AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Consumers' environmental awareness towards children's furniture in Shanghai and Shenzhen, China

Minli Wan[1], Anne Toppinen[2] and Jiao Chen[3]

[1] University of Helsinki, Department of Forest Sciences, P.O. Box 27, FI-00014 University of Helsinki, Helsinki, Finland, minli.wan@helsinki.fi

[2] University of Helsinki, Department of Forest Sciences, P.O. Box 27, FI-00014 University of Helsinki, Helsinki, Finland, anne.toppinen@helsinki.fi

[3] University of Helsinki, Department of Forest Sciences, P.O. Box 27, FI-00014 University of Helsinki, Helsinki, Finland, jiao.chen@helsinki.fi

Abstract

China's rapid economic growth has increased consumers' disposable income evidently. With the improvement of living standards, Chinese people have increasingly concerned about their life quality, especially when buying consumable commodities like food, toys and clothing as well as durable goods like furniture for their children. In the past 10 years, the Chinese children's furniture market has developed rapidly, making up 9% of total furniture market in China in 2010. However, the children under 14 years old only account for 16% of the total population in China (The present market…China 2012). The disproportion between low market share and high population rate presents a tremendous potential market for furniture producers to develop the children's furniture industry. Along with people's intensified environmental consciousness, more and more Chinese parents have realized the growing importance of healthy and eco-friendly products, e.g., furniture, to children's growth. Despite some studies on the role of the lifestyle of health and sustainability (LOHAS) and the environmentally conscious consumerism in China (Dagevos et al. 2011, Sirieix et al. 2011), there is a lack of research on the analysis of consumers' environmental awareness towards children's furniture in China. The purpose of this study is to contribute to filling this gap.

In the empirical part, the survey was conducted with a quantitative approach and data were collected using a structured questionnaire in a sample of 320 consumers of 20-60 years old in two coastal metropolitan cities of China (Shanghai and Shenzhen in China) from December 2012 to January 2013. The data reveal 67% of females and 33% of males of 299 valid sample respondents. Since 63% of respondents were in the age group of 31-40 years old and 23% were in the range of 20-30 years old, the data set represents fairly young urban population. Results indicate that 83% of respondents chose solid wood as the primary raw material for children's furniture. From the Chinese consumers' perspective, natural, non-poisonousness and scentless material, adoption of environmental certification and verification of legal origin of wood are five key attributes of eco-friendly furniture. And the choice of eco-friendly children's furniture is connected to consumers' lifestyle of health and sustainability. Results also indicate that respondents with higher education had better knowledge and stronger awareness of environmental protection and sustainable lifestyle, and respondents with higher income were less price-sensitive and more aware of sustainable lifestyle. Although environmental awareness has increasingly become an important concern among Chinese consumers, they have low brand awareness and their price expectations on solid wood furniture are below current market levels. Despite these concerns, Chinese children's furniture presents a growing high-end market potential for both furniture producers and wood raw material suppliers.

Keywords: consumer, environmental awareness, children's furniture, Shanghai, Shenzhen, China.

Introduction

China's rapid economic growth has increased consumers' disposable income evidently, encouraging the emergence of the lifestyle of health and sustainability (LOHAS) consumer segment. With the

improvement of living standards, Chinese people have increasingly concerned about their life quality, especially when buying consumable commodities like food, toys and clothing as well as durable goods like furniture for their children.

Since the mid-1990s, China's furniture industry has experienced steady and fast growth. Today, China is the largest producer, exporter and consumer of furniture worldwide (CSIL 2012). In the past 10 years, the Chinese children's furniture market has developed rapidly, making up 9% of the entire furniture market in China. However, the children under 14 years old only account for 16% of the total population in China (The present market…China 2012). The disproportion between low market share and high population rate presents a tremendous potential market for furniture producers to develop the children's furniture industry.

Along with people's intensified environmental consciousness, more and more Chinese parents have realized the growing importance of healthy and eco-friendly products, e.g., furniture, to children's growth. Despite some studies on the role of the LOHAS and the environmentally conscious consumerism in China (Dagevos et al. 2011, Sirieix et al. 2011), there is a lack of research on the analysis of consumers' environmental awareness towards children's furniture in China. The purpose of this study is to contribute to filling this gap by addressing the following two research questions: 1) Which factors affect Chinese consumers' buying decision on children's furniture? 2) What attributes make children's furniture eco-friendly from Chinese consumers' perspective?

Literature review

In the theoretical background section, we overviewed the theory of consumer buying behaviour developed by Hawkins et al. (2001), which hypothesize that consumer buying behaviour is affected by both internal factors (e.g., personality, attitudes and lifestyle of consumers) and external factors (e.g., social-demographic factors such as demographics, culture, social status, reference groups of consumers, as well as product attributes such as price, quality and design, and supplier attributes such as reputation and service). We also overviewed recent literature concerning the environmental aspect of products in the context of consumer markets and marketing. According to Shamdasani et al. (1993), an eco-friendly product is the product that will not pollute the earth or deplore natural resources and can be recycled or conserved. It is a product that has more environmentally sound content or packaging in reducing the environmental impact (Elkington and Makower 1988, Wasik 1996). According to Toivonen (2007), environmental issues are increasingly relevant to the selection of wood products and they can be assumed to clearly contribute to the total product quality consumers perceive. Hansmann et al. (2006) find that in the case of Switzerland consumer sustainability orientation favouring ecological and social aspects as compared to economic aspects and to positively correlate with the intention of buying eco-labelled wood products. Furthermore, applying UK survey data of do-it-yourself companies, Toivonen (2007) concludes that it is important endowing wooden products with environmental information when the aim is to attract the customers with interest in the environmental quality of wooden products. Madrigal and Boush (2008) connect product social responsibility as a distinct brand personality dimension, so that consumers may be motivated to buy from a socially responsible brand as it allows them to also express their own personal values. Moreover, Toivonen (2012) states that environmental quality is a specific quality-related issue for wood products. High environmental quality is a strength for wood products and has an important impact on consumers' preferences for wood products (Roos and Nyrud 2008). Recently, environmental issues have increasingly been relevant to the selection of wood products and environmental friendliness of wood products is most clearly related to intangible attributes of products (Toivonen 2012). The benefits of improved environmental quality for producers include greater customer loyalty, lower price sensitivity and even the accrual of positive price premiums (Green and Peloza 2011).

On the other hand, lifestyle can reflect and inform consumers' self-concept or identity through a package of related practices (Axsen et al. 2012). In recent years, a series of fresh terms such as organic food, energy efficiency, ecotourism and socially responsible investing are frequently

discussed by the public (Ernst and Young 2007). Thus, a postmodern lifestyle called LOHAS (Lifestyle of Health and Sustainability) is derived. The LOHAS consumers are pursuing the conscientious consumption of products with health benefits that go in alignment with social justice, pursuit of ecology and sustainability. They are socially responsible and advocators of using green products. Therefore, LOHAS is an essential target for companies in marketing green or socially responsible products.

Data and methods

In the empirical part, our survey was conducted with a quantitative method, and non-random sampling was based on the exit data in retail stores and other convenient places for meeting target groups. Data were collected by using a structured questionnaire in a sample of 320 consumers of 20-60 years old in two metropolitan cities of China (Shanghai and Shenzhen) from December 2012 to January 2013. Shanghai is the centre for furniture manufacturing and distribution in East China, while Shenzhen is one of China's special economic zones located in Guangdong Province in South China – the largest furniture manufacturing base in China. Both cities are regarded as the top target markets in China for high-end products because of their heavy concentration of middle-class consumers (Cao et al. 2004). The survey conducted in Shanghai includes furniture chain stores such as IKEA, big furniture centres like Block & Quayle – a British multinational do-it-yourself (DIY) and home improvement retailing company, and Red Star Macalline – the largest national furniture mall chain in China. Similarly, the survey conducted in Shenzhen includes IKEA, furniture malls like Bao'an and Xianghe, and Shenzhen Xiangjiang home furnishing European city. In order to ensure a broad cross-section of consumers to be involved in this study, the survey was also carried out in other places, such as kindergartens, primary schools, children's art schools, shopping malls, amusement parks, residence zones, and cinemas.

Data collection was based on the face-to-face investigation procedure. Passers-by were asked to fill a questionnaire with the assistance if needed. Each participant was provided with a small gift (chocolate or socks) for the cooperation. By standing beside them and assisting them in completing each question, unclear or blank answers would be avoided.

The questionnaire consists of two parts. The first part is a survey of consumers' perceptions of children's furniture, e.g., preferred material, acceptable price, information channels, brand awareness, environmental awareness, the factors affecting consumers' buying decision, etc. The second part aims at obtaining the background information of respondents, including gender, age, marital status, occupation, education, income, etc. The variables are either nominal or ordinal. Categorical variables involve background information and other additional questions, whereas numerical variables include questions that identify the factors affecting consumers' buying decisions on children's furniture. A five-point Likert scale was adopted to evaluate consumers' perceptions ranges from 1 = "Not at all important" to 5 = "Extremely important" or from 1 = "Totally disagree" to 5 = "Totally agree". The questionnaire was back-translated between Chinese and English versions in order to ensure the accuracy and efficiency of the information. It was initially pre-tested and modified to the final version.

The survey data were analysed with standard multivariate analysis methods, such as descriptive analysis, factor analysis and analysis of variance (ANOVA), using SPSS software. The basic descriptions of variables were determined by defining means and frequencies. As one technique of multivariate methods, factor analysis is used to reduce variables in a data set to a smaller number of components in order to explore the interrelations and potential structure in the data (Anthony 2011). According to factor analysis, separate dimensions of the structure can be identified and each variable is then explained by each dimension. In this study, factor analysis based on the Maximum Likelihood extraction method and the Varimax rotation method was conducted in multivariable descriptions related to the importance-ranking of factors affecting respondents' buying decision on children's furniture. Moreover, cross tabulations with chi-square tests and one-way ANOVA were used to run comparisons between respondents' background and their perceptions of children's furniture. Cross

tabulation illustrates the correlation between two or more variables on a nominal scale (Metsämuuronen 2012). ANOVA is a parametric test of comparing the mean values from more than two samples (Anthony 2011).

Results

Background information

According to the results, the overall questionnaire retrieval rate is 93%. Of 320 filled questionnaires, 299 copies are valid. While, Of 299 valid sample respondents, 146 are from Shanghai and 153 are from Shenzhen. The data reveal that females account for 67% of respondents and males account for the rest 33%. Since 63% of respondents are in the age group 31-40 years old and 23% are in the range of 20-30 years old, data set represents fairly young urban population. And the majority of the respondents is married and lives in urban area. The educational level of respondents is quite high, comprising 71% of college/university undergraduates, 17% of high school/vocational school diploma holders, 9% of university graduates or above. As regards the occupation, 60% of respondents are company employees, and 11% are entrepreneurs, and the remaining include government employees, teachers, blue-collar works, housewives and very few unemployed. The monthly income of respondents is centred between 10,000-20,000 RMB (35%).

Demographics describe a population in terms of its size, distribution (geographic location), and structure (gender, age, education, income, occupation) (Hawkins et al. 2001). Consumers' background information is essential to the analysis of comparing the perceptions of different respondent groups and how the demographic elements affect their perceptions.

With regard to the gender and age factors, results indicate that there were no apparent differences in perceiving children's furniture between males and females except that female and older respondents seemed to behaved more economically than males and younger people because they tended to change furniture within longer time period. For instance, 36% of females but only 19% of males were inclined to change children's furniture within 5-10 years, and the percentage of the respondents who decided to change children's furniture "Until the old one is worn out" increase with the accumulation of age (see Figure 1).

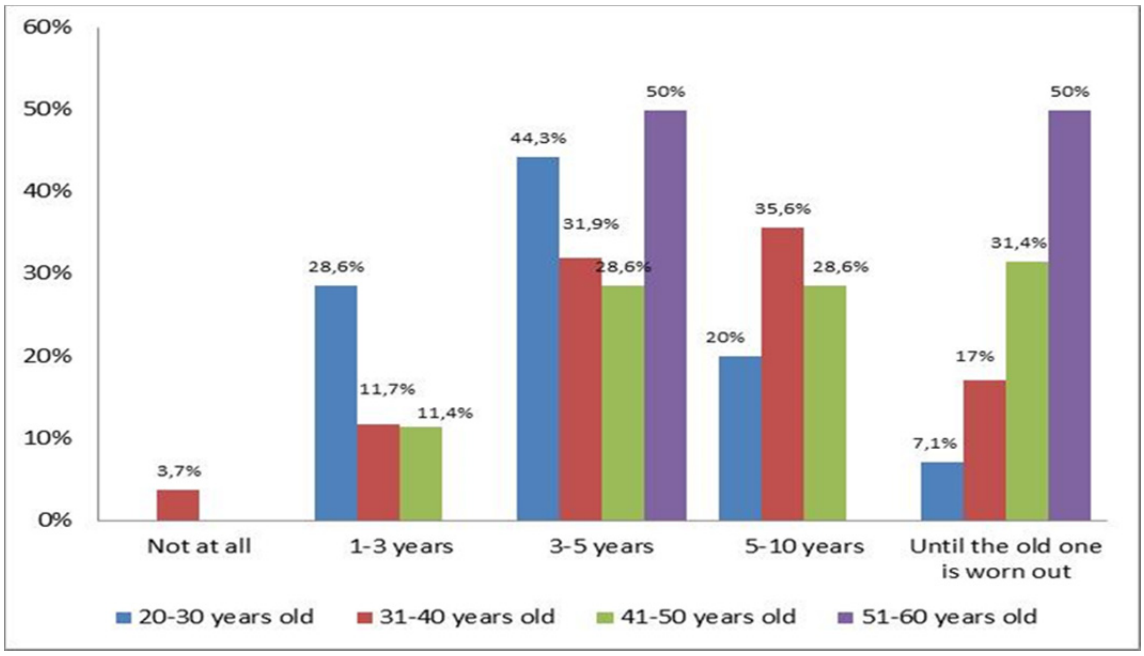

Figure 1. Frequency of changing children's furniture by age group

Slight differences in gender are also reflected in consumers' price preference and their attitudes towards lifestyle statements. As to price preference, females seemed to be more willing to buy children's furniture with higher price than males. As for attitudes to lifestyle, more females agreed that sustainable lifestyle was their family's goal than males. Regarding the educational level, the respondents with higher educational level had better knowledge and stronger awareness of environmental protection and sustainable lifestyle. Concerning the income factor, consumers with higher income possessed more children's room and furniture, and they were less price-sensitive and more aware of sustainable lifestyle.

The factors affecting consumers' buying decision on children's furniture

To discover the factors affecting consumers' buying behaviour on children's furniture, the respondents were asked to evaluate the importance of 16 product-related attributes based on 5-point Likert scale from "1 = not at all important" to "5 = extremely important". Factor analysis was selected as the main method to evaluate these factors. Based on their answers, 13 variables were grouped into four factors – supplier dimension, intangible product dimension, tangible product dimension, and environmental dimension of raw material, as shown in Table 1. Whereas, three variables ("Domestic wood", "Imported wood" and "Service") acted as interference items when grouping correlated variables into smaller dimensions of factors, and they had the highest loading on an incorrect factor dimension or an almost equal lading on more than one factor, which made the dimensions difficult to measure. So, they were removed.

Table 1. Factors affecting consumers' buying decision on children's furniture

Number of variable	Name of variable	Number of factor	Name of factor
A5j	Brand	1	Supplier dimension
A5k	Production technique		
A5p	Location of store		
A5o	Reputation of producer		
A5g	Visual appearance	2	Intangible product dimension
A5f	Style (Design)		
A5i	Durability	3	Tangible product dimension
A5l	Functionality		
A5b	Good quality		
A5a	Reasonable price		
A5m	Environmental friendliness	4	Environmental dimension of raw material
A5h	Safety		
A5c	Natural material		

As the strongest factor group, Factor 1 "Supplier dimension" explains 11.9% of the variance. It concerns variables that include supplier attributes. Brand, production technique and location of the store have strong factor loadings, with reputation having a slightly weaker loading. Factor 2 "Intangible product dimension" explains 10.9% of the variance. Visual appearance and style (design) can be regarded as value-added attributes of the product, which belong to consumers' higher requirement for children's furniture. Factor 2 involves the variables of visual appearance and

style/design that both result in high communalities and strong loadings, implying that they correlate strongly with Factor 2. Factor 3 "Tangible product dimension" consists of variables that reflect consumers' basic requirements when buying children's furniture. It explains the similar variance (10.6%) as Factor 2 since they both are parts of product attributes. Durability and functionality show higher factor loadings than good quality and reasonable price, which manifests that there exists a much stronger correlation between the former two variables and Factor 3 than the latter two variables and Factor 3. In contrast, all the variables in Factor 4 "Environmental dimension of raw material" do not show strong loadings and communalities.

ANOVA test was applied to determine whether there are correlations between these four factors and some selected variables (with the significance level of at most 0.05). Based on results, only three variables represent significant differences in two factors. Table 2 indicates that the statistical significance was shown between Factor 3 and monthly household income and acceptable price of children's furniture as well as between Factor 4 and marital status.

Table 2. Significant difference of ANOVA

		Monthly household income	Marital status	Acceptable price of a set of children's furniture
		ANOVA (significance)		
Factor 1	Supplier dimension	0.372	0.879	0.174
Factor 2	Intangible product dimension	0.757	0.776	0.471
Factor 3	Tangible product dimension	**0.013**	0.086	**0.068**
Factor 4	Environmental dimension of raw material	0.256	**0.046**	0.184

Results also show a negative correlation between tangible product dimension and respondents' income, implying that the respondents with lower income were more concerned about tangible product attributes such as price and quality. Similarly, a negative correlation was also found between tangible product dimension and respondents' price preference for children's furniture, indicating that the more price-sensitive respondents required more tangible product dimension. Moreover, there was a positive correlation between raw material dimension and marital status, meaning that married respondents were more environmentally conscious than single ones.

Reference groups

In general, consumers are susceptible to reference groups' influences in purchasing decisions. According to their importance-ranking in terms of family, relatives and friends as well as social media, apart from consumers themselves, their spouse played the most significant role in affecting buying decisions, followed by their children and children's grandparents. Among other reference groups, social media (e.g., Furniture Forum and IKEA Community) succeeded relatives and friends in occupying a place in consumers' minds.

Information channels

In relation to information channels used by consumers for children's furniture, the choice of furniture stores exceeded other options substantially, making up 61% of respondents. Such high proportion is followed by the Internet searching (41%). Besides, consumers sometimes acquired information from their relatives and friends (37%) as well as social media (21%).

Important attributes of eco-friendly furniture from Chinese consumers' perspective

Based on the results, 83% of the respondents chose solid wood as the primary raw material for children's furniture, demonstrating that the awareness of environmental friendliness has become an important concern among Chinese consumers. And as environmental characteristics of raw material was regarded as one of four factors affecting consumers' buying decision, their attitudes toward environmental aspects of children's' furniture was investigated. For this purpose, respondents were asked to select the properties of eco-friendly furniture based on some given variables. Table 3 indicates the results based on the analysis of frequency distributions and the statistical parameters such as mode and mean. With mode "5" and the highest means, the highlighted five variables – scentless, non-poisonous and natural material, adoption of environmental certification and verification of legal origin of wood – were regarded as five important attributes of eco-friendly furniture by Chinese consumers.

Table 3. Five important attributes of eco-friendly furniture from consumers' perspective

Properties of eco-friendly furniture		Totally disagree → Totally agree						
		1	2	3	4	5	Mode	Mean
Variable		% of respondents						
A8a	Scentless	1	2	5.4	8.7	82.9	5	4.71
A8b	Non-poisonous			1.7	3.7	94.6	5	4.93
A8c	Durable	1.7	3	24.4	27.4	43.5	4	4.08
A8d	Recyclable	1.3	6.4	19.4	28.4	44.5	4	4.08
A8e	Environmental certification	0.7	2.3	9	18.1	69.9	5	4.54
A8f	Natural material	0.3	0.7	9.7	18.4	70.9	5	4.59
A8g	Legal origin of wood	0.7	1.3	12	15.7	70.2	5	4.54
A8h	Famous producer	3	5	29.1	27.1	35.8	4	3.88
A8i	No use of child labour	7	6.7	25.8	19.4	41.1	4	3.81

Since the choice of eco-friendly products is closely connected to consumers' lifestyle, their attitudes to LOHAS were investigated. Table 4 illustrates that the majority of respondents expressed some features of the LOHAS as their primary family goal. Of six statements, the statements concerning healthy lifestyle, sustainable lifestyle and importance of using eco-friendly products for children's healthy growth are ranked as the three most important ones, indicating a growing emergence of the LOHAS consumer segment in Shanghai and Shenzhen. Moreover, over half of respondents agreed with the statements "Choosing eco-friendly products will not limit my lifestyle" and "Individual's

consumption decisions impact strongly on global sustainable development", indicating that the majority of respondents had environmental protection intentions and they were willing to contribute to the global sustainable development.

Table 4. Importance ranking of lifestyle statements of eco-friendly furniture

Lifestyle statements		Totally disagree → Totally agree						
		1	2	3	4	5	Mode	Mean
Variable		% of respondents						
B10a	Buying eco-friendly products means paying higher prices	3.3	5	20.7	36.1	34.8	4	3.94
B10b	Healthy lifestyle is our family's goal.		0.7	1	17.4	80.9	5	4.79
B10c	Sustainable lifestyle is our family's goal.	0.3	0.3	6.4	22.4	70.6	5	4.63
B10d	Using eco-friendly products is important for children's healthy growth.		0.3	3	14.7	81.9	5	4.78
B10e	Choosing eco-friendly products will not limit my lifestyle.	4.3	6.4	13.4	23.1	52.8	5	4.14
B10f	Individual's consumption decisions impact strongly on global sustainable development.	6	9.4	18.7	23.7	42.1	5	3.87

Conclusions

Along with dynamic economic growth, consumers' rising disposable income, increasing environmental awareness and changing lifestyle, the Chinese children's furniture industry has developed very rapidly and is expected to continue to grow. More and more Chinese consumers are concerned about the environmental quality of children's furniture. In addition, Chinese government has also taken some initiatives and implemented a standard in August 2012 to ensure the improved product safety and high quality of products in order to promote the healthy development of the children's furniture segment. All these factors provide great opportunities for developing the Chinese children's furniture industry.

However, as solid wood was regarded as the preferred material of children's furniture by Chinese consumers, such huge demand makes Chinese domestic furniture producers rely heavily on the import of wood raw materials. Other competitive threats come from rising costs, a lack of design originality and well-known domestic brands as well as pressures from foreign large-scale retailers and emerging competitors. Moreover, although Chinese consumers' environmental awareness has increased, their brand awareness is still low and their price expectations on solid wood furniture were below current market levels. In conclusion, as an engine for economic growth globally, China is still in the early stage of development of children's furniture market, which remains to be further standardized and strong brands need to be developed. Even though, this niche market segment presents a growing high-

end market potential not only for wooden furniture producers but also for wood suppliers requiring demonstration of sustainable and legally-sourced wood.

References

Anthony, D. 2011. Statistics for Health, Life and Social Sciences. Ventus Publishing ApS ISBN: 978-87-7681-740-4 (1st ed.). Available at: http://bookboon.com/en/textbooks/statistics/statistics-for-health-life-and-social-sciences (Accessed March 3, 2014).

Axsen, J., TyreeHageman J. and Lentz A., 2012. Lifestyle practices and pro-environmental technology. *Ecological Economics* 82 (2012): 64-74.

Cao, X. Z., Hansen, E. N., Xu, M. Q. and Xu, B., 2004. China's furniture industry today. *Forest Products Journal* 54(11):14–23.

CSIL, 2012. China furniture outlook. Available at: http://www.csilmilano.com/CSILpdf/CSIL_Market-Research.pdf (Accessed February 20, 2013).

Dagevos, H., He, Y., Zhang, X., van der Lans, I. and Zhai, F. 2011. Relationships among healthy lifestyle beliefs and body mass index in urban China. *International Journal of Consumer Studies* 35(1):10-16.

Elkington, H. and Makower, J.1988. The green consumers. New York: Penguin Books.

Ernst and Young, 2007. Available at: http://www2.eycom.ch/publications/items/2008_lohas/2008_ey_LOHAS_e.pdf

(Accessed February 27, 2013).

Green, T. and Peloza, J. 2011. How does corporate social responsibility create value for consumers? *Journal of Consumer Marketing* 28(1):48-56.

Hansmann, R., Koellner, T. and Scholz, R. 2006. Influence of consumers' socioecological and economic orientations on preferences for wood with sustainability labels. *Forest Policy and Economics* 8: 29-250.

Hawkins, D. I., R. J. Best, and K. A. Coney. 2001. Consumer Behavior: Building Marketing Strategy (8th ed.). New York: McGraw-Hill.

Madrigal, R. and D. Boush. 2008. Social responsibility as a unique dimension of brand personality and consumers' willingness to pay. *Psychology and Marketing* 25: 538-564.

Shamdasani, P., G. Chon-Lin, and D. Richmond. 1993. Exploring green consumers in an oriental culture: Role of personal and marketing mix. *Advances in Consumer Research* 20(1): 488-493.

Metsämuuronen, J., 2012. Handbook of Basics of Research Methods in Human Sciences. (5th Ed.) Researchers' edition. Oy International Methelp Ltd.

Roos, A. and Nyrud, A.Q. 2008. Description of green versus environmentally indifferent consumers of wood products in Scandinavia: flooring and decking. *Journal of wood Science* 54: 402–407.

Sirieix, L., Kledal, P. R. and Sulitang, T. 2011. Organic food consumers' trade-offs between local or imported, conventional or organic products: a qualitative study in Shanghai. *International Journal of Consumer Studies* 35(6):670-678.

The present market situation and development prospects of children's furniture in China. 2011 (in Chinese). Available at: http://wenku.baidu.com/view/dc979b2b915f804d2b16c15c.html (Accessed July 15, 2014).

Toivonen, R. 2007. Perceived environmental quality of wood products: The UK market. *Journal of Forest Products Business Research* 4(2): 1-27.

Toivonen, R. 2012. Product quality and value from the consumer perspective – An application to woodenproducts. *Journal of Forest Economics* 18(2): 157-173.

Wasik, J. F. 1996. Green marketing and management: A global perspective. Cambridge, Mass: Blackwell Publishers Inc.