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# Green Marketing and Consumerism in China: Analyzing the Literature

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## **Abstract**

China has faced environmental concerns due to its increased economic growth. Corporations are under various pressures to address their environmental footprints. They can also take the opportunity to build competitive advantage from their greening efforts to build green markets and address needs of green consumers. This paper reviews the literature on green marketing and consumerism in China. The findings resulted in only 50 peer reviewed journal publications that focused on these topics. Although much insight has been gained from this past work, significant future research is still needed. Gaps are identified and future research directions based on marketing strategy, international comparisons, and green consumerism are all included in the discussion and analysis. This work represents one of the first efforts to provide a compendium of studies and analysis of green marketing and consumerism in China.

**Keywords:** China, Green Marketing, Green Consumerism, Literature Review

## 1. Introduction

The history of environmental degradation awareness in China can be dated back to the late 4<sup>th</sup> century BCE; Taoist philosophy portrays a harmonious man-nature relationship. People are encouraged to maintain nature's sustainability and reach a "man-nature" unity (Ip, 1983). As China industrialized Taoism's philosophy was veiled. Since China's opening to the world through its open-door policy in late 1978 its economy soared. This growth placed extraordinary pressure on the environment and the wellbeing of its citizens. Compared with developed countries, China is in early sustainable development and green management stages. Given China's large population, it represents the world's large consumer market and is currently the third largest waste producer in the world (Chan, 2008). Adopting green management and sustainable development practices, should not only have a positive impact on its own environment, but also support a global green economy expansion.

Industrial organizations and consumers can play a large supply and demand role in making progress and decoupling consumption and affluence from environmental degradation. Given China's environmental degradation concerns (Grumbine, 2014), Chinese consumers realize that although their affluence has increased, their quality of living from an environmental perspective has worsened. For these and other reasons, organizations have experienced greater consumer pressures to green their products and processes (Zhu, et al., 2012). This social and economic industrial and market evolution is under investigation both in China and globally. These pressures will not only influence China's improvement, but also have broader implications globally and global pressures will influence Chinese green markets and consumers. For example, green innovations and marketing of products manufactured in China may be for consumer markets in developed countries, and demands by green consumer markets in China may

currently and someday influence both domestic and international green product and market development (Zhu et al., 2012).

Even with the importance of green market development in China, China specific research in green marketing and consumerism is limited. This study seeks to further delve into this issue by offering a structured literature review to help further understand and guide the field. The goals are to: 1) summarize and analyze the existing research by identifying and grouping the topics, trends and major issues; and 2) proposing a conceptual framework of the field that can contribute to future theory development. This structured literature review is conducted by comprehensively collecting and analyzing relevant papers (n=50) between the years 1999 to 2015.

The contribution of this paper is it is one of the first to comprehensively review and evaluate literature related to green marketing and consumerism within China. The second contribution is to provide guidance for future researchers seeking to investigate corporate and market sustainable (green) development.

The structure of the paper is as follows. After providing context of China's environmental issues, consumers' attitudes and basic terminology of green marketing, the methodology for the structured literature review is described. Major findings from research studies and publications during this period are presented. Next a detailed analysis of China's green marketing mix, influence across industrial sectors, and green consumerism is provided. A conceptual integrative framework is then offered. Chinese study distinctiveness is included in this evaluative framework. The paper concludes with an overview of the limitations of this study and proposals for future research.

## **2. Background**

China's environmental issues have become globally the most critical. Recent studies show that, China, as the world's largest manufacturer, will be facing significant environmental burdens along with the most development opportunities (Geng et al., 2013). China is regarded as an important part of the world's supply chain and consumer market. The appropriate development of green marketing concepts and practices can aid and involve joint efforts from all stakeholders. These activities need to include central and local governments, corporations, and individual consumers. These activities can also potentially improve China's economic positioning while reducing environmental degradation.

In this section, environmental issues in China, along with general green marketing definitions are introduced. This background sets the foundation for the remainder of the study.

## **2.1 Background in China**

In the year 1978, the Chinese government launched an economic policy called the "Open Door" policy. Large amounts of foreign investments flowed into China with recent economic growth averaging around 10% annual increase during this period (Ji et al., 2014). The "Open Door" Policy raised China's economic transformation and development to new levels. However, it also caused a series of environmental issues. Environmental issues, such as resource depletion, deforestation, coastal reclamation, desertification, climate change, pollution (water, air), and energy overuse, are all evident in modern China (Economy, 2007; Wu et al., 2015). These issues are risks to China's economy sustainability, public health, social stability and world reputation (Economy, 2007).

During this period, there has been an increase in governmental environmental regulations (He et al., 2012). Despite this fact, China's environmental performance has remained in decline (He et al., 2012). In addition, consumer environmental knowledge has only started to emerge with differences in environmental attitudes evident (Yu, 2014). This variation represents

an unequal level of consumer knowledge and social education with respect to environmental attitudes, behaviors and awareness of environmental regulatory policies. These poor government-consumer dynamics are part of the reason for the slow speed of the Chinese green movement. But this situation is expected to change, as government enforcement and consumer knowledge increase. Chinese corporations and organizations will have to respond to emergent domestic pressures. They are already feeling these regulatory, consumer and supply chain pressures internationally (Grumbine, 2014; Zhu et al., 2012).

Studies have shown that to broadly address the economic and environmental burdens coupling, organizations may wish to adopt new practices, such as eco-efficiency, cleaner production, industrial ecology and green product design (Yu et al., 2013; Yu et al., 2015). As companies adopt these practices, green marketing initiatives will escalate. We now discuss general issues related to green marketing.

## **2.2 Green Marketing Definition and Overview**

In 1975, the American Marketing Association (AMA) introduced the term green marketing via a workshop on “Ecological Marketing”. Green marketing has also been called environmental marketing, ecological marketing, social marketing, and sustainability marketing. It is a broad concept with three key components (Polonsky, 1994): 1) it is a subset of marketing; 2) it evaluates both positive and negative activities; and 3) it examines a range of environmental issues. This is only one of many conceptual definitions of green marketing. Others conceptualizations include:

- Commitments by organizations focusing on environmentally friendly products and services and to conduct marketing activities in an environmental responsible way (Kinoti, 2011).

- Marketing is the utilization of the 4P's (product, price, place, promotion), which does not cause any damage to the environment (Dibb et al., 2005).
- Green marketing is composed of managerial processes responsible for managing the requirements of customers and society in a profitable and sustainable way (Peattie, 2001).
- Integrating social and ethical responsibilities into marketing, especially environmental issues (Robin & Reidenbach, 1987).

As we observe, there is no universal definition of green marketing and its dimensions. Although a common element within the definition is explicit inclusion of environmental awareness in marketing management. In this paper, we will focus on green marketing as an integration of environmental issues into corporate marketing strategy, especially the 4P's, and green consumerism.

Due to the proliferation of green marketing research and publications, critiques of green marketing research (Peattie & Crane, 2005), and a literature review on general marketing social ethics (Nill & Schibrowsky, 2007), a structured and scientific literature review of green marketing in peer reviewed academic journals have become more evident, for example see (Chamorro et al., 2009), (Leonidou & Leonidou, 2011) and (McDonagh & Prothero, 2014). But in these criticisms and literature reviews, international and cross-culture emphasis and critiques are limited. This paper begins to fill this gap by emphasizing the green marketing literature in China.

### **3 Research Methodology**

The methodology in this paper is a structured literature review of publications in peer-reviewed academic journals. A structured literature review is defined as a systematic, explicit,



and reproducible design for identifying, evaluating, and interpreting the existing body of recorded documents (Fink, 2013).

From a methodological point of view, this paper applies the following process (Endres-Niggemeyer et al., 1995; Mayring, 2015):

1. Material collection: the first step is to refer to a list of scientific journals. A bibliographic search is conducted by using key words and established electronic bibliographic database systems.
2. Descriptive analysis: a further assessment of the material aspects, e.g., the distribution across the time period and the subsequent analysis.
3. Category selection: structural dimensions and related analytic categories are identified, which are to be applied as the literature review overall structure, covering various analytic categories.
4. Material evaluation: sample of research on the topic is analyzed according to the categories identified from the previous steps. This allows identification of main issues, overview of results and discussion of future research direction.

A graphic flow process diagram of the methodology is summarized in Figure 1.

[Figure 1 about here]

To complete this research review, Google Scholar was used as a search engine. Google scholar is a comprehensive bibliographic electronic database, which incorporates a wide variety of publication outlets, including peer-reviewed journals, book chapters, working papers, conference proceedings, etc. This characteristic is advantageous because of its extensive literature, but this breadth is also disadvantageous for this same reason, since the focus is on

peer-reviewed journal articles. Thus, careful examination of identified publications needs to be completed to guarantee only peer-reviewed journals appeared in the final data set.

The research was conducted by using the following keywords: green marketing, ecological marketing, environmental marketing, sustainable marketing, green product, green price, green place, green promotion, green communication, green consumer, green consumption, ecological consumer, environmental consumer, China. In this process, we only take mainland China and the Hong Kong region into consideration. Taiwan is not included.

In total a database of 50 publications, from a group of scientific journals, such as the Journal of Marketing Communications, Journal of Environmental Management, Journal of Cleaner Production, Journal of Consumer Marketing, Journal of International Consumer Marketing, and Journal of Public Policy and Marketing. A descriptive summary of journals and publications is provided in the next section.

In arriving at this literature, delimiting concepts and business practices concerning only in green marketing is very difficult. The fact is most of the articles in this investigation on green marketing also derives from other orientations and disciplines. For example, operations management, marketing ethics, business law, corporate social responsibility, sustainable economic development, economics and governmental policy, and materialism are all represented in some form by the identified literature.

Also green consumerism analysis is based on the investigation of environmentally friendly consumer behaviors, concerns, intentions, buying habits, and personal beliefs. Some of the articles identify the demographic, psychological and behavioral personas of consumers in both China and other countries across the world. A descriptive analysis of this structured search results are presented.

#### 4 Descriptive Analysis

The descriptive analysis in this section includes a time series frequency evaluation of research publications during the study period, from 1999 to 2015. Also, an analysis of which journals and topical areas were covered in these published works is presented.

The general time series frequency of research publications are shown in Figure 2. Over a 16 year time period from 1999 to 2015, the publication frequency seems to follow three stages. In the first stage, from 1999 to 2007, the research on green marketing in China had seen few studies with slightly over one publication per year (1.38 per year). This stage represents the earliest period of studies related to green marketing and consumerism within China. It was at this time that China joined the WTO, with China's commercial markets becoming more integrated with international markets (Paradise, 2015). During this period, environmentalism from a regulatory and consumer perspective was growing as economic growth caused environmental burdens (Ho & Edmonds, 2007).

From stage one to stage two, a transitional feature can be observed. The second stage from 2008 to 2012 saw an average of 6.2 articles per year. The number of publications (9) reached its peak in 2011. The growing awareness of environmental issues from Chinese citizens and corresponding promotional practices on social responsibility in the corporate world may have further caused this interest (Cheng et al., 2015; Qu et al., 2015). But, it also represents a delayed outcome of the growth of interest in this issue post 2000. In the peak year of 2011, it wasn't necessarily a single special issue for a journal that had caused this jump in publications. It was found that various journals ranging from the American Journal of Agriculture Economics, International Journal of Production Research, to the Journal of Engineering and Technology Management. For these papers, eight out of nine investigate boarder sustainable strategies with

an emerging topic of “Green Supply Chain Management” (GSCM). The adoption of GSCM practices has been argued to help improve Chinese manufacturers’ environmental management activities and sustainability performance (Zhu et al., 2011a). The reason these more general papers are included is because a significant portion of their studies included green marketing as an important topic.

For the years 2012 to 2014, the research publication drops off with a drastic decline of 50%. A potential explanation for this decline is a shift in practical corporate concerns due to the “Great Global Recession” beginning in 2008. Instead of focusing on green marketing and consumerism, organizational concerns were financial and economics based. On a broader basis, for example, due to the global economic recession, China’s total investments in industrial pollution control peaked in 2007, and decreased until 2011 (Wu et al., 2015). This issue of shifting focus may have also been reflected in academic research, due to lack of interest by government and organizations. The delay of publication time resulted in a lagged publication impact, where the decline of research in 2008 may showed a publication decline in 2012. However, it is expected that the green issues and sustainability focus will and has returned recently. Whether this topic is faddish in China remains to be seen.

Table 1 summarizes the journal outlets and topic categorizes for the publications. Across various peer reviewed international journals, there are four journals that represent a relatively high number of China’s green marketing research publications between 1999 and 2015. These journals include the Journal of Cleaner Production – 4 articles; the Journal of International Consumer Marketing – 6 articles, the Journal of Consumer Marketing – 3 articles, and the Psychology and Marketing – 2 articles. The remaining 35 journals in Table 1, each have only one article represented in this literature review. A total of 52% mention general green topics, such as the green concept and eco-development principles, and broader corporate strategies in

sustainable management in China. While, 86% are exclusively China green marketing specific focused. Of this latter group, 65% are green marketing mix, 4P (product, price, place, promotion) concerned and 60% are green consumerism, the marketability of green products and services related. Further definition of these sub-topics are discussed in the next section. It can be concluded that the research on green marketing and consumerism in China is still within the broader domain of corporate sustainability, and more field specific investigation is likely to occur in the future, as the foundation has been set.

[Figure 2 about here]

[Table 1 about here]

## **5 Green Marketing and Consumerism in China**

This section begins with a specific analysis related to triggers of green marketing in China, which include governmental, competitive and opportunistic issues. Next the green marketing mix represents the core marketing activities categories that will be used to evaluate the literature. Further, an inter-sector industry review and green consumerism in China complete the literature review analysis.

### **5.1 Triggers of Green Marketing**

Across the study period of 16 years, green revolution, green consumption, environmental protection, sustainable/green economy development have become terms that appear frequently in China's media and public discourse (Martens, 2006; Yang & Calhoun, 2007). Organizations are attuned to this discourse and have integrated various aspects of the natural environment as a marketing tool. Other organizational triggers for the green marketing adoption also exist. Some of these have been theoretically analyzed through such organizational theories

as institutional and legitimacy theories (Bai et al., 2015). Three main triggers have been identified in this literature set, governmental, competitive and opportunistic. Although these are three separate triggers, they are related and overlap.

### **5.1.1 Government**

In China, the government play the most significant role in social and economic development. Economic growth and environmental protection have been China's national dual tasks since the "Open Door Policy". The Chinese government has modified its environmental and sustainable development legislation in five ways (Zhang & Wen, 2008):

- Transition and systemize the national development direction from environmental protection to comprehensive sustainable development and management
- Change the environmental management focus from pollution control to ecological conservation
- Shift environmental solutions from end-of-pipe treatment to source reduction
- Progress environmental governance area from standalone projects to regional activities
- Modify the environmental management approaches from governmental command and control to a blend of voluntary legislative and market mechanisms

Chinese governmental regulations relating to environmental marketing are launched to protect consumers in three ways (Chan, 2001; Chan & Lau, 2000):

- Control companies' industrial emissions. Emission reduction and production of harmful goods
- Introduce the use of new technology and modify the consumption of harmful goods and materials

- Ensure consumers' right to know the product components and labels, and differentiate environmental goods from those that are not

Eco-labelling programs, such as China's green watch (Liu et al., 2012), originated from governmental programs. These and other corporate social responsibility information mechanisms have also been government supported programs that can influence marketing and communications of organizations (Marquis & Qian, 2013).

### **5.1.2 Competitive Pressure**

Facing increasing pressures from non-governmental organizations (NGOs), Chinese and global governmental institutions, environmentalists, Chinese green consumers, industrial competitors and various other influential stakeholders, many Chinese enterprises have adopted sustainability practices and embraced green initiatives in their marketing strategies (Lu et al., 2015; Zhang et al., 2008; Zhu et al., 2005). These stakeholders also represent additional competitive pressures that are market based. For example, the NGO and environmentalists may cause organizational reputations to worsen and thus impacting future sales and revenue.

Chinese companies have increased desire to maintain their competitive positions by initiating environmental management measures (Holslag, 2015). In many cases, these Chinese companies feel international environmentally-oriented supply chain pressures that have implications for their market share. For example, automobile companies have asked their Chinese suppliers to adopt ISO14001 environmental certification (Zhu et al., 2007). ISO 14001 also is a signal to the market that organizations are serious about the environment (Qi et al., 2011). Chinese organizations have utilized this certification for industrial marketing purpose but it can also be valuable for consumers markets. Reputational and legitimacy, normative issues may be addressed through these adoption of accepted environmental practices.

Competitive pressures may also arise from industry benchmarking. Enterprises observing competitors' sustainable behaviors will also attempt to emulate similar behaviors to show their social responsibility. This mimetic institutional pressure causes the entire industry to modify production processes and reduce the detrimental environmental behavior. Thus some green marketing initiatives by leading companies may encourage competitors to follow suit.

### **5.1.3 Opportunity**

This trigger is similar and related to the previous triggers for green marketing. The difference lies in organizations being first adopters and taking a proactive stance to gain market share or penetrate new markets.

Chinese pioneering organizations can take advantage of these market opportunities. Many Chinese companies are unwilling or incapable of providing materials and products that meet foreign companies' environmental requirements. Thus, with investments and foresight from pioneering organizations can develop the necessary green capabilities and resources to build markets (Bigliardi et al., 2012). This trigger is most closely aligned with the resource-based view and dynamic capabilities theories.

## **5.2 Green marketing mix**

The marketing mix strategy approach is one of the most popular traditional marketing management tool. Marketing mix is composed of the 4Ps: product, price, place and promotion (Yudelson, 1999). It is a practical categorization used by marketers in industry. Even though there are also other categorizations to define marketing mix, for example 6P (product, promotion, planning, process, people and project) (Liu et al., 2012) and 7P (product, promotion, price, place, participants, physical evidence, and process) (Booms & Bitner, 1981), the 4P approach is applied to this study of Chinese green marketing.



All papers (n=37; 74% of 50) associated with green marketing mix are discussed and summarized in Table 2. Among these papers, 30% are green products, 3% are green price, 8% are green place focused, and the remaining 59% are on green promotion. These categorizations are based on a content analysis of the publications where the team identified the most appropriate of 4P category. Many of these publications can be applied to multiple categories.

[Table 2 about here]

Table 2 shows the 4P category and number of papers in that category. Individual papers and their related descriptive content is also presented. The remainder of this section provides an analysis of each 4P category and associated literature. Each subsection analyzes the literature after introducing the general definition of the category. The analysis briefly presents a summary of the business practices in China, limitations of the literature coverage, and directions for future research.

### **5.2.1 Product**

Green product development address environmental concerns in green design and green innovation throughout the product-related stages (Schuhwerk & Lefkoff-Hagius, 1995). Nowadays, green products are receiving significant attention from consumers, industries, and governments across the world.

Green products can be green for a number of reasons, including being manufactured in a green way or products when used make for a greener way of life (Mohanasundaram, 2012). For example, products that are made from recycled materials are green-manufactured; and green cars are green because of their application.

The literature shows that Chinese green customers' preferences for green product attributes include energy saving, water saving, money saving, organic, and green chemicals. The green product journal publications in China, 11 papers in total, mostly focus on eco-design of products and the improvements in R&D efforts. The literature also target governmental programs that encourage green product development. These programs include: the launch of eco-labeling program; the introduction of green food certification, organic food certification, environmental standard of product production and final product standards.

Although these papers are categorized into the Product category, their major perspective within the papers is broader. Actual papers that focus only on green products and their marketing in China are limited. This observation is also true for the other 4P categories. Most of the literature focused on descriptive of best practices, specifically, research on marketing and environmental outcomes for green products is limited.

Another limitation within green product is the limited focus on green packaging. For example, product packaging comprises over half of all household waste. Relatedly, this type of research can extend to other aspects of product stewardship, where the extended product life cycle is considered. Topics such as packaging material selection, resource reduction, reuse and recycling can all be more carefully investigated.

### **5.2.2 Price**

Pricing for green products in China is one of the least investigated in the green marketing literature with only one journal publication in this review. Green pricing takes another 3P into consideration: people, planet and profit (Mohanasundaram, 2012). Pricing strategies are important from a revenue generating standpoint. It is the only 4P strategy that is not cost based for an organization. There are numerous pricing strategies for organizations,

including for example, penetration pricing, skimming pricing, bundle pricing, and premium pricing (Kotler & Armstrong, 2010). The only paper categorized for pricing focuses on corporate purchasing practices. There are some papers categorized in the consumerism section that may fit here, such as willingness-to-pay issues of individual consumers. Sales pricing investigations to industrial customers is nonexistent for research in this area. Thus, there is a significant room for study on various pricing strategies for green products and services in China.

Example of potential topics would include whether Chinese industrial customers and consumers would be willing to pay premium pricing for green products. Another issue, related to microeconomic pricing strategy, is integration of ecological externalities into pricing. This may also be accomplished through the consideration of life-cycle pricing (Grimmer et al., 2015). The Chinese situation may provide distinctive pricing strategy research results due to unique environmental, geographic, and socio-political context.

### **5.2.3 Place**

In marketing, place is typically associated with distribution channels. Place refers to providing the product for easy access and includes intensive distribution, selective distribution, exclusive distribution and franchising (Kim, 2002). China's green place research is centered on green logistics and the relationship between green logistics management and business performance. Green logistics and distribution has incorporated carbon and environmental footprints into distribution planning. How various distribution strategies from a marketing perspective relate to green issues is very limited in general and especially research in Chinese green marketing.

Other aspects in China's green place research are missing in this area include green retailing and corresponding regional retail management issues. For example, research can be

completed on how firms decide where green consumers live, the relationship between green consumerism and the green retailing system, and the size management of the retail outlets in terms of geographic regions. Industrial green distribution strategies in China, other than logistics and movement materials, require further investigation.

#### **5.2.4 Promotion**

Marketing promotion represents organizations' seeking to build brand knowledge and corporate awareness. Promotion strategies include advertising, public relations, personal selling, viral advertising and any form of communication between the organization and customers. Taking social responsibility and customer education into consideration, companies green their promotion methods by targeting certain customer segments with specific green value propositions.

Based on the 22 papers analyzed, 8 papers study the influence of green policies on organizations' green performance and how this performance may relate to increased communication between organizations and their customers. Environmental management policies that influence promotional aspects of green marketing in China include green labeling, ISO14001 certification, and the green watch program. These programs may not exactly be promotional activities of organizations, but they indirectly influence their communication message. These programs represent signals to the market on organizational environmental performance and may be promoted to industrial and consumer markets. Green advertising in China is still in its early development stages with some focus on green consumers. This is reflected in the lack of and limits in research in this area. More research on promotional message effectiveness and green customer education can be expanded in future studies.

Focusing on the downstream supply chain may enhance customer relationship management where green promotion may play a role.

### **5.3 Industrial Sector Overview**

In this section, an overview of the green marketing business practices across China's industrial sectors is presented. The overview will include a comparative analysis of these practices, limitations and future research directions.

China's Agenda 21 program was introduced in 1992. Agenda 21 highlighted the principles and clarified the directions for eco-industrial development (Fang et al., 2007). Industry became aware of resource scarcity and initiated green practices. However, the essence of China's industrial policy has not been completely changed to address environmental issues and green practices have been inconsistently implemented across various sectors (Fang et al., 2007). Table 3 summarizes the past and present industrial practices across China's industrial sectors in terms of green marketing and development. In Table 3, only papers that directly investigated an industrial sector(s) are included. Those papers that mention one or multiple industries in their argument but didn't investigate in detail are not included. For example, when using industry as a control in a broader empirical study. In this way, we can accurately identify which industrial sectors with significant research.

[Table 3 about here]

The Global Industry Classification Standard (GICS) is used as the industrial sector breakdown. GICS is an industry taxonomy developed by MSCI and Standard & Poor's (S&P) for

use by the global financial community<sup>1</sup>. All papers (n=18) that mention a specific industrial sector or compare industrial sectors are included in our analysis.

Of the 18 papers found, there are 48 separate investigations of some industrial sector. The frequencies of industrial sector reference based on percentage are shown in Figure 3. Not surprisingly, for the green marketing literature, a large percentage are focused on consumer staples (44%) and discretionary (19%) industries. Consumer products are typically marketed to individual consumers who may be more sensitive to environmental concerns when compared to industrial markets and corporations. Industrials and materials represent the second largest groupings. Organizations in these industries may be more environmentally sensitive, for example, materials would include extractive industries and mining which cause severe environmental burdens. Surprisingly, the energy industrial sector is not well-represented in green marketing research. It is surprising because of the climate change impact and the advent of renewable energy products and industries.

[Figure 3 about here]

Some industries have not been mentioned within this review, but it doesn't mean that research on environmental issues facing these industries in China is nonexistent. It needs to be remembered that this review focuses on green marketing efforts and research. For example, information technology, financial industries have not been mentioned in this research but have significant investigation in broader studies (Wei et al., 2015; Zhu et al., 2015).

Of the industries that have been mentioned, it can be observed from Table 3 that an imbalance of coverage within these industrial sectors exists. Especially notable is the consumer discretionary industrial sector where media and retailing subsectors have seen no investigation.

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<sup>1</sup> More details about GICS can be found at <http://www.msci.com/products/indexes/sector/gics/>

From a subindustry perspective, China's food industrial sector has witnessed significant research. Specifically the adoption and the acceptance of organic food is well represented. Other proactive ecological activities have taken place in this subindustry, such as the eco-labeling program, food safety assurance systems and the green watch program.

Evidence from this analysis shows numerous opportunities for future research and development. There are a number of industrial sectors in China that have not been investigated in terms of green marketing practices. This major gap could be filled in. The comparison of green marketing dimensions and their adoption levels across industrial sectors in China is a fertile area of research. Part of these studies may include green marketing maturity stages for each industrial sector to have benchmarks for various stakeholders.

#### **5.4 Green Consumers in China**

Green consumers are defined as consumers who prefer products that are not likely to endanger human health or damage the environment (Tekade & Sastikar, 2015; Xie et al., 2014). Green consumers are the ultimate users of end products that are manufactured, although industrial consumers may be green as well, the focus is on individual or household consumers.

Arguably, much of the green movement is driven by consumers, who then make their needs known through the supply chain, helping, in turn to green the supply chain and markets (Brindley & Oxborrow, 2014; Grunert & Grunert, 1993). Organizations are quite aware of green consumer preferences, clearly profit-driven companies will be strongly encouraged to "green" themselves. In China, there have been some studies, albeit limited, on consumers' environmental attitude-behavior and relationship to the green marketing concept.

In the next three subsections, we first introduce how the literature compares Chinese green consumers with international consumers, then research related to demographic

segmentations and psychographic segmentations within China are represented in the remaining subsections.

#### **5.4.1 International Comparisons**

In this international comparative analysis in green consumerism, a summary of variations and similarities between green consumerism in China and that of other countries, mostly developed countries or regions, is discussed. This evaluation relies on six of the 50 identified papers from the literature in this study. Of the six papers, four major countries or regions were found. These locations include the U.S., Canada, Europe and Hong Kong.

One way to evaluate how China compares to other regions is to use a maturity model for green consumerism and beliefs. The maturity model used for this comparison is by Kokkinen et al. (1999). In this model there are four stages. In the first stage, consumers are concerned about unfavorable changes in their surroundings and threats to human health and seek to acquire green knowledge and corresponding solutions. In the second stage, as people's environmental knowledge improves, some consumers transform their own concern to a sense of social responsibility and national well-being. Environmental initiatives gradually become part of people's daily life. In the third stage green issues are identified as global concerns by both consumers and their nations. Consumers in this stage not only focus on their own country and citizens, but focus on international greening efforts of corporations. In the fourth stage, environmental awareness and green practices are transformed into a habitual behaviors and institutional norms. People begin to believe in a biocentric perspective of the man-nature harmonious relationship. Nature has intrinsic value is a belief at this stage.

Using this maturity framework, the literature and comparisons amongst countries and China based on green consumers is shown in Table 4. Table 4 shows that Chinese consumers'



green attitudes are between stage one and stage two. Although still in its infancy, the green movement is emerging as an element of consumers purchasing behaviors and habits in China (Chan, 2008; Thøgersen & Zhou, 2012a) (Eze & Ndubisi, 2013). Chinese green consumerism lags behind its counterparts in more developed regions in the world.

[Table 4 about here]

Overall, more research on comparative international green consumerism in China is needed. This research is relatively exploratory where samples and sample sizes are restrictive. It is not clear if these samples are truly representative of complete cultures and nations' green consumerism attitudes. Country variables in these studies could be more robust in the factors considered. For example, certain characteristics ranging from governmental policies to historical socio-cultural dimensions are ignored.

Future research needs to expand the national and regional scope of studies. For example close geographical regions such as Japan, India and South Korea may be good comparative areas to study. The scope can also be expanded to developing countries that have similar economic concerns that limit their green consumerism. A gap analysis based on green consumerism is needed to more effectively identify how well China compares to other countries. In this paper, a maturity framework was used, but a more nuanced and analytical set of metrics is needed. Although, internally within China, there have been some regional comparisons of green consumerism, broad and comprehensive studies of regions throughout China have not been completed.

#### **5.4.2 Demographics Segmentation**

Worldwide research on demographic variables of green consumers shows a stereotypical view. That is green consumers are young, female, married, with high education

and decent income (Gilg et al., 2005; Hines et al., 1987). This conclusion is substantiated by research studies of influencing factors such as age, gender, career, income, and family background. In recent years, green consumers and sustainability have received significant attention from the Chinese government, public and mass media in China. Chinese green consumerism studies confirm the general research perspective. Although, from the papers in this review, there are some slightly differing results with variations in their conclusions. For example, in one study (Shields & Zeng, 2012), the finding showed that men were more environmentally concerned than women. These types of demographics inconsistencies may derive from study and sample design characteristics. A summary of the demographic findings from the seven identified papers focusing on green consumerism in China are shown in Table 5.

[Table 5 about here]

The demographic profile of Chinese green consumers in Table 5 can be summarized as:

- The gender difference in environmental preference is vague in China study. Two papers show males tend to be greener than females, four papers support that females are the main participants of China's green movement, while one paper states that there is no clear difference
- For marital status Chinese married couples are more active in green practices
- The mean age of committed consumers is 25 in China
- There exists a positive relationship between green attitudes and individual education level
- Higher income consumers are more knowledgeable of green issues
- Environmental consumers are more likely to enjoy higher positions in the corporate world. Managers and executives members hold stronger pro-environmental attitudes.

For the publications identified in this study, issues of sampling bias do arise. Most of the identified studies used samples from Hong Kong and China's "first-layer" cities, namely Beijing, Shanghai and Guangzhou. The samples represented relatively small numbers of respondents from mostly urban areas of each city. Results show consumers in these cities are more willing to participate in green initiatives than consumers of other cities in China. Reasons for this relatively greater participation include more proactive Chinese government environmental strategies and enforcement, a higher average education and income level, and the availability of green products in these three most developed yet polluted cities. Research with consumers in "second-layer" and "third-layer" cities, as well as the undeveloped areas in the west China is relatively limited. Among the studies, only three publications were found to focus on these regions. Additional research of green consumer attitudes and practices in China's developing cities and their undeveloped areas need investigation.

In this published work, issues such as income variations over time, such as improved income growth, may cause different results. In addition to demographic factors identified in this study, other demographic factors such as religion, average family size and average marriage age could also be investigated. More comprehensive research on male and female responsiveness to green initiatives is also required.

#### **5.4.3 Psychographic Segmentation**

There are psychographic and cultural factors that are closely related to personal beliefs. Psychographic variables may include attitudes, behaviors and concerns of individuals (Zhao et al., 2014). In addition, cultural factors such as individualism and collectivism may also be categorized as psychographic variables (Xue, 2015). One study found that psychographic variables have greater explanatory power than demographics variables in terms of Chinese

green consumer behavior (Zhao et al., 2014). Single psychographic factors or combinations of them can result in different consumer behaviors with respect to green activities. Different groups of individuals who share the same or similar psychological factors may form behavioral segments within the context of sustainable lifestyle. Therefore, investigation of psychographics is important in Chinese green consumerism study.

Market segmentations of green consumerism in China has not been well-developed and validated on a broader level. Previous studies that sought to segment consumers were based on various beliefs. For example, marketing strategies require considering a spectrum of green consumer segments ranging from non-environmentally focused to very green consumers (Ginsberg & Bloom, 2004). One segmentation categorization includes the range true blue greens to basic browns from the Green Gauge Report (Doane & Abasta-Vilaplana, 2005). Building on this consumer segmentation category, five consumer segments were identified in one of the early and only studies in China. These segments included 1) Basic Greens, 2) Sprouts, 3) Eco bystanders, and 4) Basic Browns (Chan, 2000).

Unlike the Green Gauge segmentation which has the highest environmental level of true blue green, the highest level in China are basic greens. Basic greens are the most environmentally-conscious consumers in China but are ineffective in green practices and sometimes exhibit negative impact on the ecology. Sprouts share a modest level of general environmental concerns and are the most promising green consumers. They have a relatively high potential of translating their pro-environmental attitudes to corresponding consumers' behaviors. Eco-bystanders are inadequate in environmental knowledge and they admit most of their ineffectiveness in environmental protection. Basic Browns are least environmental-conscious consumers. They enjoy very low level of environmental knowledge, and they seldom

participate eco-friendly practices. Based on this study's 32 papers on Chinese green consumers, there are a large proportion of eco-bystanders in the current Chinese market.

Although what was found in this literature review mentioned psychographics, explicit investigation of psychographic-specific characteristics and green consumerism was only evident in two publications (Chan, 2000; Zhao et al., 2014). These topic could certainly use future development. For example, categorizations of psychological influences on green consumption (Gilg et al., 2005) may be interesting directions for future research on Chinese green consumerism. Further scale developments and validation on psychographic dimensions are needed.

## **6 Conclusion**

China has faced significant economic growth over the last three decades. With this growth has come commensurate ecological degradation. China's government and its people are putting pressure on corporations to green their processes and products. Ample opportunity exists for organizations to respond to these pressures and build competitive advantages. Marketing strategies that incorporate green dimensions and identify green consumer characteristics are necessary for organizations to improve their market positions in China.

Given the opportunities and benefits of understanding green marketing and consumerism in China, this paper fills a niche to help researchers and practitioners understand the state-of-the-art on this topic. The findings, overall, show significant need for additional research and adoption of green marketing and consumerism practices in China. Some areas are more developed than others.

Findings included a total of 50 peer reviewed journal publications that focused on Chinese green marketing or green consumerism practices. Given the overall growth in

sustainability and green business research over the years, now numbering in thousands of studies (Fahimnia, et al., 2015, for example) this small number of studies exemplifies the paucity of research on this topic. Of the papers found, using the categories used in this study, a large fraction focused on more general and non-marketing issues such as green operations and supply chain management. Thus, even fewer papers had a direct and exclusive focus on green marketing and consumerism. These findings indicate that Chinese green marketing and environmentalism transformation is still at an early stage.

One of the distinctive characteristics of this China study lies in the fact that Chinese government has a major role in mainstreaming green marketing innovation and sustainable management. Why and how the Chinese government can help companies integrate environmental sustainability remains to be further studied. The Chinese government in its own green marketing effort could continue raise public awareness of environmental issues.

Practically, this literature review provides organizations with an overview of findings related to green marketing strategies and green consumer demographic and psychographic characteristics. Potential future directions and issues that need to be managed by these organizations can also be gleaned from this study, to help them develop their own green marketing strategies. Researchers will find this work valuable in identifying gaps and future research streams that need investigation.

Although this study meant to be comprehensive, and relatively exhaustive, there are ample opportunities for further study and understanding of Chinese green marketing and consumerism. This study was limited to only peer reviewed journals, books, conference proceedings and proprietary studies can possibly provide greater breadth and depth to understanding the state-of-the-art on this topic. The categorizations in this study are relatively

generic, more advanced and possibly insightful categorizations and their relationships may provide opportunity for new theory development. For example, this paper did not delve into methodological categorizations or bibliometric co-citation-like analysis to offer additional research direction. Another methodological limitation of this study is the industrial sector analysis which is based on the Global Industry Classification Standard. There are other industry categorization standards that could be applied and could arrive at different results which may be of interest to practitioners or researchers.

In addition to future research directions identified in the general review of the literature, the limitations of this study also provide additional opportunity for research directions. Overall, the field of green marketing and consumerism is still relatively young, research on this topic in China is even more emergent. This paper hopefully sets a foundation and direction for future research on this critically important topic for the well-being of individuals, organizations, communities, and this world.

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Figure 1: A graphic flow process diagram of the structured literature review methodology used in this study

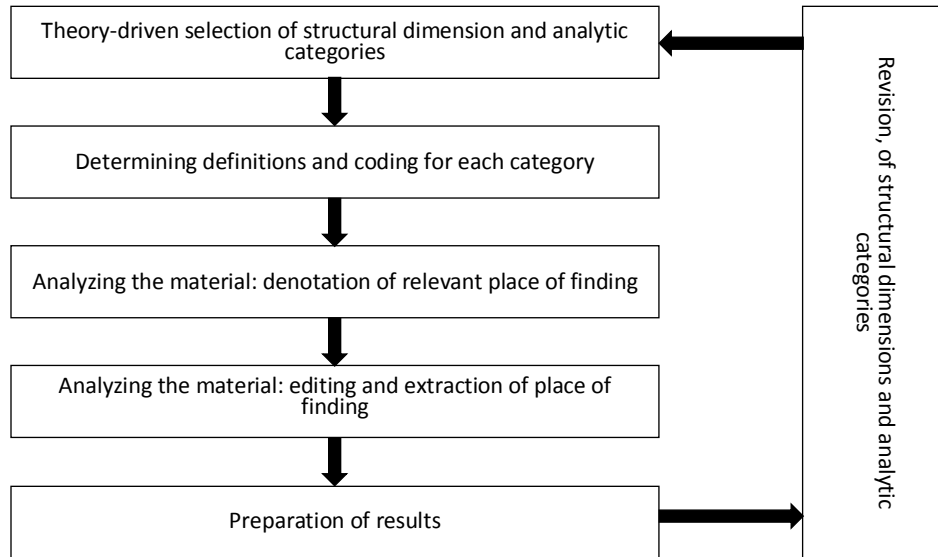


Figure 2: Evolution of number of articles over time

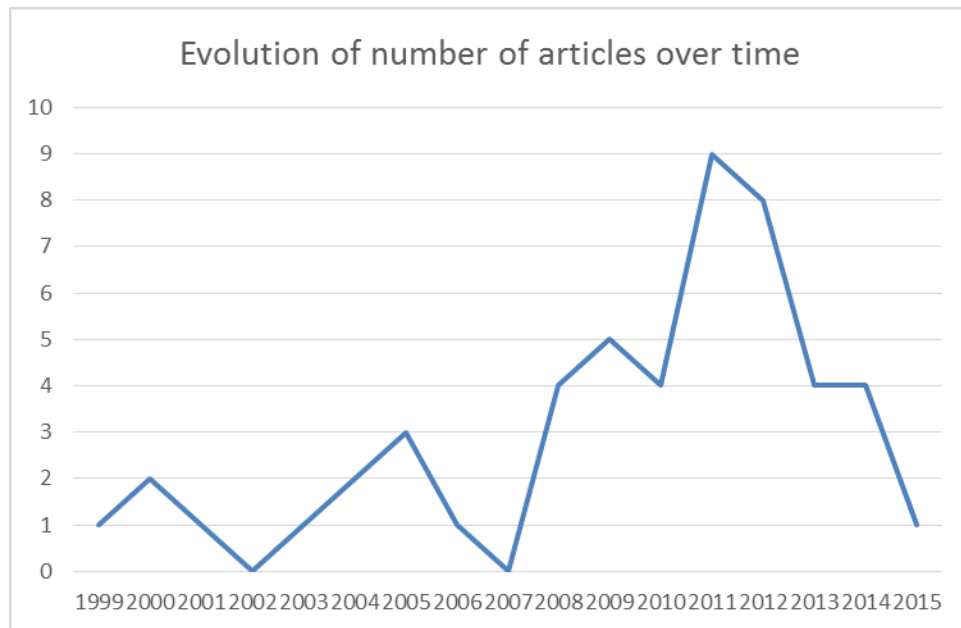


Figure 3: Allocation of papers in each industrial sector based on percentage frequency

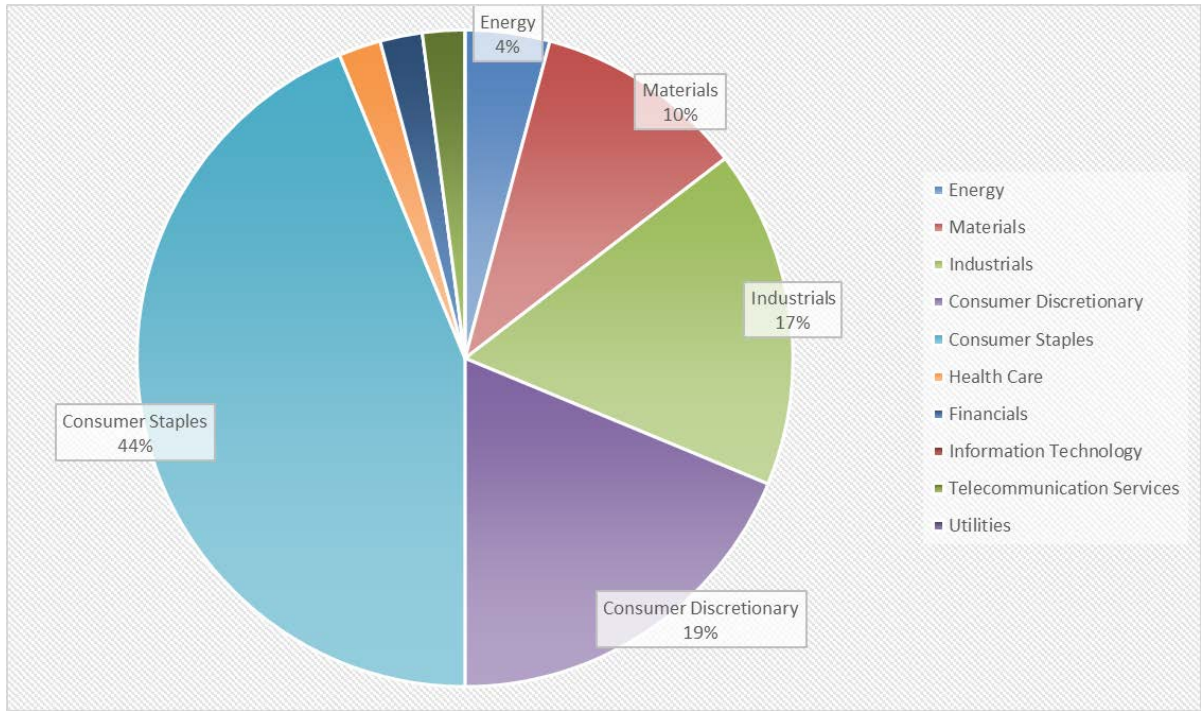


Table 1: List of Journals and Research Topics

Journal	General Green Categories			Green Marketing Specific Categories		
	Total	Concept and Principles	Boarder Sustainable Strategy	Marketing Mix (4P)	Green Consumerism	
African Journal of Business Management	1	0	1	0	0	0%
American Journal of Agriculture Economics	1	1	0	0	0	0%
Asia Pacific Journal of Marketing and Logistics	1	0	0	0	1	4%
Building and Environment	1	1	1	1	0	0%
Business Horizons	1	1	0	0	0	0%
China & World Economy	1	0	0	1	1	4%
Ecological Economics	1	0	0	1	0	0%
Environment and Behavior	1	0	0	0	0	0%
Environmental Impact Assessment Review	1	1	1	1	1	4%
Food Control	1	0	0	1	1	4%
Food Journal	1	1	1	1	1	4%
Food Quality and Preference	1	0	0	0	0	0%
International Journal of Business and Management	1	1	1	1	1	4%
International Journal of Operations & Production Management	1	0	0	1	0	0%
International Journal of Production Economics	1	0	0	1	1	4%
International Journal of Production Research	1	0	0	1	1	4%
International Journal of Services Technology and Management	1	0	0	0	1	4%
International Marketing Review	1	0	0	1	1	4%
International Journal of Hospitality Management	1	1	0	0	1	4%
Journal of Business Ethics	1	1	0	0	0	0%
Journal of Business Management and Economics	1	0	0	1	1	4%
Journal of Cleaner Production	4	0	0	2	2	7%
Journal of Consumer Marketing	3	0	0	0	0	0%
Journal of Engineering and Technology Management	1	0	0	1	0	0%
Journal of Environmental Management	1	0	0	1	0	0%
Journal of Environmental Planning and Management	2	0	0	1	1	4%
Journal of Environmental Management	1	0	0	0	0	0%
Journal of International Consumer Marketing	6	1	0	0	3	11%
Journal of Marketing Management	1	0	0	0	0	0%
Journal of Services Marketing	1	0	0	0	1	4%
Management of Environmental Quality: An International Journal	1	0	0	0	1	4%
Marketing Intelligence & Planning	1	0	0	0	1	4%
Omega	1	0	0	1	1	4%
Production Planning & Control: The Management of Operations	1	0	0	1	1	4%
Psychology & Marketing	2	0	0	0	0	0%
Science Communication	1	0	0	0	1	4%
Social Science Quarterly	1	0	0	0	0	0%
Technological Forecasting & Social Change	1	0	0	1	1	4%
Grand Total	50	9	21	28	26	100%



Table 2: Summary of Identified literature categorized into 4P marketing mix dimensions

Category	Number of Papers	Paper	Related Description
Green Product	11	(Qinghua Zhu & Sarkis, 2006)	<ul style="list-style-type: none"> <li>• Role of product's life cycle</li> <li>• Eco design of products</li> <li>• The importance of R&amp;D</li> </ul>
		(L. Bai, Ma, Gong, & Yang, 2007)	<ul style="list-style-type: none"> <li>• Green Food Certification</li> <li>• Organic Food Certification</li> <li>• Environmental standard of product production</li> <li>• Final product standards</li> </ul>
		(Li & Cai, 2008)	<ul style="list-style-type: none"> <li>• Green materials</li> <li>• The importance of R&amp;D</li> </ul>
		(X. Zhang, Shen, & Wu, 2011)	<ul style="list-style-type: none"> <li>• Application of green technologies</li> <li>• Green appliances</li> <li>• Green elements in product management</li> </ul>
		(Qinghua Zhu et al., 2005)	<ul style="list-style-type: none"> <li>• Management of end-of-life products</li> <li>• Eco design of products</li> <li>• Role of product's life cycle</li> </ul>
		(Choi & Zhang, 2011)	<ul style="list-style-type: none"> <li>• Green elements in production process</li> <li>• Application of green technologies</li> </ul>
		(Qinghua Zhu, Sarkis, & Lai, 2012)	<ul style="list-style-type: none"> <li>• Eco design of products</li> <li>• Product transportation</li> <li>• Collecting and recycling end-of-life products and materials</li> <li>• Eco-labeling of products</li> </ul>
		(Qinghua Zhu et al., 2011a)	<ul style="list-style-type: none"> <li>• Ecological modernization</li> <li>• Eco design of products</li> </ul>
		(Y. K. Ip, 2003)	<ul style="list-style-type: none"> <li>• The marketability of eco-products</li> <li>• The use of eco-friendly insecticide</li> </ul>
		(Thøgersen & Zhou, 2012a)	<ul style="list-style-type: none"> <li>• The adoption of green products</li> <li>• The consumer motives of green products</li> </ul>
Green Price	1	(W. Yang & Zhang, 2012)	<ul style="list-style-type: none"> <li>• Influence of green purchasing/ procurement on both net income and cost of goods sold</li> <li>• The effects of green purchasing on the firm's supplier selection, waste management, packaging, and regulatory compliance</li> </ul>
Green Place	3	(Lai & Wong, 2011)	<ul style="list-style-type: none"> <li>• The importance of Green logistics management (GLM) on prevention of environmental harm arising from product distribution activities</li> </ul>
		(Choi & Zhang, 2011)	<ul style="list-style-type: none"> <li>• The relationship between green logistics management and the business performance of logistics enterprises in China</li> </ul>
		(Miao, Cai, & Xu, 2011)	<ul style="list-style-type: none"> <li>• Five dimensions of companies' logistics social responsibility</li> </ul>
Green Promotion	22	(R. Y. K. Chan, 2004)	<ul style="list-style-type: none"> <li>• The relationship between green advertising and green purchase intention of Chinese consumers</li> <li>• The importance of building an eco-friendly corporate image in green advertising</li> </ul>
		(J. Wang, Yam, & Tang, 2012)	<ul style="list-style-type: none"> <li>• Environmental value-attitude-system model</li> <li>• Policy effects on cultivating consumers' social responsibility consciousness resource conservation and environment protection</li> </ul>
		(E. S. W. Chan, 2013)	<ul style="list-style-type: none"> <li>• The use of eco-labels</li> <li>• "Green washing" strategy</li> <li>• Hotel green marketing</li> <li>• Attracting green-conscious travelers</li> </ul>
		(R. Y. K. Chan, Leung, & Wong, 2006)	<ul style="list-style-type: none"> <li>• Effectiveness of environmental advertising</li> <li>• The eco-friendly brand/corporate image</li> </ul>

		<ul style="list-style-type: none"> <li>Effectiveness of environmental claims in advertising</li> </ul>
	(Yin & Ma, 2009)	<ul style="list-style-type: none"> <li>Promoting involvement of recycling, eco-literacy, encouraging consumption reduction, and product substitutions</li> </ul>
	(Qinghua Zhu et al., 2012)	<ul style="list-style-type: none"> <li>The use of ISO 14001 certification and eco-labeling practices in China</li> <li>Eco-labeling effects on greener consumption patterns</li> </ul>
	(J. Zhao & Xia, 1999)	<ul style="list-style-type: none"> <li>Consumers' awareness of green labeled products</li> <li>Key factors in China's environmental labeling program</li> <li>Categories of products receiving environmental labels</li> </ul>
	(X. Liu et al., 2010)	<ul style="list-style-type: none"> <li>Mass media improving proactive environmental management in China</li> </ul>
	(R. Y. K. Chan, 2004)	<ul style="list-style-type: none"> <li>The effect of environmental advertising claims on Chinese consumers</li> <li>Effectiveness of all types of green advertising</li> </ul>
	(B. Liu et al., 2009)	<ul style="list-style-type: none"> <li>Green Watch program and environmental performance</li> <li>Environmental social responsibility information disclosure</li> </ul>
	(Kuei, Chow, Madu, & Wu, 2012)	<ul style="list-style-type: none"> <li>Self-regulatory and voluntary environmental standards promotion in China</li> </ul>
	(Bu, Liu, & Gao, 2011)	<ul style="list-style-type: none"> <li>International market and corporate environmental image</li> </ul>
	(Qinghua Zhu et al., 2012)	<ul style="list-style-type: none"> <li>Marketing pressures and environmental practices</li> </ul>
	(Qinghua Zhu, Sarkis, & Lai, 2011b)	<ul style="list-style-type: none"> <li>Globalization and regulation influences on corporate green promotion</li> </ul>
	(Lee, 2008)	<ul style="list-style-type: none"> <li>Effective environmental communications/advertising</li> </ul>
	(Barkmann, Yan, Zschiegner, & Marggraf, 2010)	<ul style="list-style-type: none"> <li>Sustainable tourism services promotion</li> </ul>
	(L. Wang & Juslin, 2009)	<ul style="list-style-type: none"> <li>Culture, corporate social responsibility and promotion</li> </ul>
	(B. Zhang et al., 2007)	<ul style="list-style-type: none"> <li>Promotional responses to green market pressures</li> </ul>
	(Lee, 2010)	<ul style="list-style-type: none"> <li>Green promotion and its influence</li> </ul>
	(Shen & Saijo, 2009)	<ul style="list-style-type: none"> <li>Energy efficiency label and promotion</li> </ul>
	(Xue, 2014)	<ul style="list-style-type: none"> <li>Effects of green visuals in advertising</li> </ul>
	(Xue, 2015)	<ul style="list-style-type: none"> <li>Message Framing and Collectivistic Appeal in Green Advertising</li> </ul>

Table 3: Summary of China's Industrial sector overview from green marketing publications

Sector	Industry Groups	Green practices in China	Descriptions
Energy	Energy	(X. Liu et al., 2010), (B. Liu et al., 2009)	<ul style="list-style-type: none"> <li>The proactive corporate environmental management in power generation</li> <li>The application of green watch program in power generating industry</li> </ul>
Materials	Materials	(X. Liu et al., 2010), (B. Zhang et al., 2007), (Yin & Ma, 2009), (Qinghua Zhu et al., 2012), (B. Liu et al., 2009)	<ul style="list-style-type: none"> <li>Standard emissions in pulp/paperboard and steel sectors</li> <li>The proactive corporate environmental management in chemicals, metals and non-metals</li> <li>ISO 14001 certifications in smelting and pressing of metals and metal products; non-metal mineral products</li> <li>ISO 14001 certifications in chemical materials, chemical and fiber products</li> <li>The adoption of ISO 14001, TQEM, eco-auditing in chemicals industry</li> <li>The application of green watch program in chemicals and metals industry; paper making industry</li> </ul>
Industrials	Capital Goods	(X. Liu et al., 2010), (Yin & Ma, 2009), (Choi & Zhang, 2011), (Qinghua Zhu et al., 2012)	<ul style="list-style-type: none"> <li>The proactive corporate environmental management in machinery and equipment</li> <li>ISO 14001 certifications in general machinery and equipment</li> <li>ISO 14001 certifications in rubber and plastic products</li> <li>Green strategy plan in green property development practices</li> <li>The adoption of ISO 14001, TQEM, eco-auditing in petroleum and allied products industry</li> <li>The application of green watch program in machinery and equipment industry</li> </ul>
	Commercial & Professional Services	(B. Liu et al., 2009), (R. Y. K. Chan et al., 2006)	<ul style="list-style-type: none"> <li>The application of green watch program in electroplating industry</li> <li>The effectiveness of environmental claims for services advertising</li> </ul>
	Transportation	(Kuei et al., 2012)	<ul style="list-style-type: none"> <li>Green operational practices in logistics industry</li> </ul>
Consumer Discretionary	Automobiles & Components	(Miao et al., 2011), (Qinghua Zhu et al., 2012)	<ul style="list-style-type: none"> <li>The application of ISO14001, SA8000 certification in automobile manufacturing firms</li> <li>The adoption of ISO 14001, TQEM, eco-auditing in automobile industry</li> </ul>
	Consumer Durables & Apparel	(L. Wang & Juslin, 2009), (X. Liu et al., 2010), (J. Zhao & Xia, 1999), (B. Liu et al., 2009), (Li & Cai, 2008)	<ul style="list-style-type: none"> <li>The establishment of Corporate Social Responsibility (CSR) for the textile industry</li> <li>The proactive corporate environmental management in textile, dyeing, and clothing</li> </ul>

			<p>industry</p> <ul style="list-style-type: none"> <li>Environmental labeling programs in silk industry</li> <li>The application of green watch program in textile and clothing industry</li> <li>Green marketing and sustainable development of Garment industry</li> </ul>
	Consumer Services	(E. S. W. Chan, 2013), (Barkmann et al., 2010)	<ul style="list-style-type: none"> <li>Green product and service design in Hong Kong hotel</li> <li>Sustainable tourism services</li> </ul>
	Media	N/A	N/A
	Retailing	N/A	N/A
Consumer Staples	Food & Staples Retailing	(Thøgersen & Zhou, 2012b), (X. Liu et al., 2010), (Zhou, Thøgersen, Ruan, & Huang, 2013), (Perrea et al., 2013)	<ul style="list-style-type: none"> <li>Adoption of organic food</li> <li>The proactive corporate environmental management in paper industry</li> <li>Consumers' attention to buy organic food</li> </ul>
	Food, Beverage & Tobacco	(Thøgersen & Zhou, 2012b), (Zhou et al., 2013), (Perrea et al., 2013), (Qinghua Zhu, Li, Geng, & Qi, 2013), (Xu et al., 2012), (L. Bai et al., 2007)	<ul style="list-style-type: none"> <li>Adoption and purchase of organic food</li> <li>Purchase of green- and eco-labeled seafood</li> <li>Food safety assurance systems</li> </ul>
	Household & Personal Products	(B. Zhang et al., 2007), (J. Zhao & Xia, 1999), (Qinghua Zhu et al., 2012), (B. Liu et al., 2009), (Lee, 2010), (Xiao & Kim, 2009), (Y. K. Ip, 2003), (Lee, 2009), (R. Y. K. Chan & Lau, 2000), (R. Y. K. Chan, 2008), (R. Y. K. Chan, 2001)	<ul style="list-style-type: none"> <li>Environmental performance factors at individual polluting facilities</li> <li>Environmental labeling programs in light industry sector</li> <li>Green consumers' awareness in laundry detergent industry and the household refrigeration sector</li> <li>The adoption of ISO 14001, TQEM, eco-auditing in electronics industry</li> <li>The application of green watch program in electronics industry</li> <li>The marketability of eco-products</li> </ul>
Health Care	Health Care Equipment & Services	N/A	N/A
	Pharmaceuticals, Biotechnology & Life Sciences	(Qinghua Zhu et al., 2012)	<ul style="list-style-type: none"> <li>The adoption of ISO 14001, TQEM, eco-auditing in pharmaceutical industry</li> </ul>
Financials	Banks	N/A	N/A
	Diversified Financials	N/A	N/A
	Insurance Real Estate	(X. Zhang et al., 2011),	<ul style="list-style-type: none"> <li>The promotion of green strategy in housing development</li> </ul>
Information Technology	Software & Services	N/A	N/A
	Technology Hardware & Equipment	N/A	N/A
	Semiconductors & Semiconductor Equipment	N/A	N/A
Telecommunication Services	Telecommunication Services	(Yin & Ma, 2009)	<ul style="list-style-type: none"> <li>ISO 14001 certifications in telecommunication equipment and machinery sector</li> </ul>
Utilities	Utilities	N/A	N/A

Table 4: Summary of identified green consumer comparisons between China and other countries and regions

Country	Paper	Description	Stage
U.S	(R. Y. K. Chan, 2008), (R. Y. K. Chan & Lau, 2002)	<ul style="list-style-type: none"> <li>Chinese consumers' degree of environmental affect is stronger than, or at least comparable to that of American consumers</li> <li>Perceived behavioral control will exhibit a stronger influence on Chinese consumers' green behaviors than on American consumers</li> <li>American consumers' green purchasing behavior is more likely influenced by their attitudes and subjective norms</li> <li>The conversion of intention to actual green purchases is more effective among American than Chinese consumers.</li> </ul>	Stage 2-3
Canada	(Deng, Walker, & Swinnerton, 2006), (Qinghua Zhu & Sarkis, 2006)	<ul style="list-style-type: none"> <li>Chinese in Canada are more supportive of social-altruistic values than are Anglo-Canadians</li> <li>Chinese in Canada and Anglo-Canadians are not significantly different in biospheric values</li> <li>Chinese may have weaker knowledge in corporate culture, resource allocation, and environmental management performance; compared to Canada</li> </ul>	Stage 2-3
Europe	(Thøgersen & Zhou, 2012a)	<ul style="list-style-type: none"> <li>Consumers in Europe are the first adopter of organic products</li> </ul>	Stage 3
Hong Kong	(Lee, 2010)	<ul style="list-style-type: none"> <li>Hong Kong nurtures most of the green consumers for international green marketers compared with mainland China</li> <li>Hong Kong has a longer history of acceptance of green products</li> </ul>	Stage 1-2

Table 5: Chinese consumerism demographics segmentation analysis from identified publications in this study

Demographics	Paper	Description
Gender	(Xu et al., 2012), (Shields & Zeng, 2012)	<ul style="list-style-type: none"> <li>Males are more environmentally concerned than females</li> <li>Males show greater involvement in green movement</li> </ul>
	(R. Y. K. Chan & Lau, 2000), (Lee, 2009), (Thøgersen & Zhou, 2012a)	<ul style="list-style-type: none"> <li>Females show higher degree of ecological concern than males</li> <li>Females score significantly higher in environmental attitude, environmental concern, perceived seriousness of environmental problems, perceived environmental responsibility, peer influence and green purchasing behavior than males</li> </ul>
	(Deng et al., 2006)	<ul style="list-style-type: none"> <li>Females were more likely than males to endorse social-altruistic values</li> <li>Chinese in Canada females and males are not significantly different in green consumerism</li> </ul>
Marital Status	(R. Y. K. Chan, 2000), (R. Y. K. Chan & Lau, 2000)	<ul style="list-style-type: none"> <li>Married consumers more actively participate in the green movement</li> </ul>
Age	(R. Y. K. Chan, 2000)	<ul style="list-style-type: none"> <li>Consumers between 18-29 years old are the most promising green consumers</li> </ul>
	(R. Y. K. Chan & Lau, 2000)	<ul style="list-style-type: none"> <li>Consumers between 25-29 have a strong preference on green products</li> </ul>
	(Thøgersen & Zhou, 2012a)	<ul style="list-style-type: none"> <li>Consumers between 26-34 are more willing to buy organic food</li> </ul>
Education level	(R. Y. K. Chan, 2000), (R. Y. K. Chan & Lau, 2000), (Thøgersen & Zhou, 2012a), (Xu et al., 2012)	<ul style="list-style-type: none"> <li>University education or above are more supportive of green movement</li> <li>Positive relationship between environmental consciousness and education level</li> <li>Consumers with a higher education level are 3% more likely to pay price premium for eco-labeled seafood</li> </ul>
Current employment category	(R. Y. K. Chan & Lau, 2000)	<ul style="list-style-type: none"> <li>Managers/executives hold strong pro-environmental attitudes</li> </ul>
Income	(Thøgersen & Zhou, 2012a)	<ul style="list-style-type: none"> <li>Consumers with higher income are more knowledgeable about organic food</li> </ul>