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Air Traveler's Willingness to Pay to Offset Their CO_2 Emission in Pokhara

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ABSTRACT

This study aims to investigate if there are a significant number of people who are ready for climate change mitigation action in case of air travelers in Pokhara city. Using the primary information to answer 46 structured questions from 142 respondents of Pokhara city in 2014, the study has estimated the air travelers' willingness to pay (WTP) to offset their CO_2 emission during their flight. The study has showed that with the mean value of 5.53% of their air fare, there is 78.16% probability of willingness to pay voluntarily to offset their CO_2 emission caused by their activities by the air travelers in Pokhara. Besides, knowledge and attitude as major determinants of WTP, majority (about 83 percent) of the respondents have both high level of knowledge about carbon emission and high level of attitude towards its adverse impact. The study has also showed that foreigners are more likely to pay to offset their CO_2 emission than that of Nepali citizens. Therefore, the findings could be a good information for making pricing, carbon taxing and mitigation policy at any level.

KEYWORDS: CO_2 emission, greenhouse gas, mitigation, voluntary offset, willingness to pay

INTRODUCTION

Greenhouse gases allow sunlight to enter the atmosphere and warm the earth by trapping heat in the lower atmosphere, the so-called greenhouse effect. This is a natural process and without it the average temperature on earth would be approximately -15˚ Celsius and life would probably not exist on the planet. However, the atmospheric concentration of the three main human-made greenhouse gases – carbon dioxide, methane and nitrous oxide – has rapidly increased since the beginning of the industrial revolution in the 18th century. This has raised the discussions of global warming, as observations are made of glaciers melting, plants and animals being forced from their habitats, and the number of severe storms and droughts increases (Gore, 2006). Of the anthropogenic greenhouse gases, carbon dioxide is the most important contributor to the increased greenhouse effect. It contributes about 63 percent of the change in the intensity of the greenhouse effect and hence global warming can be accounted for by carbon dioxide. The primary reasons for the increased amount of carbon dioxide in the atmosphere is due to the increased combustion of fossil fuels, deforestation, intensified agriculture and the rapidly expanding global population (Pidwirny, 2010).

Global carbon-dioxide (CO_2) emissions from fossil-fuel combustion met a record high of 31.6 Gigatones in 2011 than an increase of one Gigatone on 2010 or 3.2 percent.

Coal accounted for 45 percent followed by oil for 35 percent and natural gas for 20 percent of total energy-related CO_2 emissions in 2011. China has been the largest contributor to the global increased emission rose by 720 million tons or 9.3 percent due to higher coal consumption. India has contributed to the emission rose by 140 million tons or 8.7 percent moving ahead of fifth largest contributor Russia to become the fourth largest emitter behind China, the second contributor the United States, and the third contributor the European Union (International Energy Agency, 2011). Further, transport sector has considerable contribution to the world greenhouse gas emissions. Within the transport sector, aviation accounts for about 2 percent of the emission and is experiencing the fastest emission growth together with maritime transports. Also, the emissions from airplanes are especially harmful as they are released in the upper troposphere and lower stratosphere where their impact on ozone generation and cloudiness is much greater (Gössling et al., 2009).

Many literatures discussed different measures to reduce greenhouse gas emissions from the transport and aviation sector. Among these are command-and-control measures by governmental (such as value-added taxes, fuel taxes and emission taxes), structural changes (such as changing flight corridors, flight altitudes, air traffic management, restructuring of public transport, switching to alternative modes of transport) and technological change (such as fuel efficiency, alternative fuels, low-speed aircrafts, and improved aerodynamics). There are however many obstacles to the full implementation of these measures, such as lack of governmental regulations, lack of international coordination and the high level of risk in these projects.

In the recent years, both profit and nonprofit airlines companies have offered flight passengers for possible voluntarily compensate for their emissions. A voluntary carbon offset is a certified emissions reduction which an individual purchased or a company to neutralize their carbon emissions. The voluntary carbon offset balances the emission from one activity with reductions in emissions in another activity. These activities can be energy efficiency, renewable energy, reforestation, soil erosion conservation projects, etc. Voluntary carbon offsets are purchased by passengers who are environmentally concerned but cannot or do not want to avoid their flying (Brouwer, Brander, & Van Beukering, 2008).

In this regard, a country like Nepal which is in dilemma at climate change mitigation policy due to shortage of funds and environmental awareness, the concept of voluntary carbon offsetting could be the source of fund for mitigation program. So, is there a considerable number of people to compensate voluntarily the damage caused by them? It is the fundamental question for policy makers and even to academicians as its dominant sectors are like agriculture and tourism which mostly are of environment sensitive. To solve this issue, this study has aimed to investigate if there are a significant number of people who are ready for climate change mitigation action in case of air travelers in Pokhara city. To be more specific, it tries to measure and analyze the air traveler's willingness to pay for offsetting their CO_2 emission in Pokhara and its major determinants. This measurement has great importance because it finds how much, and what percentage of people, are willing and ready to pay for offsetting their CO_2 emission which helps for the policy makers to formulate environmental mitigation program in district level as well as national level. It is also important for researchers and academicians for further research in environment mitigation sectors.

The remaining sections of the paper are organized as follows: literature review in both theoretical and empirical parts contains as the second section; the third section contains research methodology which includes data collection procedure, sampling

procedure, research design and processing tool, limitations and, validity and reliability; and the fourth section contains results and discussion.

LITERATURE REVIEW

In order to determine the factors that drive people to voluntary offset their emissions and their willingness to pay for such emission, it is of importance to consider previous and similar research in relevant fields of study. Followings are some empirical studies undertaken in this field:

Hooper, Daley, Preston and Thomas (2008) conducted a survey at the Manchester Airport with 487 passengers in 2008 to know that if they were aware and wanted to offset carbon emissions during their flights. Less than half of the total interviewed passengers were found aware and could offset the emissions. Later, when impact of carbon emission from the flight on climate made clear, three quarters of the passengers accepted for the contribution and one out of ten intended for the offset. Passengers also doubted the transparency and standardization of the imposed offset cost which ultimately became the barrier for offset project. Further, passengers have suggested the clear communication of backgrounds, purpose, methods and offset programs.

Brouwer et al. (2008) assessed on airline traveler's willingness to pay to offsetting their CO_2 emission. This study is mainly to measure probable risks and property loss caused by flight released CO_2 to climate change. While assessing, study seeks whether and why people travelling by air becoming more important source of CO_2 emissions, increased cost of their travel, and compensate the climate damage due to their flight on the basis of polluter pays principle. There is a big difference among the passengers in North America, Europe, Asia and other remaining of the world to the willingness for offsetting CO_2 and mitigation action for climate change. If stated willingness to pay by air passengers to offsetting their CO_2 emissions is based, nearly of €23 billion funds could be collected annually for financing mitigation activities to the climate change.

Gössling et al. (2009) collected 300 samples from international airline passenger surveyed at the Gothenburg Landvetter Airport of Sweden in April 2007 to know their willingness to pay for offsetting CO_2 emission. The obtained sample showed that 82 percent of the passengers believed airlines contribute at climate damage, about 71 percent of the passengers worried at climate damage and only 2 percent of the passengers actually ready to pay for offsetting voluntarily to the damage. There were still 76 percent of the interviewed passengers who were not aware about the knowledge of carbon offsetting voluntarily and less than 5 percent passengers knew about provision of carbon offsetting by airlines. Further, about 70 percent of the passengers showed their intention to pay for the offsets and about 55 percent of the passenger chosen voluntarily offsetting scheme as good practice to address airline emissions as they were introduced a brief information on voluntary carbon offsetting. Similarly, about 94 percent of the respondents agreed that airlines should be responsible for taking steps to the climate change or environmental problems and nearly 26 percent of the respondents expressed a possible reduction of their frequencies of flying to make fewer CO_2 emissions.

McKerron, Egerton, Gaskell, Parpia, and Mourato (2009) find that voluntary carbon offsets as a source to contribute both to meet greenhouse gas emissions targets and to deliver co-benefits. The authors examine the motives behind such voluntary contributions in the UK on the grounds of behavioral economics and found that market price for voluntary carbon offsets underestimates the willingness to pay for it and that the structure of the voluntary carbon offset projects (such as co-benefits) is an important factor that encourages the voluntary carbon offset uptake and willingness to pay.

Eijgelaar (2011) conducted a study for the mitigation proposes by voluntary carbon offsetting using online communication with 64 offset providers. The study considered the characteristics like awareness of climate change, CO_2 emissions by aviation, and attitudes towards mitigation measures of the respondents. There were identified gap in awareness, attitude and actual behavior of the communication made by the providers. This showed low level of mitigation potential with voluntary carbon offsetting for tourism and transport emissions. Similar conclusion is obtained when compared CO_2 volumes of flight offsets and actual quantity of emissions from the air travelers.

Bager and Sundberg (2011) have estimated the mean willingness to pay and exploring behavioral rationale behind voluntary contributions to carbon offsetting programs in Sweden. The study argues that macro-level indicators of sustainability are strongly and predictably affected by behavioral processes at the micro-level. The study aims at estimating the willingness to pay for voluntary carbon offsets and exploring the determinants behind air travelers' voluntary contributions to environmental preservation. A contingent valuation survey has been conducted in 320 Swedish air travelers. The study reports willingness to pay estimates of 679 SEK in a parametric framework. Adjusting for the level of certainty in the response yields a lower estimate, 185 SEK in line with expectations. A similar effect is reported using a nonparametric framework. The study concludes that allowing respondent to state an uncertain response in contingent valuation surveys yields more accurate willingness to pay estimates. Social image is the only hypothesis that has a statistically significant effect on respondents purchasing behavior. The study also concludes that organizations providing voluntary carbon offsets as well as policy makers should take this into account in order to spread pro-environmental behavior.

Mair (2011) studied the socio-demographic profiles of 500 online surveyed respondents from UK and Australia for possible purchase of CO_2 offset and environmental attitude in August 2008. She obtained only about 5 percent for British and 16 percent for Australian (10 percent on average) with offsetting experience among the two residents. The profiles also showed that young male educated were more likely to pay for offsetting aviation produced emission.

Lu and Shon (2012) surveyed 1339 Taiwanese respondents who travelled abroad via Taoyuan International Airport in January 2011 to study offsetting CO_2 emission. They found that mean willingness to pay by each person for each tone of CO_2 emissions to those going to Southeast Asia and Western countries about 20 dollars and those going to Northeast Asian countries about 28 dollars. It showed that offsetting CO_2 also differs with destinations as travelers to Northeast Asia seemed higher willingness to pay than those heading to Southeast Asia. Nearly 65 percent of the respondents had no knowledge at the carbon offsetting scheme while about 6 percent were aware. Regarding the effectiveness of the emission reduction program, about 5 percent considered the program would be effective while about 35 percent considered the program for ineffective.

The above reviews on mitigation of CO_2 emission are significantly relevance to design the method for estimation of willingness to pay to offset CO_2 emission in Nepal. Conclusions drawn from these literatures are: contingent valuation method is widely used method for analyzing and measuring the people's willingness to pay to offset their emission caused by themselves; socio-demographic profiles were considered more likely to pay for aviation offsets; people's knowledge and awareness about the emission and their attitude for the mitigation play greater role for carbon offsets; and so far there are no evidence of such study carried out in Nepal in this area before. These conclusions from the literature review helps to set method for the study. This study could help to

bridge the gap in Nepal's context. It could be good information for policy maker for making mitigating programs in Nepal.

DATA AND METHOD

Both descriptive and analytical techniques were performed using primary information from the individual air passengers for this study. This study applies the Contingent Valuation method in which respondents showed their preferences, perception and attitude at information of specific environmental changes elicited. To compensate the losses on people's welfare, polluters or respondents are asked to know their willingness to pay for the gains or losses due to the emission. Contingent valuation method with willingness to pay approach has become more popular and frequently applied in several studies.

Willingness to pay can be expressed through the following function:

$$WTP_i = \beta X_i + u_i$$

Where WTP, willingness to pay, is the outcome variable, vector X is exogenous explanatory variables, vector β is corresponding coefficients with u random term normally distributed with zero mean and constant variance.

In this study, outcome takes the form of discrete choice i.e. yes or no. When the dependent variable in a model is in discrete choice, conventional regression method is generally inappropriate to estimate the model. When dependent variable is dichotomous and is a non-linear function, then logistic regression is more appropriate. Thus, this study has used logistic regression to estimate the regression parameters. The dependent variable WTP is "yes" if respondent wants to offset their carbon emission and "no" if respondent does not want to offset their carbon emission. Here, socioeconomic and demographic variables like gender, age, household size, citizen, education, marital status, job, income, annual expenditure in air travel, knowledge on climate change, and attitude towards mitigation of climate change impact are considered as independent variables. However, this study has included only gender, citizen, job, knowledge and attitude to avoid multi-collinearity and make the model simpler and understandable. Other variables are included in descriptive analysis.

The study population for this research is all the air travel passengers, who were landed and flee from Pokhara Airport during summer season in 2014. This study had collected 142 samples during this season by adopting convenience sampling technique. Structured questionnaires were self-administered for collecting primary information from the air travel passengers. The questionnaire was divided into four part, first part consisted of general demographic information, second part consisted of travel related question, third part consisted of Likert scale knowledge measurement questions to assess climate change and lastly fourth part consisted of Likert Scale attitude measurement questions.

For descriptive analysis, frequency distribution and cross tabulation between dependent and independent variables were used to describe the basic background and characteristics of respondents. Simple percentage, maxima-minima and Chi-Square technique are used to draw conclusion about particular characteristics of respondents. To measure the marginal impacts of independent variables on respondent's willingness to pay to offset their carbon emission, logistic regression model is used. Marginal impacts are measured in terms of log of odd ratio i.e. log of probability ratio of willingness to pay and no willingness to pay. Significances of estimated parameters are measured by the p-value of z-distribution.

For the validity of the study, the structured questionnaires were completed and finalized by the help of environmental experts. A pilot testing of the questionnaires was done for about 15 respondents at the Pokhara airport and Lake Side area. The aim of

pilot study was to provide information about how the questionnaires worked and modified if necessary. Necessary adjustments were made before the main survey was conducted. Regarding the reliability of the study, questionnaires were crossed checked and finalized to get more accurate results about the relationships between the variables. The reliability of questionnaire was calculated by using Cronbach Alpha coefficient. The reliability measurement for the knowledge and attitude towards climate change was 0.73 which above the acceptable condition. Thus, the questionnaire was found to be reliable.

The study considers the air passengers who travelled during summer season using Pokhara Airport and their views regarding the knowledge and attitude on CO_2 emission and mitigation. The truthiness of data depends on their responses and assumes they all have rational thinking. Adopting convenience sampling and small sample size are the major limitations of this study. There is lack of record or uncomfortable officials for providing number of air passengers on seasonal basis at the airport. Respondents' time constraints and unwillingness on personal information are other limitations of this study.

RESULTS AND DISCUSSION

Table 1 shows the descriptive statistics of the variables. The aim of this division is to find group behavior of respondents. The male and female are 64.8 percent and 35.2 percent of the sample. More males are travelling through air than female. Males are more responsible for emitting carbon than that of female. The maximum number of air travelers are from the age group of 30-40 while less number are from the age group of 60 plus. The age group of 30–40 years constitutes 40.8 percent and age group of 60 plus constitutes 3.5 percent of total sample surveyed. Remaining age groups have moderate participation. Economically active people i.e. age group of 30–40 years travel more and they are more responsible for carbon emission. Here, the age group from 30–40 years is more responsible for carbon emission. The person from large household size i.e. more than 4 member household group are 32.8 percent and have travelled more. Persons from 2 member household group are 10.9 percent of the sample and have less travel frequency from air transport. There is moderate travel rate for remaining household size.

Table 1: Demographic Characteristics of Respondents

Variables	Frequency	Percent
Gender		
Male	92	64.8
Female	50	35.2
Age		
10 - 20	15	10.6
20 – 30	32	22.2
30 – 40	58	40.8
40 – 50	20	14.1
50 – 60	12	08.5
60 +	05	03.5
HH Size		
1	21	15.3
2	15	10.9
3	22	16.1
4	34	24.8
4+	45	32.8

Education		
Below Secondary	03	02.1
Secondary	08	05.6
Higher Secondary	40	28.2
Bachelor	53	37.3
Master / PhD	38	26.8
Marital Status		
Unmarried	45	31.7
Married	86	60.6
Divorced	06	04.2
Single	05	03.5
Job		
Full time	93	66.9
Part time	16	11.5
Unemployed	24	17.3
Retired	06	04.3

People having education with bachelor degree are 37.32 percent which constitutes the highest frequency and with below secondary level are 2.11 percent which constitutes the lowest frequency of the total sample. This sample includes four types of marital status groups. The married group constitutes the highest frequency i.e. 60.56 percent and single group constitutes the lowest frequency i.e. 3.52 percent of the total sample surveyed. Thus, the married group is the more responsible for the carbon emission.

Full time employees have high level of travel rate while retired employees have less. Around 6.91 percent of air travelers represent from full time employment group. Retired employees represent about 4.32 percent. Part-time and unemployed people have moderate level of air travelling rate. Here, full time employees are more responsible for the carbon emission than retirees, part time and unemployed.

Table 2 shows the income of the respondents. Entire sample are sub-divided into two categories – foreign respondents and Nepalese respondents regarding the income obtained. Foreigners with income range more than $50000 per year have the highest frequency which constitutes 31.15 percent and with income range $20000 – $25000 per year have the lowest frequency which constitutes 3.28 percent of the total sample. However, there are no foreign respondents with the income range $5000 – $10000 per year. Similarly, Nepali with income range Rs. 300000 – Rs. 400000 per year have the highest frequency which constitutes 21.67 percent and with income range Rs. 100000 – Rs. 200000 per year have the lowest frequency which constitutes 3.33 percent of the total sample. However, there are no Nepali respondents with the income range Rs0 – Rs. 50000 per year and Rs. 50000 – Rs. 100000 per year.

Table 2: Income of the Respondents

Variables	**Frequency**	**Percent**
Income - Foreigner		
0 - 5000	03	04.9
5000 - 10000	00	00.0
10000 – 15000	03	04.9
15000 – 20000	04	06.6

20000 – 25000	02	03.3
25000 – 30000	07	11.5
30000 – 35000	04	06.6
35000 – 40000	06	09.8
40000 – 45000	03	04.9
45000 – 50000	10	16.4
50000 and above	19	31.2
Income - Nepalese		
0 – 50000	00	00.0
50000 - 100000	00	00.0
100000 – 200000	02	03.3
200000 – 300000	06	10.0
300000 – 400000	13	21.7
400000 – 500000	10	16.7
500000 – 600000	12	20.0
600000 – 700000	06	10.0
700000 – 800000	08	13.3
800000 – 900000	03	05.0

Table 3 shows the purpose of the travel and travel expenses of the respondents. Maximum number of people which possess 55.6 percent use air transport for excursion while minimum numbers of people which possess 6.0 percent travel through air for study and research purpose. Maximum numbers of people who expense 5–10 percent of total income possess 34.62 percent while minimum numbers of people who expense 20–30 and 30–40 percent of total income possess 0.96 percent. Maximum numbers of people have high level of knowledge towards climate change which constitutes 87.0 percent and minimum numbers of people have low level of knowledge which constitutes 0.7 percent towards climate change from total respondents. Similarly, maximum numbers of people have high level of attitude towards climate change which constitutes 98.5 percent and minimum numbers of people have low level of attitude which constitutes 1.5 percent towards climate change from total respondents.

Table 3: Purpose of Travel and Travel Expenses

Variables	**Frequency**	**Percent**
Purpose of Travel		
Official	33	28.2
Business	12	10.3
Excursion	65	55.5
Study/Research	07	06.0
Travel Expenses		
0 – 5	35	33.7
5 – 10	36	34.6
10 – 15	21	20.3
15 – 20	10	09.6
20 – 30	01	00.9
30 – 35	01	00.9

Table 4 shows the knowledge and attitude on climate change of the respondents. Travelers must have good level of knowledge for greater awareness about carbon emission i.e. higher the knowledge higher will be the awareness and willingness to pay to offset their CO_2 emission. There are 14 multiple choice questions regarding the climate change. These questions ask the respondents that if they have knowledge about temperature, rainfall, summer hotness and winter coldness, draught and flood, atmospheric pollution, vector borne disease, sea pollution, sea level change, etc. Respondents are grouped into three categories – high level of knowledge if they get score at the range 42–56, moderate level of knowledge if they get score at the range 28 – 42, and low level of knowledge if they get score less than 28. Maximum respondent have high level of knowledge about climate change i.e. 82.98 percent of respondents have high level of knowledge and less than 5 percent of the respondents have low level of knowledge on climate change. It can be more formally checked using Chi-Square test that the distributional pattern of knowledge on climate change is not significantly difference (H_0) against the distributional pattern of knowledge on climate change is significantly difference (H_1) i.e. respondents have high level of knowledge on climate change. Since the calculated value of $\chi^2 = 157.91$ is greater than the tabular value of $\chi^2 = 5.99$ with $\alpha = 0.05$ and df = 2, we fail to accept H_0, that respondents have high level of knowledge on climate change.

Favorable attitude towards mitigation of climate change and CO_2 emission means respondents have some level of willingness to pay for offsetting their carbon emission. Thus, travelers must have high level of knowledge and mitigating attitude for willingness to offset the carbon emission. This study has used 12 multiple choice questions to know the respondent's attitude towards mitigation of climate change impact and their willingness to pay to offset their CO_2 emission. Respondents are grouped into three categories – high level of attitude if they get score at the range 45–60, moderate level of attitude if they get score at the range 30–45, and low level of attitude if they get score less than 30. Maximum respondent have high level of attitude towards mitigation of CO_2 emission i.e. 83.69 percent of respondents have high level of attitude, 9.22 percent of the respondents have moderate level of attitude and 7.09 percent of respondents have low level of attitude towards mitigation of climate change and CO_2 emission. No respondent scored below 30. Checking Chi-Square test that the distributional pattern of attitude on climate change is not significantly difference (H_0) against the distributional pattern of attitude on climate change is significantly difference (H_1) i.e. respondents have high level of attitude on climate change mitigation. Since the calculated value of $\chi^2 = 160.97$ is greater than the tabular value of $\chi^2 = 5.99$ with $\alpha = 0.05$ and df = 2, we fail to accept H_0, that respondents have high level of attitude on climate change mitigation.

Table 4: Knowledge and Attitude on Climate Change

Level of Knowledge				
Frequency	High	Moderate	Low	Total
Observed frequency	117	018	006	141
Expected frequency	047	047	047	141
Level of Knowledge				
Frequency				
Observed frequency	118	013	010	141
Expected frequency	047	047	047	141

Table 5 shows the result of logistic regression which gives the measurement of air traveler's willingness to pay to offset the CO_2 emission. Knowledge and attitude are the major factor which determines the level of willingness to offset CO_2 emission. Sufficient knowledge and high level of mitigating attitude show high probability to pay for offsetting their emission. Respondents have shown both high level of knowledge as well as high level of attitude towards the climate change impacts. To analyze this, binary logistic regression is applied in this study. Willingness to pay is a dependent variable which is binary i.e. yes = 1 or no = 0. Independent variables included in this model are gender (male = 1, female = 0), citizen (foreigner = 1, Nepali = 0), education (graduation = 1, otherwise = 0), job (fulltime = 1, otherwise = 0), and knowledge and attitude (high knowledge and high attitude = 1, otherwise = 0). Signs of the all coefficients are positive which mean WTP to offset CO_2 emission is likely to increase when respondents are male, foreigner, university graduate, having fulltime job and high level of knowledge and attitude towards the climate change. However, the variables gender and education are not statistically significant i.e. there is no significant different between male and female and between university graduated or less educated for WTP to mitigate the emission. Remaining variables citizen, job and level of knowledge and attitude are highly significant meaning that foreigners are more likely than Nepali, fulltime job holders are more likely than having part-time job holders and retirees, and having high level of knowledge and attitude for climate change are more likely than having low level of knowledge and attitude to the WTP. The average marginal effects can be interpreted more specifically as foreigners are 85.38 percent more likely than Nepalese to accept WTP. Similarly, fulltime job holders are 80.52 percent more likely than part-time job holder and retiree, and individuals having high level of knowledge and attitude are 91.22 percent more likely than low level of knowledge and attitude to WTP to offset CO_2 emission. There is a 78.16 percent chance that air traveler will pay or offset the cost of carbon which is emitted by their activities. Also, the mean value which air traveler willing to pay for offsetting their carbon emission is 5.53 percent of their air fare.

Table 5: Result of Logistic Regression

Variables	Coefficient	Std Error	z-Statistics	p-Value
Constant	0.5973	0.5823	1.0256	0.30
Gender	0.2379	0.4499	0.5289	0.59
Citizen	0.8538	0.4520	1.8890	0.05**
Education	0.3721	0.4437	0.8384	0.40
Job	0.8052	0.4442	1.8125	0.06**
Knowledge × Attitude	0.9122	0.4588	1.9882	0.04*

* shows significance at 5% and ** shows significance at 10%

CONCLUSION

This study has estimated the air traveler's willingness to pay to offset their CO_2 emission during their flight at Pokhara city and the major determinants. For this, the study has collected the primary information of 142 respondents who used Pokhara Airport during summer season in 2014 using 46 structured questions on socioeconomic, demographic, travel related, and knowledge about climate change and mitigating attitude. It has applied both descriptive and analytical tool for drawing conclusion about the views of the respondents using descriptive statistics, Chi-Square test and logistic

regression. There is 0.78 probability of willingness to pay voluntarily to offset the cost of CO_2 emission which is caused by their activities by the air travelers in Pokhara. Also, the mean value of the willing to pay for offsetting their carbon emission is 5.53 percent of their air fare. Job, knowledge about the climate change and attitude towards the mitigation of carbon emission are the major determinants of the willingness to pay to offset the carbon emission. It is concluded that there is a substantial demand or willingness to pay for climate change mitigation action at Pokhara city.

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