
Support (Financial or material support to fight against Covid-19)	1: yes 0: Otherwise	SUP
Preventive measures	1: yes & 0: Otherwise	PM
Educational Level (educational level of respondent)	1: Formal Education, 0: Otherwise	BIRTHS
Marital Status	1=Single, 0= Married,	MS

Source: Authors (2021)

3.2 Estimation Technique and Validation of Results

The parameters of the model specified above are estimated using the ordinary least square (OLS) regression techniques. This technique is preferable because the dependent variables are continuous in nature.

The OLS technique is also preferred for the estimation of coefficients of the variables of this study due to the fact that; the computational procedure of OLS is fairly simple as compared to other techniques and the data requirements are not excessive; the mechanics of OLS are simple to understand; The OLS method has been used in a wide range of econometric relationships with fairly satisfactory results and despite the improvement of computational equipment and of statistical information that facilitated the use of more elaborate econometric techniques. OLS is still one of the most commonly employed methods in estimating relationships in models; OLS is an essential component of most other techniques. Most other techniques involve the application of the OLS method modified in some respect, with the exception of the full information likelihood method.

The most important reason for using this method of estimation is that the parameter estimates obtained from OLS have some optimal properties such as the BLUE (Best Linear Unbiased Estimator) property. This parameter has the blue property because; the bias between the expected value and the true value of the estimator is zero (unbiased); the variance of the estimator is smaller than that of any other unbiased estimator (best unbiased); the estimator is a linear function of the sample observation (best linear unbiased).

4.0 RESULTS

4.1 Effect of COVID-19 on Household's Disposable Income (OLS Estimation)

Table2: The Effect of COVID-19 on Household Disposable Income

VARIABLE	COEFICIENT (Std error)	P-value
COVID 19	-1.524 (0.294)	.000
SUP	1.477 (0.301)	.000
Gen(Male=1)	-0.551 (0.302)	.068
EDU(Formal=1)	0.904 (0.160)	.000
CONSTANT	0.130 (0.026)	.873
Number of obs	360	
F-Test	84.63	
Prob> F-test	0.0000	
R^2	0.78	
Adj R^2	0.64	

Source: Fieldwork, 2022. NB: Values in brackets are standard errors

Table 2 shows the impact of COVID-19 on household income in the Ndop central Sub-Division. It is observed that COVID-19 has a negative coefficient which indicates that, COVID-19 is negatively related to the level of income. COVID-19 reduces the cmances of having a high income. This is statistically significant at a 5% level of significance.

Again, the result reveals that the level of education affects the level of income. In the result, those who have attended at least primary school have a higher income and this is statistically significant at a 5% level of significance. The result shows that their income is 0.904 higher than those with no formal education.

As a result, being male reduces the chances of having a high income by 0.577. This result, however, is not significant at a 5% level of significance, hence female household heads have higher disposable income than their male counterpart in the rural area of Ndop. This is possible because most intensive farming activities in this rural area are carried out by women. The result also reveals that receiving support for Covid19 from the government increases income by 1.477 and the value is significant at a 1% level significance, hence households that receive support for Covid19 from the government have a higher level of income than those without support. The value of the adjusted coefficient of determination shows that about 64% of the variation in the dependent variable is caused by the independent variables in this model, hence it is a good fit. Above all, the results are globally significant with a significant value of fisher test (F-Test) of joint significance.

4.2 Effect of Covid-19 on Health care Expenditure

Table 3: Effect of COVID-19 on Household Health Care Expenditure

Variable	Coefficient (Std. Err)	p-value
COVID 19	-0.84 (0.203)	0.401
SUPPORT	2.66 (0.498)	0.008
EDU(Formal=1)	2.49 (1.230)	0.013
GEN(Male=1)	2.27 (0.393)	0.023
PM	2.08 (0.498)	0.038
CONSTANT	0.72 (0.200	0.472
Number of obs	360	
F-Test	52.69	
Prob> F	0.0022	

R^2-Square	0.695
Adj R^2-square	0.581

Source: Fieldwork, 2022. NB: Values in brackets are standard errors

Table 3 shows the effect of COVID-19 on household expenditure in Ndop Central Sub-Division. From the table below, the following results are obtained;

COVID-19 has a negative relationship with household expenditure. The result shows that household infected with COVID-19 reduces household health expenditure by 0.84. This is statistically significant at 5% level of significance. This is because most individuals affected by Covid19 receive free treatment and care, which turn to reduce the household healthcare expenditure for affected households.

From the table, receiving support increases household health expenditure by 2.66. This is statistically significant at 5% level of significance. This result is confirmed given that COVID-19 support permits households to spend on other forms of health care apart from Covid19.

From the result, being a male increases health care expenditure by 2.27 as compared to females in Ndop Central Sub-Division. Also, providing preventive measures by household increases household healthcare expenditure by 2.08 and it is significant. Hence their healthcare expenditure is higher than households who do not provide preventive measures. Further, the results reveal that household with formal education turns to spend more on health care than households with no formal education by 2.94 and the coefficient is significant.

The adjusted R2 indicates that approximately 58.10% of changes in the dependent variable are explained by the independent variables in the Model. While the value of F- the test is highly significant meaning that the results are globally significant.

5.0 CONCLUSION AND RECOMMENDATIONS

The results of this study indicate that COVID-19 has a significant impact on disposable income and on this basis; it is recommended that policymakers should put in place strategies to lower taxes on farmers in the country by the various administrative tax collector put in place. This will go a long way in supporting households' income, and by so doing improving households' welfare. This will also guarantee a potential rise in the workforce in the years ahead and skills for innovation and which represents a massive opportunity for Cameroon in general and Ndop Central Sub-Division. Above all, It was revealed that COVID-19 has significantly affected households' expenditure on health care, therefore, we recommend that policymakers should follow the trend seen in advanced economies by providing hand sanitizers, facemasks, grants, and loans for registered small and medium-sized farmers and support operating costs.

5.1 Competing Interests

The authors declare that they have no conflict of interest to disclose.

REFERENCES

Bloom, E., & Wit, D. (2005). "Potential economic impact of an Avian Flu pandemic on Asia", ERD Policy Brief Series No. 42. Asian Development Bank, Manila. http://www.adb.org/Documents/EDRC/Policy_Briefs/PB042.pdf.

CDC (2020). COVID-19 dashboard. https://africacdc.org/covid-19/. Accessed 18 April 2020.

Hyseni D. Z., & Hoxha, L, (2020). The impact of COVID-19 on education and on the well-being of teachers, parents, and students: Challenges related to remote (online) learning and opportunities for advancing the quality of education.

Joachem Meh Bin, Moses A. Ofeh & Sergeo Beng Che, (2020). Impact of the Corona Pandemic on Household Welfare in Cameroon. Journal of Economics and Management Sciences; Vol. 3, No. 3.

Kuikeu, K & Oscar (2020). "Economic impact of COVID-19 in Cameroon: an empirical assessment with the VAR Methodology". École Supérieure des Sciences Économiques et Commerciales (ESSEC), Université de Douala (Udo, Cameroun).

McKibbin, W., & Triggs, A., (2018). "Modelling the G20. Centre for Applied Macroeconomic Analysis", working paper 17/2018, Australian National University.

Stojkoski, H. (2020). Impact of the Coronavirus Pandemic on the global economy. Statistics and facts. Statista. http://www.statista.com/topics/6139/ COVID-19 Impact on the global economy

UNESCO (2020). Covid-19 Impact on Education Data.COVID-19 Education Disruption and Response. The United Nations Educational, Scientific and Cultural Organization, UNESCO. Paris, France.

WHO Coronavirus Disease (2020). COVID-19) Situation Report available online, https://www.WHO.int/docs/

WHO, (2020). "COVID-19 cases top 10,000 in Africa". https://www.afro.who.int/news/covid-19-cases-top-10-000-africa. Accessed 18 April 2020