

International Journal of

Sciences:

Basic and Applied

Research

**Assessment of Social Response to Incentives, On
Reduction of Plastic Bags Use in Pakistan: A Cross Market
Study of Abpara and Itwaar Bazaar**

By *Muhammad Imran Khan and Fatima Athar Ansari*

Volume 20, 2015
ISSN (Print & Online): 2307-4531

© IJSBAR THESIS PUBLICATION
www.gssrr.org

Published by:



Visit: www.gssrr.org

ISSN 2307-4531 (Print & Online)

IJSBAR research papers are currently indexed by:



**Assessment of Social Response to Incentives, On Reduction of
Plastic Bags Use in Pakistan. A Cross Market Study of Abpara and
Itwaar Bazaar**

**Copyright © 2015 by By Muhammad Imran Khan and Fatima Athar
Ansari**

**All rights reserved. No part of this thesis may be produced or
transmitted in any form or by any
means without written permission of the author.
ISSN(online & Print) 2307-4531**

Assessment of Social Response to Incentives, On Reduction of Plastic Bags Use in Pakistan: A Cross Market Study of Abpara and Sunday market



Muhammad Imran Khan and Fatima Athar Ansari

.MPhil scholars at

DEPARTMENT OF ENVIRONMENTAL ECONOMICS

PAKISTAN INSTITUTE OF DEVELOPMENT ECONOMICS (PIDE), ISLAMABAD.

Table of Contents

CHAPTER 1	5
INTRODUCTION	5
1.1 PURPOSE OF THE STUDY	7
1.2 OBJECTIVE OF THE STUDY	7
1.3 RESEARCH QUESTIONS	8
1.4 SIGNIFICANCE OF THE STUDY	8
1.5 HYPOTHESIS OF THE STUDY FOR ABPARA BAZAAR	8
CHAPTER 2	8
2.0 LITERATURE REVIEW	9
2.1 PRESENT LEGISLATION OF PLASTIC BAGS	9
2.2 CONTINGENT VALUATION AND ENVIRONMENT	9
2.3 ENVIRONMENTAL IMPACTS OF PAPER BAG, PLASTIC BAG AND CLOTH BAGS	11
A) DECOMPOSITION	11
B) MANUFACTURING	11
C) REUSABILITY	12
D) RECYCLABILITY	12
E) REUSABILITY	12
CHAPTER 3	13
3.1 METHODS AND TOOLS	13
3.2 STUDY AREA	13
3.2.1 APPARA MARKET:	14
3.2.3 SUNDAY MARKET ISLAMABAD:	14
3.2 DATA COLLECTION	15
ROUND 1	15
ROUND 2	15
ROUND 3	15
DATA COLLECTION ETHICS	15
3.3 SAMPLE	15
3.4 SAMPLING TECHNIQUES	16
3.5 JUSTIFICATION	16
3.6 VARIABLES OF THE STUDY	16

3.6.1 INDEPENDENT VARIABLES	16
3.6.1.1 VARIABLES FORMATION	16
3.6.2 DEPENDENT VARIABLES	17
3.6.3 STUDY TOOLS	17
3.7 MODEL OF THE STUDY	17
3.8 JUSTIFICATION	17
CHAPTER 4	18
THE WTP FOR PAPER BAGS AT ABPARA MARKET	18
WTA OF SHOPKEEPERS FOR PAPER BAGS AT ABPARA	18
INTERPRETATION:	19
REUSE OF PLASTIC BAGS IN ABPARA MARKET	21
INTERPRETATION	21
SECTION NO 2	22
THE WTP FOR CLOTH BAGS AT ITWAAR BAZAAR MARKET	22
RESULTS FOR ITWAAR BAZAAR WILLINGNESS TO ACCEPT	22
REG WTA INCOME AWARENESS PDSALE COSTPDP TAX OWNBAGS, ROBUST	22
INTERPRETATION	23
RESULTS FOR WILLINGNESS TO PAY AT ITWAAR BAZAAR	24
INTERPRETATION	24
LOGIT REUSE GENDER AGE EDUCATION INCOME MD PRF CT	25
INTERPRETATION	25
MARGINAL EFFECTS	25
INTERPRETATION	26
4.1 FINDINGS OF THE STUDY	26
CHAPTER 5:	27
CHAPTER 6	27
6.1 SUGGESTIONS	28
REFERENCES	29

ACKNOWLEDGMENTS

Sincere commitments to my Father, Maeen khan and my great teacher, DR Rehana Siddiqi have encouraged me to struggle and work. I sincerely dedicate my notion to My Father and my respected teacher DR Rehana Siddiqui Head of the department of environmental economics. I would for sure like to acknowledge the efforts of my friends during data collection process MR Raheem Aman Shah, Sehresh Almaas and Fakhr E Alam MPhil Scholar at department of econometrics .This wasn't possible without the helpful attitude of DR; Muhammad Barakat editor in chief, Global Society of Scientific Research and Researchers. I present my special thanks to DR; Junaid memon and DR; Anwar Hussain Assistant professors at Pakistan institute of development economics, without forgetting the helpful comments of Muhammad Umar Safi Assistant professor eco at Government Post Graduate College khar Bajaur Agency.

ABSTRACT

The objective of the study is to assess the social willingness to pay and willingness to accept for demand of cloth bags and proposed paper bags. The study is conducted in Islamabad with 150 sample size on primary data from Abpara market and Sunday market, respectively. The data was treated through Stata and Descriptive tools, the research found that reuse of plastic bags is significant in both the markets but is high at Sunday market. The study concluded that the proposed change to state of plastic culture, prevailing from many years, was according to desired implications for the study area.

CHAPTER 1**Introduction**

Plastic bags are becoming a wound of their own exploitation in the markets of world. This industry has reached to a level, where it's success has become grounds of apprehensions indicating that the subject matter plastic bags use, reuse and disposals are needed to be handled with responsibly of social welfare for future environmental prosperity. Worldwide, annual usage of total number of plastic bags is one trillion that is the biggest threat to human, environment and marine life. China, the most populated country of the world, its total number of plastic bags usage per day is almost 3 billion. total number of plastic bags used every minute in the whole world is about 1 million. According to investigations, plastic bags take thousands of years to degrade. from a survey report total amount of plastic bags that were discarded in 2008 was 3.5 million tons. A recent survey explored that the amount of plastic bags floating in every square mile of ocean is about 46,000 pieces. Average amount of plastic bags consumed per family in 4 trips to the grocery store is almost 60 bags and the total amount of plastic made every year that will end up in the ocean, is 10%. Total amount of plastic bags used by US citizens every year is 100 billion which makes it the highest environmental polluter, the average amount of plastic bottles in US households usage is 500 plastic bottles annually, which is highest statistic in

comparison with the rest of the world and the percentage of household waste that is plastic based is almost 11%.

The use of plastic bags in Pakistan is representing very high frequency of individuals demand, increasing population and demand of goods and services has spread out the use and immature disposal of plastic bags, which is becoming a serious problem of visual pollution along with other environmental cavities. Unrealized decline of social welfare, caused by effected environmental quality is realized in long terms because of unobservable facts directly.

1. In order to restore the original level of satisfaction, individuals are compensated as WTA against the loss or damage made by externalities or erstwhile sources. Contingent valuation suggested for the hypothetical valuation of goods and services having no market prices generally, which apply questionnaires from sample assessment to elicit the willingness to pay or willingness to accept of respondents for the demand analysis of public and environmental goods. Communities worldwide have recently recognized organizations, using market incentives to promote the use of environmental friendly and reusable bags as a substitute to plastic bags for grocery shopping. For instance, in U.S, Washington DC launched a \$0.05 tax rate on plastic bags back in 2009, and plastic bag use was dropped approximately to an average of 22.5 million units a month to 3 million units (Dunn jarod,2012). The aim of such incentive based program is mostly to decrease the use of plastic bags in landfills, eliminate the street clutters, protect aqua-environment, and to prevent flooding in urban areas, thus mitigating risks to human health through restricting the spread of water-borne diseases.

2. The environmental externality of solid waste associated with plastic bags due to the consumption of food and others utilities, illustrates the classic tragedy of the free rider, while the Individual consumer is benefited from the use of plastic bags because of its convenience, while society bears the collective cost of its disposal that it provides. It put emphasis on empirical examples of how policy information can be generated for legislative

1

² Plastic bags create litter due to their light weight and their tendency to balloon in developing countries like Pakistan, where the bags are blown by wind from the different disposal sites due to open dumping

bodies concerning the level of taxation that would make the current users of plastic bags to switch to full use of reusable and cloth bags in different kind of markets like vegetables, grocery shopping, and also the consumers who are already using reusable bags.

A contingent market situation for plastic bags against paper and cloth bags is created through providing the survey participants with relevant information to make a “pay” (or “accept”) decision. The primary goal of contingent market is to provide enough applicable information so that survey participants are encouraged to make more accurate and valid WTP/WTA statements . This study use a standard dichotomous choice by contingent valuation and open ended choices in stated preference method for estimating WTP and the WTA values of both consumers and shopkeepers. This research aims to calculate the social welfare loss due to environmental externality by revealing the consumers and producers’ decisions regarding their contributions to environmental issues in there frame of preferences to decide either the proposed change should be accepted by shopkeepers with consumers’ willingness or the proposed change would remain a proposal.

The study also provides reliable information for government and policy makers to design the policy that encourage the use of cloth bags in vegetable markets used in Itwaar bazaar, in prevailing study area, after comparing the market type and its implications towards the welfare of social community in context of environmental care, where the preferences and choices are made to preserve it.

1.1 Purpose of the study

To investigate the social preferences across markets for most wanted shopping bags and the social behaviour towards the use, reuse, recycling and dumping of plastic bags.

1.2 Objective of the study

The primary objective of the study is to assess the social response as an estimate for the willingness to pay for consumers and willingness to accept of shopkeepers ,for the proposed shopping bags at Abpara market and SUNDAY MARKET, vegetables market.

The secondary objective of the study is to determine the most wanted shopping bags in perspective of the goods purchased in market through incentive offerings at SUNDAY market

1.3 Research questions

What is the consumer's willingness to pay for the replacement of plastic bags to paper bags in Abpara market?

What is the shopkeeper's willingness to accept for the replacement of plastic bags to paper bags in Abpara market?

What is the consumer's willingness to pay for the replacement of plastic bags to cloth bags in Sunday market ?

What is the shopkeeper's willingness to accept for the replacement of plastic bags to cloth bags in Sunday market?

1.4 Significance of the study

The use of plastic bags has increased as much as it is representing plastic bags culture in Pakistan. Every market is using such bags, which are mostly non-degradable subsequently affecting the environmental quality. To resolve the issue ,alternatives are needed for plastic bags, which are paper bags, cloth bags and biodegradables .There is an intensive need of studies, researches to value these alternatives and environment .To ensure the better course of information on the prevailing policy formulation for public sector the author has used contingent valuation method to direct value the given alternatives for Abpara and sunday market , Islamabad Pakistan.

1.5 Hypothesis of the study for Abpara bazaar

Ho, Willingness to pay and willingness to accept for the use replacement, of plastic bags to papers bags at Abpara is not significant.

H1, Willingness to pay and willingness to accept for the use replacement, of plastic bags to papers bags at Abpara is significant.

1.4.1 Hypothesis of the study for Itwaar bazaar

Ho, Willingness to pay and willingness to accept for the use replacement, of plastic bags to cloth bags at Sunday market is not significant.

H1, Willingness to pay and willingness to accept for the use replacement, of plastic bags to cloth bags at Sunday market is significant.

CHAPTER 2

2.0 LITERATURE REVIEW

2.1 Present Legislation Of Plastic Bags

Pakistan Bans Disposable Plastic Products Unless Oxo-Biodegradable (5 Feb, 2013)
According to Pakistan Ministry of Law and Justice has notified the Prohibition of Non degradable Plastic Bag regulation 2013. At the same time, environment friendly oxo-biodegradable plastic bags will be introduced likewise. It was announced in a press conference at the Ministry of Climate Change.

“Most of our leather and textile exports are packaged in plastic and many foreign countries strictly involve environment friendly plastic nowadays. “If we start using oxo-biodegradable plastic, it will pose a good signal to the world community and also help our exporters and surroundings.”

2.2 Contingent Valuation And Environment

This part of the investigation projects the ensure deliberation of past relevant work reviews regarding the study. The paper was conducted to dig out the different collective economic influences, affecting the social willingness to pay (WTP) and their attitudes toward the environmental conservation. The land for municipal solid waste is very important in sustainable urban development. The paper estimates the relative value the society would be willing to pay that can be used for an improved garbage collection service. This assessment is important because a municipality designs his pricing policy. For this purpose, different things like household solid waste composition, its collection, recycling and evaluation of solid waste collection services are analysed first. The next step identifies the households' WTP to improve this solid waste collection service. According to the results, 35.57 % of the households responded that the service is good and majority was of the same opinion. On the other hand, 87.89 % of the households' were not willing to pay for an improved service. The statistical analysis showed that people of high income group and more education level, living in villas or apartments sound effects the choice among the posted price positively (Zain, K. K. 1999).

While talking about other countries, there is a very genuine example of ignorance regarding plastic bags reducing efforts as Thai government still has not imposed any regulations /laws prohibiting the use of plastic bags and dumping in open air while other Asian countries are taking certain measures regards plastic bags now. To determine the

willingness to pay for the possibly reduction of the plastic bags consumption, using the contingent valuation (CV) method, (Karnjana et al 2012) provided a framework, in which they did survey of 300 respondents. It had two parts; part one was to find out the attitudes and demographics towards the usage of plastic bags and part two consisted of those situations in which plastic bags usage could be reduced. Plastic bags became the most popular bags for shopping purposes because of their cheapness, easy and convenience access but their negative impacts are never highlighted and discussed openly in a more serious tone.

In this regard, (Riyad and Maher, 2014) did field survey for the city of Sana'a, Yemen to find out a large quantity of plastic dumped on roads, streets, the power cords and trees which lead to distortion and contamination of environment and also reduces the aesthetic view of the city. They used the method of removing waste materials mainly consisting of plastic bags, with the help of microorganisms that consume the waste. . The situation is worsened in Yemen as economically disadvantaged country. Many countries have banned plastic bags due to public concern over the serious negative impact on the environment and agriculture, especially, in agricultural countries, such as Yemen, Bangladesh, India, Pakistan, South Africa, etc. In this research paper, we surveyed the field for the city of Sana'a and recorded of the where about of those plastic bags accumulated (Riyadh. Moharam2014.)

This method turned out to be effective and cheap and can be used for the treatment of plastic bags. In Tabriz, The research population had different groups, the range of age distribution in sample population was from 18 to 70 and 574 was the processed sample for the investigation. Contingent valuation method (CVM) was applied with WTP to calculate the demand for the better environment. Descriptive and analytical methods were used to convey the results. It was divided in two main parts; first the existing environmental, social and economic conditions of the study area were examined with analysis of survey and interviews and, the results indicated that people in Tabriz were very much concerned about their living and environment, thus the willingness to pay was significant for the community to resolve the issues. In this framework, the method of assessment constructed, regarding the preceding hypothetical markets, usually used for the evaluation of environmental effects or cultural heritage to resolve that complexity of the community. (Mattia et al. 2003),

It has been found that valuing the social willing to pay (WTP) for a sample, with diverse structures lead to consistent outcomes with very insignificant cavities or breaks in contrast with the standards acquired by the more customary real estate assessment approaches. Rendering to these common suppositions, this paper advocates the use of “revealed preference methods” with the objective of interchange in assessment models of the market prices regarding environmental goods and services. As past studies of environmental economics have encompassed a range of pecuniary valuation methods and techniques, designed to 'price' the variety of environmental goods and services offered by the biosphere. Later sections concentrate on the contingent valuation method, its economic theory, as well as reliability and validity issues The paper ends with some cautiously optimistic conclusions about the future role of CVM in environmental resource valuation questions. A 'best practice' set of CVM guidelines are also presented in the later stages of study

2.3 Environmental Impacts of Paper Bag, Plastic Bag and Cloth Bags

The environmental impact of different type of bags- cloth, paper and plastic is widely discussed. Their environmental impacts are based on the four categories; their decomposition, manufacturing, reusability and recyclability.

Decomposition

Paper bags are not easily degradable in landfills as is considered because of the absence of light, air, water, oxygen and other elements which are necessary for the degradation process. Also paper bag covers more space in landfills as compared to plastic bag. On the other hand, plastic bag takes between 400 to 1000 years for decomposition process. Plastic bags are further divided into two types: bio-degradable plastics and photodegradable plastics. The former contains small amount of non-oil based materials (like corn starch) and the latter breaks down when exposed to sunlight. Plastic increases the emission of greenhouse gases like methane, even after decomposition. (Suzie; 2011)³

Manufacturing

Paper bag consumes four times more energy as it is needed in the manufacturing of plastic bag. Forests are cut down and greenhouse gases are also emitted in the manufacturing of

paper bags. The burning of wood is often done in the presence of chemicals which are the reason of acid rain and water pollution.

Further, paper bags generate 70% more air and 50 % more water pollution than plastic bags. Also the transportation cost of paper bags is seven times the transportation of plastic bags. On the other hand, plastic bags are produced from waste products of oil refinery. Around 2 billion barrels of oil is used in plastic bag industry, every year. This increases many tons of carbon and other chemicals into the air. Cloth bags are expensive and thicker as compared to both other type of bags. Their transportation cost is also high and thus CO2 emission is also higher. (Kirsty; 2011)

Reusability

Plastic bags are very thin and strong enough to carry 2500 times their own weight, even when they become wet. They are reusable in many ways. Most of the plastic bags can be used four times after their first use. On the other hand, cloth bags are reusable but are not considered hygienic as according to studies the reusable grocery cloth bags become the home for mould, yeast and other bacteria.

Recyclability

Plastic bags consume about 91% less energy than paper bag when recycling. While cloth bags are recycled like other textiles are, less pollution is created and energy is saved in this process. (Kristy and Suzie 2011)

Reusability

A lot of plastic industrial units are fabricating heaps and bundles of plastic bags which are very traditionally used by the people for shopping purposes because of its ease, cheapness and convenience of use but their very hazardous negative impact is never highlighted or, at the very least, openly discussed in a more serious tone

The number of factories producing plastic bags and discuss the causes and effects and reviewed a range of solutions for a clean environment for us and our future generations.

The isolated microbial strains were identified based on their cultural morphological and biochemical study.

Chapter 3

3.1 Methods and tools

Contingent valuation is a method for estimating the value of benefits that do not have an established monetary value. It utilizes surveys that ask people how much they would be willing to pay for specific benefits. It is called "contingent" valuation, because people are asked to state their willingness to pay, contingent on a specific hypothetical benefit.

CVM is the most applied valuation method in recent years, and it has been developed in the context of mainly environmental valuation, over the last 30 years. It is therefore more important to study it more carefully.

CVM work considering that respondent's state their preferences for some environmental preservation, or change in status, by answering questions with reference to supposed alternatives and hypothetically created market structure for non-priced or valuing environment. The temperament of this method has thus inevitable that it has always an open to criticism from both economic and psychological experimentalists and experimental economists. The appreciation has in turn caused supporters of CVM to pay much more attention to a testing protocol in which questions of method reliability and validity are directly addressed. (Harris, C.C. and Brown, G. (1992).

The respondents to a CVM methods' questionnaire were asked a variety of questions about how much they were willing to pay (WTP) to ensure a welfare gain from a change in the provision of a non-market environmental commodity; or how much they were willing to accept (WTA) in compensation to endure a welfare loss from a reduced level of provision. A basic question for the implementation of the CVM is therefore, whether WTP or WTA was the most appropriate indicator of value in a given situation. For cost-benefit analysis based on the (Hicks-Kaldor) compensation test, WTP is seem to be the appropriate measure for gainers from some resource allocation decision, and WTA the proper measure for losers from that same reallocation. But as (Harris and Brown ,1992) have pointed out it is often not easy to identify gainers and losers since this judgment is itself influenced by the value's own perception. Following CVM the study has investigate at Abpara and Itwaar bazaar markets of Islamabad ,Pakistan.

3.2 Study area

Market Structure of the selected Survey Areas, Islamabad is the Capital city with areas of Urban and Rural sectors given as

Islamabad Urban Area 220.15 sq.km

Islamabad Rural Area 466.20 sq.km

Islamabad Parks 220.15 sq.km

The influencing reason for the selection division of these two markets are, to capture the income education effects on willingness to pay as both markets have different but same customers ranging from low to middle and high income groups. The area customers are most common in many features for both the places. Where the customers of Abpara purchase things in Itwaar bazaar and viscera.

3.2.1 Abpara Market:

Abpara market is located close to the city and it is one of the oldest markets of the capital. It attract customers mainly for the purchase of clothes, shoes, dry fruits, gift, mechanical and electrical items, consumer electronics and other general items at a reasonable rate. There are approximately 700 to 1000 shops in this market. This market is dealing with greater amount of shopping bag usage, sorting from small and medium to large bags. There is huge amount of branded shopping bags usage in this market as most of the cloth shops use branded shopping bags with their brand name printed on them. The main focus on this market was that how much the shop owners are willing to accept to pay for a change from plastic to paper bag usage for their products. Along with this ,the authors have calculated that how much the consumer is willingness to pay, if the change in use of plastic bags is replaced with more environment friendly paper bags or some other form of bags. The location and frequently use of same market per costumer ensure the importance of market area to be studied.

3.2.3 Sunday Market Islamabad:

*Itwaar Bazaar (Sunday Market) is mostly opened on Sunday, Tuesday and Friday. This market is the centre for vegetables, fruits, second hand garments, electronic items and shoes, carpet, crockery and other kitchen items, eatables , soaps, detergents and many more. This market is divided into different sections. 1) Fresh vegetable and Fruits. 2) Section of Used clothes. 3) Section of General used items. 4) Section of Shoes, old and new. This is the market where majority of the population buy daily use items specially vegetables and fruits. It is managed under the supervision of CDA and consists of Shops of size 6 *8” and 6*6”. The rent of the shop is payable on three month basis, with a very nominal rate of Rs. 2,100 per month. There are approximately 1,500 to 2,000 shops of the given sizes containing shops of the given categories. The selection of this section of the market was considered in order to know how much low income group of the society is*

willing to accept change from plastic shopping bags to cloth bags for vegetable and fruits as cloth bags for vegetables are strong and reliable. Approximately 7 to 8 thousand people visit this market on average and market sets its working for three days a week i.e. Friday, Sunday and Tuesday. Thus this market is the biggest user of shopping bags in the twin cities.

3.2 Data Collection

The investigation was based on Primary data, collected through questioners. The team of four enumerators was formulated to collect the data. The information was collected in 3 rounds.

Round 1

Wednesday (20/5/2015): 41 respondents were interviewed at the first round only from Abpara market and questioners were properly explained to consumers and shopkeepers whenever the understanding between the respondent and intervening person was wavering.

Round 2

Sunday (24/5/2015): 65 respondents were briefly questioned in second round of the data collection where 55 respondents were from Itwaar bazaar and 10 more respondents from Abpara bazaar Islamabad.

Round 3

Tuesday (26/5/2015): The last and final round with interviewing 48 more respondents from both markets, where 20 respondents were from Itwaar bazaar and 28 respondents were interrogated from Abpara market.

Data collection ethics.

During the data collection process enumerators were trained properly as group discussion for every kind of uncertainty, discipline was the first rule, if any respondent refused, the investigators have moved to next respondent, as instructed . The data collecting candidates were made sure to prevent the bias selection of respondents, rather random selections were made and no interpolations are made , while analysing the data only few irrelevant variables were omitted.

3.3 Sample

The study incorporating 154 valid sample observation sizes, 75 respondents were from Itw Sunday market and 61 valid samples were taken from Abpara market.

The questioner had two parts, 1) customer's information section for single respondent and, 2) shopkeeper information. It means this study had 136×2 respondents or 272 observations.

3.4 Sampling techniques

This investigation has followed stratified random technique to collect data. Strata (1) for I Sunday market and strata (2) for Abpara market.

3.5 Justification

This technique was used, as the data was collected from 2 parts of the area, where strata was Itwaar bazaar and second strata was formulated Abpara bazaar, this situation led to stratified sampling and also to avoid survey biasness, the authors followed random sampling techniques.

3.6 Variables of the study

This investigation has a range of variables, which are categorised into two components; Dependent variables and Independent variables, which are further explained as follows.

3.6.1 Independent variables

Income, Age, Gender, Education, Distance, Weight of goods purchased, Mode of transportation, Awareness about the hazards of plastic bags of customers and Shop size, Rent per-day, Income and other Expenditures of utility bills of shopkeepers are all in the section of independent variables of the study.

3.6.1.1 Variables formation

Income is recorded in numerical form as rupees income per month of a house, means household income.

Age is recorded as years the minimum age recorded was 16 years and maximum age recorded during survey was 66 years of a respondent.

Gender is recorded as male =1 and female =0

Education is taken as variable in form of 1, 0 educated non-educated.

The study has taken FSC as minimum education level to consider a respondent educated.

Awareness is taken as independent variable and is defined that the awareness in customers about hazards related to plastic bag use and shopkeepers awareness about the use of plastic bags.

Distance from residence was recorded in kilometres while weight of the goods purchased is taken another influencing factor for reuse and WTP and WTA of the community.

3.6.2 Dependent variables

This research has encounter for WTP, WTA, and type of bags and reuse of shopping Bags Willingness to pay for paper bags in Abpara market for customers and willingness to accept of shopkeepers for paper bags in Abpara market.

Willingness to pay for cloth bags in Sunday market for customers and willingness to accept of shopkeepers for cloth bags in Sunday market are taken as dependent variables.

Reuse of plastic bags in both markets are considered dependent on many influencing factors in the present study.

3.6.3 Study Tools

Willingness to pay (WTP) and willingness to accept (WTA) are the study tools.

3.7 Model of the study

The study have used Linear Regression Model with Robust Standard Error and Logit Regression is also used for the reuse of plastic bags ,to see the dependency of reuse on different regressants in the study .

First linear regression model is used for WTP of Abpara respondents for papers bags instead of plastic bags.

Regression is used on WTA of Abpara shopkeepers for paper bags to sell onwards instead of plastic bags.

Separately, the WTP and WTA are regressed with households and shopkeepers characteristics for cloth bags at Sunday market

Logistic Regression Analyses is used twice for the Reuse of plastic bags as dependent variable because the dependent variable was recorded in binary form.

3.8 Justification

On the basis of data the study has used regression and logistic regression, where first the data of the study was cross sectional and separately regressions were used because of 4 research questions are designed as that, each model results are the answer to question posed in sequence.

Chapter 4

ANALYSIS

The WTP for paper bags at abpara market

Table no 1:

<i>No, respondents</i>	<i>of AVERAGE INCOME</i>	<i>WTP %</i>	<i>WTP RS.</i>	<i>IN; AWARENESS</i>	<i>REUSE</i>
<i>61</i>	<i>31650 RUPIES</i>	<i>7%</i>	<i>9.516667</i>	<i>63%</i>	<i>48%</i>
<i>TOTAL</i>	<i>1899000 RS</i>	<i>000</i>	<i>579.5 RS</i>	<i>63%</i>	<i>48%</i>

*The study assume that the customers from all Islamabad come to Abpara for shopping so the author has multiply the average WTP of customers to the population of Islamabad to insure the total willingness to pay is, to be found and by, $800,500 * 9.516667 = 7617558$ is the total willingness to pay for replacement of paper bags at Appara market analyses from customers*

WTA of shopkeepers for paper bags at Abpara

<i>No of respondents</i>	<i>Income average</i>	<i>WTA RS</i>	<i>% ACCEPTABLE</i>
<i>61</i>	<i>83,267</i>	<i>6.12</i>	<i>3%</i>
<i>TOTAL</i>	<i>4996020</i>	<i>373*1500=559500</i>	

<i>TOTAL WTP</i>	<i>TOTAL WTA</i>	<i>DIFFERENCE</i>
<i>7617558</i>	<i>559500</i>	<i>7058058</i>

The results shows the change is feasible it's possible

<i>Number of obsr</i>	<i>F(10, 49)</i>	<i>Prob > F</i>	<i>R-squared</i>	<i>Root MSE</i>
<i>60</i>	<i>=63966.07</i>	<i>= 0.0000</i>	<i>= 0.8665</i>	<i>= .43431</i>

<i>WTA </i>	<i>Coef</i>	<i>Std. Err</i>	<i> t </i>	<i>P> t </i>	<i>[95% Interval]</i>	<i>Confidence.</i>
<i>Shop Rent</i>	<i>-.0001444</i>	<i>7.57e-06</i>	<i>-19.08</i>	<i>0.000</i>	<i>-.0001596</i>	<i>-.0001292</i>
<i>Income/M</i>	<i>.0000886</i>	<i>5.21e-06</i>	<i>16.99</i>	<i>0.000</i>	<i>.0000781</i>	<i>.0000991</i>
<i>Bills / M</i>	<i>.000065</i>	<i>5.94e-06</i>	<i>10.96</i>	<i>0.000</i>	<i>.0000531</i>	<i>.000077</i>
<i>Awareness</i>	<i>4.774042</i>	<i>.384841</i>	<i>12.41</i>	<i>0.000</i>	<i>4.001066</i>	<i>5.547018</i>
<i>Per day sale</i>	<i>-.0679333</i>	<i>.0044257</i>	<i>-15.35</i>	<i>0.000</i>	<i>-.0768226</i>	<i>-.0590441</i>
<i>Cost /dp</i>	<i>.0532147</i>	<i>.0057092</i>	<i>9.32</i>	<i>0.000</i>	<i>.0417474</i>	<i>.0646819</i>
<i>Tax</i>	<i>-9.479606</i>	<i>.6872042</i>	<i>-13.79</i>	<i>0.000</i>	<i>-10.8599</i>	<i>-8.099316</i>
<i>Constant</i>	<i>21.57296</i>	<i>1.049694</i>	<i>20.55</i>	<i>0.000</i>	<i>19.46459</i>	<i>23.68133</i>

Interpretation:

The results are estimated through Stata for abpara willingness to accept of shopkeepers to replace plastic bags with paper bags. Results indicate that overall fitness of model is good. F-Statistic is significant for overall goodness of fit. R square value is 0.86 which shows 86% of variation in dependent variable for willingness to accept. Root MSE is 0.43 and indicates the minimum MSE amongst three regressed model. Variables like Shop rent, per day sale of plastic bags and tax are significant and showing negative relationship with WTA in abpara market for shopkeepers. While other variables like income bill, awareness and cost of plastic bags per day are positively significant with willingness to accept of shopkeepers in abpara. One unit of change in cost per day is responsible for 53% of variation in WTA in abpara for paper bags.

WTP for paper bags Appara market**Robust regression; Number of obs = 60****F(9, 50) = 60.15****Prob > F = 0.0000****R-squared = 0.8443 Root MSE = .02087****--rreg wtp gender age education income distance md prf ct weight****WTP| Coef. Std. Err. t P>|t| [95% Conf. Interval]****GENDER | -.0150274 .0041283 -3.64 0.001 -.0233193 -.0067354****AGE | -.0001056 .0001973 -0.54 0.595 -.0005019 .0002906****EDUCATION| .0079171 .0065407 1.21 0.232 -.0052204 .0210545****INCOME | 2.12e-06 1.42e-07 14.92 0.000 1.84e-06 2.41e-06****DIST | -.0000239 .0011672 -0.02 0.984 -.0023683 .0023204****MD | .0009354 .0022315 0.42 0.677 -.0035468 .0054176****PRF | .0039335 .0020018 1.96 0.055 -.0000873 .0079543****CT | -.0046407 .0020146 -2.30 0.025 -.0086871 -.0005944****WEIGHT | -.0053901 .0025181 -2.14 0.037 -.0104479 -.0003323****_cons | .0131136 .0105461 1.24 0.220 -.008069 .0342962****Interpretations**

The results are estimated through Stata for abpara willingness to pay of customers to replace plastic bags with paper bags. Results show that overall fitness of model is good. R square shows 84% of variation in dependent variable. RMS of the model is 0.02 which is minimum for the model and shows the good fit of model. Four variables of the study results are insignificant and supported by theory. Age, education, distance and mode of transportation are explaining low variation in willingness to pay for paper bags at abpara. While other variables like income of

customers, preferences of customers, type of commodity and weight are significant and explaining enough variation in WTP for paper bags. 1 unit change in weight will bring 5 % of variation in WTP for paper bags which are negative means if weight increase by 1 kg for any commodity, WTP for paper bags will decline by 5% on average. 1 unit change in customer's income will encourage 20% increase in WTP for paper bags.

REUSE OF PLASTIC BAGS IN ABPARA MARKET

Probit regression **Number of obs = 54**

Wald chi2(7) = 48.62

Prob > chi2 = 0.0000

Log pseudo likelihood = -19.555721 **Pseudo R2 = 0.4755**

Robust

REUSE	Coef.	Std. Err.	z	P> z 	[95% Conf. Interval]	
GENDER	-.3106072	.687353	-0.45	0.651	-1.657794	1.03658
AGE	-.1130279	.02222	-5.09	0.000	-.1565783	-.0694775
EDUCATION	2.414578	.7864854	3.07	0.002	.873095	3.956061
DISTANCE	.5674519	.1580081	3.59	0.000	.2577617	.8771421
MD	.0834385	.3110328	0.27	0.788	-.5261746	.6930516
PRF	-1.018546	.3070943	-3.32	0.001	-1.62044	-.4166519
CT	.9649068	.3594285	2.68	0.007	.2604399	1.669374
_CONS	.2447051	1.613357	0.15	0.879	-2.917416	3.406826

Interpretation

Probit regression is used for reuse of plastic bags as the variable was recorded in binary form. With robust standard error and 54 observations the fitness of model is 47% .With minimum standard error education, distance, preferences, type of commodities and age are highly significant to reuse of plastic bags while mode of transportation and gender are insignificant with reuse of plastic bags.

SECTION NO 2**THE WTP FOR CLOTH BAGS AT SUNDAY MARKET****TABLE NO**

No, of respondents	AVERAGE INCOME	WTP %	WTP IN; RS.	AWARENESS	REUSE
75	33027.03RS	8%	13.60810811	0.64864865	0.540541
TOTAL	2477047.5RS 000	000	1020	64%	55%

Willingness to pay 13* no of customers to SUNDAY MARKET, which are round about 10000 to 15000 the data 13*10000= 130000 and with 13* 15000= 150000 total willingness to pay per day at Sunday market

Results for itwaar bazaar willingness to accept

No of respondents	Ave Income	AVR WTA	AWARENESS	REUSE
Sum of respondents	26743.24	9.17 rupees	41%	56%
TOTAL	1978982 RS	678 RS		

The values in the tables are average income multiplied by no of shopkeeper's respondent and average willingness to accept is multiplied by no of respondents' shopkeepers but for the welfare analyses the study first multiply the average WTA of shopkeepers with total population's willingness. Where approximately 10 *700 just = 7000 but if we considered the it 10*2000 shopkeepers =20000 Rs at all

TOTAL WTP	TOTAL WTA	DIFFERENCE
150000	20000	130000

The data indicates that the change is feasible at itwaar bazaar, as the willingness to pay is much higher than the willingness to accept

REG WTA INCOME AWARENESS PDSALE COSTPDP TAX OWNBAGS, ROBUST

NOTE: awareness omitted because of co linearity

Linear regression ; Number of obs = 74

F(5, 68) = 2.56

Prob > F = 0.0351

R-squared = 0.4348

Root MSE = 1.0402

Robust

<i>WTA</i>	<i>Coef.</i>	<i>Std. Err.</i>	<i>t</i>	<i>P> t </i>	<i>[95% Conf. Interval]</i>	
<i>INCOME</i>	.0000327	.0000173	1.89	0.063	-1.79e-06	.0000671
<i>PDSALE</i>	-.0044718	.0016922	-2.64	0.010	-.0078484	-.0010951
<i>COSTPDP</i>	.0050558	.0049727	1.02	0.313	-.0048671	.0149787
<i>TAX</i>	.6365769	.3154615	2.02	0.048	.0070832	1.26607
<i>OWNBAGS</i>	-.1761142	.2506905	-0.70	0.485	-.6763593	.3241309
<i>_cons</i>	2.790407	.6898822	4.04	0.000	1.413769	4.167046

Interpretation

Linear regression model was applied with 74 observations for WTA at itwaar bazar for the replacement of plastic bags with cloth bags. The results indicate that 48% of variation is explained by explanatory variables in WTA of shopkeepers at itwaar bazar. Income, per day sale of shopkeepers and, response to taxes are significant and the results show that there were no such customers observed in market with a significant rate, who were bringing their own shopping bags, if the taxes are imposed on plastic bags, what number of shopkeepers are WTA for cloth bags to prevail in market for the future.

RESULTS FOR WILLINGNESS TO PAY AT SUNDAY MARKET

Robust regression; Number of obs = 74

$F(7, 66) = 95.74$

Prob > F = 0.0000

WTP	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
GENDER	-4.221758	.6350096	-6.65	0.000	-5.489596 -2.95392
AGE	.2837658	.0374989	7.57	0.000	.2088969 .3586347
EDUCATION	8.249425	.9203489	8.96	0.000	6.411889 10.08696
INCOME	.0002196	.0000241	9.13	0.000	.0001716 .0002676
DISTANCE	2.574795	.2050748	12.56	0.000	2.16535 2.98424
MD	-3.773707	.347023	-10.87	0.000	-4.466561 -3.080853
WEIGHT	-.1703024	.3647572	-0.47	0.642	-.8985637 .5579588
_CONS	-8.866589	1.357438	-6.53	0.000	-11.5768 -6.156376

Interpretation

Weight is insignificant as weight increases from 5 or 10 kg the demand for bags reduce in Sunday market and society demand for plastic bags because the expenditures tends to increases on cloth bags , all other variables are significant. F statistics shows overall model is significant. R sq. is 37 % but it is enough for cross sectional data. Education, income and mode of transportation are significant. As the facility of transport improves for the individuals the WTP for cloth bags tend to reduce.

Logistic regression Number of obs = 74

LR chi2(7) = 38.78

Prob > chi2 = 0.0000

Log likelihood = -31.659606 Pseudo R2 = 0.3798

LOGIT REUSE GENDER AGE EDUCATION INCOME MD PRF CT

<i>REUSE</i>	<i>COEF.</i>	<i>STD. ERR.</i>	<i>Z</i>	<i>P> Z </i>	<i>[95% CONF. INTERVAL]</i>
<i>GENDER</i>	<i>.9528569</i>	<i>.8775296</i>	<i>1.09</i>	<i>0.278</i>	<i>-.7670695 2.672783</i>
<i>AGE</i>	<i>-.1159978</i>	<i>.0542151</i>	<i>-2.14</i>	<i>0.032</i>	<i>-.2222575 -.0097381</i>
<i>EDUCATION</i>	<i>3.610636</i>	<i>1.306565</i>	<i>2.76</i>	<i>0.006</i>	<i>1.049815 6.171457</i>
<i>INCOME</i>	<i>-.0000551</i>	<i>.0000264</i>	<i>-2.08</i>	<i>0.037</i>	<i>-.0001069 -3.22E-06</i>
<i>MD</i>	<i>1.345237</i>	<i>.3700257</i>	<i>3.64</i>	<i>0.000</i>	<i>.6200002 2.070474</i>
<i>PRF</i>	<i>-1.010773</i>	<i>.4378016</i>	<i>-2.31</i>	<i>0.021</i>	<i>-1.868848 -.1526972</i>
<i>CT</i>	<i>.4899949</i>	<i>.4550746</i>	<i>1.08</i>	<i>0.282</i>	<i>-.4019348 1.381925</i>
<i>_CONS</i>	<i>1.29029</i>	<i>2.748456</i>	<i>0.47</i>	<i>0.639</i>	<i>-4.096585 6.677165</i>

Interpretation

The results were drawn through Stata using logistic regression model .we have 74 observations with 0.37 value of R square. Cross sectional data with 37 % variation in dependent variable due to explanatory variables is valid case for fitness of overall model. Commodity type is insignificant and preference of plastic bag is significant with negative sign. Age and income are also significant with negative sign showing that 1 unit increase in age and 1 unit increase in education will decrease the reuse of plastic bags by 11 % and 5 % respectively. Education is significant with positive sign and indicates that increase in education will lead to higher frequency of reuse of plastic bags.

Marginal effects

MFX

Marginal effects after Probit

$$y = \text{Pr}(\text{reuse}) \quad (\text{predict}) = .55178879$$

(*) dy/dx is for discrete change of dummy variable from 0 to 1

VARIABLE	DY/DX	STD. ERR.	Z	P> Z	[95% C.I.]	X
GENDER*	.2390262	.18791	1.27	0.203	-.129278 .60733	.675676
AGE	-.0160797	.00847	-1.90	0.058	-.032679 .000519	32.2973
EDUCAT~N*	.3872922	.1459	2.65	0.008	.101339 .673246	.837838
INCOME	-.0000111	.00000	-2.32	0.020	-.00002 -1.7E-06	33027
PR	-.3193829	.09753	-3.27	0.001	-.510544 -.128222	1.97297
CT	.0032143	.06722	0.05	0.962	-.128532 .134961	1.75676

Interpretation

The above result shows the marginal changes of income, education, age, preferences of bag use and commodity type on reuse where marginal effects of age and income on reuse of plastic bags are negative and significant

4.1 Findings of the Study

The study found that Willingness to pay for Abpara and Sunday market for the proposed change is significant. WTP and WTA regarding cloth bag was significant in both the markets (Abpara as well as Sunday market). Both consumers and shopkeeper showed positive sign from changing plastic bags tradition to paper bags and cloth bag. Customers were willing to pay as additional cost for cloth bags if plastic bags were restricted because they are unhygienic as well as creating environmental hazards. For same market the propose change was feasible as the data shows that WTP for cloth bags was greater than willingness to accept for cloth bags in the markets. Also for same market of abpara the WTP was higher than willingness to accept for paper bags. Reuse of the plastic bag was significant in both the markets, but people showed great concern regarding diversion toward cloth bags which are environment friendly. When customers are asked to use single plastic bag for d/f purposes response varied person to person along with product to product. As fruits and vegetables customer showed positive response for using one large bag for all shopping while reset of customers (manufactured goods) were

uncertain. According to some studies Plastic bags could be reuse 151 times while in case of cloth bags the usage life could double with less impact on Environment.

CHAPTER 5:

5.0 RESULTS AND DISSCUSSIONS

Using the Probit Model, on reuse of plastic bags, the study found that many significant variables in our model are according to theory behind the variables like household income, age and awareness level of environmental quality are significantly related and provide positive WTP values, while age has a negative relation with WTP.

Education level of the respondent: it has a strong positive relationship with WTP and is significant and positive as with increased education level, the awareness for environmental protection increases and people chose to replace paper/cloth bags with plastic bags.

Environmental awareness of the respondent: it is also positively related to WTP for use of paper bags / cloth bags. More awareness about the environment means respondents know the benefit of the environment and it is likely to have more environmental demand.

Income of the respondent: it has a positive impact on the WTP, as it supports the economic theory in a way that income has a positive relationship with demand and hence for the environmental demand. This also shows that environment is a normal good as its demand increase with increase in income.

Chapter 6

Conclusion

This investigation across two markets of Islamabad concluded that proposed change for paper bags and cloth bags in both markets is feasible and acceptable. The study processed cross sectional data and found that reuse of plastic bags comparative to abpara is higher in Itwaar bazaar. The incentives provided as long, big shopping bags were desirably utilized by customers at Itwaar bazaar and out of 50 there were 47 users who put all the goods in given shopping bags only 3 customers had put goods in small shopping bags and then put them in large shopping bags, given by enumerators. On the other hand abpara market where customers had used small shopping bags even big shopper was provided and due to diversify market structure the individuals with big shopping bags were rarely observed after first sight. This study is the composed document for both the markets welfare hope, if the government respond to the desired change and make it helpful for the environment.

6.1 Suggestions

Taking example of Asian tiger, who got doubled in their GDP from 1875-1989 but their environmental degradation was 10 times more. As soon as the developed they have paid attention to their environment and made policies, rules, regulation and laws to cure and protect it, that when literacy rate is high than awareness among mass is on peak. It signs well for people to do for their country. Well awarded people will definitely do more to serve others rather than self-motives we suggest to provide incentives to customers like big shoppers, it will to reuse and reduce the use of small shopping bags.

REFERENCES

Harris, C.C. and Brown, G. (1992). Gain, Loss and Personal Responsibility: The Role of Motivation in Resource Valuation Decision-Making, Ecological Economics 5: 73-92.

Karnjana, Suthathip Jaikongnam (2012) A framework for assessing the willingness to pay in reducing plastic bag use, 1st Mae FahLuang University International Conference

Khorshiddoust, A.M (August 2014 Contingent valuation in estimating the willingness to pay for environmental conservation in Tabriz, Iran

Kirsty and Suzie 2011, Comparison of Environmental Impact of Plastic Paper and Cloth Bags, NIAR 139-11 Paper 36/11

Mattia S, Bianchi R., Pasqualini F. (2003) Valore di mercato e CVM, in Quaderni di Diritto Economides Territori 2 pp. 49-62

Riyad, Maher Ali. (2014) The Impact of Plastic Bags on the Environment: A field Survey of the City Of Sana'a And The Surrounding Areas, Yemen. International Journal of Engineering Research and Review, Vol. 2, Issue 4, pp: (61-69), Month: October - December.

Zain, K. K. (1999). The right garbage collection service charge estimated through contingent valuation method: The case of Istanbul. The Journal of Environment Development, 20(4), 428-448.

Members of the Editorial Board

Editor in chief

Dr. Mohammad Othman Nassar, Faculty of Computer Science and Informatics, Amman Arab University for Graduate Studies,
Jordan, moanassar@aaau.edu.jo , 00962788780593

Editorial Board

Prof. Dr. Felina Panas Espique, Dean at School of Teacher Education, Saint Louis University, Bonifacio St., Baguio City, Philippines.
Prof. Dr. Hye-Kyung Pang, Business Administration Department, Hallym University, Republic Of Korea.
Prof. Dr. Amer Abdulrahman Taqa, basic science Department, College of Dentistry, Mosul University, Iraq.
Prof. Dr. Abdul Haseeb Ansar, International Islamic University, Kuala Lumpur, Malaysia
Dr. kuldeep Narain Mathur, school of quantitative science, Universiti Utara, Malaysia
Dr. Zaira Wahab, Iqra University, Pakistan.
Dr. Daniela Roxana Andron, Lucian Blaga University of Sibiu, Romania.
Dr. Chandan Kumar Sarkar, IUBAT- International University of Business Agriculture and Technology, Bangladesh.
Dr. Azad Ali, Department of Zoology, B.N. College, Dhubri, India.
Dr. Narayan Ramappa Birasal, KLE Society's Gudleppa Hallikeri College Haveri (Permanently affiliated to Karnatak University Dharwad, Reaccredited by NAAC), India.
Dr. Rabindra Prasad Kayastha, Kathmandu University, Nepal.
Dr. Rasmeh Ali AlHuneiti, Brunel University, United Kingdom.
Dr. Florian Marcel Nuta, Faculty of Economics/Danubius University of Galati, Romania.
Dr. Suchismita Satapathy, School of Mechanical Engineering, KIIT University, India.
Dr. Juliana Ajdini, Department of Social Work and Social Policy, Faculty of Social Science, University of Tirana, Albania.
Dr. Arfan Yousaf, Department of Clinical Sciences, Faculty of Veterinary and Animal Sciences, PMAS-Arid Agriculture University Rawalpindi, Pakistan.
Dr. Rajamohan Natarajan, Chemical Engineering, Faculty of Engineering, Sohar university, Oman.
Dr. Tariq Javed, Lahore Pharmacy College (LMDC), University of Health Sciences, Lahore, Pakistan.
Dr. Rogers Andrew, Sokoine University of Agriculture, United Republic Of Tanzania
Dr Feras Fares, Amman Arab University for graduate studies, Jordan.





International Journal of

Sciences: Basic and Applied Research

Print & Online

Published by:



Visit: www.gssrr.org

ISSN 2307-4531 (Print & Online)