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Willingness to Pay for Improved Health Walk on the Accra-Aburi Mountains Walkway in Ghana

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Abstract:- This paper assesses hikers' preferences for improved health walk on the Accra-Aburi Mountains walkway in Ghana adopting the Contingent Valuation Method (CVM). We used questionnaires to collate data from hikers on the Accra-Aburi Mountains walkway. We employed a random sampling technique to select400 hikers that visited the site. We admit that a larger sample size would have been better but the sample size of 400 used was enough to find the results of WTP for improved health walk of hikers in 2020. The questionnaire was distributed to the hikers through face-to-face interviews elicitation method. The Conventional Payment Card (CPC) method is employed to elicit preferences from hikers in order to determine the mean and the median willingness to pay (WTP) for an improved health walk. The values from the interval regression analyses reveal that hikers on the average are prepared to pay GH₵0.90 ($0.2) per trip and a median value of GH₵0.70 ($0.16) per trip for improved health walk. Demographic features such as age, education, household size, distance to site and mode of transportation determine WTP for improved health walk. Out of these variables, only distance to site declines with their WTP for improved health walk.We recommend to the government to revise their budgets and policies for the demographic features of the hikers since they arethe key determinants of the hikers' WTP for improved health walk. Finally, we suggest to the government to use the valuation values to determine the economic viability of health walk improvement programmes in Ghana since hikers' preferences are now obvious.

Keywords:- *Contingent valuation, willingness to pay, conventional payment card, health walk, Accra-Aburi Mountains.*

LIST OF ABBREVIATIONS

CPC	–	Conventional Payment Card
CVM	–	Contingent Valuation Method
OLS	–	Ordinary Least Square
SPC	–	Stochastic Payment Card
WHO	–	World Health Organisation
WTP	–	Willingness to Pay

I. INTRODUCTION

Moderate physical exercise like walking is a common and a cheapest way of exercise among group of people who are physically inactive [12; 17]. Walking as a way of exercise does not demand for any special equipment as well as poses minimal threats in the form of injuries to the people involved. A critical analysis of empirical and practical works of researchers have shown that health walk improves cardiovascular health, reduces risk of heart diseases and stroke, improves muscle strength, reduces body fat,reduces blood sugar, burns calories, boosts immune function, provides stronger bones, increases life expectancies and reduces cost of health care [27; 35; 36].

Health practitioners have recommended that exercise like walking is one of the main antidotes for preventing joint pains and also has the tendency to facilitate control of one's weight. The presence of exercising can reduce pain and helps people to control their weights whilst the absence of exercising can worsen the condition. This implies that people that do not partake in exercising like walking are exposed to preventable diseases and do not enjoy the benefits of strengthening the muscles and improving their health to get through the day. In some countries, people living sedentary and lavish lifestyles and people battling against chronic diseases have instituted group walking as an acceptable way of promoting exercise [17; 26; 27].

Specifically in Ghana, the nature of the economy does not make people mobile especially in the urban centres where there is the emergence of sedentary lifestyles and the high demand for white-collar jobs among urban dwellers [44]. However, the absence of physical exercise or hiking exposes these citizens to conditions like overweight, diabetes, hypertension, hypotension, depression, joint and muscular pains, stroke, weak immune function and high cost of health care[8; 14; 22;34]. Over the years, the Accra-Aburi Mountains has become a fitness centre in Ghana for most residents in Accra and some neighbouring towns in the Eastern region. The steep winding mountains have attracted both the young and the old to regard the site as a fitness center. The place has become a recreational centre where most people visit to have health walk, exhibitions and gymnastics.

Evidence have shown that there have been studies into environmental valuation using the Contingent Valuation Method (CVM) in some countries (19; 28; 29; 30; 32). Most

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of these studies investigated areas such as waste management [30], museum [11] without economically valuing health walk. For instance, [11] conducted a survey on economic valuation of visiting museum in Calabar, Nigeria. The result shows that the visitors mean annual use value of the museum ranges from 83,087 ($237.37) to 373,206 ($1,066). This result far exceeds the annual average income of 331.67 ($0.95) individual pay to visit the museum as an entrance fee.

Similarly in Ghana, there have been some studies into valuing environmental resources like piped-water supply (3) and electricity supply (40). For instance, (3) did a survey of 1,648 urban households in Accra, Ghana to determine the economic value of reliable piped-water supply using competing methods to provide validity checks for the estimates. The results from the CVM show that households on the average are willing to payGH⊄47.80 ($15.25) per month. These amounts were equal to 3%-8% of households' income. [40] did study to evaluate households' WTP for improved electricity supply including other indicators that determine willingness to pay (WTP) through a contingent valuation (CV) survey. The findings show that households in Ghana on the average are ready to pay ¢0.2734 for a kilowatt-hour is one and a half times more than what they were paying at the time. An econometric analysis of the determinants of households' WTP for improved electricity supply show that household income, sex, household size, secondary and tertiary education are the significant factors. Reference [40] employed the CVM in a study to analyse household's WTP for potable water supply in the Accra-Tema Metropolis. The results show that households in the metropolis on the average are ready to pay GH¢0.10 for a bucket (17.5 litres) of water is seven times more than what they were paying at the time. The results further show that variables such as income level, time spent to fetch water from existing sources, educational level, sanitation facility, perceived quality of present water supply, sex of the participants and marital status influence households' WTP for potable water supply services in the metropolis.

In CVM surveys, the participants are asked about their WTP for preserving or improving an environmental resource as well as observing individuals' behaviours through the responses they provide to the hypothetical questions. To achieve the aforementioned objective, the CVM is used to evaluate hikers' preferences associated with improvement in health walk as well as to determine the monetary value that hikers on the average are ready to pay for an improved health walk on the Accra-Aburi Mountains walkway in Ghana.

II. MATERIAL AND METHODS

A. *Theoretical Framework*

The theoretical underpinnings for estimating environmental resource rely on microeconomic welfare theory where individuals or households increase their satisfaction under income constraint, or reduce their expenditure under satisfaction constraint [39]. In achieving this, three separate methods to ask CV questions exist: open-ended, where the hikers are asked to indicate the amount that they are prepared to pay; closed-ended, where the hikers are asked if they are prepared to pay specific amounts or not and, bids, where hikers are first asked if they are ready to pay particular amounts. These questions are asked again by employing a higher or lower bid value based on the answers hikers give to the first questions [18].

The CVM designed by [24] is one of the methods for estimating non-market resources. In a CVM survey, the participants are asked about their WTP for preserving or improving an environmental asset. In doing this, we assign monetary values to the asset by computing the average WTP of participants and multiplying this by the total number of consumers. Although a CV questionnaire is an important instrument for using this method, the formulation of a good questionnaire cannot be undermined to achieving a reliable study [24; 41]. The CVM tries to find out from participants the amount that they are ready to pay under certain hypothetical market conditions [9; 10; 21].

However, the application of CVM is contentious because it is reliant on stated preferences to hypothetical questions rather than preferences revealed through the real behavior of individuals [35]. Despite the fact that the ability to quantify non-use values have been criticized, other researchers have questioned the capability to simulate market behavior [8]. The major inconsistency with the WTP values is about the inherent respondent uncertainty that occurs in the hypothetical markets generated in the CV surveys. The absence of credibility for providing authority for public goods that is of interest creates concerns for researchers. Moreover, there is a challenge that the opinions among participants that the hypothetical answers provided in CV studies have no effects in the policies or in the goods provided [21; 28; 43]. A typical Stochastic Payment Card (SPC) format question was about finding out from the hikers the likelihood that they would be ready to pay if prices were increased. This scenario was used to estimate individuals' WTP distributions.

Nevertheless, previous studies that attempted to correct the uncertainties and hypothetical biases in WTP have led to inconsistent results [1; 23]. Such inaccurate and inconsistent findings are not able to ensure valuation information, which might be depended to inform policy concerning market decisions [23; 38]. In view of this, more studies have been done on participant's uncertainty revision in non-market valuation [1; 7; 23; 25; 38]. This study therefore evaluates welfare and scope effects of participant certainty in CV through the use of theConventional Payment Card(CPC) format to collate individuals' preferences premised on a detailed policy that can improve health walk in Ghana.

The CV methodology is traced to the neo-classical welfare economic theory of consumer behavior on cost minimisation [15]. As adopted by [28], we consider this general expenditure function for a person residing in and around Accra and Aburi:

$$(p, \mathrm{k}, u) = y \quad (1)$$

Where p connotes the price vector, k denotes improvement of walks on the mountain; u represent the level

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of utility, and y is the lowest income that is required for the hiker to achieve utility level u given prices p and k which is the improvement of walks on the mountain.

Again, let us look at a case where a policy is designed to improve walking using the mountain by blocking one of the lanes of the road for individuals to use the road for walking and hiking. The policy, thus, reduces the risks associated with using the roads (Blocking the road causes traffic so the toll booth should be removed and the booth should be compensated). The participants are then questioned about the amount that they would be ready to pay to block one of the lanes of the road which causes traffic for motorists.

The expenditure function before the policy proposal would be:

$$e\ (p, k_0, u_0) = y_0 \quad (2)$$

Where u_o connotes the initial level of utility that the hiker could enjoy given prices as p, k_o is the initial state of the road and y_o representing the lowest level of income needed to achieve utility level u_o.

Because the new policy is anticipated to make the mountain friendly to users, the new expenditure function would therefore be:

$$e\ (p, k_1, u_0) = y_1 \quad (3)$$

Where k_1 denotes the quality of the walk way after the execution of the suggested policy and $y_1$connotes the lowest level of income needed to reach utility level u_o after the execution of the suggested policy. The level of utility, u_o is held constant since Hicksian welfare measures state that utility remains unchanged. The individual's WTP for improved health walk is expected to indemnify variation measures. This is because an individual is expected to incur a certain cost for the improvement to take place. The compensating variation C is equivalent to the person's WTP and this is given by the difference between the expenditure functions $y_1$and y_0, that is:

$$C{=}WTP = y_1 - y_0$$

$$= \{e\ (p, k_1, u_0)\} - \{e\ (p, k_0, u_0)\} \quad (4)$$

The improvement of the walkways on the Accra-Aburi Mountains after the execution of the policy, k_1, is generally more than the initial state of hiking on the mountain, k_o. As utility and prices are held unchanged, y_1 (the lowest income level needed to achieve utility level u_o after implementing the suggested policy) is less than y_0. The compensating variation would therefore be negative suggesting that a hiker has to pay a certain amount to reach the improved level of hiking on the Mountain.

B. Study Design

We employ a survey design which permits the study to rely on research instruments such as questionnaires. The CVM is used to evaluate hikers' preferences associated with improvement in health walk and also, to evaluate the scope effects of hikers certainty in CV. The CPC is premised that hikers are certain about their preferences. The interval regression model is employed to compute both the bottom-up and the top-down mean WTP for improvement in health walk and also, to explain hikers' responsiveness to scope. In the CPC format, the amounts selected are used to compute an interval by situating each response within the interval. For the CPC, the highest amounts that the hikers are certain that they would pay are used to form an interval by situating each response within the interval. The responses generated from the WTP from the valuation formats are used as intervals rather than point valuations for easier matching across formats.

C. Study Sample and Data Collection Instrument

We used questionnaires to collate data from hikers on the Accra-Aburi Mountains walkway. We employed a random sampling technique to select400 hikers that visited the site. We admit that a larger sample size would have been better but the sample size of 400 used was enough to find the results of WTP for improved health walk of hikers. The questionnaire was distributed to the hikers through face-to-face interviews elicitation method. The hikers involved in the study were at least 18 years old. One in three passing hikers descending from the top of the mountain was approached between the hours of 5:30am-8:00am GMT to capture all the necessary information. Here, hikers were asked questions based on the CPC valuation format. The questionnaire had seven sections with 59 questions. The questionnaire consisted of yes/no, multiple choice, open-ended and closed-ended questions. Section one outlines demographic characteristics of the hikers such as household income, working hours in a week, year of birth, educational level and so on. Section two contains information on the site such as first time of visit to the site, how many times they go for hiking and hours spent on the site. Section three captures questions on hiking decisions such as visits to other sites, reasons to hike on the mountain. Section four deals with the impact of health walk on the hiker's health. Section five has questions on health conditions. Section six seeks information on expenditures. Finally, section seven examines questions on the WTP for improved health walk. Prior to going to the field to collect the actual data, piloting was done to check for the clarity of expressions and effectiveness of the questionnaire. The outcome was that hikers were reluctant to give out information on income and therefore, we used questions on expenditure as a proxy for income although there was still a section on income. The bid amounts were derived from the piloting period from which the mean, median, lowest and the highest WTP values were computed.

D. Elicitation Method

The Payment Card (PC) format is used to stimulate the preferences of hikers depending on a detailed policy that enables hikers to use one lane of the road during weekends in Accra-Aburi walkway. Here, the hikers are given cards to select the highest amount that they are prepared to pay for the revenue loss each time they visit the site. Based on the responses received, determination is ascertained their true WTP, which is equivalent to or more than the selected value

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but lesser than the subsequent greater value. This format provides the hikers the opportunity to go through a range of value intervals and hence, determining the intervals within which their WTP lie [4]. The CPC format generates data which is less scattered and does not demand large sample size to provide viable values. This CPC format doesn't experience the "yeah-saying" and starting point bias syndrome like other CV formats [6]. Although the CPC questions are theoretically exposed to interval and mid-point bias, there is a limited empirical case for the presence of interval or mid-point bias [36; 26]. Although, the CPC format is still seen as being able to yield protest zeros, it has not been established as giving a larger share of protest zero responses as against other CV formats (17; 20; 26 & 9). The valuation questions are formulated as follows:

Suppose there is a policy that during weekends and public holidays one portion of the road would be opened from 5:30am-8:00am GMT for hikers to use the road for walks. This policy will cause traffic congestion for motorists, but will open one lane to human traffic. On average, keeping one side of the road open for health walk causes a twenty minutes delay in motor traffic. To ease the congestion, drivers will not pay the toll. What maximum amount are you prepared to pay for the revenue loss each time you visit the site? A booth will be set up by the government along the walkway to collect the payments. (Please circle or tick one amount)

AMOUNT	TICK	AMOUNT	TICK
Gh¢ 0		Gh¢ 2.00	
Gh¢ 0.25		Gh¢ 2.50	
Gh¢ 0.50		Gh¢ 3.00	
Gh¢ 0.70		Gh¢ 4.00	
Gh¢ 1.00		Gh¢ 5.00	
Gh¢ 1.50			

Table : 1

E. Regression Method

According to [4], maximum likelihood procedure is efficient for payment card interval midpoints which clearly accommodate the intervals rather than the Ordinary Least Square (OLS). The OLS sometimes yields biased parameter values, misleading inferences concerning the impacts of different variables on resource values, and biased values of the total resource value. [4] employed the interval regression analysis to determine the mean and the median WTP estimates from the answers received through the payment card. Assuming WTP_M is the highest amount that a hiker is ready to pay and $WTP_L$is the lowest amount that a hiker is prepared to pay, the hiker would decide on 'No' instead of a 'Yes' answer, therefore the hiker's WTP is assumed to between (WTP_M, WTP_L)., the lognormal transformation of the WTP responses would be used in other to adjust for the skewed distribution of WTP answers. Therefore:

$$LogWTPi = gi'\varpi + \xi i \quad (5)$$

Where gi connotes the features of the hikers or the valuation good suggested, ξi denotes the normally distributed random variable with zero mean and standard deviation σ, and ϖ indicates the coefficients of the analysis.

Supposing that WTP is a random variable (Welsh & Poe, 1998), the probability that an individual would choose a given value is:

$$(yes) = (WTP_i \geq WTP_M) = 1 - (WTP_M) \quad (6)$$

Where WTP_M depicts the cumulative distribution function of the random WTP variable. The possibility that the WTP would lie between any two values is:

$$(WTP_L > WTPi \geq WTP_M) = (WTP_L) - Q_{WTP}(WTP_M) \quad (7)$$

The corresponding log-likelihood function for n number of hikers is shown as?

$$\mathrm{Log(M)} = \sum_{i=1}^{n} \mathrm{Log}\{Q_{WTP}(\frac{WTP_L - \varpi\mu i}{\sigma}) - Q_{WTP}(\frac{WTP_M - \varpi\mu i}{\sigma})\} \quad (8)$$

Suppose the stochastic term is normally distributed, ϖ and σ can be determined and be employed to calculate the mean and median WTP estimates. The mean WTP = $(\mu i\varpi + \sigma 2/2)$ and median WTP = $(\mu i\varpi)$. Here, μ is the mean's vector values of explanatory variables, ϖ as the vector of determined coefficients and σ as the determined standard variance.

III. RESULTS AND DISCUSSIONS

A. Summary Descriptive Statistics of Hikers

The mean age of the hikers is 30.64 years with the men constituting about (60.5%) of the hikers whiles 39.5% representing the women. The majority of hikers had acquired tertiary education with an average household size of about 5 persons. The hikers' yearly income varied between GH⊄3000 ($666.67) - GH⊄50,000 ($11111.11). On the average, the hikers lived about 9km away from the mountain. An encouraging number (27%) of the hikers drive to the site by their own vehicles. The results further revealed that people are familiar with the benefits health walk especially when it is done on a regular basis as it improves the health of individuals. Moreover, 35.75% of the hikers visit the site in groups thereby making it more fun to go there. Table 3.1 provides the details.

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Variable	Description	Mean	Std. dev.	Min	Max	Sign
Age	Age of hikers in years	30.64	8.81	18	55	+/-
Gender	Gender of the hikers (Male = 1/0	0.61	0.49	0	1	+
Education	Number of years spent in school	13.64	3.63	0	20	+
Household income	Average household income of hikers in a year in Ghana cedis (GH₵) (Categorical: 1= <10,000; 2=10,001-20,000; 3=20,001-30,000; 4=30,001-40,000; 5=40,001-50,000; 6=50,001-60,000; 6=above 60,000).	72612.9	54741.33	30000	500000	+
Household size	Number of family members in the household (categorical: 1=1; 2=2; 3=3; 4=4; 5=5; 6=above 5 members).	5.24	2.48	1	17	+/-
Distance to the site	Distance to the site in kilometers	9.44	10.34	1	60	+/-
Mode of transportation	Mode of transportation to the site (dummy variable: 1=own vehicle; 0=otherwise)	0.27	0.44	0	1	+/-
Geographical area	Whether the hikers resides within Greater Accra or not (Dummy variable: 1=Greater Accra; 0=otherwise).	0.79	0.408	0	1	+

Table 1: Summary Descriptive Statistics of Hikers

Source: Author's Survey, 2018

B. Summary of Hikers' Willingness to Pay

The results reveal that about 90% of the hikers indicated a positive WTP for the road to be opened for improvement in health walk as against 10% of the hikers indicating a zero WTP for the road to be opened for improvement in health walk. A closed-ended question was posed to the hikers to give reasons for the zero WTP for improvement in health walk. This helped distinguish protest responses from true zeroes. Table 2 provides the details. Four possible options were presented to hikers, namely in a multiple response mode: (a) because health walks have no value to me (b) because it is the duty of the Government (c) because I have many other financial obligations (d) other.....

WTP	Frequency	Percentage
Positive WTP responses	360	90%
True zero WTP responses	40	10%
Sample size	400	100

Table 2: Summary of Hikers' Willingness to Pay

Source: Author's Survey, 2018

C. Mean Willingness to Pay and Determinants of Health Walk

The findings show that hikers on the average are prepared to pay GH₵0.90 ($0.22) and a median value of GH₵0.70 ($0.16) for an improved health walk. We performed the spearman's correlation test to test for the presence of multicollinearity to ascertain the originality and predictive justification of the model. The presence of one or more large bivariate association with rho coefficient of 0.8 and 0.9 indicate strong linear associations, suggesting collinearity could be an issue [2]. The findings show that there is no multicollinearity among the regressors since the rho coefficients of correlation are below the established rule ($\rho<0.9$) for the indicators. See Table 3 for details.

	Age	Gender	Education	Household Size	Average household income	Distance to site	Mode of transportation	Geographic area
Age	`1.00							
Gender	0.048	1.00						
Education	0.250	-0.087	1.00					
Household Size	0.04	0.20	-0.22	1.00				
Average household income	0.323	0.116	0.260	-0.043	1.00			
Distance to site	-0.160	0.126	-0.168	-0.001	-0.009	1.00		
Mode of transport	0.355	0.091	0.117	0.004	0.278	-0.060	1.00	
Geographic area	0.183	0.035	0.101	-0.073	0.146	0.090	0.115	1.00

Table 3: Results of Spearman's Correlation Test

Source: Author's Survey, 2018

D. Determinants of Willingness to Pay for Improved Health Walk

To determine WTP, demographic features like age, gender, education, income, household size, distance, mode of transportation and geographical area were regressed against the grouped data on WTP. Out of these variables, age, education, household size, distance to site, and mode of transportation determine WTP.

The age of the hikers have a positive association with WTP. This suggests that the higher the age, the higher the likelihood of the hiker's WTP for an improved health walk. This is because both the young and the older people know the positive effects of exercise on health. This finding is in line with a survey by [42] in application of CV in air quality and[30] in application of CV in environmental quality. This could mean that persons that are ageing are conscious about their health and are ready to invest in their health by means of health walk or hiking.

The household size variable was used to explain hikers' decisions to pay for improved health walk. The results show that household size increases with WTP. Thus hikers who come with their households on the average are more prepared to pay for improved health walk than hikers who do not come to the site with their households. This is theoretically true because most of the hikers come to the site in groups which makes it more fun to have exercise on the Accra-Aburi Mountain. This finding contradicts a study by [41] that household size decreases with WTP. The results were different because of the application of CV's in different fields in their respective studies. The total amount of money to be paid by the group could be shared equally among the group members which is quite cheaper and affordable as compared to incurring the cost if the hiker had visited the site alone.

The distance variable is employed to ascertain how WTP varies with distance because it is assumed that hikers residing closer to the mountain may benefit more than hikers residing from afar. The findings gave evidence of a negative association between distance to site and WTP. This explains the point that hikers residing nearer to the site are more prepared to pay for improved health walk than those staying afar. Studies by [5; 30; 40 had similar results that persons staying closer recreational centres are ready to pay more than those from afar. This could further be explained as a result of low travelling cost of people staying closer to the site as against those staying afar from the site with high travelling cost.

With respect to the relationship between mode of transportation and WTP, a positive relationship was anticipated because of the importance of exercise or walks to hikers. The results show that those who have their own cars on the average are willing to pay more than non-motor vehicle owners. These results are similar to a study by [13; 5] which revealed that persons with their own cars are more willing to pay for health walk than persons without their own cars. Moreover, people without their own cars perceive boarding a public vehicle to be frustrating, stressful and time consuming as against having their own cars so they would not be ready to pay for health walk.

Education has a positive association with WTP which confirms the hypothesis established earlier. This suggests that people that are educated have a higher likelihood of paying for improved health walk as compared to people that are not educated. It has become a norm that persons that are educated have in-depth knowledge about regenerative health care will require a higher WTP than an uninformed person. This study is the same as studies done by [2; 16; 31]. It is always assumed that persons that are educated are knowledgeable about their health so they are always ready to invest in their health through hiking. This means that if the literacy rate in Ghana shoots up significantly, there is the likelihood that most Ghanaians would take health walk seriously to improve their health. See Table 4 for details.

Variable	Coefficient	Standard Error
Age	0.012**	0.005
Gender	0.044	0.087
Education level	0.033***	0.012
Household size	0.036**	0.017
Average income	0.000	0.000
Distance to site	-0.004***	0.001
Mode of transportation	0.260**	0.102
Geographical area	-0.042	0.104
Constant	1.379***	0.427
Log likelihood	-371.06138	
Number of observations	201	
LR chi2(8)	53.15	
Probability > chi2	0.0000	
Mean WTP (in cedis)	0.884	
Standard error	0.6955	
Median WTP (in cedis)	0.700	

Table 4: Determinants of Willingness to Pay for Improved Health Walk

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Source: Author's Survey, 2018 Notes: ***, ** and * denote p<1%, p<5% and p<10%

E. Estimated Marginal Effects from the Interval Regression Analyses

The finding from the marginal effect explains the relative change in probabilities for a unit change in a particular explanatory variable. The marginal effects of age are positive. The age of the hikers increases with WTP for improvement in health walk. That is for any additional year, hikers on the average are ready to pay 1.3% for improved health walk. This is true because of the benefits that individuals get from health walk especially when ageing.

The marginal effects of educational level are positive. It is observed that WTP get higher as education level increases. Specifically, when the level of education increases by 1%, hikers on the average are prepared to pay 3.3% for improvement in health walk. This is true because educated people are conscious about their health and also, are aware of the benefits associated with health walks and its resultant effects on the economy.

The marginal effects of household size are positive. This means that the probability of a large household WTP for improvement in health walk is 3.6% as compared to a small household size. This is theoretically true because most of the hikers come to the site in groups which makes it more fun to have exercise on the Accra-Aburi Mountains walkway.

The marginal effects of distance to site are negative. The distance to site decreases with WTP. This implies that the more hikers have shorter distance to the mountain, the more they are prepared to pay for improvement in health walk as compared to hikers with longer distance. Specifically, hikers who stay closer to the mountains on the average are willing to pay 0.04% more than those who are far from the mountain.

The marginal effects of mode of transportation are positive. This shows that hikers who have their own cars are ready to pay more than non-motor vehicle owners. That is car owners on the average are prepared to pay 25% more than non-car owners. See Table 3.5 for details.

	dy/dx	Std. Err.	Z	P>|z|	[95% Conf.	Interval
Age	.0129343	.005367	2.41	0.016	.0024152	.0234534
Gender	.0446312	.0873052	0.51	0.609	-.1264839	.2157463
Educational Level	.0329093	.0124053	2.65	0.008	.0085953	.0572233
Household Size	.0365363	.0174608	2.09	0.036	.0023142	.0707594
Average Household Income	7.96e-07	1.56e-06	0.51	0.610	-2.26e-06	3.85e-06
Distance to Site	-.0042473	.0012666	-3.35	0.001	-.0067297	-.0017648
Mode of Transportation	.2598997	.101686	2.56	0.011	.0605989	.4592005
Geographical Area	-.0421167	.1040578	-0.40	0.686	-.2460662	.1618329

Table 5: Estimated Marginal Effects from the Interval Regression Analyses

Source: Author's Survey, 2018

IV. CONCLUSION

This study seeks to analyse hikers' preferences for improved health walk on the Accra-Aburi Mountains walkway using the CPC format. The CPC format is an elicitation method where hikers are given cards to select the highest amount that they would be ready to pay for each time they visit the site.The finding from the interval regression analysis shows that hikers on the average are ready to pay GH⊄0.90 ($0.2) per trip and a median value of GH⊄0.70 ($0.16) per trip for improved health walk. Demographic features such as age, education, household size, distance to site and mode of transportation determine WTP for improved health walk. Out of these variables, only distance to site declines with their WTP for improved health walk. We recommend to the government to revise their budgets and policies for the demographic features of the hikers since they arethe key determinants of the hikers' WTP for improved health walk. Finally, we suggest to the government to use the valuation values to determine the economic viability of health walk improvement programmes in Ghana since hikers' preferences are now obvious.

V. ACKNOWLEDGEMENTS

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APPENDIX A: DIAGNOSTIC TEST

Spearman's correlation test

	Age	Gender	Education	Average household income	Distance to site	Mode of transportation	Geographical area
Age	1.00						
Gender	0.048	1.00					
Education	0.250	-0.087	1.00				
Average household income	0.323	0.116	0.260	1.00			
Distance to site	-.160	0.126	-0.168	-0.009	1.00		
Mode of transportation	0.355	0.0912	0.117	0.278	-0.060	1.00	
Geographical area	0.183	0.035	0.101	0.146	0.090	0.115	1.00