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Willingness to Accept Lockdown in COVID-19 Pandemic and Effect on Livelihood in Southwest Nigeria Temitayo Adenike ADEYEMO

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Abstract

Would an individual be willing to die of hunger or from a disease outbreak in Nigeria? This research question came at the premise of the global health crisis induced by COVID-19 outbreak and its impact on the livelihood of individuals. Livelihoods become vulnerable when unable to cope with shocks and the outbreak of COVID-19 has been a source of such a shock to the global community and especially to developing economies like Nigeria. The main response to the spread has been the lockdown of economies for certain periods. However, the lockdown may impact on the livelihood of citizens and thus reduce its effectiveness. As a result of the restriction in mobility amid COVID-19, this study used an online survey to generate information on individual's Willingness to Accept (WTA) an economic lockdown as a means of preventing the spread of the virus in Nigeria from 75 lower to middle class individuals. Respondents with vulnerable livelihoods had lower food and nonfood expenditure patterns. Survey analysis showed that up to 61% of the respondents were willing to accept a short period of lockdown, at an estimated WTA of not more than 4 days and income loss of ₦8,538.20 (22 USD) per day. Also, the findings showed that individuals who were likely to lose income, with large households, and large food expenditure patterns were less willing to accept a lockdown. Respondents were more willing to use a combination of sanitary and social distancing measures rather than a complete lockdown. Although this online survey was relevant for respondents in the lower to middle class group, it was able to show the vulnerability of livelihood to protracted lockdown response to a disease outbreak. This is a retrospective survey, and the theme of this study may be more evident if an extended survey involving actors in the informal sector was carried out. An extended study will enable an estimation of the Value of Economic Life across different sectors of the Nigerian economy. This will be useful in developing responses to shocks such as this pandemic. The study therefore recommends that socio-economic and livelihood contexts must be taken into consideration when enforcing disease prevention measures, while social protection must be enhanced to reduce the effect of such measures on livelihood.

Key Words: Willingness to Accept, COVID-19; Livelihood,

Background

Since the outbreak of the COVID-19 pandemic, and its attendant fatality, governments around the world institute various measures, chief among which was an economic lock-down. This lock-down had different levels of compliance and results across different economies. While there were reported losses cross world economies, the extent of losses to individuals and households varies. The reasons for this have been adduced to differentials in the structure of economies. Hence, informal economies, less developed economies and import dependent economies seem the hardest hit with respect to the livelihood of their citizens (ILO, 2020). The experience in Nigeria is a case in point, with over 50% informal sector employee, dependent on daily transactional incomes which were severely hampered by the lock-down. Other countries such as the USA also witnessed massive job losses across the many informal businesses, revealing high levels of vulnerabilities. This study was thus premised on the need to understand how much individuals are willing to prevent a health hazard while maintaining an acceptable standard of living. This is especially important in view of vulnerable livelihood occasioned by conflicts, climate change, macroeconomic policies, and the response to volatilities in international market in Nigeria.

Estimating health losses have been an on-going work in literature. The main methods have been the use for cost-benefit analysis, willingness to accept and willingness to pay. The ideas of WTP and WTA are based on the utility function. Specifically, a willingness to accept method is a means of assessing by how much an individual is willing to lose in order to prevent experiencing a health hazard (Rotteveel et al., 2020). It is a method that can be used as a means of understanding the Value of Life within a system, using the acceptable Contingent Valuation Method (Lin et al., 2020). This study therefore examined the willingness to accept a lock-down and the factors that determine such willingness.

Methods

This survey was carried out during the 4 weeks lock down in Nigeria (April/May, 2020). It was based on an online survey using Google survey forms sent to individuals via mails and WhatsApp applications to respondents in Oyo state, Southwest Nigeria. The survey was designed to explore the perception of livelihood and income loss due to COVID 19 as well as and corresponding losses due to restriction in movement (lock down). A total of 75 responses were retrieved on information ranging from socioeconomic characteristics, occupation and income types, food and non-food expenditure, willingness to accept parameters and alternative acceptable measures for prevention of covid-19 infection.

Data Analysis

Descriptive statistics (Frequencies and percentages) were used to profile socioeconomic characteristics and other characteristics of the respondents. Estimates of Willingness to Accept was measured using a Contingency Valuation Method (CVM). The CVM has been used in many studies to examine the willingness to pay for or willingness to accept certain economic and/or public goods within an economy. The survey asked the respondents for the number of days at which they were willing to stay on a lock-down in order to prevent being infected by COVID-19. This was used to elicit information on how much they were actually willing to lose as income rather than get infected by the virus. The WTP estimation is a logit- based model in the form:

$$y_i = \frac{1}{1 + e^{-(\beta_0 + \beta_1 x_i)}} \dots \dots \dots 1$$

Where y_i is the response of the observations with respect to being WTA ($Yes=1$; $No=0$); x_i is the number of days the i^{th} respondent is willing to accept a lock-down; and the β_0 and β_1 are parameter estimates. The Mean Willingness to Accept a lock-down was subsequently calculated as:

$$Mean\ WTA = \frac{1}{\beta_1} \ln(1 + \exp \beta_0) \dots \dots \dots 2$$

Furthermore, the determinants of being willing to accept a lock-down were estimated with the logit model (in the same form as 1 above), so that:

$$WTA_i = \alpha_0 + \alpha_1 Z_i \dots \dots \dots 3$$

where WTA_i is the response of individuals on being willing to accept a lock down. Z_i is the vector of independent variables; which includes socioeconomic and livelihood typologies and include:

Sex of respondent:	Female =0; Male=1
Age :	Years
Household size:	Number
Food Expenditure:	₦
Non-Food expenditure:	₦
Marital Status:	Single=1, Married=2, Widowed/Separated=3
Frequency of income:	Monthly=1, Daily=2, Weekly=3
Has a secondary Occupation:	No=0; Yes=1
Type of income:	Salary=0, Business proceeds=1

Results and Discussion

Overall, respondents averaged 37 years of age, were mainly married (67%), with household size of 4 members. Occupational characteristics reveal that they were mainly from the private sector (~5%), while 82% earned salaries, with 18% getting income from business proceeds; and 50% reporting regular monthly income. About 56% can work from home, while 32% cannot; and 9%, were not sure.

Willingness to Accept a COVID 19 Lockdown

The study found that up to 61% of the respondents were willing to accept a lock-down; however, there were differences across demographic and occupational characteristics. With respect to occupational characteristics, (see figure 1), the proportion of those willing to accept the lockdown was low among respondents in the private informal sector (11%), with main income as business proceeds (13%), who may be unlikely to work from home (13%) and very likely to lose income (26%).

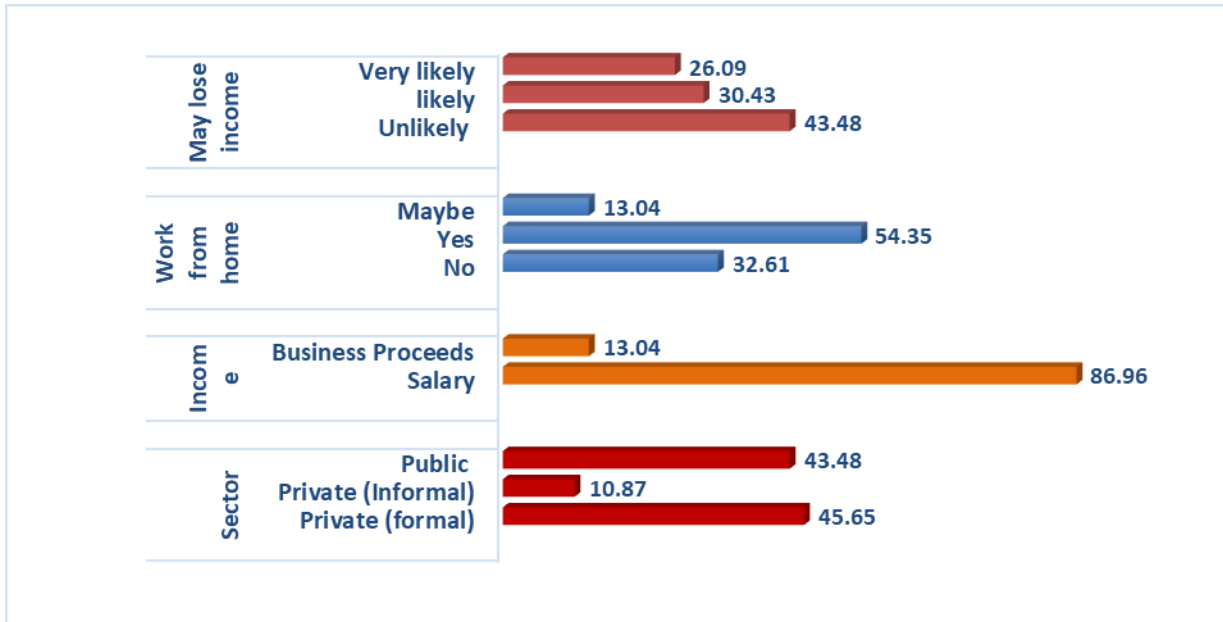


Figure 1: Profile of Respondents by Livelihood Characteristics and Willingness to Accept a Lock-down

a. Estimation of Willingness to Accept

The result of estimating Mean Willingness to Accept (WTA) is presented in table 1. The maximum average number of days that the respondents were willing to accept a lock-down was 4 days; at an income loss of N8538.22 per day (USD 22). For the respondent group, this is a significant income loss and its consequences in terms of food security and welfare can be severe (GAIN, 2020). This is especially important in a largely informal economy like Nigeria, where it has been shown that the highest livelihood losses have occurred due to the COVID 19 pandemic (ILO, 2020).

Table 1: Estimates of Mean Willingness to Accept Lock-Down and Income Loss

WTA/INCOME LOSS	VALUES
Days off work	4 DAYS
Daily income loss	₦8538.22(USD 22)#

#Exchange rate was N388.10/\$1 at the time of the survey

b. Determinants of Willingness to Accept a Lock-Down

In examining the factors that determine probability of being willing to accept a Lock Down, a logit model was estimated. The results, presented in Table 2 reveals that age, marriage relations, food expenditure and household size were significant variables influencing the probability of acceptance or rejection of a lockdown to prevent health risk.

The estimates of marginal effects provide that a unit increase in the age of respondents, will reduce the probability of being willing to accept a lock-down by 2.5%; while the effect of a unit increase in household size is in lessening the likelihood of being WTA by up to 8.8%.

A higher food expenditure will likely reduce the probability of being WTA, however, its effect is relatively small. This implies that households with higher food expenditure needs are more likely to be unable to survive a lock-down without falling into a hunger period such as found in Nigeria with urban and rural food expenditure making up 52% and 61% of total expenditure, respectively (NBS, 2020).

However, higher non-food expenditure may not be a strong enough reason to reject a lock-down. Interestingly, marital status exerted a positive effect on the WTA estimates, with married couple having a 69% probability of being willing to accept a health lock-down.

Alternative Containment Measures

The respondents however suggested other measures that would be more acceptable than a lock-down in preventing an infection while maintaining their livelihoods. These includes use of face masks, social distances, regular handwashing as well as social distancing. They however responded that in the event of a compulsory lock-down, an institutionalized palliative system will be required. This suggests the importance of carrying out

interventions based on the structure of the economy and to the limit of effective alternatives that may protect livelihoods.

Table 2: Logit Estimates of Determinants of Willingness to Accept a Lock-Down amidst COVID-19 Pandemic

Variables	Coefficients	Marginal effects
Age	-0.111** (0.049)	-0.025** (0.011)
Sex (Base=Female)	0.743 (0.738)	0.161 (0.152)
Household size	-0.374** (0.183)	-0.083** (0.040)
Food Expenditure	-0.000** (0.000)	-7.14e-06** (0.000)
Non-food expenditure	0.000* (0.000)	6.23e-06* (0.000)
Marital status (Base=Single)		
Married	3.381*** (1.050)	0.689*** (0.138)
Secondary Occupation	0.675 (0.672)	0.142 (0.133)
Type of income (Base: Salary)		
Business proceeds	-1.970 (1.873)	-0.456 (0.376)
Log likelihood	-36.753***	

Conclusion and Outlook

This study explored willingness to accept a health lock-down consequent on the global COVID 19 pandemic. The number of days the respondents were WTA was 4 days; which was significantly dependent on age, household size, and household expenditure. Other containment and safety measures were likely to be more acceptable than a lock down in view of vulnerable livelihoods.

Thus, while health pandemics are a cause of national concerns, a massive livelihood failure could even be more of a concern in terms of loss of income, hunger and attendant social unrests that could arise. From the results, this study recommends a more contextual based intervention in health pandemic that would not negatively impact livelihood.

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