

Short Communications

**Willingness to Pay a Price Premium for Certified Wood Products
among Consumers in Malaysia**

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ABSTRACT

Consumers are assumed to be willing to pay price premiums for certified wood products. In this study, Malaysian consumers' willingness to pay a price premium for certified wood products and factors influencing their willingness to pay were investigated. The study made use of the data obtained from 994 systematically selected mall-intercepted respondents. A binomial logit analysis was applied to determine the factors influencing the respondents' willingness to pay. About 74% of the respondents indicated that they would choose wood products made from certified timbers. However, only 57% stated that they were willing to pay a price premium for the products. The respondents' willingness to pay was found to be influenced by their knowledge and perceived importance of forest certification, as well as the inclination to choose wood products made from certified timbers. There is also a positive correlation between the willingness to pay and the respondents' education, income, and current ownership of the wooden furniture items. The opportunity for further research includes determining the amount of premium the consumers are willing to pay and identifying consumer segments where certified wood products can be successfully marketed.

Keywords: Willingness to pay, price premium, certified wood products, consumers

INTRODUCTION

Environmental certification of wood products, as a consequence of environmental certification of forest management practices, has its origin from the global concern for the widespread deforestation in the tropics during the eighties. The recognition that forests must be managed in a sustainable manner was formalised in the deliberations of the United Nations Conference on Environment and Development held in Rio de Janeiro in 1992 (Vertinsky and Zhou, 2000). Wood products entering the international trade are expected to be manufactured from timbers originating from areas certified to be managed on sustainable or environment-friendly practice.

Sustainable forest management, however, are expected to cost more than the present forest management practices (Leslie, 2006). Thus, forest owners and producers of wood products must capture a price premium which allows them to recover the costs of practicing certified sustainable forest management and maintaining certification (Upton and Bass, 1995). It is believed that consumers are willing to pay a premium for products originating from well-managed forests (Carter and Merry, 1998), and this ranges from 5 to 10 percent (Forsyth, 1998, cited in Vertinsky and Zhou, 2000). A number of studies to date have shown that consumers in the more affluent and developed countries are

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willing to buy and pay a premium for certified wood products (CWP) (e.g. Ozanne and Vlosky, 1997; Gronroos and Bowyer, 1999; Ozanne *et al.*, 1999; Kozak *et al.*, 2004; Veisten, 2002).

Malaysia has responded positively towards the call for sustainable forest management and certification of its forest management practice. The country is now operating a voluntary national forest management and chain-of-custody certification under the Malaysian Timber Certification Scheme (MTCS) which was begun in 2001. Currently, an area of about 3.85 million ha of permanent forest reserves, in Peninsular Malaysia and Sarawak, has been certified under the scheme (MTCC, 2007). In addition, the Forest Stewardship Council has awarded six combined forest management and chain-of-custody certificates for various forestry and wood product manufacturing firms in Malaysia (FSC, 2008). Since 2002, Malaysia has exported more than 267,000 m³ of MTCS-certified wood products, especially to Europe (MTCC, 2008).

Despite being a producer and exporter of CWP, there seems to be no effort to market such wood products domestically. There is, therefore, a need to understand the factors that could accelerate exploitation of the full potential of CWP in Malaysia. In specific, this study addressed two questions; (i) whether the consumers in Malaysia are willing to pay a price premium for CWP, and (ii) what are those factors that influence their willingness to pay?

METHOD

A self-administered questionnaire was used to obtain the data for this study. The questionnaire was distributed to the adults who were systematically selected at four shopping malls in Kuala Lumpur, Malaysia. These adults were selected based on a previously determined criterion that every tenth adult who walked past the enumerators was to be interviewed. However, only those who indicated their willingness to participate were given the questionnaire.

The survey solicited information in relation to the respondents' perception on the

importance of forest certification, knowledge of forest certification, and their environmental consciousness. The respondents were also asked to choose, in a hypothetical purchase situation, between a wooden dining furniture set made from certified timbers and an identical one made from the non-certified timbers with response options 'choose set made from certified timbers', 'choose set made from non-certified timbers', 'would choose either set' and 'don't know'. It is important to note that the respondents were informed that the only difference between the two furniture sets was the type of timber used to manufacture the items while price, design, quality, and other attributes were similar. In order to ensure that the respondents fully understood the meaning of forest certification and certified timbers, each questionnaire included the following definition: "Forest certification is a system of forest inspection plus a means of tracking timber through a 'chain of custody' – following the raw material through to the finished product". The goal of forest certification is to ensure that the products have come from forests which are well-managed, i.e. its management takes into account the environmental, social and economic benefits of the forests. "Timbers which come from the certified forests are thus certified timbers". This definition was repeated three times in the questionnaire.

If the respondents indicated a preference for the dining set made from certified timbers, an indifference (a 'would choose either set' response) or uncertainty (a "don't know" response), they were asked if they would be willing to pay a price premium for the CWP with a 'yes' or 'no' response option. A binomial logit analysis for the binary choice responses was then applied to determine the factors influencing the respondents' willingness to pay a price premium for CWP. The respondents' socio-economic information was also collected during the survey as they are reported, although with mixed results (e.g. Schlegelmich *et al.*, 1996; Maieiri *et al.*, 1997; Laroche *et al.*, 2001; Forsyth *et al.*, 1999; Laureiro *et al.*, 2002) to exert an influence

on the consumers' environmental purchase behaviour and willingness to pay a premium for environment-friendly products. Table 1 presents the variables used in the model and their definitions.

RESULTS AND DISCUSSION

After eliminating incomplete and erroneous surveys, a total of 994 usable questionnaires were used in the analysis. Overall, the respondents were mostly Malays (74%) and there were slightly more women (52%) than men in the sample. The respondents' average age was 32 years and they had spent an average of 15 years in education. Meanwhile, their average monthly income was RM2,371 and almost

all these respondents are not members of any environmental organisation or association. More than three-quarters of the respondents currently own wooden dining furniture sets. A large majority of the respondents (74%) showed a preference for CWP. However, only 57% were willing to pay a price premium for such products. Table 2 summarises the respondents' demographic information and responses to selected questions in the survey.

The results of the logit analysis on the willingness to pay a price premium for CWP are shown in Table 3. The positive and significant coefficient on *IMPORTANCE* implies that it is highly probable that a consumer would be willing to pay a premium for the CWP if he/she believes that forest certification is important.

TABLE 1
Definition and descriptive statistics of the variables used in the model

Variable	Definition
IMPORTANCE	There is a need for forest certification in Malaysia yes = 1, otherwise = 0
KNOWLEDGE	I understand the concept of forest certification yes = 1, otherwise = 0
CONSCIOUS	Whenever possible, I buy products that is produced with no adverse impact on the environment yes = 1, otherwise = 0
CHOICE	If you were to buy a wooden dining furniture set, would you choose to buy a set made from certified timber or a set made from non-certified timber (assuming price, design, quality and other attributes are similar)? set made from certified timber = 1, set made from non-certified = 2, would choose either set = 3, don't know = 4
OWNERSHIP	Do you currently own wooden dining furniture set yes = 1, otherwise = 0
GENDER	Male = 0, Female = 1
AGE	Age of the respondent (years)
MARITAL	Bachelor = 1, Married = 2, Others = 3
ETHNIC	Ethnicity of the respondent 1 = Malay, 2 = Chinese, 3 = Indian and others
INCOME	Gross monthly income of the respondent (RM)
EDUCATION	Educational level of the respondent (years)
MEMBER	Membership in an environmental association yes = 1, otherwise = 0

TABLE 2
 Respondents' demographic characteristics and responses to selected questions in the survey

Characteristics	Percentage
Gender	
Male	47.79
Female	52.21
Age	
30 years and below	53.82
31 – 40 years	27.16
41 – 50 years	13.78
51 – 60 years	4.73
61 years and above	0.51
Ethnic	
Malay	74.44
Chinese	14.89
Indian and others	10.67
Education	
At least 6 years (primary)	3.82
At least 13 years (secondary)	30.08
At least 15 years (certificate)	13.88
At least 16 years (diploma)	23.64
At least 17 years (university degree)	28.57
Monthly gross income	
RM2000 and below	58.15
RM2001 – 4000	30.88
RM4001 – 6000	5.53
RM6001 and above	3.32
(Missing cases: 51)	
Membership in an environmental organisation	
Yes	1.81
No	98.19
Own wooden dining furniture set	
Yes	76.66
No	23.34
Choice of wooden dining furniture set chosen in a hypothetical purchase decision	
Set made from certified timber (1)	74.04
Set made from non-certified timber (2)	3.32
Would choose either set (3)	15.09
Don't know (4)	7.55
Willingness to pay price premium for certified wood products	
Yes	58.48
No	41.52
(961 cases for response option 1, 3 and 4 above; a 'yes' response for 994 respondents is 57%)	

TABLE 3
Results from the logit model on willingness to pay a premium for CWP

Variable	Coefficient	z-values	Marginal probability
<i>CONSTANT</i>	-2.982**	-4.41	
<i>IMPORTANCE</i>	0.541**	2.83	0.1332
<i>KNOWLEDGE</i>	0.583**	3.96	0.1411
<i>CONSCIOUS</i>	-0.855	-0.59	- 0.0206
<i>CHOICE</i>	0.419*	2.49	0.1027
<i>OWNERSHIP</i>	0.502**	3.00	0.1232
<i>GENDER</i>	0.062	0.43	0.0152
<i>AGE</i>	0.001	0.18	0.0004
<i>MARITAL</i>	0.328	1.72	0.0775
<i>MALAY</i>	- 0.206	-0.95	-0.0498
<i>CHINESE</i>	-0.068	-0.26	-0.0166
<i>INCOME</i>	0.000*	2.46	0.0000
<i>EDUCATION</i>	0.107**	3.09	0.0260
<i>MEMBER</i>	-0.379	- 0.72	- 0.0937
Log-likelihood	- 569.36		
Pseudo-R ²	0.078		
X ² (df=11)	96.61		
Significance level	0.000		

* Significant at 0.05 level

**Significant at 0.01 level

Consumers who showed a strong opinion on the importance of forest certification had been identified to be the most likely group to buy CWP at a premium (Vlosky *et al.*, 1999; Ozanne and Vlosky, 2003; Anderson and Hansen, 2004).

A positive and highly significant coefficient on *EDUCATION* implies that an increase in the education level would increase the probability of a consumer's willingness to pay. An intuitive explanation for this could be that consumers with more formal education probably have better understanding of the benefits associated with forest certification and are therefore willing to pay a higher price for CWP. Education, although with mixed results, was found to have an influence on the consumers' willingness to pay price premiums for CWP (Ozanne and Vlosky, 1997; Ozanne and Smith, 1998). The respondent's knowledge of forest certification

(*KNOWLEDGE*) also has a similar influence on the willingness to pay. Individuals who are knowledgeable about environmental issues were found to be more willing to pay a price premium for environmental friendly products (Amyx *et al.*, 1994, cited in Laroche *et al.*, 2001).

The results also show that owning wooden furniture items (*OWNERSHIP*) and having a preference for wood products made from certified timbers (*CHOICE*) have a positive influence on the consumers' willingness to pay a premium for CWP. Meanwhile, no plausible explanation can be offered for the former, as studies have shown that consumers stating a preference for the CWP have also considered paying a premium for these wood products (Ozanne and Vlosky, 1997; Aguilar and Vlosky, 2007). Another variable that has a significant influence on the willingness to pay is the

respondent's income (*INCOME*). Income has always been found to be positively correlated to the willingness to pay a price premium, not only for CWP (Aguilar and Vlosky, 2007) but also for other environmental friendly products (Saphores *et al.*, 2007). Meanwhile, individuals with higher incomes are believed to be able to bear a marginal increase in the costs associated with supporting environmental causes and favouring environment-friendly products (Straughan and Roberts, 1999).

CONCLUSIONS

In this study, the willingness of consumers in Malaysia to pay a price premium for certified wood products and the factors influencing their willingness to pay were investigated. The results showed that there were consumers in Malaysia who would choose wood products made from certified timbers. However, not all of them were willing to pay a price premium for such wood products. Equally important is the finding that their willingness to pay is influenced by their knowledge of and the perceived importance of forest certification, and the inclination to choose certified wood products. There is also a positive correlation between the willingness to pay and the respondents' education, income, and current ownership of wooden furniture items.

Considerations of how representative the samples are must be kept in mind when evaluating the broader implications of the findings in this study. This study holds true only for the patrons of the mall where the study was carried out. The number of respondents was limited and might not be representative of the Malaysian population. Even so, this study should still be useful for the wood product industry to evaluate the market potential of certified wood products in Malaysia and develop effective marketing strategies. There are also opportunities for further research, particularly to determine the amount of premium the consumers are willing to pay and identify consumer segments where certified wood products can be successfully marketed.

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