SOUTHEAST ASIAN JOURNAL OF SCIENCE AND TECHNOLOGY

Volume 3, Issue 1, 2017
P-ISSN: 2672-2984
E-ISSN: 2672-2992
www.sajst.org

Socio-Economic Characteristics and Willingness to Pay for a Clean Air by the Different Sectors in the Northeastern Pangasinan Airshed

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Abstract *– This study investigated the socioeconomic characteristics and willingness to pay for a clear air by the various sectors, including residential, commercial, industry, and institution sector in the Northeastern Pangasinan Airshed. To give effect to the study, three hundred sixty (360) males and females from the 18 municipalities and cities of Northeastern Pangasinan Airshed were randomly selected on the basis of cluster sampling methods with face-to-face interviews by using a series of hypothetical, open-ended scenario questions which were designed to elicit the respondents' WTP. Qualitative method was employed through descriptive survey techniques and contingent valuation method (CVM) to quantify males and females' willingness-to-pay (WTP) for a clean air quality. The findings of the study disclosed that most of the male and female respondents from the different sectors in the Northeastern Pangasinan Airshed within the age bracket of 20 - 39 years old, college graduates, Roman Catholics, have a gross family income and expenditure of Php9,000 and below, owned a house made from concrete materials and lived in sub-urban areas. In account for the willingness to pay for a clean air, the data reveal that most of the respondents are willing to support vehicle tax payment, which indicates that respondents are concerned and willing to support any means of raising money to help improve the air quality as this provides resulting benefits on stakeholders in the long-run. Furthermore, a great majority of the respondents agreed that they are willing to pay for an extra peso a year for quality air. This only suggests that citizens in North-Eastern Pangasinan have a general concern about reducing air pollution and improving air quality.*

Keywords *– socio-economic characteristics, willingness to pay, clear air, Northeastern Pangasinan Airshed*

INTRODUCTION

The uncontrolled population and economic growth have led to the air pollution problem, among other environmental and social concerns. Why breathe clean air? This question can spark awareness and consciousness to an issue that is not always apparent. Clean air as claimed by medical people, is essential as it contributes to health and well-being.

On the other hand, contaminated or polluted air would definitely affect everyone from unborn child to the elderly. Polluted air is invisible to a large extent in everyday life. Automobiles exhaust, small scale industries, and others are minute and unnoticed by the naked eye. The health effects of air pollution are accumulative from day to day. People health gradually deteriorates.

Ambient Air Quality is defined by RA 8749 as the general amount of pollution present in a broad area, and refers to the atmosphere's average purity as distinguished from discharge measurements taken at the source of pollution. In order to monitor the ambient air quality of the country, EMB regional monitoring stations routinely take measurements of criteria air pollutants. In the existing National Air Quality Monitoring Set-up of the DENR EMB, there are sampling equipment located all over the Philippines classified according to type of monitoring and criteria pollutants monitored

Air pollution is a global public health emergency. Ninety two (92) percent of the world's population live in areas where air quality particularly particulate matter exceeds World Health Organization limits of PM2.5 not exceed 10 µg/m3 annual mean, or 25 µg/m3 24-hour mean; and that PM10 not exceed 20 µg/m3 annual mean, or 50 µg/m3 24-hour mean. Several studies revealed how air pollution affects everyone. The ultra-fine particles and gas pollution that is produced indoors and outdoors are so small that they pass through every body's natural defenses. Through everyone's nose and lungs these toxins reach the blood stream and every part of the body. Health effects range from disabilities to cardiovascular diseases, worsening of allergies and

Volume 3, Issue 1, 2017
P-ISSN: 2672-2984
E-ISSN: 2672-2992
www.sajst.org

asthma, lung cancer as well as premature death. About 6.5 million deaths – 1 in 9 deaths worldwide – is due to air pollution-related diseases.

Along with 188 countries, the Philippines declared its commitment to pursue actions in addressing air quality issues by abiding the Sustainable Development Goals. The World Health Organization relate these goals to air pollution.

Previous studies have found that respondents' WTP for green electricity or renewable energy is significantly affected by personal characteristics including age (Bigerna and Polinori, 2014; Chan et al., 2015; Kim et al., 2012; Liu et al., 2013), education (Bigerna and Polinori, 2014; Liu et al., 2013; Mozumder et al., 2011; Zorić and Hrovatin, 2012), gender (Bigerna and Polinori, 2014; Sun et al., 2016; Uehleke, 2016), family income (Bigerna and Polinori, 2014; Mozumder et al., 2011; Sun et al., 2016; Yoo and Kwak, 2009), number of family members (Bigerna and Polinori, 2014; Chan et al., 2015; Lee and Heo, 2016; Longo et al., 2008), and the role of family ownership (Abdullah and Jeanty, 2011). Some research has found that other factors also affect WTP, such as the payment vehicle and electricity bill (Guo et al., 2014), viewpoints on renewable energy (Abdullah and Jeanty, 2011)

A rapidly urbanizing city should always assess the state of its air quality and determine the most effective measures available to reduce emissions of air pollutants and greenhouse gases. Objective assessments are important in policy making, as these determine needed policies and also assist in evaluating the effectiveness of measures. If cities within a country or a region make use of similar assessment methods and tools, this will also create a platform for exchange of learning and experience among them.

Some of the actions of the government particularly Environmental Management Bureau of the Department of Environment and Natural Resources are formulations of policies. RA 9003 Ecological Solid Waste Management discourages open burning practices. RA 8749 Clean Air Act improves air quality through control and management program that will mitigate air pollution problem in the country. Other initiative is the creation of airsheds. The Northeastern part of the province of Pangasinan consisting of 15 municipalities and 3 cities was designated as airshed on March 23, 2004 through the DENR Administrative Order No. 2004-07. Governing Board and Technical Working Group were created to manage the Northeastern Pangasinan Airshed or NEPA and protect public health.

The NEPA through the assistance of the Municipal/City Development Offices of the 18 municipalities and cities and Pangasinan State University facilitated the interview of the respondents from the residential, commercial, industry and institutions to determine the willingness to pay for a clean air. Hence, this study was pursued.

OBJECTIVES OF THE STUDY

The objective of this study is to determine the socio-economic characteristics of the various sectors in Northeastern Pangasinan Airshed in terms of sex, age, civil status, highest educational attainment, religion, monthly family income, monthly family expenditure, homeownership, house construction materials, the status of residence, and location of residence. It looked into the willingness to pay of the respondents for a clean air

MATERIALS AND METHODS

Design and Procedure

This study made use of qualitative method employing descriptive survey techniques. To quantify males and females' willingness-to-pay (WTP) for a clean air quality in Northeastern Pangasinan Airshed, a contingent valuation method (CVM) was employed. A sample of 360 males and females from the 18 municipalities and cities of Northeastern Pangasinan Airshed (please see Figure 1) was chosen on the basis of cluster sampling methods with face-to-face interviews by using a series of hypothetical, open-ended scenario questions which were designed to elicit the respondents' WTP.

Qualitative method was employed through descriptive survey techniques and contingent valuation method (CVM) to quantify males and females' willingness-to-pay (WTP) for a clean air quality. Three hundred sixty (360) males and females from the 18 municipalities and cities of Northeastern Pangasinan Airshed were. SPSS version 21 was used to analyze and process the data gathered from the respondent

SOUTHEAST ASIAN JOURNAL OF SCIENCE AND TECHNOLOGY

Volume 3, Issue 1, 2017
P-ISSN: 2672-2984
E-ISSN: 2672-2992
www.sajst.org

RESULTS AND DISCUSSION

Socio-economic Characteristics of

Table 1.a
Different Sectors and Sex

Sector			Total	Percentage
Residential	38	Male	38	
	38	Female	38	
	76			21.11%
Commercial	38	Male	38	
	39	Female	39	
	77			21.39%
Institution	74	Male	74	
	64	Female	64	
	138			38.33%
Industry	37	Male	37	
	32	Female	32	
	69			19.7%
Total	187	Male	187	51.94%
	173	Female	173	48.06%
	360			100%

Table 1.a presents the distribution of the respondents in terms of sector and sex.

A total of 360 respondents from the different sectors of the 18 municipalities and cities of Northern Pangasinan were subjected in the study. The institution sector comprised of Local Government Units and academe (elementary and high school) appeared to have the greatest number of respondents of 138 (38.33%) while the residential sector found to have lowest composition with 76 respondents of 21.11%.

Table 1.b
Distribution of Respondents according to Age Range

Sector			Age Range				Total
			10-19	20-39	40-59	60 and above	
Residential	Sex	Male		8	12	18	38
		Female		7	14	17	38
	Total			15	26	35	76
Commercial	Sex	Male	2	21	13	2	38
		Female	0	30	9	0	39
	Total		2	51	22	2	77
Institution	Sex	Male	32	20	21	1	74
		Female	31	15	15	3	64
	Total		63	35	36	4	138
Industry	Sex	Male	2	12	16	7	37
		Female	0	16	12	4	32
	Total		2	28	28	11	69
Total	Sex	Male	36	61	62	28	187
		Female	31	68	50	24	173
	Total		67	129	112	52	360
Percentage by Age Range			18.61%	35.83%	31.11%	14.44%	100%

Table 1.b shows the distribution of the male and female respondents by different sectors according to age range. As can be gleaned from the table, the biggest portion of the respondents are within the age bracket of 20 – 39 (35.83%) whereas the smallest portion goes to 50 years old and above (14.44%). Based on the finding, most of the respondents are in there early young age and come from the commercial sector.

Table 1.c
Different Sectors' Sex and Marital Status

Sector	Sex		Marital Status				Total
			Single	Married	Widowed	Separated	
Residential	Sex	Male	6	30	0	2	38
		Female	4	29	5	0	38
	Total		10	59	5	2	76
Commercial	Sex	Male	15	23	0	0	38
		Female	14	23	1	1	39
	Total		29	46	1	1	77
Institution	Sex	Male	37	35	1	1	74
		Female	40	21	2	1	64
	Total		77	56	3	2	138
Industry	Sex	Male	11	25	0	1	37
		Female	10	21	1	0	32
	Total		21	46	1	1	69
Total	Sex	Male	69	113	1	4	187
		Female	68	94	9	2	173
	Total		137	207	10	6	360
Percentage							

Table 1.c shows the distribution of the male and female respondents by different sectors according to marital status. The finding suggests that majority of the respondents with 207 or 57.50% are married. About 38% or 137 are singles and only 6 or 1.67% are separated. The finding supports the fact that many of the respondents are in their adult age and are eligible for marriage or have

SOUTHEAST ASIAN JOURNAL OF SCIENCE AND TECHNOLOGY

Volume 3, Issue 1, 2017
P-ISSN: 2672-2984
E-ISSN: 2672-2992
www.sajst.org

their own families. As expected, married respondents need to be employed for their family's sustenance. Also, married respondents from any sector have more likely responsibilities in terms of taking care of consumption needs of family and that of themselves, unlike single respondents whose income are their own maintenance and consumption.

Most of the married respondents are males and come from residential sector whereas single respondents are mostly males and come from institution sector primarily in the academe.

Table 1.d
Distribution of Respondents according to Highest Educational Attainment

Sector			Educational Attainment								Total
			Elementary Level Graduate	High School Graduate	High School Graduate	Vocational Level	Vocational Graduate	College Level	College Graduate	Post Graduate	
Residential	Sex	Male	1	4	7	2	4	4	13	3	38
		Female	2	2	5	0	4	7	17	1	38
	Total		3	6	12	2	8	11	30	4	76
Commercial	Sex	Male		2	11	3	4	6	11	1	38
		Female		5	6	1	4	13	9	1	39
	Total			7	17	4	8	19	20	2	77
Institution	Sex	Male	12	23	7	1	5	4	22	0	74
		Female	13	18	1	0	2	8	21	1	64
	Total		25	41	8	1	7	12	43	1	138
Industry	Sex	Male	1	5	9	0	3	3	15	1	37
		Female	0	4	12	2	1	3	9	1	32
	Total		1	9	21	2	4	6	24	2	69
Total	Sex	Male	14	34	34	6	16	17	61	5	187
		Female	15	29	24	3	11	31	56	4	173
	Total		29	63	58	9	27	48	117	9	360
Percentage			8.06%	17.50%	16.11%	2.5%	7.50%	13.33%	32.50%	2.50%	100%

Table 1.d presents the distribution of male and female respondents by different sectors according to highest educational attainment.

As the finding indicates, significant portion of the respondents with 117 or 32.50% are college graduates. Only few among the respondents attained vocational level or had a post graduate degree with both 9 or 2.50% of the sample. The finding is a clear manifestation that most of the respondents invested and completed a good level of education.

As can be analyzed in the cross tabulation, males and females in the different sectors graduated from college representing the highest composition. Except for commercial sector, the lowest educational attainment by the rest of sectors is elementary level or graduate. The sector with the highest educational attainment, college graduate, is institution. More males in all sectors are graduated from college with 61 while females have 56.

Males in the society are expected to attain higher education as they are potential breadwinner in the family. Females are not short of education, they are almost equal in footing in terms of education.

Table 1.e
Distribution of Respondents according to Religion

Sector			Religion							Total
			Roman Catholic	Protestant	Baptist	Iglesia Ni Cristo	Jehovah's Witnesses	Church of Jesus Christ	Others	
Residential	Sex	Male	29	1	2	1	1	1	3	38
		Female	30	1	0	2	2	1	2	38
	Total		59	2	2	3	3	2	5	76
Commercial	Sex	Male	27	1	2	3		2	3	38
		Female	31	1	2	3		0	2	39
	Total		58	2	4	6		2	5	77
Institution	Sex	Male	55	3		9	1	0	6	74
		Female	54	2		4	0	1	3	64
	Total		109	5		13	1	1	9	138
Industry	Sex	Male	33	0	0	2	1	0	1	37
		Female	27	1	1	2	0	1	0	32
	Total		60	1	1	4	1	1	1	69
Total	Sex	Male	144	5	4	15	3	3	13	187
		Female	142	5	3	11	2	3	7	173
	Total		286	10	7	26	5	6	20	360
Percentage			79.44%	2.78%	1.94%	7.22%	1.39%	1.67%	5.56%	100%

Table 1.e shows the distribution of male and female respondents by different sectors according to religion. The finding discloses that seventy nine percent or 286 out of 360 respondents are Roman Catholic members. Jehovah's Witnesses got the lowest composition with only 5 or As expected in the province, religion of the majority is Roman Catholic followed by Iglesia Ni Cristo.

Roman Catholics during the Spanish period discouraged attainment of higher education by women. Women's role was more on fertility and housekeeping while men's role was more on breadwinning or income generating. Today, gone are days of oppressing and suppressing women in all aspects. Taking care of

SOUTHEAST ASIAN JOURNAL OF SCIENCE AND TECHNOLOGY

Volume 3, Issue 1, 2017
P-ISSN: 2672-2984
E-ISSN: 2672-2992
www.sajst.org

environment and its resources are both roles and responsibilities of men and women regardless of religion.

Table 1.f
Distribution of Respondents according to Monthly Family Gross Income

Sector			Monthly Family Gross Income						Total
			Below 9,999	Php 10,000 – 29,999	Php 20,000 – 29,999	Php 30,000 – 39,999	Php 40,000 – 49,999	Php 50,000 and above	
Residential	Sex	Male	20	9	1	2	1	5	38
		Female	19	9	4	4	2	0	38
	Total		39	18	5	6	3	5	76
Commercial	Sex	Male	15	13	4	1	1	4	38
		Female	26	9	1	0	2	1	39
	Total		41	22	5	1	3	5	77
Institution	Sex	Male	39	11	9	8	4	3	74
		Female	26	13	9	9	4	3	64
	Total		65	24	18	17	8	6	138
Industry	Sex	Male	19	7	1	1	3	6	37
		Female	18	6	2	1	3	2	32
	Total		37	13	3	2	6	8	69
Total	Sex	Male	93	40	15	12	9	18	187
		Female	89	37	16	14	11	6	173
	Total		182	77	31	26	20	24	360
Percentage			50.6%	21.4%	8.6%	7.2%	5.6%	6.7%	100%

Table 1.f presents the distribution of the male and female respondents from the different sectors in terms of their monthly gross income. Gross family income covers primary income and receipts from other sources received by all family members. It is one of the criteria to evaluate the socio-economic characteristics of the respondents.

It is evident from the table that a significant proportion of the respondents with 82 or 50.6% had a monthly family gross income of ₱9,999 below. Seventy-seven or 21.4% received ₱10,000 – 19,999, 31 or 8.6% earned an gross income bracket of ₱20,000 – 29,999, 26 or 7.2% have ₱30,000 – 39,000 , 24 or 6.7 received ₱50,000 and above while 20 or 5.6% had gross income of ₱40,000 – 49,000. This shows that most of the respondents have low level of family income in which some are living below poverty line. The low income level is mostly attributed by the underemployment of some respondents. The result coincides with the finding of the Annual Poverty Indicators Survey by PSA where the average per capita income nationally in the Philippines is about Php 28,000. The average per capita income for the bottom 30% families is Php 8,000 while Php 39,000 for the top 70% group of families.

Table 1.h
Distribution of Respondents according to House Ownership

Sector			Status of Ownership of the Respondent's House			Total
			Owned	Rented	Mortgaged	
Residential	Sex	Male	35	0	3	38
		Female	33	3	2	38
	Total		68	3	5	76
Commercial	Sex	Male	30	4	4	38
		Female	30	8	1	39
	Total		60	12	5	77
Institution	Sex	Male	65	7	2	74
		Female	59	1	4	64
	Total		124	8	6	138
Industry	Sex	Male	33	1	3	37
		Female	28	3	1	32
	Total		61	4	4	69
Total	Sex	Male	163	12	12	187
		Female	150	15	8	173
	Total		313	27	20	360
Percentage			86.9%	7.5%	5.6%	100%

Table 1.h presents the distribution of the respondents in terms of their status of home ownership. Since home ownership could be status symbol of wealth and certainly has an impact on the type of response given by respondents, this variable is considered.

The data indicate that 313 or 86.9% a representing a large majority possessed their own houses. There are a very few of them with 27 or 7.5% who are renting while there are 20 or 5.6% who houses are mortgaged. It can the. The finding clearly shows that housing as a basic need for human beings have been met in case of most of the respondents in the study area. It can be noted also that the result likely matches with the Annual Poverty Indicators Survey by PSA in the Philippines in 2014 wherein nearly 2 in 3 families (62.9%) own the house and lot they occupied while the remaining 37.2 percent occupied houses and lots for different tenure status of housing units such as renting and mortgage.

SOUTHEAST ASIAN JOURNAL OF SCIENCE AND TECHNOLOGY

Volume 3, Issue 1, 2017
P-ISSN: 2672-2984
E-ISSN: 2672-2992
www.sajst.org

Table 1.i
Distribution of Respondents according to House Construction Materials

Sector			Materials Where House is Made			Total
			Light materials	Semi-concrete materials	Concrete materials	
Residential	Sex	Male	9	16	13	38
		Female	5	21	12	38
	Total		14	37	25	76
Commercial	Sex	Male	8	10	20	38
		Female	5	13	21	39
	Total		13	23	41	77
Institution	Sex	Male	9	18	47	74
		Female	12	18	34	64
	Total		21	36	81	138
Industry	Sex	Male	4	18	15	37
		Female	9	7	16	32
	Total		13	25	31	69
Total	Sex	Male	30	62	95	187
		Female	31	59	83	173
	Total		61	121	178	360
Percentage			16.9%	33.6%	49.4%	100%

Table 1.i presents the distribution of respondents in terms of construction materials of houses. Data on this indicator provide an intimation of the economic status of the family.

The data reveal that that 178 or 49.4% of the respondents have residential buildings were made of concrete materials There is also a significant number of respondents whose houses are made of semi-concrete materials and light materials with 121 or 33.6% and 61 or 16.9%, respectively. The finding suggests that despite having lower income level among the respondents, they were able to possess a quality-built house with strong concrete materials which can survive for calamities such as typhoon and flood. In the study and survey conducted PSA (2014), it was disclosed that majority of houses in the Philippines had roofs and outer walls made of strong materials. About 85.1 percent of families had houses with strong roofs and 72.1 percent had strong outer walls. The result also unveils that some houses were built from light materials which imply that areas of study reflect a typical rural area.

Table 1.j
Distribution of Respondents according to Status of Residence

Sector			Status of Residence		Total
			Yes	No	
Residential	Sex	Male	38	0	38
		Female	37	1	38
	Total		75	1	76
Commercial	Sex	Male	33	5	38
		Female	37	2	39
	Total		70	7	77
Institution	Sex	Male	70	4	74
		Female	61	3	64
	Total		131	7	138
Industry	Sex	Male	35	2	37
		Female	30	2	32
	Total		65	4	69
Total	Sex	Male	176	11	187
		Female	165	8	173
	Total		341	19	360
Percentage			94.7%	5.3%	

Table 9 presents the distribution of respondents in terms of residence status.

The data reveal that that a sizeable proportion with 341 or 94.7% of the respondents claim that they are residing or staying in their houses every day while there are only 19 or 5.3% who are not staying. This implies that houses are constructed by the owners with the intent to occupy them.

Sector			Type of Place Where House is Located			Total
			Urban	Suburban	Rural	
Residential	Sex	Male	9	20	9	38
		Female	11	18	9	38
	Total		20	38	18	76
Commercial	Sex	Male	11	18	9	38
		Female	11	16	12	39
	Total		22	34	21	77
Institution	Sex	Male	17	39	18	74
		Female	24	31	9	64
	Total		41	70	27	138
Industry	Sex	Male	8	18	11	37
		Female	9	14	9	32
	Total		17	32	20	69
Total	Sex	Male	45	95	47	187
		Female	55	79	39	173
	Total		100	174	86	360
Percentage			27.8%	48.3%	23.9%	100%

Volume 3, Issue 1, 2017
P-ISSN: 2672-2984
E-ISSN: 2672-2992
www.sajst.org

Table 1.k presents the distribution of respondents in terms of their location of residence.

The data reveal that most of the respondents with 174 or 48.3% live in sub-urban areas like Binmaley, Mapandan, San Jacinto, Manaoag, Malaasique and Sta. Barbara, among others. There are 100 or 27.8% who resided in urban areas particularly Urdaneta City, San Carlos City and Dagupan City. The finding mainly owes to the the population rate of towns and cities. There are more people in cities and municipalities which are regarded to be urban and sub-urban areas and less population in rural areas This can be also associated with the migration of people from villages to towns and cities.

Willingness to Pay

Table 2.a
Distribution of Respondents according to Willingness to Pay (Nature of Payment)

Willingness to Pay (Nature of Payment)	Frequency	Percentage
Vehicle Tax	110	30.6
Property Tax	85	23.6
Gas Tax	29	8.6
Other Types of Tax	42	11.7
None of the choices	94	26.1
TOTAL	360	100

Willingness to Pay (WTP) for clean air is a key parameter when considering the trade between economic growth and environmental regulation. Optimal environmental regulation depends on the extent to which individuals value air quality improvements—that is, their willingness to pay (WTP) for clean air (Greenstone and Jack, 2013). If WTP for clean air is low, the current level of air pollution can be optimal because social planners prioritize economic growth over environmental regulation. On the other hand, if WTP is high, the current stringency of regulations can be far from optimal.

Table 2.a presents the distribution of respondents on their willingness to pay in terms of nature/kind of payments Understanding the willingness to pay (WTP) for quality air is pivotal for understanding the benefit of environmental regulations. A contingent valuation survey is used to determine their willingness-to-pay for clean and quality air in Northern-Eastern Pangasinan with regards to various kinds of possible payments.

The findings suggest that most of the respondents having 110 or 30.6 percent are willing to support automobile tax payment. Eighty-five or 23.6 percent support for property tax payment, 29 or 8.6 percent support for gas tax payment and 42 or 11.7 percent support for other sorts of taxation. One-fourth of the respondents or 26.1 percent picked none of the solutions may be the ways for raising money for clean air.

The result implies that people in North-Eastern Pangasinan are concerned and willing to support any means of raising money to help improve the air quality as this provides resulting benefits on stakeholders in the long-run. Krupnick (2013) in his study on Air Pollution Control Policy Options for Metro Manila, the goal is to research the application of market-based instruments, such as emissions fees, for managing both stationary and mobile sources of pollution in Metro Manila. There is general acceptance of the use of marked-based instruments in the Philippines as an adjunct to command-and-control measures, and this acceptance is long-standing. Emissions fees in particular have political support in the government, since they can both improve incentives regarding pollution and raise revenue for the relevant agencies for monitoring and enforcement.

Table 2.a
Distribution of Respondents according to Willingness to Pay (Nature of Payment)

WILLINGNESS TO PAY Paying extra peso a year)	**Frequency**	**Percentage**
Yes (Willing to Pay)	322	89.4
No (Not Willing to Pay)	38	10.6
TOTAL	**360**	**100**

Table 2.e presents the distribution of respondents in terms of decision on willingness to pay an extra peso a year.

The data reveal that that a great majority of the respondents having 322 or 89.4% agree that they are willing to pay for an extra peso a year for a quality air. There are only 38 or 10.6% of respondents who are not amenable to pay for a clean air. This only suggests that citizens in North-Eastern Pangasinan have a general

Volume 3, Issue 1, 2017
P-ISSN: 2672-2984
E-ISSN: 2672-2992
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concern towards reducing air pollution and improving air quality.

Similar findings have been reported in several studies in which individuals or stakeholders are willing to pay for improved air quality. Samanabad residents in Lahore, Pakistan, are willing to spend $118 year to improve air quality (S. Akhtar, 2017). According to a study conducted in Cotonou, Benin, a low-income country, the WTP per person per year to enhance air quality was $1.04. (Gbinlo, 2006). In Sweden, the average annual cost of a WTP to achieve a 50% reduction in hazardous pollutants was around $227.66. (Carlsson, Johansson-Stenman, 2010). According to a study conducted in Mexico, consumers were willing to pay approximately $262 per year to lower pollution load (Filippini and Martnez- Cruz, 2016). In the Philippines, a contingent valuation research was undertaken to ascertain their willingness to pay for solar energy among Metro Manila residents, with a Single Bounded Dichotomous Choice and Double Bounded Dichotomous Choice analysis employed to assess their willingness to pay. The findings indicate that Metro Manila consumers are willing to pay an additional US$5.37 (PHP268.42) – US$8.71 (PHP435.37) per month on top of their present electricity cost, which amounts to around 0.80 percent – 1.29 percent of their monthly household income (Magnata, 2017). Additionally, the study found that Metro Manila families are willing to pay a monthly fee of Php 173.10 (US$3.85) for the benefits of cleaner public transportation. On the other hand, a small proportion of respondents are unwilling to pay for high-quality air, implying that poor income is a significant factor or determinant.

CONCLUSION AND RECOMMENDATION

The study's findings revealed that the majority of male and female respondents in the Northeastern Pangasinan Airshed were between the ages of 20 and 39 years old, college graduates, Roman Catholics, had a gross family income and expenditure of Php9,000 and below, owned a concrete house, and lived in sub-urban areas.

In account for the willingness to pay for a clean air, the data reveal that that most of the respondents are willing to support for vehicle tax payment which is an indication that respondents are concerned and willing to support any means of raising money to help improve the air quality as this provides resulting benefits on stakeholders in the long-run. In addition, the vast majority of respondents stated that they would be willing to spend an extra peso each year for better air quality. This merely implies that residents in North-Eastern Pangasinan are concerned about air pollution and want to improve air quality.

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Volume 3, Issue 1, 2017
P-ISSN: 2672-2984
E-ISSN: 2672-2992
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