Valuing the Marine Protected Area of San Miguel Island in the Bicol Region of the Philippines: An Application of the Willingness to Pay and Willingness to Work Approach by Contingent Valuation Method

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1. Introduction

Marine reserves, or marine protected areas (MPAs) have emerged as the principal and, arguably, the only, widely utilized management tool in nearshore areas in the Philippines, aside from some sporadic fisheries regulations in areas surrounding MPAs (Christie et al., 2009). MPAs began to be established in the country as early as the 1970s, most with the goal of stopping destruction or rehabilitating degraded ecosystems and depleted fisheries, and to prevent further losses in biodiversity (Balgos, 2005, White et al., 2002). Pajaro et al. (1999) reported more than 400 community-based and local government unit (LGU)-supported MPAs in the country. This number increased to 1,100 MPAs which cover approximately 15,000 km^2 (White et al, 2002). Only about 20% of these MPAs, however, are achieving their management objectives (PhilReefs, 2008, White et al., 2006).

One major factor constraining sustainability especially in the context of co-managed MPAs is the enforcement of MPA and fisheries management regulations, and the lack of fund for such activities. Effective local enforcement depends on committed and financially supported local institutions such as the *bantay dagat* (sea watchers) and municipal governments (Christie, et al., 2009). While external funding may be useful in

the establishment phase, the continued support from the local or national government is crucial for MPA sustainability. To encourage such long-term institutional support, and suggest potential management strategies, information on how local stakeholders who 'own' or surround the MPAs perceive and value marine resource conservation is useful. Valuation results may be used to educate and draw policymakers' attention to the value of protecting marine resources, and to procure support for the continued existence of protected areas and improvement of human value formation (White et al., 2002, WCPA, 1998). The results can inform decisions about managing resources better.

For example, many studies have been conducted to measure the willingness to pay (WTP) for protected areas or national parks for varied policy purposes. Hall et al. (2002), used contingent valuation method (CVM) to estimate the benefit of more effective enforcement and and management of MPAs designed to avoid coastal ecosystem decay. Togridou et al. (2005) used WTP survey to determine marine national park fees while Subalde (2005) used valuation to find alternative sources of finance for the Philippines marine conservation program. Other studies used the methodology to assess non-market value of the MPA or marine reserve as a whole (Bhat, 2003) or the specific ecosystem goods or services such as coral reef biodiversity or scuba diving (Spash, 2000; Wielgus et al., 2003; Asafu-Adjaye, 2008). Most of these studies, however, relied on information from visitors or non-residents to these parks or MPAs and estimated use values.

The focus of this study was to examine island villagers' WTP or willingness to work (WTW) for the sustainability of a small marine fishery reserve typical of many MPAs in the Philippines. The major intention was to generate information useful for local and national policymakers and other MPA stakeholders considering the perspective of residents themselves. It contributes to the empirical literature of MPA valuation in developing countries by taking the case of a small municipal MPA (1.25 km^2) in a Philippine island where tourism or recreation activities are not common. Such small size MPAs including those less than one km^2 comprise around 80% of the total number of MPAs in the Philippines (Campos and Aliño, 2008) and a basic valuation data by local residents would be useful for MPA policymaking in the area and for developing countries

in general. To the best of our knowledge, most of the past valuation studies in the country were conducted for large natural marine parks or MPAs frequently visited by tourists or recreational divers and elicited from non-local residents or domestic tourists.

A secondary value of this study is it explored the use of WTW or willingness to contribute voluntary time and labor for patrolling as a method for eliciting preferences. We can regard this as contingent behavior (CB) similar to studies asking about the number of trip behaviors instead of diving fees or as WTP with time as the "medium of exchange" (Casey, 2004). The following researchers also used similar approach using willingness to contribute labor as payment mechanism: Echessah et al. (1997) for Tsetse control, Muranaka (2005) for management of hilly areas, and Casey (2004) for forest resource protection. Similar to these studies, the motivation of having WTW as payment vehicle is that most of the villagers in the island are cash-stripped and some community infrastructure projects rely on residents' voluntary labor for implementation. We compared results from this method with results of the traditional contingent valuation (CV) approach where we presented monetary bids to respondents.

2. Materials and Methods

2.1. The Study Area

San Miguel Island (SMI) is located on the eastern coast of Albay province in Bicol Region, Philippines. It is located within the Lagonoy gulf, a 3,701km^2 fishing ground linked to the Pacific Ocean . Coral reefs (170 km^2), seaweed-seagrass beds (83 km^2) and mangroves (6 km^2) comprise its critical habitats (Soliman, 2008). The gulf is characterized as multi-species and multi-gear fisheries, dominated with gillnets and handlines catching tunas, small pelagic, large demersal and coral reef fishes. Researchers using data in 1994 and 2004 showed that the gulf is heavily overfished – the number of gear units operating in the gulf has increased by 40% during the period, yet the fisheries production progressively went down (Dioneda, et al., 2004).

Currently, there are six MPAs in the gulf. We focused on the contingent valuation of the SMI-MPA, one of the most mature among the MPAs in the gulf. It is at least one km^2 in

size and awarded as one of the best-managed MPAs by PhilReefs (a consortium of Philippine marine research agencies) in 2000. The SMI-MPA consists of a 1.25 km^2 buffer or reserve zone where fishers are allowed to fish using traditional gears, and a one-km^2 no-take sanctuary where no fishing is allowed except for educational and scientific purposes. An MPA council consisting of members of the *bantay dagat* including the *barangay* (village) chair manages the MPA with supervision from the LGU.

2.2. Valuation approach

Stated preference methods are implemented with hypothetical questions about future behavior . It includes the use of CVM, CB and conjoint analysis. The CVM is a valuation technique that asks willingness to pay or willingness to accept that estimate non-market benefits in monetary terms. Its theoretical basis is well described in literature (see Mitchell and Carson, 1989; Bateman et al., 2002). The use of CVM has some drawbacks for measuring people's valuation of public goods such as those related to hypothetical bias mentioned in Johansson-Stenman and Svedsater (2003) and Schlapfer et al. (2004). The validity and reliability of CVM data is also much debated in the literature (Diamond and Hausman, 1994). Relative to revealed preference methods, however, the CVM is more flexible, and it can be used to estimate non-use values, and *ex-ante* willingness to pay under demand and supply uncertainty. The same authors also contend that in many applications, the CVM is the only methodology that can be used due to the non-existence of related markets, large non-use values, or a significant amount of uncertainty about the outcome of the policy.

One concern in the CV literature is that a dichotomous choice approach appears to overestimate actual WTP (Brown et al., 1996; Loomis et al., 1997). To illustrate the potential bias, Loomis (1999) pointed out: if a respondent agrees to the proposed plan but thinks the amount presented is too large, he or she, in some cases, may not be willing to reject the plan and thus be obliged to accept the too large amount only in order to express agreement with the plan. When considering money and labor contribution, it is possible for a respondent to think that if he were to say "no", the investigator will construe him to

be against the MPA even if the amount is too high for him. In addition, in Asian and Philippine contexts, it is quite difficult to say "no" especially in direct question interviews.

In this study, we measured how local residents value the continued existence of the MPA or their WTP to maintain the MPA for habitat protection and biodiversity preservation using CVM. We compared the traditional CVM approach with the approach of eliciting WTW akin to CB similar to using hypothetical recreation or fishing trips in measuring WTP for proposed policy changes in recreation demand or location choice studies (Whitehead et al., 2007). A change scenario in the MPA impact indicators was presented, and a hypothetical behavior question relating to respondent's willingness to contribute voluntary labor in MPA patrolling or maintenance was asked. To mitigate the upward bias common to CVM studies, we adopted a trichotomous choice question format following Loomis (1999) to derive estimates that are more conservative. In this format, the question involved not simply asking a yes or no question, but a third option of a "no, but willing to pay less". The last option will not oblige a respondent to say yes even if the value is too high for him, just because he is supportive of the plan.

2.3. Survey questionnaire

We carefully designed the questionnaire based on two focus group discussions (FGD) with *barangay* residents; various key informant (KI) discussions with the village and MPA leaders; and an FGD with technical experts and researchers from the academe. Table 1 shows the contingent scenario explaining possible changes in the marine environment or coastal habitats if MPA maintenance and surveillance will not be sustained or if the MPA will not be effectively managed. The figures approximate a ten-year period scenario as based on previous studies (Soliman, 2008). We used simple graphs and photos in explaining the habitat indicators.

The WTW valuation question was presented as follows:

(1) *"To prevent the worse scenario from happening, suppose there is a proposal to ask the help of local residents to do the patrolling and maintenance of the MPA on a voluntary basis, which means you will not be given a salary or incentive. Giving voluntary time to*

patrol will mean you will not be able to go fishing or go to work during the day or time you are assigned to patrol."

(2) The enumerator will then candidly ask the major source of income of the respondent and estimated average income per day.

(3) Showing the amount of the daily income or providing rough calculation of this amount from (2), the enumerator then proceeds to say: *"It will mean you will sacrifice such amount for the MPA. I would like to request you to think carefully about whether you really care about the marine resource situation, and what value you put on the MPA."*

(4) *"I would like to ask if you will be willing to work for* ***x*** *days per month for the monitoring, maintenance and patrolling of the MPA, (a) yes, (b) no, (c) no, but I am willing to work for lesser number of days? Please carefully think about this and remind yourself that there are other things you might wish to spend your time on."* If the answer is (c), the respondent is asked how many days per month he or she is willing to work.

The WTP questionnaire was almost the same with the WTW questionnaire, except that we omitted steps (2) and (3) and the valuation question was framed as willingness to pay a voluntary contribution in Philippine peso (Php) bids. The number of workdays and monetary bids were decided based on the village FGDs and KI surveys. We also pre-tested the questionnaire to 30 residents, and modified the questionnaire based on the enumerators' comments and pretest results. The final bids used for WTW were 0.5, 1, 3, 5 and 10 days/month, while the bids used for WTP were 5, 20, 50, 300, and 500 pesos per month. Finally, we asked some debriefing questions such as reasons for agreeing or not agreeing to the bid, and some socioeconomic information.

2.4. Sampling strategy

From 2,181 total households, we randomly selected 1,035 household samples for our baseline survey from September to October 2007 (Table 2). Next, we conducted interviews for 329 samples from Sagurong Village where the MPA is situated, and from the neighboring village, Rawis, in September 2008. We then divided the Sagurong samples into two random groups; we asked one sample group (and the Rawis samples) about their willingness to support and maintain the MPA based on the WTW

(Willingness to Work) format, and examined the other group based on the WTP (Willingness to Pay) format. We then applied non-parametric methods to estimate the mean WTW and WTP values.

3. Results and Discussion

Table 3 and Table 4 reports the characteristics of the respondents. The samples appear to be representative of the population of the whole island in terms of age, years of education, years of residence in the island, and average income. We deleted an income outlier of more than Php1 million annual income in the Sagurong WTP samples. The socioeconomic conditions of the CV samples are also close to the characteristics of the SMI samples.

3.1. Estimates of Willingness to Work and Willingness to Pay

3.1.1. WTW non-parametric estimates

The overall pattern of the survivor function shows a reduced likelihood of 'yes' response as the bid in terms of number of voluntary patrol days is increased which indicates internal validity of the behavior response. The Sagurong curve is generally above that of Rawis, which suggests greater WTW for Sagurong residents compared with the adjacent *barangay* Rawis. We found the difference between Sagurong and Rawis not significant at 5% (LR test: p=0.054; Wilcoxon test: p=0.061).

The lower bound average WTW estimate for Sagurong is 3.5 days per month while that of the combined samples for Visita and Rawis (non-Sagurong) is around 2 days (Table 5). The CI upper bound does not overlap with the lower bound CI for Sagurong, which confirms the significantly higher average WTW for Sagurong residents. The MPA is in the coast of Sagurong and is directly under the jurisdiction of *Barangay* Sagurong, which may explain the significantly higher WTW for the MPA.

To determine factors affecting the WTW values, we estimated WTW behavior equations. The coefficient signs are generally consistent with the hypothesized directions of relationship and the pseudo-R^2 especially of the multivariate models are between 0.2 and 0.4 which is indicative of good model fits (Louviere, 2000). The BID variable is negative and highly significant in all models suggesting that the probability of saying 'yes' to the WTW question decreases as the bid level increases (Table 6). Since labor or time is assumed to have opportunity cost, this relationship is consistent with welfare economic theory. For Sagurong, income did not appear to be a significant factor affecting the probability of saying 'yes' to the question on willingness to contribute labor for the MPA. Fishing households had higher probability to accept the WTW question. If we believe that WTW indicates MPA support and value of the MPA, this is a reasonable result since fishing households and their generations would stand to be benefited most from the MPA. This result also contradicts allusions that small-scale fishing households are not open to conservation measures. The awareness of MPA existence, measured by the number of MPAs the respondent is aware of, is also positive and highly significant suggesting that the more MPA respondents were aware of, the higher their probability of acceptance.

3.1.2. WTP non-parametric estimates

Similar to the WTW equation, we estimated non-parametric mean for the WTP sample in Sagurong. The overall pattern of the WTP survival curve shows a reduced likelihood of "yes" response as the monetary bid is increased which indicates internal validity of the response. The lower bound mean WTP of Sagurong is Php 16/month (0.34 US$/month at Php46.7=1 US$ average exchange rate in September 2008) (BSP, 2008), while the Kriström mean estimate is Php 33 or 0.71 US$/month (Table 7).

For the payment behavior equation, we also used a logit bid function exploring both the bid only and multivariate models (Table 8). Even with only the bid variable, the Pseudo R^2 is more than 20%. The BID coefficient is negative and significant at 1% significance level in all models, as expected, meaning that the probability of saying 'yes' to the WTP question decreases as the peso amount increases. Considering the multivariate model,

YRSEDUC and HH_INC were significant variables with positive coefficients, suggesting that the more educated and higher income respondents are more likely to say "yes" to the WTP question. Unlike WTW, the decision of Sagurong respondents to accept or refuse a WTP bid seem sensitive to financial condition. This result is similar to result of Adams et al. (2008) in their valuation of a marine park in Brazil where they also concluded that the preservation value of the park is strongly associated with capacity to pay. The dummy for fishing household (DFISH) did not seem to significantly affect the WTP.

3.1.3. Comparing monetary value of WTW estimates and WTP estimates

We expanded the analysis for two preferred cases, namely: (1) the multivariate mean, to account for the potential effects of socioeconomic and awareness factors, in addition to the bid amount, and assuming non-negative random variable; and (2) the Turnbull non-parametric mean estimate that has the advantage of being distribution-free, and gives a lower bound estimate.

Multiplying the WTW estimates by the opportunity cost of labor (33% of the mean of average daily income elicited from the respondents and used in the CV question), the WTW value lower bound estimate in Sagurong is then Php 464/month. This value is 14 times higher than the direct WTP lower bound estimate of Php3.2/month.

A likely explanation following Echessah et al. (1997) is that that there is a missing or incomplete labor market in the study area. A missing or incomplete labor market decreases the opportunity cost of time (Liese et al., 2003). The average daily income albeit adjusted to 33% to account for the fact that not all respondents are fully self-employed, may not be the actual opportunity cost of time or labor. Residents cannot easily take a job on or off the island and get money. Furthermore, being an island region increases the transaction cost thus reducing real wage labor. Thus, one hypothesis is that local residents in this developing island have a stronger preference for money than for time or labor so the WTP values given are small compared with the monetary equivalent value of the WTW. The issue of opportunity cost of time in relation to valuation behavior,

however, cannot be investigated in detail in this study due to data limitation, and is recommended for further investigation.

Finally, another hypothesis is that a psychological effect akin to the "endowment effect" (Thaler, 1980) may be at work. This behavioral effect implies that it is psychologically less painful to forego income (in case of WTW) than to surrender earned income (in the WTP case) so that there might have been a different framing of the WTW and WTP in the minds of the respondents. A weakness of the data set used in the study is that the WTW and WTP respondents are independent samples so that the phenomenon cannot be clearly investigated given the current data set. While the explanation for the difference is not confirmed in the study, the study has shown that for Sagurong case, money WTP elicitation is more influenced by income compared with WTW. Similar finding is shown in Miyata et al. (1998) where they report that the advantage of using WTW is that it is not influenced by income especially in developing countries where income gap is wide.

3.1.4. Aggregation

We multiplied the mean WTW with the population households of the villages adjusted for a 20% non-cooperation rate – assumed based on MPA non-agreement and protest response rate. Thus, the most conservative estimate of total WTW to maintain the MPA by Sagurong residents is PhP 240,592 per year. On the other hand, based on the WTP parametric estimate of Php 33.2 /month WTP for Sagurong residents, the total WTP per year for the maintenance of the MPA is around Php 17,198 per year. If this amount is used only for patrolling and given the Php400/mo per person current incentive, this is equivalent to around 1,433 person-days per year or 43 persons per month.

4. Implications for Policy and Research

4.1. Implications on MPA management and policy

A major problem affecting sustainability of locally managed MPAs in developing countries is the financing for its maintenance and regulation enforcement. A loose enforcement of regulations will sustain the threats to MPA such as fishing in the non-

fishing sanctuary area and unlimited fishing in the areas surrounding the sanctuary. When this happens, the benefits from protection will be defeated. This study has confirmed that in general, island villagers are willing to voluntarily supply labor or money to help in patrolling and monitoring the sustainable use of marine resources. Residents closest to the MPA or residing in the 'owner' village who are directly responsible for the MPA have higher WTW than the WTW of residents in other adjacent villages. On WTP, the aggregate mean WTP of residents is enough only to cover the current cost of maintenance and patrolling of the SMI-MPA.

Implications for management or policy in the study area and in developing countries are:

(1) The MPA management and village councils in developing countries can explore eliciting voluntary labor from residents for patrolling and maintenance as a management option. The existing village mechanism of enjoining voluntary labor during community clean up may be used.

(2) The national policy of encouraging LGUs to establish their 'own' MPAs can be justified for its potential impact on increasing the conservation value of marine resources by local village residents. Although one advantage of one large MPA over many small MPAs is the potentially lower enforcement cost, apparently residents have higher propensity to support village-owned 'goods'. Creating MPA networks, although difficult due to political reasons among others, might be a win-win strategy.

(3) Rural fishing households are willing to conserve marine resources as shown by their significant positive WTW for MPAs. The quantitative values from this study can be used to encourage MPA managers and policymakers.

(4) There is a growing interest in the Philippines to establish payment of environmental services (PES) as a scheme to generate conservation funds. The use of WTW approach can be used to initially determine amount of such fees in MPAs with incipient tourism. The lower bound estimates, for example, can be used as a starting amount for negotiation with residents. Since these values are elicited from the residents themselves, there is greater assurance that the amounts are reasonable and acceptable.

4.2. Implications on CVM research in rural islands in developing countries

The MPA preservation value elicited by asking WTW is three times higher than the value elicited by WTP through dichotomous approach. Both estimates seem plausible considering the conditions in the study area and comparability of results to previous estimates, and the measures taken to minimize biases although both methods are subject to the same biases. Our results are similar to Echessah et al (1997) in valuing Tsetse control and Miyata (1998) in a case study valuing benefits of water quality improvement in Indonesia. Some weaknesses of our data are: (1) We had no WTP samples in the adjacent villages where we could compare the WTP in 'owner' village; (2) Our WTW and WTP comparison was done for independent random samples. Results on the comparison would probably be more forceful had it been that the WTP and WTW questions were asked from same respondents. This is the tradeoff in our ensuring that the WTW values will not bias the WTP values if we put them in one questionnaire; (3) Owing to budget limitations, we were limited to studying one MPA among the six MPAs in Lagonoy gulf. Although we believe that our case study results can be used to extrapolate the existence value of MPAs in the gulf, extending our sample to include the other MPAs would have allowed for scoping test. Despite these weaknesses, following are implications for valuation in developing countries:

(1) WTW can be used as an eliciting method for stated preference studies in rural developing islands where WTP might be difficult to elicit due to overwhelming income constraints. However, care must be taken in deciding the opportunity cost of time or labor to use in imputing the monetary value since overvaluation is a possibility. For example, Miyata (1998) pointed out that if there is negative correlation between income and WTW, applying WTW may overvalue the true WTP. Our results warrant further investigation of the opportunity cost of time and understanding the labor market within a valuation framework.

(2) We measured the value of the continued MPA maintenance in order to preserve good marine resource quality from the point of view of residents themselves. The reasons given by respondents for WTW and WTP indicate future use, bequest, option motives, and habitat preservation. While valuation of protected areas by domestic tourists may have captured non-use values related to recreation and

aesthetics, having local island residents as respondents can capture non-market values related purely to habitat preservation for future use and option motives. This value is different from the flow of environmental goods and services that determine use values Attfield (1998) as cited in Adams (2008).

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Table 1. Status quo condition and hypothetical changes in the contingent scenario

Indicator	Status quo (good condition)	Hypothetical scenario (worse scenario)
Live coral reef cover	good (50%-75%)	fair (26%-50%) or poor (0%-25%)
Seaweed beds area	4.5 km^2	reduced by 50%
Fish biomass (mt/km^2/year)	20 to 25 mt/ km^2/year	reduced by 50%
Species richness diversity	200+ species	reduced by 50%
Spillover effect to fish catch	4kg per trip/3kg per trip	0 or no spillover effect

Table 2. Population and Number of Sample Households in SMI, by *barangay*

Barangay	Total No. of Households[a]	WTW	WTP
Hacienda	362	-	-
Agñas	710	-	-
Sagurong	518	123 (112)	123 (113)
Rawis	255	108 (104)	-
Visita	336		-
Total	2,181	231(216)	123 (113)

[a]Source: City Planning and Development Office (2006)

Table 3. Names, definitions, and expected signs of variables used in the logit CV model

Variable	Description	Expected sign
BID	Proposed bid - in number of days per month for WTW; in pesos per month for WTP	-
AGE	Age in years	+-
YRSSMI	Number of years residing at SMI	+-
GENDER	Gender, 1 if respondent is male	+-
YRSEDUC	Formal education in years	+
HH_INC	Total household income in pesos per year	+
DFISH	Fishing Household, 1 if at least one member is engaged in fishing-related activity	+-
N_AWARE	Number of MPAs in Lagonoy gulf that the respondent is aware of	+

Table 4. Summary statistics of sample socioeconomic and awareness characteristics

	WTW samples			WTP sample	SMI[a]
Variable	Pooled	Rawis	Sagurong	Sagurong	
n	216	104	112	113	
AGE	45.8	46.3	45.4	45.3	46
GENDER	68.5%	62.5%	74.1%	69.0%	
YRSEDUC	7.02	7.38	6.70	6.59	41% elem. Grad.
YRSSMI	41.0	41.7	40.4	38.4	95% Albay-born
HH_INC	50341	53047	47829	78859	57,372
DFISH	67.1%	63.4%	70.5%	67.3%	0.31
N_AWARE		1.69	1.83	1.87	

Table 5. Non-parametric WTW estimates

Barangay	Mean WTW (days/mo)		Median WTW (days/mo)
	Turnbull Lower Bound*	Kristrom	
Sagurong	3.47 (2.79-4.14)	4.64	4.28
Rawis	2.01 (1.43-2.58)	3.22	1.55
All samples		4.00	2.75

[a] Figures in parenthesis are confidence intervals

Table 6. WTW Logistic regressions

Variable	Sagurong	
	Bid only	Multivariate
Constant	1.533***	-1.305
	(0.37)	(1.506)
BID	-0.356***	-0.487***
	(0.09)	(0.117)
AGE	-	0.002
		(0.023)
GENDER	-	-0.752
		(0.725)
HH_INC	-	3.89E-06
		(8.28E-06)
DFISH	-	1.894***
		(0.724)
N_AWARE	-	1.325***
		(0.427)
DBRGY1	-	-
DBRGY2		
Number of observations	92	92
LogLikelihood	-50.65	-40.18
LogLikelihood at zero	-62.98	-62.98
McFadden Pseudo R^2	0.20	0.36
$\chi 2$	24.67***	45.62***

***significant at 1%; **significant at 5%; *significant at 10%; standard errors in parentheses

Table 7. Estimated Mean WTP and Median WTP

Statistics	(PhP/month)
Mean WTP (Kristrom)	33.2
Median	13.4

Table 8. WTP Logistic Regressions

Variable	Bid only	Multivariate
Constant	0.832*	-2.485
	(0.466)	(2.527)
BID	-0.049***	-0.0698***
	(0.014)	(0.021)
AGE	-	0.0105
		(0.034)
YRSEDUC	-	0.370*
		(0.224)
HH_INC	-	1.09E-05*
		(6.04E-06)
DFISH	-	0.539
		(0.765)
observations	89	89
LogLikelihood	-31.63	-26.74
LogLikelihood at zero	-48.63	-48.63
McFadden Pseudo R^2	0.35	0.45
χ^2	33.99***	43.77***

*** significant at 1%; ** significant at 5%; * significant at 10%; standard errors in parentheses

Table 9. Monetary equivalent of WTW estimates and Aggregate WTP estimates

		WTW		WTP
Particulars	All samples	Sagurong	Rawis	Sagurong
Mean WTW/WTP (days/mo)	4.00	4.64	3.22	33.2
Mean Income (pesos/day)	76.7	100.1	51.6	-
Monetary equivalent (pesos/mo)	306.8	464.5	166.2	-
Household number	773	518	255	518
Aggregate (Php/year)[a]	237,156	240,592	42,369	17,198