

**A COMPARISON OF CONSUMER WOOD PRODUCT
CERTIFICATION PERCEPTIONS AND ATTITUDES:
NEW ZEALAND AND THE UNITED STATES**

**Working Paper #36
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July 27, 1999

ABSTRACT

In this paper, six areas of consumer perceptions about environmental wood products certification are compared between the United States and New Zealand. These areas are: the level of understanding of the concept of certification, beliefs in environmental claims, how certification might relate to improved forest health, purchasing of certified wood products, the willingness to pay for certified products and which entity is trusted to do the certifying. Overall, results indicate that where significant differences exist, New Zealand consumers have a stronger affinity for environmental and certification issues and are more inclined to pay a premium for certified wood products. Consumers in both countries trust their respective wood products industries the least to conduct certification procedures and trust non-governmental environmental organizations the most.

INTRODUCTION

The growth of human population and industrialization and their potential impacts on natural resources have become sources of concern for consumers. It is becoming clear that consumers worry about the environment, and consumers who espouse a concern for the environment, or have what has come to be labeled a "green orientation", are growing in number (Donaton and Fitzgerald 1992). According to one survey, as many as 80% of American consumers currently claim that they are environmentalists (Gutfield 1991). In another survey by the newsletter Green MarketAlert, 12.6% of all new product introductions in 1991 made "green" claims, and for new household products, 41% made "green" claims (Green MarketAlert 1993). Although environmental awareness and concern appears to be widespread, consumers

are highly fragmented in their willingness to act by choosing higher-priced products (Irland 1993).

In an effort to meet both environmental and general consumer concerns, a range of environmental certification programs have been initiated. The common thread among these programs is the attempt to provide some system for inducing environmentally sound practices, and credibility for environmental claims. Environmental certification programs, including wood products certification, are increasingly being recognized as a significant market-based tool for linking harvesting, manufacturing, and consumer purchases to sustainable forest management practices. One particular aspect of environmental certification of interest is the potential that it provides for product differentiation in marketing.

Successful product differentiation requires a sound understanding of the characteristics of particular markets and the role that specific product attributes play in influencing consumer decisions. In this respect, the use of environmental certification as a marketing tool is no different than other product attributes. To better understand wood products environmental certification as a consumer and marketing issue across national boundaries, this paper compares consumer perceptions of certification in New Zealand and the United States. These two nations make for an interesting contrast with regard to perceptions of certification of domestic forests since New Zealand's commercial forest resources are 98% exotic plantation forests, while in the United States plantations account for only a fraction of the total forest land area under management. The objective is to provide a basis for understanding differences consumer perceptions of environmental certification between the US and New Zealand.

ENVIRONMENTAL CERTIFICATION

Environmental certification, known alternatively as green labeling or green certification, is a process through which timberlands are certified by an independent third party as being managed using sustainable forestry practices. Wood products manufacturers that purchase raw materials from environmentally certified sources and that subject their own businesses to a green certification audit, can ultimately earn the right to attach a certificate or green label to their product (Christianson 1994). Initially, certification efforts were in response to tropical deforestation. Since industrial logging only accounts for 15% of tropical deforestation, versus 85% for agriculture, ranching or other uses, certification would only address part of the problem (Bratkovich 1997). Rather than promoting import and export bans or consumer boycotts of tropical timber products, certification is an alternative that is intended to ensure that tropical forests are properly or sustainably managed. In addition to timber management issues, certification is perceived as a way to assuage consumer concerns that the products they purchase are somehow contributing to the irreversible damage to the environment (Peterson 1994).

There are two broad components of certifying wood products. Forest management certification involves an independent, third party assessment of field-level forest management practices and/or management systems against performance indicators of specified social, ecological and economic standards. This activity may also be called forest certification, forest management auditing, or timber certification. Wood-product certification is the second step in the process. It involves an independent, third party "chain-of-custody" inspection to trace wood harvested in certified forests through all stages of transport, processing and marketing to the

finished product. Products that can be traced from a certified forest to the point of sale are awarded a green label/ecolabel/certificate (Crossley 1996).

The rationale behind the environmental certification movement is that, given a choice, consumers would rather buy products that do not harm the environment. A number of studies provide direct empirical evidence that there are positive attitudes toward, and thus potentially a market for, environmentally certified wood products. A study by the World Wide Fund for Nature (WWF) found that 66% of consumers would be willing to pay an average of 13.6% more for wood products originating from sustainable sources (Read, 1991). In addition, a study of consumers in Germany found that they would be prepared to pay an additional 5% for certified wood products (Centre for European Economic Research 1995). Bigsby et al. (1997) found that New Zealand consumers have a high level of awareness and interest in environmental certification of wood products, prefer to buy environmentally friendly products, and are willing to pay an additional premium for certified products. In a study of U.S. consumers, Ozanne and Smith (1998) indicate that there may be a market segment for certified wood products which they describe as politically liberal, democratic, female, a member of an environmental organization, and fairly well educated.

There is also indirect evidence to support the hypothesis that there is a market for environmentally certified wood products. While consumers do not always base product-purchasing decisions on their environmental attitudes, this has been identified as an increasingly important factor (Irland 1993). Schwepker and Cornwell (1991) discuss studies that have investigated the relationship between environmental attitudes and product purchase or usage intentions and found that consumers are linking purchases and environmental considerations.

In spite of the similar dispositions towards environmental certification shown by consumers in different countries, it would be expected that there could be substantive differences in the specific ways in which this is manifested. For example, the New Zealand forest products market is unique in that it combines a very high degree of self-sufficiency in forest products with almost a complete reliance on plantation-grown, exotic trees. Relatively small amounts of timber come from indigenous forests, and there are minimal imports from the Northern Hemisphere and tropics. Most New Zealanders would now view forest products as being largely synonymous with plantation-grown exotics. This association raises a particular set of environmental issues linked to these forest products that differ markedly from those of indigenous forests. In particular, there are few, if any, of the concerns over wildlife, recreation or biodiversity that accompany indigenous forests. The New Zealand situation can be contrasted with that of the U.S. where domestic timber supplies are almost entirely derived from indigenous forests, and forest products are closely linked to environmental issues.

In both the U.S. and New Zealand, events over recent years have created a high public profile for the forest products industry and associated environmental issues. In New Zealand, the phased reduction in the harvesting of indigenous timber was part of a very public process of resolving environmental issues. The process in some senses culminated in the separation of plantation forests from indigenous forests for public policy purposes, with indigenous forests largely put under the direction of the Department of Conservation and not being subject to any harvesting. The limited harvesting that does take place is guided by an "Accord" between environmentalists, industry, and local and national government. The result of this process is that many

New Zealanders have a high awareness of and concern for environmental issues (Buhrs and Bartlett 1993), particularly those dealing with forestry.

The net effect is that when it comes to determining how New Zealand and U.S. consumers might view the environmental effects of forest use and the environmental acceptability of forest products, and the application of environmental certification, major differences might be expected. The uniqueness of particular forest products markets, institutional structures, and government ownership and involvement in the industry provides the potential for a much different approach to the role of environmental certification in each market.

RESEARCH METHODOLOGY

Consumers in both New Zealand (Biggs et al. 1997) and the United States (Ozanne and Vlosky 1997) were surveyed regarding their perceptions about and willingness to pay for environmental certification of wood products. Survey development and implementation was based on methods recommended by Dillman (1978) and described as the Total Design Method (TDM). Data collection was conducted in the United States in 1995 and in New Zealand in 1996. In adherence to the TDM survey guidelines, pre-survey notification, initial survey mailing, post-survey reminder, and a second mailing were conducted in order to maximize response rates.

The research instrument was fully tested in the United States study and replicated, with some modifications, in New Zealand. Many of the survey questions assessing consumer perceptions of certification were adapted from the work of Ozanne and Smith (1998) while others were developed by the authors. Respondents were asked to rate their level of agreement with a range of questions using 5-point Likert-

type scales that ranged from 1 = disagree to 3 = neither disagree nor agree to 5 = agree on perceptual questions. In addition, questions on "willingness to pay" for environmentally certified wood products and questions on level of trust to certify by different entities were asked using 4-point scales anchored on "trust least" and "trust most". The questionnaire, which also included demographic and socioeconomic questions, was pre-tested to check for biased, misleading, or confusing questions and to verify the quality and quantity of information received (Dillman 1978).

The development of sample frames from residential consumers was a prerequisite to primary data collection. Based on those consumers who would be in the market for a range of environmentally certified wood products, residential homeowners over 18 years old with incomes over \$30,000 were selected in the United States study. In addition, an equal number of males and female was selected for the sample population. Best Mailing Lists, Inc., a national sampling service provider, provided 2,500 homeowner names and addresses on a random, n^{th} name basis with every, single-family, owner-occupied U.S. household having an equal and known chance of being selected (Mendenhall et al. 1986). Of the 2,500 questionnaires mailed, 803 were included in the analysis. Sixty-seven questionnaires were returned as either undeliverable, the respondent was deceased, or the questionnaire was incomplete or otherwise unusable. This resulted in an adjusted response rate of 33 percent for the U.S. survey.

In contrast to the U.S. survey, the New Zealand survey was not limited to respondents over a particular income level. The sample population was structured to ensure that respondents would be over the age of 18 and thus more likely to be in the potential target market for certified forest products. This was done by using randomly

generated numbers to select a list of 500 consumers from the 1996 New Zealand Electoral Role. Three columns of discrete random variables were generated using Minitab. The numbers in these columns were used to randomly determine first the electoral region (booklets numbered 1-65), secondly the page number in the booklet, and thirdly the list number of a registered voter. Of the 500 surveys mailed, 167 were included in the analysis. Thirty-one surveys were returned as either undeliverable, or the questionnaire was incomplete or otherwise unusable. This resulted in an adjusted response rate of 36 percent for the New Zealand survey.

In any survey, based on varying degrees of appropriateness for certain questions, often specific, non-applicable questions are not answered. Studies conducted through mailed survey data collection methods indicate that early returns can be biased. Bias due to non-response can be evaluated by comparing those who responded to the initial mailing to those who responded as a result of subsequent mailings and other follow-up efforts. Non-response bias was found to be statistically insignificant (at $p = 0.001$) by comparing responses in the first and second mailings on all questions and all demographic variables. Additionally, in the U.S. study, non-response bias was found to be statistically insignificant (at $p = 0.001$) by comparing geographic distributions by state for respondents to the geographic distribution of non-respondents.

RESULTS AND DISCUSSION

Demographics

Although currencies differ, there is a similar distribution of incomes between respondents in each country. Gender distribution is also similar with both females and

males being equally represented among respondents. A majority of respondents are Caucasian in the US (94 percent) and from European descent in New Zealand (91 percent). US respondents have a higher percentage of advanced degrees (MS and Ph.D.) while the New Zealand age distribution is skewed to younger respondents.

A contrast of certification perspectives

Questions asked of both New Zealand and US consumers can be classified into five themes: understanding the concept of certification, belief in environmental claims, certification and forest health, environmentally certified product purchase and intent, willingness to pay a premium for environmentally certified products, and who is trusted to do certification.

Understanding the concept of certification

With regard to understanding the concept of environmental certification, respondents in both countries indicated that they understand this concept (New Zealand=3.98, US=3.78). New Zealand respondents indicate a higher level of understanding (at $p=0.01$).

Belief in environmental claims

Three questions examine consumer beliefs in environmental claims and the importance of environmental information. The general belief in the accuracy of environmental claims in packaging is high for both groups (New Zealand=3.67, US=3.59) and are not statistically different. However, New Zealand consumer belief in the importance of environmental information in packaging and their trust in

environmental claims made by forest products producers are significantly higher than US responses ($p=0.01$). In both cases, the responses on trust in wood product supplier environmental claims show that consumers are largely neutral.

Certification and forest health

The questions relating to perceptions of certification and the effects it could have on forest health were divided into domestic forests and tropical forests. For New Zealand domestic forests results reflect averaged responses for indigenous and plantation forests. New Zealanders believe more strongly than their US counterparts that certification can have a positive effect on the health of domestic forests (New Zealand=4.20, US=4.00) and that there is a need to incorporate certification into domestic forest management and harvesting practices (New Zealand=4.33, US=3.95). New Zealand responses were significantly higher than US responses for these two questions ($p=0.01$).

With regard to the need to certify tropical forests or that certification can reduce tropical deforestation, there is general agreement that certification is needed and can help improve health of tropical forests. In particular, nearly 97 percent of New Zealand respondents and 83 percent of US respondents agree or strongly agree that there is a need for certification in tropical forests. There was no significant difference between US and New Zealand responses ($p=0.10$).

Environmentally certified product purchase and intent

Three questions were asked to gauge purchase intent and behavior for environmentally certified wood products. General intent to purchase environmentally safe products was high in both countries, with over 70% of respondents indicating that

they would try to buy environmentally safe products. The response was somewhat higher for New Zealand respondents (4.09) than for U.S. respondents (3.98). When the question was directly related to wood products the proportion of respondents indicating intent to purchase environmentally safe wood products decreased. While 83% of New Zealand consumers would generally seek out environmentally safe products, only 70% would seek out environmentally safe wood products if they were available. For the U.S., 74% of consumers would generally seek out environmentally safe products, and only 60% would seek out environmentally safe wood products. If certified wood products were available, both respondent groups indicated that they would seek them out (New Zealand=3.76, US=3.62). In both questions the New Zealand mean was significantly different from that of the U.S. ($p=0.10$).

Availability is likely a key factor in both markets. While consumers in both countries indicated a predisposition to purchasing environmentally safe wood products, the proportion that actually did was quite low. The mean value of responses was low (New Zealand=2.84, US=2.85) and not statistically different. One possible explanation is that there is a lack of availability of certified wood products in the marketplace in both countries while another is that purchase intent is not translated into actual purchasing behavior.

Willingness to pay a premium for environmentally certified wood products

The final set of questions deal with willingness to pay a premium for environmentally certified products. The responses in both countries were generally similar in terms of mean values and the proportion of respondents agreeing with the statements. There was no statistical difference between New Zealand and U.S.

responses with regard to intent to pay more for environmentally friendly products in general or in respondent beliefs that consumers in their countries would pay a premium for environmentally certified wood products. In response to the question of whether they would pay a premium for certified wood products, there was a significant difference between countries, with New Zealand respondents more inclined to pay such a premium. Relative to responses to previous questions sets, which were skewed toward high levels of agreement, willingness to pay responses are more equally distributed among all levels of agreement.

Overall, it was found that on average that U.S. and New Zealand consumers are willing to pay premiums for certified wood products. Ozanne and Vlosky (1997) found that US consumers were willing to pay an average premium of 12.5 percent for certified wood products. Bigsby et al. (1997) found that for New Zealand respondents, 75% would pay a premium for environmentally certified products. About 50 percent of New Zealand respondents stated that this premium could be between 10 and 25 percent higher than existing prices. There is no pattern that suggests that willingness to pay extra by New Zealand consumers declines with the cost of the good.

Whom is trusted to certify?

An important question that was posed to respondents dealt with the degree of trust that consumers place in various entities to certify associated activities such as forest management and harvesting, wood product chain of custody procedures and process monitoring. Respondents were asked to choose between the wood products industry, the federal government, private certification companies and environmental organizations. By far, non-governmental environmental organizations received the

highest vote of confidence to certify, at 59.8 percent and 48.3 percent of respondents for New Zealand and U.S., respectively. Respondents in both countries were similar in their rejection of the wood products industry as a certifier, with only 7.6 percent of New Zealand respondents and 9.7 percent of U.S. respondents choosing the industry as the most trusted entity to certify.

Government was generally rejected as a certifying agency in both countries as well, with only 10 percent of respondents nominating government as "Most Trusted" to certify. There is a difference between the two countries in that New Zealand respondents were more inclined to place some trust in the government as a certifier 40% making the government their second choice. U.S. respondents ranked their government somewhat lower.

One major difference between the two countries is in the level of trust of third party certification. New Zealand respondents ranked third party certifiers much lower than U.S. respondents. This may in part relate to fewer third party certifiers operating in New Zealand, or a much lower profile and level of consumer awareness in New Zealand.

SUMMARY

Comparison of the results of the surveys of perceptions towards environmental certification of forest products shows some differences between U.S. and New Zealand consumers. Generalizations might be made based on these results. However, differences in the way that the surveys were executed may pose a problem for extending these generalizations too far. Since the U.S. survey was directed at respondents with an income above \$30,000 and the New Zealand survey only at buyers

older than 18, it is not surprising that the average U.S respondent was older, had a higher level of education and had a higher income than New Zealand respondents. The New Zealand survey showed that the average consumer has a higher level of awareness of and interest in environmental certification of forest products. This is in spite of there being no certification system for forest products being used in the country. There is no indication that environmental certification in New Zealand is a high-income or high-education phenomenon. Rather, the results show that a propensity to prefer or look for environmentally certified forest products is a broad-based characteristic of consumers.

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