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DEPARTMENT OF ECONOMICS

HOUSEHOLD WIILLINGNESS TO PAY FOR URBAAN GREEN AREA DEVELOPMENT IN CASE OF WOLKITE TOWN

ASENIOR ESSAY PAPER RESEARCH SUBMITTED TO THE DEPARTMENT OF ECONOMICS FOR THE PARTIAL FULFILLMENT OF THE REQUIREMENT OF A BACHELOR OF ARTS (BA) DEGREE IN ECONOMICS

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Declaration

I declare that the thesis for the BA degree in Economics at Wolkite University hereby submitted by me, is my original work and have not previously been submitted for a degree at this or any other University, and that all references materials contained therein have been duly acknowledge**.**

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LIST OF ACRONYMS AND ABBREVIATIONS

CVM Contingent Valuation Method

EPA Environmental Protection Authority

FUPI Federal Urban Planning Institute

HH Household

MUDH Ministry of Urban Development and Housing

NGO Non-Governmental Organization

SNNP South Nation and Nationalities Peoples of Ethiopia

UNFPA United Nation Population Fund

WTP Willingness to pay

WTA willingness to Accept

ABSTRACT

Household's willingness to pay for urban green area development important to offer the benefits derived from green environment. In spite of their benefit to the urban communities many people live in urban Ethiopia do not understand its significance or the potential It can bring to their city. Further due to fastest growth of population and urban expansion the green resources and open space are over exploited this pose several challenges to the urban natural resource sustainability. Therefore the major objective of this study is to estimate households' willingness to pay improved for wolkite Town, to achieve this objective the double bounded contingent valuation survey was applied and followed by an open ended question to elicit households willingness to pay for the proposed program through face to face interview of a total of 99 households. The bivariate probit model was to estimate the aggregate willingness to pay urban green area development the Finding of this stud indicate that the green cover of the town has been declining, and there were some measures were taken to replace the plant, however due to urbanization pressure and lack of conservation measures the existing green were destroyed. In this regard all of the households are willingness to pay for the proposed plantation program. The study revealed that Younger respondents, female respondents, married households, high income earners, stayed for long years in the town were found and those households who said community is responsible for green area plantation Therefore one important implication drawn from this study is that since households are willing to pay for the proposed program the authority in collaboration with the town administration is recommended to implement the proposed program for sustainable green environment development

Key words: Green areas, Green areas development, Urban.

CHAPTER ONE

1. INTRODUCTION

1.1. BACKGROUND OF THE STUDY

Urban green area is defined as all urban land covered by vegetation of any kind urban land expansion that is the process of creating the built up environment to house urban population`s and their activities green area is defined as all urban land covered by vegetation of any kind Urban land expansion which is one of the fundamental aspects of urbanization force out habitats, hydrology, land cover and surface energy balance (Creutziget al., 2015).Green area is essential by providing direct and indirect socio economic benefits to urban home owners and communities. The urban green infrastructure benefits urban population through provision of access to green spaces, healthy living, and educational achievement, and also for social (Wodarcyk, 2007). Green area Development air quality by removing gas and reducing air pollutants of Ozone, PM10, NO2, SO2; reducing air temperature and also green spaces provide insect supporting life and serve as a shelter for domestic animals and humans (Rumbleetal.,2015).

The urban green area depends on people's perceptions of environment, their preferences and the extent to which they fulfill the need of environment. It plays different role in cities, generating ecosystem service that tend to provide meaningful values for human wellbeing Such advantages have been widely recognized in international initiatives (Forest Research, 2010), in policy debates (TEEB, 2011), as well as in many studies that pointed out how crucial the aforesaid benefits are for both the health and environmental sustainability of cities (Bartonetal., 2013)

In order to add to the complexity of environmental values elicitation analyses and to develop an effective management strategy towards the use and conservation of natural areas, we focused our attention on the behavior of young people for two main reasons: firstly, because, if made particularly aware, they may almost certainly be capable of positively contributing to future environmental

quality. Indeed, they are in a particular stage of their lives in which they shape their personal identity and system of values and beliefs, which are very likely to be used both in their current and in their adult hood lifestyle (Sinha, 2013).The world is undergoing the largest wave of urban growth in history. Over the past 50 years the urban population of the world has increased by 7.3 billion people.

In 2050 this number would have expected to reach 9.7 billion, with urban growth this growth of urban population put a

Z Great pressure on urban green spaces (Shirazi and 2016).There are various environmental valuation methods used for natural and environmental resources. The most commonly used ones are, the contingent valuation method, choice experiment method, travel cost method and hedonic property price model. Among these contingent valuations method has been widely used to estimate the economic values of urban green space (Beljian et al., 2015).

The contingent valuation method has been widely used to measure the use and non-use values of environmental resources for which market prices couldn't directly be assigned the plantation resources in urban areas such as along streets, in neighborhood parks and green ways has been supported and carried out by local governments and households. The money household's or local governments are willing to pay for green space plantation reflects the market price of those urban green areas (Perlman, 2003)

Ethiopia has nine regional and nationally recognized zones; with each of them having their own capital. Wolkite town was the capital the town is currently experiencing rapid urban expansion and population growth. This poses greater pressure in urban greens and other natural resources (FUPI) city of guraghe zone which found in SNNP.

In many developing countries economic growth is experiencing through urban physical infrastructural development (Tim et al., 2017). Ibrahim et al., (2017) illustrates that 60 percent of Africa`s urban population lives in low quality living conditions, inadequate access to water and sanitation and crowded living condition with low capital and degraded environmental conditions. As land is main base for economic growth both for urban and rural areas, urban growth is altering the land use and land cover. Urbanization in sub-Sahara countries is changing the land use due to

infrastructure development and related studies agreed upon land use change has direct impact on urban environmental condition, ecosystem and energy balance (Wuy& Shen, 2011).

1.2 Statement of the Problem

Households' willingness to pay for urban green area development is important to offer the benefits derived from green environment. In the pursuit for healthy, inhabitable and sustainable cities, urban green spaces play an important role. In spite of their importance many people living in Africa have inadequate experience with green infrastructure development and underestimated land use decisions. Demographic change pressures the urban development to focus on building of house market. Transportation stations and other infrastructure than environmental issues of the urban areas (Minuyelet, 2005).The establishment and development of urban green areas across the urban centers have not been uniform and there is great variation among the urban centers. A result, they do not be aware of its importance or the potential it can convey to their city and towns (Young quist, 2011). This poses several serious disputes for planning, city development, livelihood environment and a huge challenge for urban natural resource sustainability (Molla, 2015).In Ethiopia a rapid growing urban population has put great pressure on urban green area and other natural resources. The establishment and conservation of urban green space in the urban towns and cities of the country have not been standardized. Further the green space on cities, in and around the property has not much developed. According to ministry of urban development and housing the urban residents in the country have not receipt the well-planned and well-developed management of green area; this implies that urban resident's responsibility in decision making for urban programs is not well established. In some cases, it shows that no department is responsible and aware for urban green area housing (MUDH, 2016).

According to Zhang (2007) illustrated that urban tree programs often strung Reliable and sustainable financial support, not only from governmental body but also from individuals, business people, and nonprofit organizations. Hence, this undermined that the importance of public support and participation for the development of a diverse and adaptable strategy. So, urban forest researches particularly, urban green area researches lacks key attention in Ethiopia. Several forest researchers

applied contingent for valuation of community forests in different part so rural Ethiopia (KOCH, 2012).

According to Gebregziabher (2010) analyzed household's tree planting in Tigray,Northern Ethiopia. The study applied cross sectional house hold level of data to analyze t h e determinants of household planting and to investigate the most important attributes that enhance the propensity green area plant. The study employed the logistic regression model to assess the main characteristic contributing to green planting choice of households. The study was conducted with the WTP as dependent variable and that of land size, household income, and nature of the dwelling age, gender, education level, employment level, family size, exogenous income, tenure security and agro ecology as independent variables to assess green area and the amount of planting

This paper was being increasing variable such as Size of households and marital status that are not included past researchers and employee by probit model. Furthermore, this study was use the recent data. These factors make the study for urban green area is important to fill the **(gap)** in the literature. As result, this study was attempted to assess household's willingness to pay for urban green area by using contingent valuation method in Wolkite town.

Urban green areas have seen as merely the left over spaces, which have not yet been developed with in an urban area. And that function as improving image of the city than ensuring quality of life of the public.

This study was emphasized on green areas development under urban landscape dynamics by assessing the nature and dynamics of green areas, perception of community towards benefit of green areas to wellbeing of the people and determinants of communal green area development. Furthermore, in this area so far no study has been conduct on issues related to house hold willingness participation in green area program.

1.3 Hypothesis

After collecting reliable data and making discussions about the household's willingness to pay for development urban green area the researcher expectations. Income, education, age of households is positively affecting their willingness to pay. House Hold Size: Household size is expected to be inversely related to WTP. It is assumed that big households will be willing to pay relatively less due to the associated high running costs (i.e. budgetary constraints). Thus, the study expects the sign of its coefficient to be negative.

Income of the Respondent (Incomr): Income of respondent is expected to be has direction relationship with the WTP. If the respondents have higher income they will be willing to pay high, and if the income of respondents will be low their willingness to pay also low GEN: Gender (1 = male and 0 otherwise) is supposed to affect WTP. A positive relationship between WTP and GEN might exist when the respondent is female.

1.4. Research Questions

- What are the factors that determine the household willingness to pay for urban green area?
- How can estimate the willingness to pay for urban green area?
- What is the role of households' size towards in the urban green area?

1.4.1. Objectives of the Study

1.4.2. General Objective of the Study

The general objective of the study is to assess the household's willingness to pay for urban green area development.

1.4.3. Specific Objectives of the Study

- To identify factors that determines the willingness to pay of households for urban Green area development.
- To estimate the economic value urban green area.
- To identify the role of household willingness to pay urban green area.

1.5. Significance of the Study

Among the other things, this study was create awareness and understanding about the importance of urban green area for urban residents. The study was useful to the urban local governments involved in urban planning's and will assist to draw the sustainable urban green development. For instance, the finding from this study will inform the town administration and urban planners to balance the physical developments with green economy development. Moreover, the study will give feedbacks to concern development actors of urban development to area.

1.6. Scope of the study

Urban green area was need the participation different governmental institutions this study was aims to analyzing the willingness to pay of households only. Specifically, the study was included two urban kebeles where the wolkite town administration has already developed to build new asphalt among two kebele namely; 01and02.The study was focus on the analysis of WTP of households for green space plantation. The study lacks comprehensiveness in entire representation of population (small sample survey in relation to the total population of the study area). It could be better to conduct survey from all 01 Kebele. Moreover, the study was concentrated on the demand side of environmental goods. Thus, supply be the target of future researchers.

1.7 Limitation of the study

Every study has its own limitation no study can be perfect and carried out as originally intended. When the researchers conduct the study, the researcher faces the following limitations while conducting the overall study:-

- Lack of experiences in the field of study.
- Lack of organized and accurate material in adequate documentation of the data in the study.
- Insufficient time and cost for collecting the data.

Even though these problems would exist in the town, the researcher would use the maximum effort to investigate the household willingness to pay development urban green area in the given area in a good manner

1.8 Organization of the Study

The research has organized in to five chapters. The first chapter back ground of the study, statement of the problem, hypothesis, research question, objective, scope of study, significance study, Chapter two deals with literature review which contains; theoretical, empirical and conceptual part. Chapter three contains; a methodology that contains source of data, sampling technique, general back ground of study area, research design, sample size and method of data analysis and model specification. Chapter four results and discussion and Chapter five is conclusion and recommendation

CHAPTER TWO

2. REVIEW OF RELATED LITRATURE

2.1 Theoretical Literature Review

Green area provides many environment and social benefits, which are well documented in the literature. In opinion of Mansfield (2002) increasing the forest cover in a city can reduce summertime's heat and wintertime's cold. Planting trees located around residences can reduce both cooling and heating costs by decreasing summer heat and winter cold. Saving of 1.9% to 2.5% on cooling costs for each per tree have been estimated for each residence so this fact provides a strong financial incentive to choose house's location around areas with dense trees covering. The contribution of green spaces is difficult to assess and quantify. Economists have used a variety of techniques for valuing non-market environmental benefits (Suparmoko, 2008).

Economic values of urban green area can be measured by means of mathematical model. More than 30 studies have shown that parks have a positive impact on nearby residential property values. Other things being equal, most people are willing to pay more for a home close to a nice park. Economists call this phenomenon "hedonic value (Harnik and Welle,

2009).

2.1.1. Motives for Valuation of Environmental Goods

Valuation refers to the process of establishing a monetary value for the good or service in question. Environmental goods often have the characteristics of public goods and externalities, which market prices cannot be relied on. Valuing non-market benefits of environmental resource has been the subject of recent economists. Estimating the monetary value of non-market benefits of environmental resource would use to influencing the relationship between economic growth and environmental quality.

Further it provide ways to measure the benefits and costs of different policy options (Perman, 2003) and used to investigate how individuals make trade-offs between environmental good and other commodities(Haab and McConnell, 2002).

2.1.2 .Total Economic Values of Environmental Resource

Natural economists divided value into two main categories: use value and non value. Total economic value refers to the sum of these two values.

1. **Use values**: values strictly associated to direct physical interaction with the use of the good. It can be divided into two: direct use value and indirect use.

Direct use value: refers to the advantages that peoples obtain directly from the environment. It can be also categorized in to two specific components as destructive and non destructive direct use values. Direct use values like minerals mined from land and lumber from forest are extractive by nature in that the quantity available resource diminish with continues use of the ecosystem services(Yibrie,2011)..

Indirect use value: is characterized by ecosystem or environmental services which have a catalyst role in the production of final goods and service as land, nutrients and water play an important role in the food processing (Etensa, 2014).

2. **Option values**: is related with the value or use of environmental resource for forthcoming generation. What a related value is quasi-option value which value the potential of employing goods and services. Thus option value reflects the willingness to pay to preserve the option to use the environmental resources at sometimes in the future (Yibrie,2011).

3. **Non-use values**: sometimes called passive use value or intrinsic value. It can be divided in to bequest values and existence value. The former refers value of leaving use and non-use values to future generations. Existence value refers value derived from knowledge that resource exists or will continue to be existing, unrelated to actual or potential use their source (Permanetal. 2003).

Table 2.1 classification of total economic value of forest/tree

Use values			Non use values
Direct use values	Indirect use values	Option values	Existence values
-timber products/values - fuel wood and charcoal - taking tree products such as honey, cocoa - non timber products - source of food - tourism and recreation - amenity values	-water shade protection -carbon storage and Sequestration -pollution removal - protect soil degradation	- Future direct and indirect use values -Conserved habitats -medical plants	-biodiversity -Genetic information -Culture

Source: Adapted from Pearce, 2001

2.1.3. Environmental Resource Valuation Techniques

Most recent economists have committed considerable effort to develop and apply methods for valuing non-market benefits of environmental resource in monetary terms. All of the methods try to describe these utility derived from non-market goods and based on consumer demand using the willingness-to-pay of consumers for a particular non- and services market benefit in monetary terms (Haab and McConnell, 2002).

The most someone's need to for gone in other goods and services in order to achieve a good, service, or state of the world is used to measure the economic value of any good and services. So that total economic value is the net sum of relevant WTP and WTA. These valuation methods can generally be classified as direct and indirect valuation method (Haavardsholm, 2015).

2.1.4 Indirect Valuation Methods (Revealed preference)

Indirect valuation methods apply for market that the environmental good is implicitly traded. A major element in the theoretical framework used to model this the model of the optimization behaviour of an economic agents that relate the agent's choices to the relevant prices and constraints. The method relays on observational choices peoples make concerning market goods in order to predict the monetary value of nonmarket goods; it includes hedonic pricing method, travel cost method (Freeman,2003)

2.1.5 Travel Cost Method

It can be used to value recreational sites. A trip to a recreational site requires an individual to incur costs in terms of travel, entry fees, on-site expenditures and time. These costs people incur are used as a proxy for the value of the site and changes in its Quality (Pearce and Howarth, 2000). Assumptions about people responses for travel costs in relation to the change admission price might not always be true and limited in its purpose because it involves user participation and also problematic for multiple destination trips. And also standard approaches that gives information about present condition, but not about gains or losses from expected change in resource situations (Tadesse, 2014).

The first formal characterization of hedonic pricing method developed building based on consumer theory. The method describes the price of a quality differentiated commodity in terms of its quality attributes based on market relationship between housing price and environmental quality to obtain welfare effect of change in quality. It has many applications that measure the value of household preferences for noise nuisance, air quality, and physical separation from locally-undesirable land (earth quake), landscape values of woodlands and the value of a statistical life. However this method is failed to estimate non use values of an environment Resource (Hanley, 2009).

2.1.6(Direct Valuation Methods (Stated Preference Method)

Sit involves asking a sample of the relevant population question about their WTP or WTA. Seek to stated preferences directly through the question in go find individuals on their willingness to pay or willingness to accept for a good or a service in question. It includes two methods namely contingent valuation method, and choice experiments (Hanley et al., 2009). The choice experiment method is one of a stated preference technique. The method adopts a particular view on how the demand for the environmental good is best described, what is so called the characteristics theory of value. That asks there respondent to state a preference between one set t of f environmental characteristics or attributes provided, either in terms of price or cost to the consumer and another set of environmental characteristics at a different price or cost It allows each characteristic to enter choices on its own, or also in combination with other characteristics (Tadesse,2014).

2.1.7 Contingent Valuation Method

Contingent valuation method is first originated from Bowen to value social goods and collective the extra market goods (Carson and Hanemanns, 2005). It practically applied to work in to estimate the benefits of outdoor recreation in a Maine Woods (Verbic, 2007). A CVM is a stated preference technique that involves asking a sample of the relevant population questions about their WTP or WTA and the only valuation method available for non use values. This method is called contingent valuation because the valuation is contingent on the hypothetical scenario put to respondents values (Perman et al., 2003).

The contingent valuation method has two major advantages over the indirect valuation methods. First, CVM deals with both the use and non use values of the environmental resource while the indirect methods have deal only with the use value. Second, survey responses to willingness to pay or willingness to accept hypothetical questions go directly y to the monetary measure so futility change (Permanetal. 2003).

There was a problem of strategic bias that arises from respondents lying in order to influence the estimate in one way or another, starting point bias or payment vehicle bias arises from the design of the questionnaire (Haavardsholm, 2015). Further information bias occurs when the respondents do not have well defined preferences for non marketed goods and hypothetical bias

arises because the responses to CV questions will over value peoples true willingness to pay for non marketed good and finally the divergence between willingness to pay and minimum willingness to accept has also another problem (Carson et al.,2000).

2.2. Empirical Literature Review

According to Zhang (2007) analyzes the public attitudes towards urban trees supporting programs in Alabama urban residents using the probity model to consider the level of willingness to donate time and money for community forestry programs. The result of this study indicate that the individuals who aware for forestry concerned program. The study found that individuals, who care for forestry related programs, carry on a full-time job, greater than56 age group, and receive yearly income greater than U.S. $75,000, have a positively correlated with willingness to donate money and voluntarily donate time for urban forestry programs and activities.

According to Adekunle (2008) examined the economic value of the environmental service functions of forest trees in Abeokuta, university of agriculture using contingent valuation method. The result of this study shows that individuals who is in the age group between 45 and 55, earns high income, single marital status, post graduate qualification and male respondents found to be high willingness to pay for the environmental service functions of forest trees. The average monthly WTP for environmental service of trees ranged from $0.54 to $1.194 with corresponding aggregate values of $186 and $401 lower and upper limits respectively

According to Foster (2010) estimated the economic value of Tampa's urban forest resource in US using contingent valuation method. The result of this study shows that willingness to pay is positively associated with income, education, environmental preferences, and use and knowledge of Tampa's urban forest. Respondents in the group of 36-49, earns higher income (greater than $100,000 per year), those with graduate or professional degrees have high willingness to pay for environmental improvements According to Sinha (2013) examines urban forestry in India showed that urban trees provide a variety of ecosystem services including biodiversity conservation, removable of atmospheric pollutants ,oxygen generation, no reduction, mitigation of urban heat land Is effect, microclimate regulation, stabilization of soil, ground water recharge, prevention of soil erosion and carbon sequestration The finding of the study also imply that the necessary for both to protect the tree from removal and to protect

residents from hazardous tree planting.

According to Shikur (2009) assessed the challenges and problems of urban forest development in Addis Ababa. The major challenges of urban forests identified were encroachment by new settlement and use of forests for fuel wood and as a source of income, lack of public awareness about the need and the environmental, social and economic benefits of forests. Further the author shows that new tree planting was decreased at a household level.

According to Gebregziabhe(2010) analyzed household's tree planting in Tigraiy Northern Ethiopia. The study applied cross sectional house hold level of data to analyze the determinants of household planting and to investigate the most important attributes that enhance the propensity to green area plant. The study employed the logistic regression model to assess the main characteristic contributing green area planting choice of households. The finding of this study shows that land size, age, gender, education, exogenous income, tenure security and agro ecology positively affect both the propensity to green area and the amount of tree planting.

According to Gelo and Koch (2011) conducted on the valuation of community forest in rural Ethiopia by using contingent valuation method used double bounded elicitation to analyze the WTP responses. The result of this study shows that household's willingness to pay for plantation of rural community forest is positively correlated with income and family size and negatively correlated with livestock owner ship, access to alternative forest and distance to the town. The welfare gain from the study will ranges from a minimum of 20.14 to 22.80 birr per year per household. According to Engida and Mengistu (2013) explained the determinants of community based forest management in Alamata, Ethiopia. The study employee the logiest

Regression model. A survey of households will used to assess the determinant factors of household participation level in community forest management and shows that distance from Forest, higher level of economic benefit are rises the probability of high level of participation while being headed by female and longer distance from forests reduce the probability of high level of participation. Other variables like age, education level and distance from market not significantly influence the level of participation in community forest management. According to Worked (2017) also assessed the household's level tree planting and its implication for

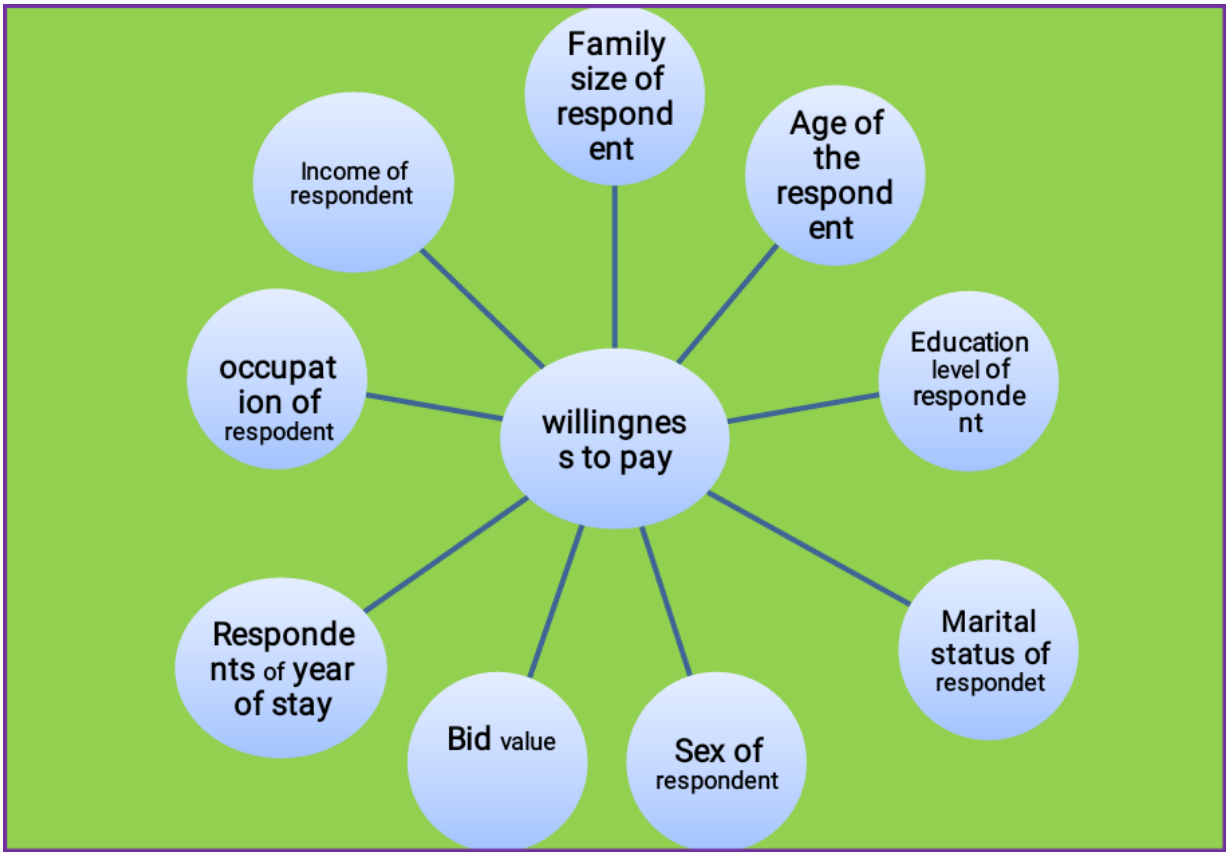
environmental conservation in the Beressa water shade of rural Ethiopia. The study employee the probity model to identify household's decision to plant tree in their own private land, number of trees plant, and bio fuel consumption. The author found that fuel wood and dung was a major source of domestic energy. The decline in natural forests and increase in demand for wood motivated people to have privately planted trees.

Generally, the above empirical works in developed and developing countries has largely been limited to either the estimation of the benefits derived from trees or the WTP for forest management by using simple logistic or probit regression through single- bounded a dichotomous question, which is not recommended to estimate the true willingness to pay of respondents. Particularly the above empirical studies in Ethiopia focused on estimating willingness to pay of households for green area plantation in rural parts of Ethiopia. In importance of green area plantation in urban parts of Ethiopia in general and in wolkite town in particular. In view of the fact that cities are the major source of different air pollutant emitters, in order to improve air quality and healthy living environment plantation of trees and other vegetation in urban towns is necessary. Therefore this research fill the gap by estimating household's willingness to for pays green area by applying more complicated seemingly unrelated bivariate model

2.3. Conceptual Frame Work

The conceptual frame works of this study was indicating that the immediate outcomes of sustainable urban green area intervention on livelihood condition of the urban communities. The outcomes of green area include reduction in air pollution, reduction in flood risk as part of the outcomes of green area include reduction in air pollution, reduction in flood risk as part of sustainable urban drainage systems, improvement of the perceptions of an urban area as aesthetically pleasing and Amelioration of high summer temperatures cause by the urban heat island effect, social interaction, opportunity, tourism and reduce soil erosion (forest research, 2010).

Figure 1



Source; developed by Researcher

CHAPTER THREE

3. METHODOLOGY

3.1 Description of the study Area

The study was conducted in Wolkite town is the capital town of Gurage zone district, and also 158 km from Addis Ababa on the main road of Jimma and 430 km through southern nation's nationalities and peoples, regional state (SNNPRS) Hawass. This means that it could be reach from Addis Ababa to or via Hawass. It also Gubre sub-city is located in Eastern Gurage zone district 14km western direction of Wolkite town this town has latitude and longitude of 8°17'N 37°47'E and elevation between 1910 and 1935 meters above sea level. It is surrounded by kebena woreda and it was part of former Goro woreda

The 2007 national census reported a total population for this town has total population of 28,866 of whom 15,074 were men and 13,792 were women; their populations was urban dwellers. The majority of the inhabitants said they practiced Ethiopian Orthodox Christianity, with 48.17% of the population reporting they practice that belief, 7.86% were Protestant, and 42.31% were Muslim.(From goggle)

3.2. Types and Source of Data

Both secondary and primary data was used in the study. The primary data was collected through face to face interview using questionnaires surveys of households involved in the study the secondary data was collect from books, journals, magazines, newspapers and internet

Primary data obtained through key informant interview, household survey and field observation. This study carried out with an integrated approach using RS and GIS techniques together with KII-based qualitative data in order to look into historical dynamics urban of green areas in Wolkite City and nature of management practices of urban green areas. In addition to this perception of households towards benefit of green areas and factors affecting households decision to green areas management assessed based on data obtained from household survey.

Household Survey: To collect data from the respondents this study used survey questionnaire. Both closed and open ended types of survey questionnaire used to investigate the study. The reason for using such survey questionnaires is easy to administer, less expensive, help to get first-hand information from the respondents. The paper developed the questionnaire in English and translated into Amharic language. Prior to data collection, three enumerators who have trained on the administration of the questionnaire and recruited. The household survey questionnaire characterized with themes of demographic and socio-economic characteristics of respondents, nature and accessibility of green areas, perception towards green areas benefit and factors affecting green areas development Basic information was gather and quantitative data which used for computing statistical model was obtain from this instrument

Interview of Key Information The interviews made with the key information's was more valuable and provides numerous data about green Areas development at general level and specific issue sate on the semi structure interview format. The checklist prepare includes like status and nature of development and management green areas.

Field observation: observation that conducted by the researcher in order to characterize and understand the physical or spatial condition of the study area and crosscheck and add to the data obtained through other methods of data collection. This method applied to observe the various impacts of urban expansion especially, its impact on green areas development and management in the study area.

The secondary data collected from different resources like published and unpublished materials, books, journals, articles, reports from City Sanitation Beautification and Green Areas Development and Management office at different time, and e-resources. Documents from wolkite Urban Development Housing and Construction Office, Central Statistical Agency (CSA), National Metrological Agency (NMA) and Environmental Protection Agency review.

3.3 Research Design

This study was employed contingent valuation technique with survey method. Contingent valuation method studies are one type of environmental valuation study that involves data collection from a population, or a representative subset that relies on hypothetical scenario,

which involves asking a sample of the relevant population question about their willingness to pay or willingness to accept directly Contingent valuation method studies can be used to estimate the households WTP for environmental improvement. The rationale behind using this method was to get clear picture regarding the value people put for environmental resource that will to estimate the households WTP for green area plantation.

3.4. Sample Size and Sampling Technique

Sample is bring up to a small amount or part of something that shows what the rest is while sampling technique is refers to the procedure a researcher would adopt to select the sample for his/her study (Kothari,2004).

Sample Size Determination-To determine their quire sample size at 90% confidence level and 5% level of error, the investigator was use the following formula provided by (Yamane,1967).

$$n=N/1+N\,(e)^{2}$$

Where; 'n' = is sample size, 'N'= is the population size (total households) Level of significance (0.1)

$$\mathbf{n=\frac{11134}{1+11134(0.05)^{2}}=99}$$

3.5 Method of Data Analyzing

In this study descriptive analysis and econometric model was used. The data obtained from the primary source were analyzed in two different ways. Firstly, these data was analyzed by using Descriptive analysis. So that meaningful information's and conclusions will be drawn. Secondly, those data analyzed by descriptive method will further analyze through

3.6 Descriptive Analysis

Descriptive analysis of statistics such as table, percentages, and averages was be used to give confidence picture of the data. The econometric model analysis also was use to identify empirically, the factors behind willingness to pay of households in order to have clear picture of the households, willingness to pay for green area development.

3.7 Econometric Analysis

Probit models are used for binary response variables. The probit model use binary variable values, which binary variable only two responses this mean (p) for yes and (1_p) for no willingness to pay. This model in analyzing the effectiveness of in improving Likelihood the paper was employee because the response variable follows binominal distribution and it suitable when dependent variable is dichotomies and the type that have yes or no response. Probit appropriate when attempting to a dichotomous dependent variable. The problem with utilizing the familiar linear regression line is most easily understood visually. It does not assume a relationship between the independent and dependent variable, it may handle nonlinear effect, and there is no homogeneity of variance assumption. To specify the model that is used to empirically identify the factor behind willingness to pay of household is WTP (Gujarati Basic econometrics, 2004)

3.8 Model Specification

To analyze the survey responses the paper was use the model develop and it helps to identify the true willingness to pay of the households to green area development. It was assume that each respondent has some unobserved true valuation for the environmental goods in question. If a respondent is willing to pay for the first bid amount, the new threshold is about double the first one or if the respondent is unwilling to pay for the first bid amount, the second throe hold is reduced by half of the original amount**.** two respective questions that was 'Yes' or 'No' question about their willingness to pay for green area. Based on the first answer the second question involves another bid amount.

$$wtp = \alpha_0 + \alpha_1 Ibid + \alpha_2 sex + \alpha_3 age + \alpha_4 edu + \alpha_5 mrst + \alpha_6 year + \alpha_7 occur + \alpha_8 incom + \alpha_9 fams + \varepsilon_i$$

WTP = refer to willingness to pay of households for green area development for the bid. It is a dummy Variable it takes 1 if the response is 'Yes' for the first bid amount and 0 if the response is 'No' for the second bid amount

α_0= the constant term, $\alpha_i$is the regression parameter estimates

ε_i=Random error term, assumed to normally distributed with mean zero and constant variance

3.9 Description and Expected Sign of Explanatory Variables

Sex of the Respondent (Sex): is a dummy variable and it takes 1 for female and 0 for male. Since females are most of the time they stay and their activities are in their home town than male, so that productive age has a good attitude for protection and improvement of the environment.

Educational level of Respondent (Edur): is a categorical variable. It is expected that the respondents who have higher level of education are aware of the importance green plantation and green area development and thus, the expect design is positive.

Marital Status of the Respondent (Mrst): is a dummy variable it takes 1 if the respondent is married, otherwise 0. The household who is married is expected to offer the higher bid than non married individual. The married people are carrying responsible of household family affairs and they want to protect the environment. Thus the expected sign is positive.

Family Size of the Respondent (Fams): is refers the total number of family size in the household. This variable is expected to have negative sign for the reason that the higher the number family size, the less willing the household is to pay for green area as a result of various expenditures for the family. Large households will be willing to pay relatively less due to the associate high running costs (i.e. budgetary constraints).

Income of the Respondent (Incomr): is a continuous variable that measured in birr other things being constant, the household who have higher income is expected to offer higher bid than the households having lower income. Thus the expected sign is positive.

Occupation of Respondent (Occur): is a dummy variable taking the value 1 if the household engaged in formal sector that is salary employed in government, private sectors and NGOs and who own private business and 0 otherwise. It is expected that the households who employed might be willing to pay more than the households not employed, other things being equal.

Therefore the expected sign is positive.

The Respondents Years of Stay in the Town (Years): it is a continuous variable that is measured in years. Households who have stayed in the town for long period expected to care more about the environment and thus are expected to pay more than who have stayed for few years. Therefore it has expected to have positive.

Bid Value (bid): This variable helps to know whether the WTP responses of household's are affected by the higher bid or not. The higher the bid price proposed, the lower the respondents willing to pay expected. Therefore it has expected to have negatively related with higher bid amount

CHAPTER FOUR

RESULT AND DISCUSSION

This section of the study presents the important findings and results obtained from the sample survey of CVM. The first section presents the descriptive statistics about socio- economic characteristics of households, household's perceptions and observation about the development of green environment in the town. The second section was contain econometrics analysis which include bivariate probit estimations that discuss the factors that affect households WTP.

4. Descriptive Analysis

4.1. Demographic and Socio-Economic Characteristics of the Respondents

As previously mentioned in methodology section, a total of 99 sampled households were interviewed.

Table 1.Sex category of households

Sex	Frequency	Percentage
Female	52	0.52
Male	47	0.47
Total	99	100

Source: own survey, 2021

Above shows, from the total of 99 surveyed households, 52(0.52%) were females while the rest 47(0.47%) were male respondents.

Table2. marital status of households.

Marital status	Frequency	Percentage
Married	60	0.6
Unmarried	39	0.39
Total	99	100

Source: own survey, 2021

The total of 99 respondents 60(59.4%) reported to be married while the remaining 40(40.6%) were unmarried. This shows that most of respondents responsible in supporting and managing their family in terms of financial and other resources than unmarried and hence, they want to green area development.

Table 3.Descriptive statistics of continues variable; all results based on no missing observations.

Variable	Obs	Mean	St.Dev	min	Max
Age	99	39.65657	15.39557	15	67
Incomr	99	1467.172	946.2644	0	4000
Fams	99	3.030303	2.826459	0	14
Year	99	7.30303	6.156885	0	39
Bid	99	12.92929	15.40292	0	50

Source: Stata12

Shows the mean family size of the household is 3.0303 with a minimum of 0 household members and a maximum of 14households. The data about respondent's age shows that the mean age is 39.656years with the minimum age of 15 years and a maximum of 67 years old Further the endeavour was also made to know the respondent's years of stay in the town, the mean year of stay is 7.303 years with a minimum of 0 year to a maximum of 39 years. The data about household's income shows that the mean monthly income of the respondents was 1467.172 with a minimum of 0 birr to a maximum of 4000 birr per month.

Table 4.Educational level of households

Educational level	Frequency	Percentage
Primary	19	0.31
Secondary	14	0.22
Preparatory	11	0.18
Diploma	10	0.163
Degree and above	7	0.114
Total	61	0.99

Source: own survey, 2021

Regarding education level the majority of respondents were attended primary and secondary education levels. From the total of 61 respondents 10(16.3%) have attend diploma and preparatory level 11(18%) have attended secondary education level (9 12), 14(22%) have a attuned primary education level (1-8), 19(31%) have attend higher level education program degree, 7(11.4%

Table 5:Economic activates of the household

Occupation status	Frequency	Percentage
Government employs	15	0.15
Private company employed	16	0.16
Private business	9	0.09
Unemployed	33	0.33
Retired	12	0.12
NGOS	10	0.11
Other job	4	0.04
Total	99	100

Souce: 0wn survey; 2021

Employment structure of the respondent shows about 15(14.7) of households were employed in private company, 16(15.9%) were engaged in private business, 10(10.9%) were retired households 12(10.85%) were NGO workers, 10(11.9%) were unemployed 33(33.8) and finally 4(3.96%) engaged in other kind of job. Other job in this case refers to respondents with permanent properties like house and earns income from housing rent.

4.2. Econometrics Analysis.

In this section the results obtained from the econometric analysis of WTP are discussed. Econometric method of analysis helps in providing more insight regarding determinants that influence responses of households to CV survey questions. These determinants are mainly socio-economic variables, initial bids. To elicit households willingness to pay, the study applied double bonded dichotomous choice contingent valuation format. In case of double bonded dichotomous choice contingent valuation survey, the responses to the second question might be correlated with the responses to the first question. For this reason the bivariate probit model is applied to identify its determinants for urban green area development for this study.

4.3. Determinants' of household willingness to pay urban green area development.

The bivariate probit analysis was done by using to estimate the effects of each explanatory variable on dependent variables. There is one dependent variables namely, willingness to pay, and is defined as dummy variables take the value 1 and 0 in relation to the responses. The explanatory variables income, age, year stay, sex, Maritsa status, education level, family size, occupation type, and bids, in this study include the different demographic and socio-economic variables on willingness to pay and household to contribute the from his/her pay for development urban green area Also participation for the improve the problem depend on his/her ability cover green plantation in the urban.

The marginal effect shows that the probability of respondents accept or reject the offreed bid due to a unit change in continuous explanatory variables and a change of dummy variable. As it is observed from table 4.6, the result is significant at 1%, 5% and10% level of significance, showing. Consequently, the probability in which the null hypothesis no correlation is reject.

4.4. Diagnostics test

4.4.1. Test for multi-collinearity

An indication for a linear relationship between independent variable is called multi-collinearity (Gujarit 2004). The idea is that change the value of one independent variables and not the others. However, when independent variables are correlated, it indicates that changes in one variable are associated with shifts in another variable. The stronger correlation, the more difficult is to change one variable without changing another. It becomes difficult for the model to estimate the relationship between each independent variable and the dependent variable independently, because the independent variables tend to change. Hence so as to measure the strength of relationship between more or variables coefficient of correlation were used. A decision rule for multi-collinearity test is based on the mean value of variance inflation factor (vif) that it should be less than 10. So it does not have multi-collinearity problem. Multicorrelation test value is below 10, so it was concluded that there are no multi-collinearity problems between explanatory variables and between each independent variable and dependent variable. (see appendix B)

4.4.2. Test for Heteroscedasticity

This type of test is used in order to examine the pattern of the error terms variance. Heteroscedasticity is present if variance of error term is not constant or different segments of the population or sample size. The other problem of econometric data particularly cross sectional data is heteroscedasticity, which is the case were homoscedasticity assumptions are violated. To correct this problem robust standard error can be estimated. The decision rule is, if the p-value of the Breuschpogan test is less than 5% significances level which indicates that there is probably problem of heteroscedasticity. So the robust regression test would be estimated.(see Appendix B)

4.4.3. Autocorrelation test

An indication of a linear relationship between independent variables is tested through econometric tools. A decision rule for autocorrelation test for the model stated is a variable whose correlation test value is less than 0.8(Gujariti, 2005), so it doesn’t have correlation problem. All variable correlation

test value is less than 0.8. So it concludes that there was no the problem of autocorrelation among independent variables (sex, age, marital status, family size, year, income, occupation, bid value. and education, type of households willingness to urban green area development of).

Table 6 collinarity solution

```
. corr
(obs=99)
```

	WTP	sex	age	edur	mrst	incomr	fams
WTP	1.0000						
sex	0.1253	1.0000					
age	-0.0192	-0.2036	1.0000				
edur	0.2891	0.0815	-0.3011	1.0000			
mrst	0.3536	0.0201	-0.0424	0.1288	1.0000		
incomr	0.2317	0.1570	-0.0723	0.2096	0.0817	1.0000	
fams	0.1473	0.0174	-0.0654	0.1858	0.1998	0.0278	1.0000
occur	0.6503	0.1430	-0.2005	0.2790	0.4385	0.2223	0.1143
year	-0.0309	0.0008	-0.1072	-0.0423	0.0838	-0.0187	-0.0598
bid	0.6842	-0.0163	0.0185	0.2864	0.3969	0.3833	0.2370

	occur	year	bid
occur	1.0000		
year	0.0035	1.0000	
bid	0.4707	-0.0321	1.0000

Source stata 12

4.5. Regression result and interpretation

The estimation of model result can be interpreted as follows:-The Probit estimation results obtained using STATA version 12.0 is given in Table 7.The interpretation of a regression is that it represents the mean change in the dependent variable for each 1 unit change in an independent variable by hold all of the other independent variables constant. The coefficients of the probit model only give the significance and the direction of the effects of each explanatory variable on WTP. There are two explained variables, answer for the taking the dummy variable 1 for agreed of amount offered otherwise 0, which helps to estimate the likelihood equations.

In probit regression model if Pseudo R2 is greater than 15% the model is adequate. my model pseudo R2 is 82%. Therefore the model take in to account is adequate. Both the coefficients and marginal effects of the probit model The marginal effect shows that the probability of respondents accept or reject the offered bid due to a unit change in continuous explanatory variables and a change of dummy variable. As it is observed from table 4.6, the result is significant at 1%, 5% and 10% level of significance, showing. Consequently, the probability in which the null hypothesis no correlations reject

Table 7 regression results

Table 7 below shows coefficient, robust standard errors, p-values for explanatory variables, and marginal effect

```
Iteration 0:   log likelihood = -67.480819
Iteration 1:   log likelihood = -22.272946
Iteration 2:   log likelihood = -15.280967
Iteration 3:   log likelihood = -12.813725
Iteration 4:   log likelihood =  -12.63029
Iteration 5:   log likelihood = -12.629357
Iteration 6:   log likelihood = -12.629357

Probit regression                                 Number of obs     =         99
                                                  LR chi2(9)        =     109.70
                                                  Prob > chi2       =     0.0000
Log likelihood = -12.629357                       Pseudo R2         =     0.8128
```

WTP	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
sex	1.522487	.7697898	1.98	0.048	.0137273	3.031248
age	.0458042	.0245763	1.86	0.062	-.0023645	.0939729
edur	-1.078421	.9752586	-1.11	0.269	-2.989893	.833051
mrst	-.3609265	.7782463	-0.46	0.643	-1.886261	1.164408
incomr	.0002618	.000311	0.84	0.400	-.0003478	.0008713
fams	.1163308	.1504011	0.77	0.439	-.17845	.4111116
occur	2.039057	.8800584	2.32	0.021	.3141747	3.76394
year	-.0115685	.0469927	-0.25	0.806	-.1036724	.0805355
bid	.3043862	.0853238	3.57	0.000	.1371547	.4716177
_cons	-5.897912	2.125809	-2.77	0.006	-10.06442	-1.731402

Source stata 12

Interpretation of probit analysis

From this section represents the determinants of household willingness to pay urban green area development by using probit model. So as to identify the major of determinants of household willingness pay in the study the dependent variable that probability adopted was regressed. The result show that among the nine explanatory variables that entered in the model expected the coefficient for

sex; age, occupation, and bid value were significant 10%. From the probit regression the independent variables such as education level, marital status, and year were negatively affected and sex, age, income, family size, occupation, and bid value positively affected

Interpretation of the estimated coefficients:

This interpretation is based on marginal effect after probit regression, of all variable coefficients has attained their expected sign. Thus, the estimated model is specified as follows.

.

The dummy variable sex of the respondents is significant at a significance equation and registered the expected positive sign as expected, indicating that female's respondents were more willing to accepted offered amount than males, the result is in line with other studies (Lorenzo et al., 2000).This could be due to the females are more responsible for green environment. Being female respondent has 4.8% higher probability of positive response as compared to male respondents because important to green area development.

The continuous variable age of the household relatively significant for equation with positive sign. Positive relationship between age of respondent and willingness to pay is expected the probability of accepting the offered bid is higher when age productive age. This indicates that productive age people working be able to contribute many generated income want to pay for green area. Other things remain constant the marginal effect shows that as the age of respondent increase probability of accepting the bid price was by 6.2 %

The dummy variable marital status Has negative sign and higher than 10% level of insignificance. This indicates that married people probability of accepting the given bid is less than those who are singles, divorced and widowed. This might be because of married peoples are responsible in supporting and managing their family in terms of financial and other resources than single persons and hence, they want to green area for next generation(Etensa, 2014). Other things remain constant the marginal effect indicates that for a discrete change of the dummy variable, marital status, from zero to one, the probability of accepting bid price for green area was decreases by2.78%.

The coefficient of household's monthly income indicates income has positively affect willingness to pay and statistically insignificant at higher than 1% level of insignificance for the equation. This indicates that the probability of willingness to pay for urban green area development increases as income level contribute money for green area. This result is consistent with both theoretical and empirical studies that indicate income is positively correlated with peoples WTP. Other things remain constant the marginal effect indicates that the probability of WTP increases by 0.021% for a unit increase in monthly income.

The coefficient of the variable the family size registered the positive sign and statistically insignificant at higher than 5% level of insignificance. This suggests households with large number of family size may not able to contribute because as increase family size the expenditure also increase so the household willing to pay reduce .big households will be willing to pay relatively less due to the associated high running costs (i.e. budgetary constraints). Thus, the study expects the sign of its coefficient to be positive other things remain constant the marginal effect indicates that the probability of WTP increase by 0.94% for a one unit WTP

The variable years of stay in the town has insignificant at 10% level of insignificance for equations with negative sign. This shows that the probability of those households stayed for long years in the town accepting higher bid is less than for those who stayed for few years in the town. This perhaps due to households who stayed in the town for long years were more likely to conscious about the provision of green area and thus they are willing to pay for plantation green area. Other things remain constant the marginal effect indicates that the probability of WTP decreases by0.09% for a unit in the years of stay in the town

The dummy variable Education level Among the variables that were expected to affect the willingness to pay of households for urban green area, education level has significant a less than 10%level of but insignificance and have negative sign for equations. This suggests that people who

are higher education level are aware of the provision of the green area. Other things remain constant the marginal effect indicates that the probability of WTP decreases by 7.8%for a unit education level of the town

The dummy variable occupation type has positive sign and of significance. This indicates that employed people probability of accepting the given bid is higher than unemployed people. Other things remain constant the marginal effect indicates that the probability of WTP increases 32.9% for a unit increase employed level.

Initial bid offered to the respondents has a positive effect on the probability of accepting the bid and is significant. This suggests that a one percent increase in the initial bid will reduce the likelihood that WTP by 0.5%, ceteris paribus. As economic theory predicts, demand for good/service increases as the price of the good/service increases given other factors constant.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

In most of urban parts of Ethiopia, urbanization and population pressure causes significant urban plantation. The development and expansion of squatter settlements and other illegal land developments in major towns of SNNPs National Regional State became great issue. At this moment wokite Town is one of the areas which face reduce green plantation. This is the reason why this study focuses on green area. Therefore this study is primarily developed to estimate household's willingness pay for green area development plantation. In doing so, dichotomous choice contingent valuation survey was employed based on face-to-face interview with 99 selected household were analyzed.

The survey results obtain from this CV survey was analyzed by using econometric software STATA version 12.0 using both descriptive statistics and econometric method of data analysis. To estimate the mean WTP and to identify the determinants of sampled household's willingness to pay urban green area development. The study employed the bivariate probit model. The result of descriptive analysis shows that household's observation about the existing situation of the town's green environment development indicates more than half of the respondents said that the development of green environment in the town is poor. In relation to this most of the respondents were informed that the intended green area plantation would be the responsibility of community itself while the other few of there respondents were reported it would be there possibility of government.

The respondents also indicate that both government and residents are take part in declining of the green coverage in the study area. Overall all of the survey households replied that the proposed scenario was important. Younger respondents, female respondents, married households, high income earners, those households with number of family and those households who said community is responsible for green area plantation and stayed for long years in the town be were found to have more WTP for green area plantation. Therefore, this

study concludes the households in Wolkite town needs the provision green area to fulfil the proposed program they are willing to contribute money for plantation of urban green area.

5.2 Recommendations

Given the future population increase, urbanization pressure and the decline of the green cover of the town, the aggregate benefit estimated from this study could be used as the benefits of the current and future generation from such green area plantation. In addition it used as a signal for urban local government and urban planners involved in urban planning programs in balancing the physical development with green economy development and in implementing such kinds of projects and policies. Based on this fact the following recommendations are provide

- Since the result of the study indicates all of the households are willing to pay improved for urban green area. Therefore the transport authority in collaboration with the town administration is recommended to participated local residents

- Since most of respondents reported that the development of green environment in the town is poor. And also reported no measures were taken to replace and conserve the existing plantation. In addition to this, trees that were planted in the Ethiopian millennium were totally extinct as a result of lack of conservation measure taken by the government after plantation. Therefore, the government is strongly recommended to take measures in post plantation to conserve green area in sustainable manner.

- As more of respondents reported the major factor that affect green area sustainability is comes from urbanization pressure, intervention like provision of education to the urban residents about the importance of plant is the basic thing for long term control of the problem.

- For efficient implementation of different improvement scenarios it should be better to consider important variables like initial bid, income, marital status, age and sex for better Environmental good improvement.

- The proposed programs which are presented in the hypothetical market scenario were recommended to be implemented with the collaboration of the town administration with residents of the Town for sustainable green area development

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APPENDIX A

Wolkite University

College of business and economics department of economics

Questions on Households Willingness to pay for urban green area Development

Interviewer's name_____ date of interview_____

Place of interview_____ (write kebele name)

Hello how are you, my name is Tibeltalech Mesfin. I am assisting an ongoing research by Tibeltalech mesfin. I am is conducting the research for the partial fulfilment of BA. Economics in Wolkite University. This Questionnaire is aimed to obtain information on your opinion and willingness to pay for urban green area development. You are selected randomly from households living in your area. The information you to create awareness about the protection and development of urban great area and used to the urban local governments involved in urban planning's in their attempt to the development of green environment in the wolkite town. Further your opinion and preference was helps to me to understand the people's attitude towards the green or in other words the development of green environment.. Thus, I asked kindly you to answer the following questions honestly and truly as you can. Accordingly you can choose one

or more based on the nature of the question and make ‘’x” and also encircled in the choice specified in the box provided. If the alternatives are not provided, state your opinion or fill the dash’

1. Are you willing to contribute to green area development program?

1. yes 2.No

2. If ‘Yes’ would you willing to pay 10, 20, 30, 40 birr per year for plantation and maintenance urban green area development. The second bid price increase or decrease by 0.5

1.Yes 2.No

3. If the answer for Q.1 is ‘Yes’ ask the following questions. If the plantation cost has increased to (0.5X) birr would you willing to development?

1. Yes 2.No

4. If the answer for Q.1is ‘No’ ask the following questions. If the plantation cost has decreased to (0.5X) birr would you willing to pay?

1. Yes 2.No

5. What is the maximum amount you are willing to pay for urban green area development?

_____Birr per year.

6. If you are not willing to pay, what is your reason?

1.I previously paid enough in tax burden

2.I believe that this the responsibility of government

3.I don’t have enough money

4.I don’t care about green environment

5.I think that the money is not be used properly

6.I don’t believe that the plantation program is effective

7. What do you recommend concerning the proposed program urban green area Wolkite Town?

1. Very good 2. Good 3.Not Satisfactory 4. Other(specify)

_____

Section ll Demographic and Socioeconomic Characteristic of Respondents

8. Sex Male ☐ Female ☐

9. What is your age?_____

10. What is your level of education?

1. Illiterate. ☐
2. Primary education1-8 ☐
3. Secondary education(9-12) ☐
4. College diploma or certifia ☐

5. Degree

6. Other educational status (specify)_____

11. Marital status

5. Married 2.Single 3.divorced 4.widowed

12. How many family members you have (including yourself)?

No of adults (>18) _____ _____ No of elders (above>) _____

No of children (<18)

13. Occupation

1. Government employee 4.Privatebusiness 7. Student

2. Private company employee 5.Housewife 8. Unemployed

6.NGOS 6.Retired 9.Otherspecify_____

14. Would you please tell me your total household monthly income?_____In birr

15. For how many years you live in this Town?_____

16. Would you have any comment you want to add? Please specify_____

II. Benefits of green areas

No	Description	Sag reed	Agreed	Neutral	Disagreed	S disagreed
1.	Green areas have benefit for the wellbeing of the community					
2.	Society are responsible development of green areas					
3.	You willing to participate in green area management and development					

4. Other spacify

1. In your opinion is the population growth cause for the losses of green area in the town?

1. Yes 2. No

2. Poor implementation of government policy was making it difficult for wolkite town to have well green areas development?

1. Yes 2.No

3. Is planned budget sufficient for green area development in Wolkite?

1. Yes 2.No

4. Are workers motivated in development of green area in the city?

1. Yes 2.No

5. Is the office working to increase awareness of the community to development of green areas in the town?

1. Yes 2.No

5. In your view necessarily expert consultancy services require for green development in the town?

1. Yes 2.No

6. In your opinion is there good coordination with the aliened bodies in green area development in the town?

1. Yes 2. No

7. In your opinion is there low awareness to green area development in the town?

1. Yes 2. No

8. Do you think that low awareness of community to green areas management affect green area?

1. Yes 2. No

9 .Low priorities have been given to green areas in wolkite town.

1. Yes 2. No

10. If yes, why? _____

11. If no, why? _____

12. Good attention given to green area development

1. Yes 2. No

14. If yes, why? _____

15. If no, why? _____

16. What are other factors on green areas development in town?

APPENDIX B Multi-collinearity

```
. vif
```

Variable	VIF	1/VIF
bid	1.70	0.587852
occur	1.56	0.642891
mrst	1.37	0.731582
edur	1.26	0.793363
incomr	1.24	0.805102
age	1.21	0.825972
fams	1.11	0.901415
sex	1.09	0.917384
year	1.03	0.966697
Mean VIF	1.29	

```
. reg WTP sex age edur mrst incomr fams occur bid,robust

Linear regression                               Number of obs =      99
                                                F(  8,    90) =   35.53
                                                Prob > F      =  0.0000
                                                R-squared     =  0.6259
                                                Root MSE      =  .31704
```

WTP	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
sex	.0973987	.0673416	1.45	0.152	-.0363871	.2311846
age	.0028647	.0021316	1.34	0.182	-.0013701	.0070996
edur	.0675658	.073502	0.92	0.360	-.0784588	.2135903
mrst	-.0341981	.0773584	-0.44	0.659	-.1878841	.1194879
incomr	-.0000419	.0000388	-1.08	0.284	-.000119	.0000353
fams	-.0039443	.0093529	-0.42	0.674	-.0225255	.0146368
occur	.4502876	.0912232	4.94	0.000	.2690568	.6315185
bid	.0165201	.0032464	5.09	0.000	.0100705	.0229697
_cons	-.0503179	.1347488	-0.37	0.710	-.31802	.2173842

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.
```