Doshisha University

INTEGRATED STUDIES ON STRUCTURE AND FORMATION MECHANISM OF ENVIRONMENTAL CONSCIOUSNESS IN RURAL AND URBAN CHINA

By

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ABSTRACT

Remarkable economic growth in the past three decades contributed significantly to people's welfare in China, but also created increasing serious environmental degradation. The fundamental solution to environmental issues calls for the adjustment of values and the improvement of environmental consciousness. Based on the proposed integrated framework which involves both social structural and social psychological variables, this study aims to clarify the structure and formation mechanism of environmental consciousness under the different social backgrounds of rural and urban China, by an integrated consideration of the three key dimensions of environmental consciousness and the influence of different socioeconomic and environmental situations in rural and urban societies in China.

Chapter 1 introduces the research background and the research necessity of this research. Previous literatures and their conclusions are also introduced in the first chapter; Based on the described background and taking the previous research as a reference, in Chapter 2 research purpose, the integrated theoretical framework, and hypotheses regarding the formation of environmental consciousness are proposed; In Chapter 3, the information regarding the social survey, such as sample size, sampling and survey method, the basic information regarding socioeconomic development and environmental conditions in surveyed areas, and the data analysis method are introduced; Chapters 4 to 6 quantitatively analyze and discuss the proposed three dimensions of environmental consciousness, which including environmental worldview, environmental attitude, and behaviour intention, in detail respectively. And finally, Chapter 7 summaries and discusses the main findings of this study.

This study is a comparative approach which based on the analysis of environmental consciousness in both rural and urban societies of China, which will be a significant endeavor in clarifying the effects of rural and urban living on people's environmental consciousness. The clarification of the structure and formation of environmental consciousness are expected to benefit our knowledge regarding how to improve people's environmental consciousness, and to identify some clues to evoke people's pro-environmental behaviours.

ABBREVIATION

AC: Awareness of Consequence

AR: Ascription of Responsibility

AV: Ascending American Values

CA: Correspondence Analysis

CEAP: China Environmental Awareness Program

CNY: Chinese Yuan

CO_2: Carbon Dioxide

DSP: Dominant Social Paradigm

GBD: Global Burden of Disease

GHG: Greenhouse Gases

GDP: Gross Domestic Product

GSS: General Social Survey

IEA: International Energy Agency.

MCA: Multiple Correspondence Analysis

NBSC: National Bureau of Statistics of China

NEP: New Environmental Paradigm

PAV: Prominent American Values

PM: Particulate Matter

PNAS： Proceedings of the National Academy of Sciences of the United States of America

SO_2: Sulfur Dioxide

TPB: Theory of Planned Behaviour

TCE: Tons Coal Equivalent

UNEP: United Nations Environment Program

UNESCO: United Nations Educational, Scientific and Cultural Organization

VSL: Value of a Statistical Life

WTP: Willingness to Pay

WTS: Willingness to Sacrifice

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Chapter 1

INTRODUCTION

1.1. Research Background

1.1.1 China Is Facing Serious Environmental Challenges

In the past three decades, China has experienced a remarkable economic growth, industrialization and urbanization, which has contributed significantly to people's welfare in China. Around 9% of annual increases in GDP[1] have lifted some 400 million people out of dire poverty. With further economic growth, most of the remaining 200 million people living below one dollar per day may soon escape from poverty (World Bank, 2007). Alongside economic growth, technological improvements over this period have also created huge positive impacts on the environment. For example, energy utility has improved drastically. Application of cleaner and more energy-efficient technologies, and pollution control efforts, gradually decreased the PM[2] and SO_2[3] in cities. And implementation of environmental pollution control policies—particularly command-and-control measures, but also economic and voluntary measures—have contributed substantially to levelling off or even reducing pollution loads, particularly in certain targeted industrial sectors (World Bank, 2007).

However, rapid economic growth has also created increasingly serious environmental problems. China is the largest source of SO_2 and CO_2[4] emissions in the world. China also is the

[1] GDP is abbreviation of gross domestic product

[2] PM is abbreviation of particulate matter

[3] SO_2 is abbreviation of sulfur dioxide

[4] CO_2 is abbreviation of carbon dioxide

world's second largest energy consumer after the United States. Total energy consumption in China has increased 70% between 2000 and 2005, with coal consumption increasing by 75% (World Bank, 2007). National energy consumption in 2013 is 3.75 billion TCE[1] (National Bureau of Statistics of China, 2014), and in 2012 accounts for 19.1% of world total final energy consumption (IEA[2], 2014). Furthermore, the energy consumption structure in China is mainly coal dependent, which has led to continuously high levels of SO_2 and greenhouse gas emissions.

Water contamination and water scarcity problem are also severe. In the period between 2001 and 2005, on average about 54% of the seven main rivers in China contained water deemed unsafe for human consumption (World Bank, 2007). It is estimated that the total cost of air and water pollution in China in 2003 was CNY 362 billion, or about 2.7% of GDP for the same year by the adjusted human capital approach[3]. Environmental depredations pose a serious threat to economic growth as well as human health. Air pollution in 2010 contributed to 1.2 million premature deaths in China (GBD[4] 2010, quoted by Health Effects Institute, 2013).

It is said that rural areas of China are disproportionately affected by environmental burdens. With the rapid development of industrialization and modernization, as well as rural economic and social development, the life quality in rural China is continuously improved. However, as the "side effect" of industrialization and modernization, rural China is also facing severe and even disproportionate environmental burdens. A report indicated that this side effect comes earlier in rural areas than the higher quality of life that modernization brings (China Daily, 2013).

[1] TCE is the abbreviation of tons coal equivalent. And one tce equals to 29.31 billion of Joule

[2] IEA is the abbreviation of International Energy Agency.

[3] This approach is widely used in Chinese literature. If the adjusted human capital approach is replaced by the value of a statistical life (VSL) based on studies conducted in Shanghai and Chongqing, the amount goes up to about 781 billion yuan, or about 5.78% of GDP (World Bank, 2007).

[4] GBD is the abbreviation of Global Burden of Disease.

According to the World Bank (2007), environmental pollution falls disproportionately on the less economically advanced parts of China, which have a higher share of poor populations. Two-thirds of the rural population is without piped water, which contributes to diarrhoeal disease and cancers of the digestive system. Preliminary estimates suggest that about 11% of cases of cancer of the digestive system may be attributable to polluted drinking water.

In recent years, urban areas have implemented stricter environmental standards, thus polluting enterprises are propelled to relocate in rural areas where regulations remain loose. The moving of these industries, on one side, brings big revenue to local finances and, on the other side industrial pollutions exerts increasingly heavy pressure on the rural environment. China Daily (2013) reported that an increasing number of villagers in some areas have been diagnosed with cancer because of the pollutants discharged by industrial enterprises nearby.

In addition to the moving of modern polluting enterprises, modern agricultural models featured by animal husbandry and the use of fertilizers and pesticides have also become into a source of pollution in rural areas. In the past, due to the small amount and simple composition of the waste in rural areas, most of the household waste can be returned to nature by composting, simple landfill or rotting. However, the mode and elements of modern agriculture make the impact beyond the ability of natural purification. The overuse of fertilizers and pesticides greatly increased the yields of agricultural production, while it also polluted the water, contaminated the soil, produced the toxic solid wastes and also affected the entire food chain as well as human health. Irrigation with polluted water costs CNY 7 billion per year (World Bank, 2007).

The pollution comes from the daily life of the local residents and makes the environmental situation even worse. Garbage is abandoned everywhere: behind the house, on the streets, and around the river. Household waste has become one of the most serious issues that need to be resolved. The burning of the straw and firewood worsen the air situation. An increasing amount of

household sewage and poultry waste flows into nearby rivers, which contaminates the river water as well as the groundwater. Ministry of Environmental Protection of China (2012) described the environmental pollution in rural areas as “increasingly protruding” (quoted by China Daily, 2013).

1.1.2 Improvement of Environmental Consciousness Is a Fundamental Way to Solve Environmental Issues

The continuous and accelerating environmental deterioration becomes an urgent threat that we are facing. The development of science and technology, the introduction of legal frameworks and the economic instruments did not better the worsening situation much. The practice of environmental conservation has already proved that the environmental problem is not only a technological issue, but also a social issue. It is, as the final consequence, a result of “crises” in people’s values. In fact, in most situations, the destruction of environmental quality is caused by the improper understanding of the importance of the natural environment around us, and the situation is gradually getting worse year by year (Zheng and Yoshino, 2003). The solution to this problem calls for the adjustment of values and the improvement of environmental consciousness. The ongoing worsening trend of environmental conditions in rural China has its origins in institutional arrangement. However, the traditional lifestyle and habit, as well as anti-environmental attitudes and behaviours may also play an important part.

The fast economic growth and urbanization greatly improved the life quality of rural residents. The material life was enriched and the rural consumption was raised remarkably. Garbage problems, as a subsequent consequence, had come into being. With the wide spread of piped water in rural areas, more and more rural residents no longer used the well or river water, and the wells and rivers were polluted severely. The overuse of fertilizers and pesticides also exerted an extensive burden into the rural environment. The above facts indicate that with the

lack of a conformable and environmental attitude towards the environment, urbanization may lead to serious environmental destruction to rural environment.

The solution of environmental problems in China, especially in rural China, needs not only the financial and institutional means from the government, undertaking the social responsibility of the incorporations, but also the cultivation of environmentally friendly citizens. A governmental policy cannot be effective without citizens' support and involvement. Much of the environmental degradation that has occurred in the past, and is continuing today, is the result of the failure of our society and its educational systems to provide citizens with the basic understandings and skills needed to make informed choices about people-environment interactions and interrelationships (Roth, 1992). Pro-environmental behaviour and decisions conducted daily by citizens, as consumers, producers, and voters, can permit a sustainable human society. So we may see that environmental consciousness is the most fundamental element that evokes people's pro-environmental behaviour in daily life. The formation and improvement of people's environmental consciousness is fundamentally necessary to create a sustainable future.

1.2 Research Necessity and Significance

1.2.1 Remarkable Rural-Urban Division in China

The Chinese economy is characterized by a remarkable rural-urban division (Knight and Song, 1999). The long-time institutional, economic, and social segmentations make rural China become a distinctive society from the city. Urban and rural areas are two different, yet coexisting systems. They have different living styles and economic bases. Urban and rural residents are treated completely differently in terms of the economy, social welfare and many other respects (Yu, 2014). Due to economic reforms and the marketization of the economy, rural incomes have risen rapidly in real terms in recent years, and rural income poverty has been sharply reduced

(Knigh et al., 2009). However, the binary structure of urban and rural China still exists.

An abundance of farmland, traditional lifestyles and habits, and bigger household sizes are characteristics that people typically associate with rural areas. The rural society of China is a different, yet coexisting system with the urban area. A village is a relatively enclosed community characterized by its being aggregation of households in a compact residential area. Inside of the community, intensive interaction is carrying through, while few shared activities are conducted with other similar units and the external world. A famous Chinese sociologist *Xiaotong Fei* (1992) pointed out that the rural society in China is an 'acquaintances society' that is 'without strangers' and where 'people who work together and see each other every single day". According to the survey (Chen, 2014) in rural areas, 82% of respondents indicated that they know most of the people in their village; 34% of the villagers said that they know the 'overwhelming majority', and 48% said that they know the 'majority' of the people in their village.

The disparities are also reflected in the socioeconomic development in rural and urban China. A study published in the PNAS[1] estimated that China's Gini[2] coefficient increased from 0.30 to 0.55 from 1980 to 2012, and 10% of China's total inequality is attributed to the rural-urban gap (Xie and Zhou, 2014). According to the official data provided by *National Bureau of Statistics of the People's Republic of China*, disposable income per capita in urban and rural residents are 28,844 CNY[3] and 10,489 CNY in 2014, respectively. Urban residents' disposable income is 2.7 times bigger than rural residents'. A survey (*Peking University*, 2009,

[1] PNAS is abbreviation of Proceedings of the National Academy of Sciences of the United States of America.

[2] Gini coefficient, ranges from 0, which indicates perfect equality, to 1, as maximal inequality; a coefficient of 0.4 or higher is widely regarded as an indication of severe inequality in a society

[3] CNY is abbreviation of Chinese yuan

quoted by *China View*, 2009) carried out in Beijing, Shanghai and Guangdong Province by Peking University, revealed that only 0.7% of the 2,732 rural respondents had university degrees or higher, while 13.6% of the 3,253 urbanites polled did. Only 20% of the rural respondents have been to high school while the percentage for the urbanites stands at 85%.

The focus of this study is not to analyze the inequality between rural and urban China. However, these 'inequalities' do make rural and urban China different societies. Individuals embedded in different social structures are supposed to form distinctive social norms and behaviours. The social background and social structures in rural and urban areas supply us with a good context to explore the diverse social facets of environmental consciousness.

1.2.2 Academic Significance of Study on Environmental Consciousness in China

The study regarding environmental consciousness has a history of nearly 50 years since the concept of environmental literacy first emerged in the late 1960s (Roth, 1968, quoted in Roth 1992). Most of the research frameworks and conclusions are based on the Western cases. As some researchers argued 'considering the fact that these hypothesis are based on Western culture and on period varying between 1970s to 90s, different outcome can be expected from different culture and historical context' (Iizuka, 2000).

Researches regarding environmental consciousness in China started in the 1980s. It was in 1983 that the concept of environmental consciousness was shown in governmental documents, and that the *State Council* came up with raising environmental consciousness of the whole nation as an important measure of environmental protection in the *Second National Conference on Environment*. In 1984, environmental protection was identified as a basic national policy as well as a momentous measure to enhance Chinese environmental consciousness. Since then, environmental consciousness has been extensively adopted by the government and academia as

an independent and complete concept (CEAP[1], 2010). Extensive theoretical and empirical works revealed that with the worsening environmental situations in China, increasing environmental concern among Chinese people has come into being. According to national statistics, the number of environment-related complaints filed by Chinese citizens to environmental authorities has increased over 30% since 2002; roughly 50,000 environmental disputes happened in 2005 alone (Yu, 2014). However, according to the survey results, only weak or moderate environmental consciousness appeared. Early Chinese studies provided us with the basic information regarding environmental consciousness in China, but these researches and surveys involve the following issues.

First, these researches mainly focused on studying the environment in cities and environmental consciousness of urban residents. According to CEAP (2010), as far as the study object is concerned, question design and description of the system are, for the time being, more suitable for urban residents in developed areas. In 2003, *Chinese General Social Survey* (CGSS) was launched to gather longitudinal data on social trends and the changing relationship between social structure and quality of life in China. While the CGSS 2003 gave a sense of Chinese people's environmental attitudes, its scope was limited to urban samples, leaving out the attitudes of the rural Chinese (Yu, 2014). In 2010, half of Chinese population still lived in the rural areas, and 36.7% of total employment involved working in the agriculture sector which generated 10% of GDP (NBSC[2], 2011a). Paying appropriate attention to China's rural areas where have a population of more than 600 million is also an environmental justice issue.

Furthermore, Chinese studies seldom employed rigorous methodologies in evaluating environmental attitudes (Yu, 2014). Although some scholars (e.g., Hong, 2006), revised the

[1] CEAP is the abbreviation of China Environmental Awareness Program

[2] NBSC is the abbreviation of National Bureau of Statistics of China

NEP[1] scale and used it to measure the general public environmental attitude, the present researches regarding environmental consciousness in China still stay at a level of simply statistical description, and objective and quantitative analysis are needed.

1.3 Literature Review

1.3.1 Definition of Environmental Consciousness

The study regarding environmental consciousness has around 50 years of history since the concept of environmental literacy first emerged in the late 1960s (Roth, 1968, quoted in Roth 1992). However, some basic issues of environmental consciousness are not yet well-understood. It still remains unclear, for instance, how to define the concept of environmental consciousness strictly, how people become environmentally concerned, and what the main dimensions of environmental consciousness are. It was argued that there are hundreds of definitions of environmental concern (Dunlap/Jones, 2002), and there are more than 500 different operations designed to measure attitude (Fishbein and Ajzen, 1975). Furthermore, environmental consciousness is an interdisciplinary research object, which is involved with sociology, psychology and education studies, as well as ecology and environmental management. Scholars in different fields have different naming for the same concept, such as environmental concern, environmental literacy and ecological awareness. However, they all involve human-nature relationships as well as initiatives in participating in environmental issues.

Some studies took a 'paradigm or value shift' perspective and proposed that environmental consciousness represents a new worldview and reflects a new way of thinking (Dunlap, Van Liere, 1978; Inglehart, 1997). According to Inglehart (1990), the increase of environmental concern is considered as one of the phenomena caused by the 'value shift' from 'materialist' to

[1] NEP is abbreviation of "New environmental paradigm", which is introduced in detail in section 1.3.

'post-materialist', which indicated a 'shift' away from the long predominant preoccupation with material well-being and physical security toward greater concern for the quality of life, which included environmental quality (Iizuka, 2000). And according to Dunlap and Van Liere (1978), traditional values, attitudes and beliefs prevalent within our society all contribute to environmental degradation and/or hinder efforts to improve the quality of the environment, if ecological catastrophe is to be avoided, our society's fundamentally anti-ecological DSP[1] must be replaced by a new worldview, which is called the "New Environmental Paradigm" (NEP).

Some studies defined environmental consciousness as a function of different value orientations, such as egoism, altruism or some other deeper causes (Merchant, 1992; Stern, 1992; Axelrod, 1994). According to Stern (1992), at least four concepts can be found--often conflated--in the literatures and the measuring instruments of environmental concern: In one concept, environmental concern reflects a new way of thinking—an ecological awareness or NEP that some investigators claim is replacing the older, anthropocentric *Human Exceptionalism Paradigm* in people's thinking (Dunlap and Van Liere, 1978; Catton 1980, quoted in Stern, 1992); in another concept, environmental concern is tied to anthropocentric altruism：people care about environmental quality, not mainly for its own sake, but because they believe its loss threatens to harm the health or well-being of large numbers of people; in a third concept, environmental concern is a function of egoism: people care about environmental quality only to the extent they believe it may affect their own well-being or that of their close kin; in a fourth concept, environmental concern is a function of some deeper cause, such as Rokeach's "terminal values", underlying religious beliefs or a shift from materialist to post-materialist cultural values.

Some researchers also indicated that environmental consciousness is a general concept,

[1] DSP is the abbreviation of Dominant Social Paradigm

which is defined as the 'perception and understanding of threats, changes, and the options available' and 'values, attitude and preferences among conflicting goals' (Takala, 1991). Zheng (2009) defined environmental consciousness as a kind of mental behaviour that reflects the individual's recognition, value judgment and behaviour intention toward environmental issues. In most situations, it implies the individual's subjective cognition, perception and value judgment on the history, current situation, and change of specific environmental issue identified by a specific spatial and temporal context. Zheng (2009) also argued that environmental consciousness is the most fundamental element that evokes people's pro-environmental behaviour in daily life. Zheng's definition involves only the mental level of environmental consciousness. However, more previous researches included the behaviour dimension into the contents of environmental consciousness.

In the *Tbilisi Declaration* (1977) and a report of *Federal Interagency Committee on Education* (1978), an environmentally literate person is defined as someone who has:

(1) an awareness and sensitivity to the total environment;

(2) a variety of experience in and a basic understanding of environmentally associated problems;

(3) acquired a set of values and feelings of concern for the environment, and the motivation for actively participating in environmental improvement and protection;

(4) acquired the skills for identifying and solving environmental problems; and

(5) opportunities to be actively involved at all levels in working toward resolution of environmental problems.

According to the UNESCO-UNEP environmental education newsletter (1989), environmental literacy is a basic, functional education for all people, which provides them with the elementary knowledge, skills and motives to cope with environmental needs and contribute to

sustainable development.

Roth (1992) indicated that environmental literacy is not binary-either you are literate or you are not. Instead, there are three major levels of environmental literacy, which were named as nominal, functional, and operational literacy. Nominal environmental literacy indicates a person who is able to recognize many of the basic terms used in communicating about the environment. Persons at the nominal level are developing an awareness and sensitivity towards the environment along with an attitude of respect for natural systems and concern for the nature and magnitude of human impacts on them. Functional environmental literacy indicates a person who has a broader knowledge and understanding of the nature of interactions between human social systems and other natural systems. Operational literacy indicates a person who has moved beyond functional literacy in both the breadth and depth of understandings and skills, and routinely evaluates the impacts and consequences of actions; through gathering and synthesizing pertinent information, choosing among alternatives, advocating action positions, and taking actions that work to sustain or enhance a healthy environment.

By examining the definitions of environmental consciousness in previous researches, the author found that although there is a great deal of theoretical and empirical studies focused on environmental consciousness, in actuality, there is no agreed-upon definition of this concept in the current stage. Environmental consciousness has been treated as an evaluation of or an attitude towards the environmental issues, one's own behaviour, or others' behaviour from the environmental protection. It may refer to both a specific attitude directly determining intentions, or more broadly to a general attitude or value orientation (Weigel, 1983; Ajzen, 1989; Sjoberg, 1989; Takala, 1991, quoted in Fransson and Gärling, 1999).

1.3.2 Review of Major Theories Regarding Environmental Consciousness

Since environment concerned and participating citizens are expected to solve the present environmental crisis fundamentally, the status of public environmental consciousness, and the determinants of environmental consciousness and pro-environmental behaviours became the main concerns in this research field. Many scales are developed to measure people's environmental consciousness, and many models are proposed to examine how individuals decide to engage in different forms of pro-environmental behaviours. The following are the most classical theories and hypotheses widely cited in this field.

1.3.2.1 New Environmental Paradigm (NEP)

Although many instruments have been proposed to measure people's environmental consciousness, the NEP scale is by far the most extensively used and has been subjected to the most methodological assessment. According to Dunlap and Van Liere (1978) as well as other researchers (Dish, 1970; Pirages and Ehrlich, 1974; Stern, Dietz and Guagnano, 1995), our nation's ecological problems stem in large part from the traditional values, attitudes and beliefs prevalent in our society. These prevalent values, attitudes and beliefs comprise our society's 'dominant social paradigm' (DSP) and contribute to environmental degradation and hinder efforts to improve the quality of the environment. However, some new ideas, such as 'limits to growth', the necessity of achieving a 'steady-state' economy, the importance of preserving the 'balance of nature', and the need to reject the anthropocentric notion that 'nature exists solely for human use', have emerged in recent years, which represent a direct challenge to the DSP. These new ideas comprise a worldview which differs dramatically from that provided by the DSP, represents a revolutionary new perspective, and is named as the 'new environmental paradigm' (NEP).

In order to clarify the extent to which the public accepts these new ideas, Dunlap and his collaborators designed 12 items (see Table 1-1) concerning a range of environmental

issues—pollution, population and natural resources, which were called the NEP scale. Despite the contribution in the concept of NEP, this set of questions was also criticized for its weak internal consistency and correlation. Thus Dunlap and colleagues (2000) then developed the New Ecological Paradigm Scale to respond to criticisms. There are 15 items in the revised version of the NEP (Table 1-2). The original NEP scale and its revision have been wildly used in different countries, such as in the case of the United States (Kempton, Boster and Harley, 1995), in the case of Istanbul, Turkey (Furman, 1998, quoted in Iizuka, 2000), and the case of China (Hong, 2006).

Table 1-1 New Environmental Paradigm (Dunlap et al., 1978)

1. We are approaching the limit of the number of people the earth can support.
2. The balance of nature is very delicate and easily upset.
3. Humans have the right to modify the natural environment to suit their needs.
4. Mankind was created to rule over the rest of nature.
5. When humans interfere with nature it often produces disastrous consequences.
6. Plants and animals exist primarily to be used by humans.
7. To maintain a healthy economy we will have to develop a "steady-state" economy where industrial growth is contr
8. Humans must live in harmony with nature in order to survive.
9. The earth is like a spaceship with only limited room and resources.
10. Humans need not adapt to the natural environment because they can remake it to suit their needs.
11. There are limits to growth beyond which our industrialized society cannot expand.
12. Mankind is severely abusing the environment.

Table 1-2 Revised NEP Statements (Dunlap et al., 2000)

1. We are approaching the limit of the number of people the Earth can support.
2. Humans have the right to modify the natural environment to suit their needs.
3. When humans interfere with nature it often produces disastrous consequences.
4. Human ingenuity will insure that we do not make the Earth unlivable.
5. Humans are seriously abusing the environment.
6. The Earth has plenty of natural resources if we just learn how to develop them.
7. Plants and animals have as much right as humans to exist.
8. The balance of nature is strong enough to cope with the impacts of modern industrial nations.
9. Despite our special abilities, humans are still subject to the laws of nature.
10. The so-called "ecological crisis" facing humankind has been greatly exaggerated.
11. The Earth is like a spaceship with very limited room and resources.
12. Humans were meant to rule over the rest of nature.
13. The balance of nature is very delicate and easily upset.
14. Humans will eventually learn enough about how nature works to be able to control it.
15. If things continue on their present course, we will soon experience a major ecological catastrophe.

The NEP scale provides this study with an important reference as to how to measure people's environmental consciousness. However, a review of the items in the NEP scale indicates that it only measures people's abstract concept of the relations between human-nature. As Dunlap and his colleagues (1992) claimed, it taps "what social psychologists term 'primitive beliefs', in this case about the nature of the earth and humanity's relationship with it". Thus, the NEP scale only reflects partial contents of environmental consciousness.

1.3.2.2 Norm-Activation Theory

Schwartz's norm-activation theory was originally proposed to explain 'helping behaviour'. This theory offers a normative explanation for helping behaviour based on internalized or personal norms. The feelings of moral obligation are most likely to be activated when individuals are aware of the consequences of their behaviour towards the needy party, as well as when they ascribe responsibility to themselves for helping, and then guild people to behave altruistically. According to Schwarz (1977), this model spells out a process moving from the initial perception

of need through the activation of the normative structure and the generation of feelings of moral obligation to the eventual overt response. The theorized sequential process was elaborated as follows:

I. Activation steps: perception of need and responsibility

1. Awareness of a person in a state of need

2. Perception that there are actions which could relieve the need

3. Recognition of own ability to provide relief

4. Apprehension of some responsibility to become involved

II. Obligation step: norm construction and generation of feelings of moral obligation

5. Activation of preexisting or situationally constructed personal norms

III. Defense steps: assessment, evaluation, and reassessment of potential responses

6. Assessment of costs and evaluation of probable outcomes

(The next two steps may be skipped if a particular response clearly optimizes the balance of costs evaluated in step 6. If not, there will be one or more iterations through steps 7 and 8.)

7. Reassessment and redefinition of the situation by denial of:

a. state of need (its reality, seriousness)

b. responsibility to respond

c. suitability of norms activated thus far and/or others

8. Iterations of earlier steps in light of reassessments

IV. Response step

9. Action or inaction response

Although this theory was originally developed to explain altruistically motivated ‘helping behaviour’, however, this theory has also proved to be a useful theory and received substantial

empirical support in the environment context. In the most basic form of Schwartz's model, altruistic behaviour is mainly determined by two factors, the awareness of consequence (AC) and the ascription of responsibility (AR). The more severe consequence individuals are aware of and the more responsibility individuals feel they should take, the more likely it is that they will perform the altruistic behaviour (Schwartz, 1970 & 1977; Stern and Dietz, 1994).

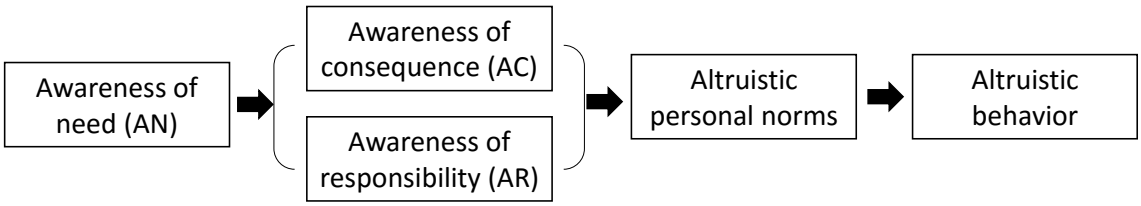


Figure 1-1 Schwartz's Norm-Activation Theory (elaborated by the author)

AC and AR have been taken as powerful predictors of altruistic behaviour (including pro-social behaviour and pro-environmental behaviour) and wildly used in many empirical literatures. However, this model is mainly used to explain the formation of altruistic behaviours based on Western cases. In this study, this model will be used to explain the formation of environmental consciousness.

1.3.2.3 Theory of Reasoned Action and Theory of Planned Behaviour

The theory of reasoned action was proposed by Fishbein and Ajzen (1975), and the theory of planned behaviour (TPB) is an extension of the theory of reasoned action which was proposed by Ajzen (1991). TPB was made necessary by the original model's limitations in dealing with behaviours over which people have incomplete volitional control (Ajzen, 1991).

In these two theories, the individual's 'intention' to perform a given behaviour is assumed to be a central factor to predict people's behaviour. In the theory of reasoned action, the intention to take action is determined by two factors. The first predictor is the attitude toward

the behaviour and refers to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behaviour in question. The second predictor is a social factor termed as subjective norm. It refers to the perceived social pressure to perform or to not perform the behaviour (Ajzen, 1991). TPB extended the theory of reasoned action by incorporating a third independent variable, perceived behavioural control, which refers to the perceived ease or difficulty of performing the behaviour (see Figure 1-2). As a general rule, the more favorable the attitude and subjective norm with the given behaviour, and the bigger perceived behavioural control on the behaviour, the stronger the intention the individual will have to perform the behaviour.

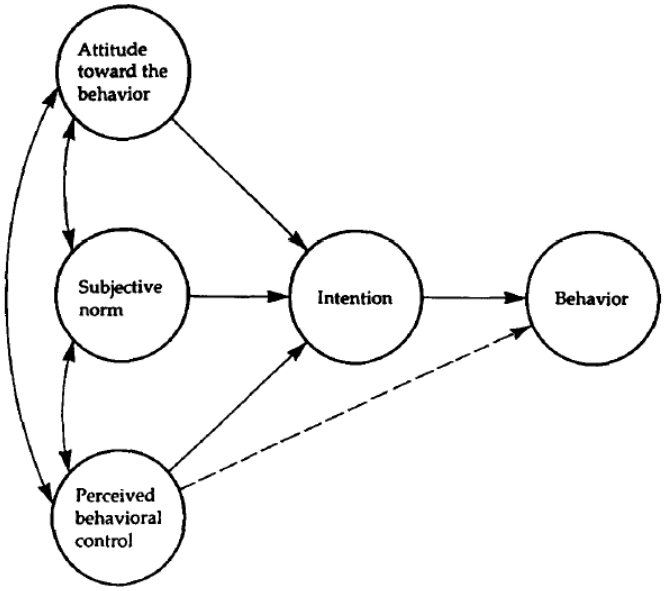


Figure 1-2 Theory of planned behaviour (Ajzen, 1991)

These two theories, especially TPB, have been subjected to plenty of empirical tests and showed considerable effectiveness in predicting many kinds of behaviours. However, it should be noted that the main purpose of Ajzen et al.'s model is to predict behaviour effectively. Therefore, variables that are helpful to increase the predictive ability of the model are

encouraged to be added in. Many scholars have suggested numerous additional variables for inclusion in the TPB, such as past behaviour, self-efficacy (Trumbo and O'Keefe, 2000, quoted in Iizuka, 2000), moral norms, personal norms, information processing or seeking (Griffin, Dunwoody, and Neuwirth 1999, quoted in Iizuka, 2000) and financial capability (Corbett 2002; Lynne et al., 1995, quoted in Iizuka, 2000). Even Ajzen (1991) claimed that "the theory of planned behaviour is, in principle, open to the inclusion of additional predictors if it can be shown that they capture a significant proportion of the variance in intention or behaviour after the theory's current variables have been taken into account."

1.3.2.4 Schematic Causal Model of Environmental Concern

The schematic causal model of environmental concern is a comprehensive framework that connects general worldview, through a causal chain of intermediate variables to intention and behaviour. Stern et al. (1995) proposed this model with the specific aim that incorporates the new environmental paradigm into a broad social-psychological framework. It is argued that the research on environmental values and attitudes focused on the environmental concerns of the general public, revealing a great deal about both trends in public opinion (Dunlap, 1992; Dunlap and Scarce, 1991, quoted in Stern et al., 1995), and the socioeconomic correlation of environmental concern (Jones and Dunlap, 1992; Van Liere and Dunlap, 1980, quoted in Stern et al, 1995), however, this literature has been criticized as a theoretical because it does not incorporate work on the social psychology of attitude formation and attitude-behaviour relations (Heberiein, 1981; Stern, 1992, quoted in Stern et al., 1995). The work of Stern et al. (1995) incorporates NEP, the most frequently used measure of public environmental concern, into a social-psychological framework of environmental concern (see Figure 1-3).

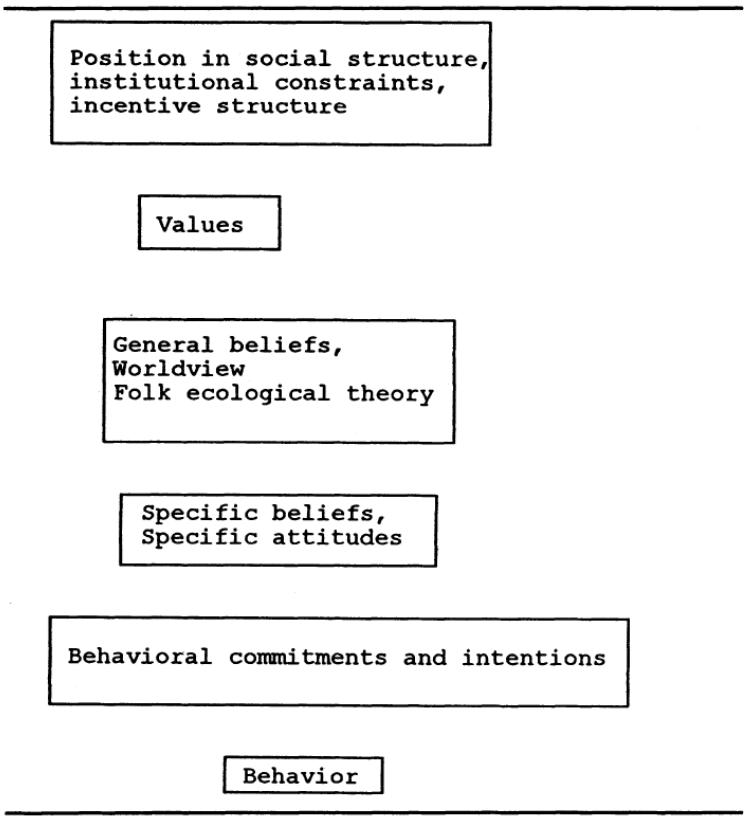


Figure 1-3 A schematic causal model of environmental concern (Stern et al., 1995)

According to Stern et al. (1995), this model has a hierarchical character. From top to bottom, there is a causal relationship between the variables. Values are seen as causally antecedent to worldviews, more specific beliefs and attitudes, and ultimately, behaviour. And in turn, specific attitudes and beliefs determine environmental behaviour (Stern et al., 1995; Poortinga et al., 2004). According to this model, the social-psychological researches, such as the theory of reasoned action, the TPB and Schwarz's norm-activation model, has typically focused on a lower level in the diagram. This indicates that Stern et al.'s model has linked NEP, norm-activation theory, and TPB theory into one framework to analyze the formation of environmental concern and behaviour. This linkage supplies this study a theoretical reference for incorporating related theories into one framework to interpret the formation of people's environmental consciousness.

1.3.2.5 Citizen's Pro-environmental Behaviour Formation Model

Another comprehensive framework that proposed to analyse the formation of people's environmental consciousness and behaviour is Zheng et al.'s (2006) citizen's pro-environmental behaviour formation model (see Figure 1-5). In this model, Zheng et al. classified the pro-environmental behaviours into six categories: civic action, educational action, financial action, legal action, physical action, and persuasive action. Influencing factors to these pro-environmental behaviours were clarified into five categories: environmental consciousness, belief towards the environment, the control towards the behaviour, personal norms, and external factors. According to this model, the knowledge, cognition, value judgment, activism attitude, social responsibility and social value judgment form the basis of people's consciousness. This consciousness raises people's recognition of the relation between human and nature, leading to the worries towards the degradation of the environment, and also the responsibility to protect the environment. Subsequently, the behavioural control, which includes the strategy, method, skill, as well as the prediction of the behaviour, is formed based on the emotional cognition. Furthermore, Zheng et al. also argued that the practice of the behaviours also affected by external factors, such as the cost of the action. The formation of environmental behaviour is the joint effects of internal and external factors, and the interactional result of the emotion and rational factors.

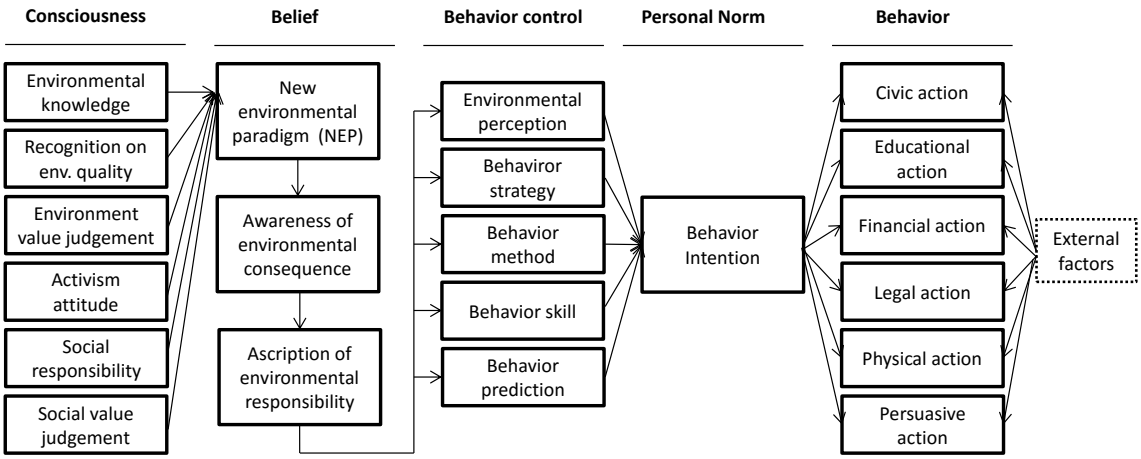


Figure 1-5 Formation process of pro-environmental behaviour (Zheng et al., 2006)

Except the formation model of pro-environmental behaviour, Zheng et al. (2006) also proposed an environmental consciousness formation framework, which is by far the only model the author found that focuses on explaining the formation of environmental consciousness just from a mental level (see Figure 1-4). According to this framework, environmental consciousness is formed in a specific spatial and temporal context. The spatial dimension of environmental consciousness indicated that environmental consciousness is formed in a specific social background and structure, which has diverse systems, norms and religions. It is derived from the interaction among different attitudes in a specific society or community. The temporal dimension indicated that environmental consciousness is formed in a process of environmental change in the past and at present.

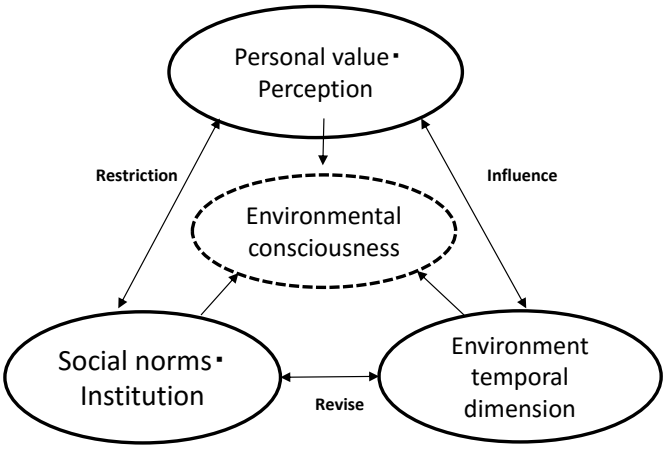


Figure 1-4 Formation process of environmental consciousness (Zheng et al., 2006)

According to Zheng et al. (2006), environmental consciousness is the most fundamental element that evokes people's pro-environmental behaviour in daily life. They put attention on the analysis of pro-environmental behaviours and the causality analysis between environmental consciousness and pro-environmental behaviour. Zheng et al.'s environmental consciousness formation framework supplies this study with some important clues.

1.4 Summary and Comments

Previous researches discussed environmental consciousness from diverse perspectives, which provided beneficial references for this study. The measurement of the NEP scale contributes to the understanding of environmental consciousness from a worldview or value orientation level. The norm-activation model identified two particularly important factors, AC and AR, to explain altruistic behaviour, which are considered to interpret the formation of altruistic consciousness in this study. Behaviour intention, which is taken as the central factor and deemed as joint function of dispositions in TPB theory, also plays an important role in the clarification of people's environmental consciousness in this study. And the general models of Stern et al. (1995) and Zheng et al. (2006) indicate this study to understand people's

environmental consciousness from a comprehensive perspective.

However, by the literature review, the author also found some limitations in the previous research, which have to be further clarified in order to identify the structure and formation mechanism of people's environmental consciousness in this study.

Firstly, it is still unclear how to define the concept of environmental consciousness. Until now, there is no single definition of environmental consciousness universally agreed upon. This is not because of the shorter research history, nor because of the fewer research efforts, but it may stem from the complexity of the environmental consciousness. Environmental consciousness is derived from the specific social structure. The special social background determines the contents and the characteristics of environmental consciousness. This is supposed to be the underlying cultural causes of the complexity of environmental consciousness. And as it is introduced in the previous section, environmental consciousness is an interdisciplinary concept. Different disciplines define environmental consciousness in different ways. Furthermore, the contents of environmental consciousness are broad and vague. It may refer to general cognition, specific attitudes and more broadly, to behaviours.

Secondly, few researches have dealt with the dimensions of environmental consciousness but the tendency focusing on behaviour-orientated aspects was significant. The major direction of previous researches was to predict environmental behaviour effectively. The recognition of AC and AR in norm-activated theory was aimed to explain the altruistic behaviour. The inclusion of additional predictors into the TPB theory is to increase the model predictive ability to the behaviour. Therefore, variables that can promote the predictive ability of the models were proposed to add into the model. This made the definition of environmental consciousness more obscure, and might also weaken the research importance on environmental consciousness itself.

This study doesn't deny the importance of research on behaviour, since behaviour is one of

most important criterions to evaluate people's environmental consciousness, and also the final goal to be achieved in the environmental consciousness study and environmental education system. However, despite the uncertainty between behaviour and consciousness that has been shown in some researches, the inherent linkage between 'good' consciousness and 'good' behaviour is advocated in this study. The improvement of environmental consciousness will fundamentally benefit the promotion of environmental behaviour. Therefore, the focus on environmental consciousness itself is necessary and has particular importance. The purpose of this study focuses on the clarification of structure and formation mechanism of environmental consciousness, instead of analysing the casual factors of pro-environmental behaviour formation.

Based on the above research background, the author found that it is particular necessary to have a clearly defined connotation and a theoretical framework in which environmental consciousness is discussed, in order to figure out the formation of people's environmental consciousness. These theoretical issues are discussed and mainly solved in Chapter 2.

Chapter 2

RESEARCH PURPOSE AND THEORETICAL FRAMEWORK

2.1 Research Purposes

This study aims to clarify the structure and formation mechanism of environmental consciousness under the different social backgrounds of rural and urban China, based on an integrated consideration of diverse dimensions of environmental consciousness and different socioeconomic situations in rural and urban societies in China, through comparing analysis of the survey data from a combined rural-urban sample survey. To be specific, this study aims to clarify the following:

Firstly, to clarify the concept and key dimensions of environmental consciousness, in order to clarify the theoretical framework under which the environmental consciousness is discussed;

Secondly, to identify the features and structure of environmental consciousness in rural and urban China by analyzing the survey data collected from rural and urban areas of China;

Thirdly, to integrally examine the formation mechanism of environmental consciousness by exploring the inner causes of environmental consciousness formation, and identifying the influences of socioeconomic situations and demographic factors to the formation of people's environmental consciousness;

Finally, based on proposed theoretical framework, and by integrally considering the inner causes and externally influencing factors of environmental consciousness, this study is to expected to figure out how does people's environmental consciousness come into being.

This study is supposed to be an important endeavor in clarifying the effects of rural and urban livings on people's environmental consciousness, and to supply beneficial references to

the understanding of Chinese people's environmental consciousness.

2.2 Conceptual Framework of Environmental Consciousness

In this study, environmental consciousness is defined as individual's value judgment, cognition and evaluation towards the environment, and the willingness to behave environmentally to help the environment. According to this definition, three key dimensions of environmental consciousness are identified in this study:

(1) General beliefs or value judgments towards the environment, which is called environmental worldview dimension; (2) specific beliefs and evaluations towards environment, which is called the environmental attitude dimension; and (3) people's willingness or motivation to take appropriate action to help the environment, which is called behaviour intention dimension.

Environmental worldview dimension focuses on people's abstract "primitive beliefs" toward the environment. Analysis of this dimension would enable us to approach the inner cause of environmental consciousness. The personal value system or worldview is considered as the fundamental factor in creating an attitude as well as promoting environmental action (Inglehart, 1990), as it acts as "'filters' for new information or ideas" (Stern, Dietz, Guagnano, 1995) and "information goes through the 'filter' is more likely to influence the formation of attitudes" (Kempton, Boster and Hartley, 1995). Values or worldviews are deemed as "standards or criteria that guide action as well as other psychological phenomena such as attitudes, judgements, and attributions" (Rokeach, 1979, quoted in Axelrod, 1994), and are rarely changed. In this context, the value/worldview is considered as one of the most important elements in decision making. Hence, it is very important to identify people's worldview or value judgements toward the environment in order to clarify the formation mechanism of people's environmental consciousness.

Environmental attitude dimension indicates people's specific beliefs or evaluations of the environment. Analysis on this dimension would enable clarification of the information base and emotional disposition of environmental consciousness. There were hypotheses that people with pro-environmental attitudes would behave as such. An attitude is defined as "an enduring set of beliefs about an object that predispose people to behave in particular ways toward the object" (Weigelt, 1983, quoted in Iizuka, 2000). Thus, the study on the trend of environmental attitudes is also considered as an important aspect. The most popular classification of attitude includes three categories of cognition, affect, and conation (Ajzen, 2005). The cognitive category of attitude is an expression of beliefs that link a given object with certain characteristics or attributes (Ajzen, 2005; Fishbein and Ajzen, 1975); the affective category of attitude deals with the evaluation of, and feelings toward the given object (Ajzen, 2005). Evaluative or affective consistency (favorable or unfavorable) is the feature of this category (Fishbein and Ajzen, 1975); the conative category deals with the behavioural inclinations, intentions, commitments, and actions with respect to the attitude object. This dimension is more closely related to the behavioural dimension, and is taken as belonging to the content of behaviour intention in this study. Cognition serves as the information base, and affect serves the emotional disposition to understand people's environmental consciousness. Therefore, the analysis on this dimension is also considered as particularly important.

Behaviour intention dimension deals with people's commitment, plan, or decision towards the environment. Analysis of this dimension would enable the prediction of the performance of people's pro-environmental behaviour more effectively. A number of theoretical and empirical studies have focused on the analysis of behaviour intention, since it is deemed as the disposition that the most closely linked to a specific behaviour (Fishbein and Ajzen, 1975, Triandis, 1977, Fisher and Fisher, 1992, quoted in Ajzen, 2005). Intention is an indicator of how hard people are

willing to try, and how much of an effort they are planning to exert, in order to perform the behaviour (Ajzen, 1991). It represents a person's commitment, plan, or decision to carry out an action or achieve a goal (Eagly and C haiken, 1993). Intention is a central factor both in the original theory of reasoned action and planned behaviour. A person's intention to perform (or not to perform) a behaviour is the most important immediate determinant of that action. In the present study, behaviour intention is taken as the third dimension of environmental consciousness, and is the last link of consciousness to behaviour.

Despite the complexity of environmental consciousness, this study clarified the three key dimensions of environmental consciousness. These three dimensions of environmental consciousness, from general environmental concern to specific attitude and behaviour intention, are supposed to reflect people's environmental consciousness from three important aspects.

2.3 Hypotheses on the Formation Process of Environmental Consciousness

Environmental consciousness is a subjective formation based on individuals' cognition and personal experience; yet, it is derived from and is affected by the specific social structure that individuals imbedded in. Zheng et al. (2006)'s environmental consciousness formation model indicated that environmental consciousness is formed in a specific spatial-temporal context, and is shaped in a process of environmental change in the history and at present. Emphasizing the spatial and temporal features of environmental consciousness is consistent with the present proposition that environmental consciousness is derived from, and is affected by the specific social structure. Zheng et al.'s model is taken as an important reference in this study.

This study supposes that environmental consciousness is a complex and multidimensional composition; it is derived from a specific social structure, affected by personal attributes, and influenced by the objective environment and specific social background that individuals are imbedded in.

Firstly, environmental consciousness has a subjective nature, and is formed based on individuals' cognition, personality and personal experiences. Environmental consciousness is subjective judgments towards the environment and environmental issues. The personal attributes play a crucial part in the formation of environmental consciousness. It is reflected on personal value judgments, attitude and intention towards environment. A complicated causal relationship and hierarchical characters are supposed to exist among these psychological variables. Altogether they interacted and become the causes of people's EC.

Secondly, this study supposes environmental consciousness is derived from a specific social structure. The specific social background determines the contents as well as characteristics of people's environmental consciousness. Social structure affects people's environmental consciousness in two ways. It "shapes early experience", and forms "individual's values and general beliefs or worldview" (Inglehart, 1990), and "provides opportunities and constraints that shape behaviour and the perceived response to behaviour" (Guagnano, Stern and Dietz, 1995). People live in the same social structure in where they share similar cultures and fates. Their individual cognition will be inevitably affected by the social norms and other's behaviour. Thus, people's environmental consciousness will present a common feature of that society. Rural and urban areas of China are two different coexisting societies. They are different in culture, tradition, and socioeconomic level. The similarity and dissimilarity of environmental consciousness in these two societies are concerns of this study.

Thirdly, environmental consciousness can be affected by the objective environment surrounded. Environmental determinism proposes that the environment (most notably its physical factors such as landforms and/or climate) determines the patterns of human culture and societal development. Whether this theory is appropriate or not is not a concerned issue in this study. However, the different environmental conditions and issues in rural and urban societies

are also supposed to play a part in the formation of environmental consciousness. Chemical fertilizers and pesticide, straw burning, and sewage irrigation issues are typical issues in rural societies but not in urban areas. Air pollution and water contamination are traditionally deemed as issues in urban areas. These different living conditions and environmental issues are supposed to be reflected in people's recognitions towards the environment.

2.4 Structural Components of Environmental Consciousness

After clarifying the concept and the formation process of environmental conscious, in this section, the detailed contents of each part of the theoretical framework of this study will be discussed. As described in the previous section, environmental consciousness is shaped by the social structures in where individuals are living, determined by personal cognition and attributes, and affected by the objective environmental condition. In this study, three key dimension of environmental consciousness, including environmental worldview, environmental attitude and behaviour intention are clarified. And the discussion on the behaviour dimension is excluded from this study, which is different from previous behaviour-centered researches. As an important link between social structure and social psychological variables, the influence of demographic factors to the formation of environmental consciousness is also carefully analysed in this study (see Figure 2-1).

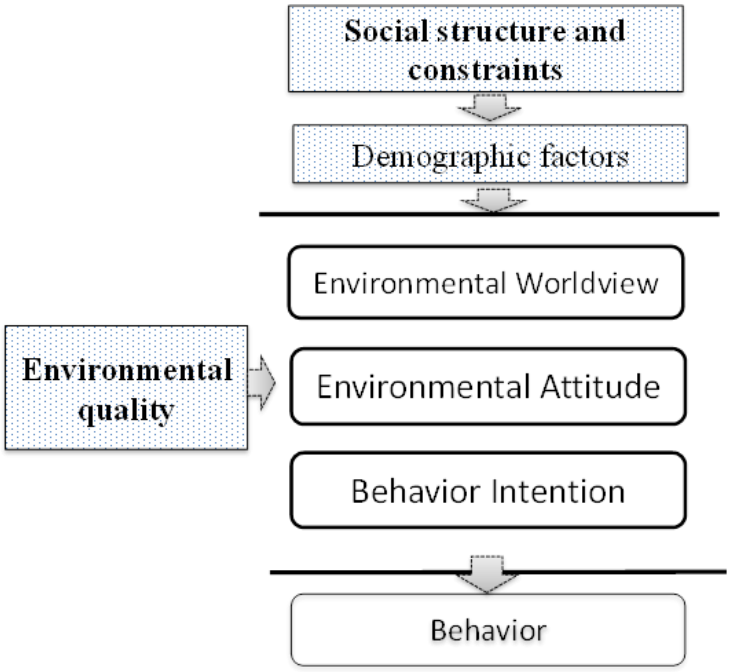


Figure 2-1 Structural components of environmental consciousness

Numerous studies over the last two decades have examined the associations between environmentalism and standard social structural categories (Dietz et al., 1998), such as age, gender, education experience, household income, political and religious affiliations, and place of residence. Previous research mainly focused on the influence of demographic factors to environmental behaviour, and conclusions showed that the younger generation, women, and those with higher social class (indicated by higher education, income, and occupational prestige) are more inclined to behave environmentally. As people's inherent social attribute, demographic factors are supposed to have substantial influence on all psychological variables. In the theoretical framework of this study, demographic factors are deemed as the links between social structural and social psychological variables. The inclusion of demographic factors into the theoretical framework of environmental consciousness is supposed to be important, since they emphasize the effects of the social structure in shaping people's psychological variables. In this study, gender, age, education and income are selected, and their influences to the formation of

environmental consciousness on three dimensions are analysed in detail respectively.

Environmental worldview is the first dimension of environmental consciousness and also is considered as the fundamental factor in creating an attitude and an action. The NEP scale has been typically used in previous research to measure people's worldview towards the environment. It concerns people's value judgments on a range of environmental issues, such as, pollution, population and natural resources. Taking the NEP scale as well as its variation in previous research, this study also forms a scale to measure people's value judgments regarding the relationship between humans and nature, economic growth and environmental destructions, the role of technology in solving environmental problems, and people's opinions about the capacity and vulnerability of nature and the rights of animals and plants. By this measurement, this study tries to clarify people's primitive beliefs toward the environment from different perspectives.

Environmental attitude, which deals with the cognitive and emotional dimension of people's cognition, is the second important dimension of environmental consciousness. The ability to recognize environmental problems when they arise and the perception of consequences in general or around a particular issue are the important features of environmentally concerned citizen. In the attitude dimension, people's cognitions regaining the severity of some environmental issues, people's environmental sensitivity to environmental quality and its change, as well as people's environmental anxiety and responsibility judgment are analysed. From the cognitive and affective perspectives, and based on the above indicators, this study formed a set of items to measure people's attitude towards the environment.

Behaviour intention, which is deemed as the most closely linked to the behaviour and the most important immediate determinant of a specific behaviour, is the third important dimension of environmental consciousness. Self-interest is traditionally identified as a major source of

environmental problems. The formation of altruistic or self-sacrificing motives is particularly important in leading people to behave in an environmentally conscious way. In the study, an indicator named as the “willingness to sacrifice” (WTS) for the environment is used to measure people’s sacrificial willingness towards the environment. Furthermore, the motivations underline several activities in daily life are also examined in the behaviour intention dimension. By these analyses, this study tries to clarify how hard people are willing to try, and how much of an effort they are planning to exert, in order to help the environment.

As described previously, predicting environmental behaviours is the main goal of previous research. However, the discussion on the formation of behaviour is excluded from this study, but the clarification of three dimensions of environmental consciousness is emphasized. Yet it is should be noted that environmental consciousness does not determine behaviour in any one-to-one fashion, but is combined with situational factors, such as cost and opportunity, to become an indicator of behaviour.

The above elaborations shaped the main contents of the theoretical framework and clarified the structure as well as components of environmental coconsciousness analysed in this study. The three dimensions of environmental consciousness, which include the environmental worldview, environmental attitude, and behaviour intention, are elaborated respectively in detail in Chapters 4~6 of this study. Chapter 4 deals with people’s worldview and value judgments regarding environmental issues; Chapter 5 aims to clarify people’s environmental attitude from people’s cognition and evaluations toward the environment; Chapter 6 aims to clarify the status as well as the formation of environmental intentions and motivations. The influence of demographic factors to the formation of people’s environmental consciousness on three dimensions is analysed in all three chapters.

Chapter 3

METHOD OF DATA COLLECTION AND DATA ANALYSIS

Based on the research purposes and framework clarified in Chapter 2, this chapter mainly focuses on the explanation of data collection and research method used in this study. In order to get basic information about people's environmental consciousness in present-day China, the author's method was to conduct a social survey based on scientific sampling. Questionnaires were designed and surveys were conducted, based on the proposed integrated framework and taking previous measurements of environmental consciousness as a reference. Detailed information about the survey and the contribution of the author in the surveys is introduced in the following sections.

3.1 Introduction

The data used in this study come from two surveys, *The East Asian Survey on People's Sense of Culture, Life and Environment* which was supported by the Grants-in-Aid for Scientific Research (A) of Japan Society for the Promotion of Science (No. 21241015, PI: Yuejun Zheng), and *Environmental Consciousness Survey in Rural areas of China・Shandong Ningyang* which was supported by Grant-in-Aid for JSPS Fellows of Japan Society for the Promotion of Science (No. 26・2063, PI: Yanyan Chen). The author attended both surveys in rural and urban areas.

The surveys in urban areas were conducted in two cities of China, including Beijing and Hangzhou, in October 2011. Beijing is the inland metropolis of northern China, and Hangzhou is a medium-sized coastal city in southern China. Under the guidance of Zhejiang A&F University, the author attended and supervised the survey in Hangzhou.

Regarding the survey in Hangzhou, in the pre-preparation stage (Aug. 30-Oct. 12), a list of

the communities to be surveyed was carefully confirmed by the author and other students; basic information, such as the population, ratio of gender and age, and access to the survey sites, were confirmed and added in; materials used in the survey, such as an introduction letter, pens and other stationeries were prepared; the author helped to choose 20 students (including the author) from two graduated schools as the interviewers. In the fieldwork stage (Oct. 13- Oct.25), the author and the other 19 interviewers visited 100 communities of Hangzhou, and by face-to-face interview successfully finished 1011 interviews (around 50 interviews per interviewer). During the fieldwork, all the interviewers reported their complete status to the author every day. And in the post processing stage (Oct. 26-Nov. 15), the authored supervised and attended the conduction of data input (mutual work) and data checking (by the author).

The whole process of attendance in the social survey in Hangzhou made the author rethink the present environmental problems in more in-depth. As a student majoring in environmental law, the author realized that the solution to the current environmental problems lies not only in the perfection of the environmental legal system, but also to which extent the public are approving of and implementing the law. The desire to be closer to the needs of the public and society, and to describe the common people's current situation and demands by using scientific methods fermented in the author's mind.

After that the author was more active in all kinds of environmental activities, especially the fieldwork in rural areas. This fieldwork made the author aware of the emergency of the environment. Environmental problems were no longer an issue in the cities alone, but now also in the villages. Considering the poorer facilities and weaker environmental consciousness in rural areas, environmental problems are even more severe there. In November 2013, the fieldwork in *Beichen* village of Shandong province finally made the author decide to conduct a statistical survey in rural areas of China. Shandong is the major agricultural province in China.

However, in consideration of the man-power and material resources available, the survey was only conducted in Ningyang county of Shandong province. After more fieldwork was done in March 2014 in some villages of Shandong, the formal survey was conducted in June 2014.

In the formal survey, the author employed 10 high school students from the local area as the interviewers. After the training, the author and interviewers started the survey. The author and the interviewers visited 51 villages in Ningyang county (see Figure 3-2 to check the administrative level of Ningyang), and by face-to-face interview successfully finished 508 interviews. Although the sample size was much smaller than in the urban areas, the survey difficulty was much harder, since there was no available public transportation between different villages. The interviewers had to use bicycles or motorbikes to go to the selected villages. It was common for the interviewers to ride more than one hour by bicycle to reach the next village. Another difficulty the interviewers met was the food supply. In the villages, it was difficult to find a restaurant. The interviewers had to take their lunch and water to most of the interviews.

During the above surveys, although had many difficulties, especially in rural areas, the author found it very necessary to conduct the social surveys in both rural and urban areas of China. As described in Chapter 1, rural China is a distinct society from urban China, and in the survey the author deeply felt this difference. However, in the previous studies less attention was paid to the environment and environmental consciousness in the rural areas of China. And there are even fewer studies focused on comparison of the environmental consciousness in rural and urban China. Sparse attention to environmental consciousness in rural areas in previous studies, and the remarkable rural and urban division in China make the author feel strongly the need to do the present compassion analysis in order to fully understand the environmental consciousness in China. The different social backgrounds in rural and urban areas supply us with a good context for understanding the diverse social facets of environmental consciousness,

and the same survey method and similar survey content (most of the survey questions are the same; questions that differ in the surveys are emphasized in the related following chapters) make this comparison possible. The data collected from surveys in both rural and urban areas are introduced and analysed in this study.

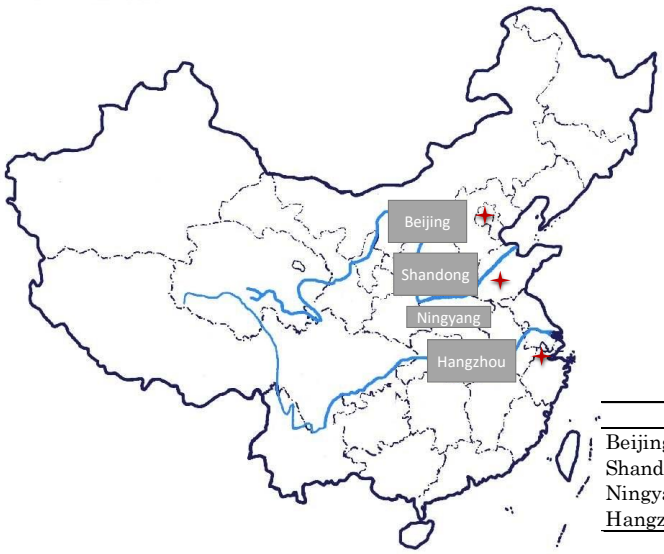
However, the author also found some limitations to this comparison. For example, the survey in rural areas was only conducted in *Ningyang* county of *Shandong* province due to the inadequate man-power and material resources. And there is also a time difference between the surveys in rural and urban areas. However, based on the clarification of these limitations, the present comparison analysis is still expected to supply some valuable information regarding the features and formation of environmental consciousness in China. Nevertheless, in order to make up for this time difference and supply more information about the surveyed areas, socioeconomic development (population, reginal GDP and urbanization rate) in 2014, and environmental conditions (including the quality of atmosphere, water, and eco-environmental status, and pollution discharge) in the past five years (from 2010 to 2014) are added in this chapter.

Shandong is one of the major agricultural provinces located in the northern part of China, where environmental condition, especially in its rural areas, is getting worsening. Beijing, where often makes headlines for its polluted air, is a metropolis in northern China which is geographically close to Shandong, and thus shares more similarities in environmental quality and regional culture. Hangzhou is a southern coastal city that typically has a good environmental condition as well as highly developed socioeconomic condition in China.

In this chapter, the socioeconomic situations of the surveyed areas are first introduced, the objective environmental conditions in the last five years then described, and finally, the specific sampling method and data collection are explained in detail.

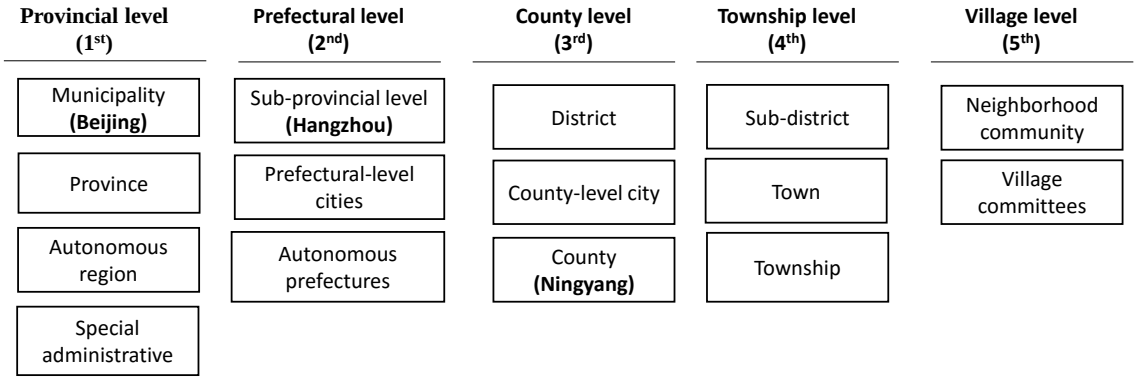
3.2 Socioeconomic Development in Surveyed Areas

Beijing is an inland metropolis of northern China, and Hangzhou is a coastal city in southern China. Considering the regional culture and environmental conditions, they are supposed to be good representative cities in China. Shandong is one of the major agricultural provinces in China. The rural areas in Shandong province are deemed typical in China. In the survey, only *Ningyang* country, which is located in the middle of Shandong province, was surveyed. The geographical locations of three surveyed areas are shown in Figure 3-1. The administrative levels of the surveyed areas in China are shown in Figure 3-2. And the detailed information regarding the socioeconomic development of the surveyed areas is shown in Table 3-1.



	Latitude (N)	Longitude (E)
Beijing	39.4° — 41.6°	115.7°— 117.4°
Shandong	34°22 —38°24′	114°48′ —122°42′
Ningyang	35°40'—35°37'	116°36'—117°38'
Hangzhou	29°11′ -30°33′	118°21′ -120°30′

Figure 3-1 Geographical locations of surveyed areas



Note: the District and Country-level city on the Country level (3rd level) are generally deemed as urban areas.

Figure 3-2 Administrative system in China

Table 3-1. Basic socioeconomic information of related areas

		Beijing	Hangzhou	Shandong	Ningyang
	Administrative level	Provincial level (Municipality)	Prefectural level (sub-provincial city)	Provincial level (province)	County level (county)
Unit: km2	Total area	16,411	16,596	157,100	1,125
	Permanent population	21,516,000	8,892,000	97,894,300	766,000
Unit: CNY	Regional GDP (billion)	2,133	920	5,942	35.5
	Per capita GDP	99,995	103,757	60,879	46,400
	Urban per capita disposable income	43,910	44,632	29,222	25,427
	Rural per capita net income	20,226	23,555	11,882	12,010
Unit: %	Regional industrial structure	0.7:21.4:77.9	3.0 : 41.9 : 55.1	8.1:48.4:43.5	15.0:44.8:40.2
	Urbanlization rate	86.2	75	55	38.2

Note: 1. Data (2014) was collected from:
Beijing Statistical Information Net. http://www.bjstats.gov.cn/xwgb/tjgb/ndgb/201502/t20150211_288370.htm;
Hangzhou Statistical information Net. http://www.hzstats.gov.cn/web/ShowNews.aspx?id=7UimVjccSo=;
People's Govenment of Shandong Province. http://www.shandong.gov.cn/art/2015/3/2/art_609_49028.html;
Ningyang Govenment. http://www.ny.gov.cn/index.php/cms/item-view-id-15143.html
2. Regional industrial structure is the ratio of primary, secondary and tertiary industry in value added percentage of GDP.

There are five levels of local government in the administrative system of China: the province, prefecture, county, township, and village. Beijing, the capital of China, is governed as a direct-controlled municipality (1st level) under the national government with 16 urban, suburban, and rural districts. Its population of permanent residents in 2014 was 21,516,000 (*Beijing Statistical Information Net*, 2014). Regional GDP is CNY 2,133 billion and GDP per capita is CNY 99,995. Beijing's economy ranks it among the most developed and prosperous cities in China. In 2014, its urbanization rate is 86.2% and it was the second largest Chinese city

by urban population after Shanghai (*The Beijing News*, 2014). The regional industrial structure ratio is 0.7: 21.4: 77.9.

Hangzhou, the largest city as well as the capital of Zhejiang Province, is classified as a sub-provincial city (2nd level) with a population of 8,892,000. Hangzhou forms the core of the Hangzhou Metropolitan Area. The GDP increased from CNY 156.8 billion in 2001 which ranked second among all of the provincial capitals after Guangzhou, to CNY 920 billion in 2014 with the GDP per capita closed to the level of high income economies (Zhejiang News, 2015). The urbanization rate was 75%, and the regional industrial structure ratio is 3.0: 41.9: 55.1.

Shandong is one of the major agricultural provinces in China. Rural inhabitants account for more than 62% of the provincial population, and the output of the agricultural sector ranks first in the China (Liu, Wang and Mol, 2013). In 2014, value added in the primary sector[1] in Shandong was CNY 479.84 billion (*Fenghuang net*, 2015), which is the highest in China. Shandong was the third wealthiest province with a GDP of CNY5.942 trillion in 2014. However, it was also the most populous province with 97,894,300 permanent residents. The per capita GDP in 2014 is CNY 60, 879. The urbanization rate was 55%, and the regional industrial structure ratio was 8.1:48.4:43.5.

Shandong is divided into seventeen prefecture-level divisions (including two sub-provincial cities). The seventeen prefecture-level divisions of Shandong are subdivided into 137 county-level divisions (51 districts, 28 county-level cities, and 58 counties). And the surveyed area *Ningyang* is one of the counties. *Ningyang* is located in the middle of Shandong province (35°40'N—35°37'N and 116°36'E—117°38'E) with 2 sub-districts, 11 towns, and around 560 villages under administration. In 2014, the census registered population was

[1] The primary sector of the economy is the sector of an economy making direct use of natural resources. This includes agriculture, forestry, fishing and mining. In contrast, the secondary sector produces manufactured goods, and the tertiary sector produces services

830,000, including 629,000 agricultural household registrations, and 202,000 non-agricultural household registrations. In 2014, the urban per capita disposable income (CNY 25,427) and rural per capita net income (CNY 12,010) in Ningyang were very close to the average level in *Shandong* province (CNY 29,222 and CNY 11,882 respectively).

According to the above description, the development in Beijing and Hangzhou is much higher than in *Ningyang*. The regional GDP of Beijing (CNY 2133 billion) is much higher than in Hangzhou (CNY 920 billion); however, per capita GDP in Hangzhou (CNY 103,757) is somewhat higher than in Beijing (CNY99,995). As an agricultural province, Shandong's rate of primary sector production is still high. And the per capita GDP and the urbanization rate are lower than the other two cities. As the rural areas of Shandong, *Ningyang's* social and economic development is even lower. However, the urban per capita disposable income and the rural per capita net income in *Ningyang* roughly represent the average level of Shandong province.

3.3 Environmental Conditions from 2010 to 2014 in Surveyed Areas

In this section, environmental conditions in the last five years (from 2010 to 2014) in the surveyed areas are provided, so as to clarify the environment status and its changes. The environmental quality, which includes the quality of atmosphere and water, eco-environmental status, and pollution discharge (waste gas, waste water and solid waste are introduced). The data mainly comes from the environmental bulletins issued by competent departments of environmental protection in each area. However, the author did not find relevant information issued by *Ningyang* county. As a reference, the environmental information issued by *Tai'an* city, the upper administrative level of Ningyang county, is supplied in this section. The detailed information are shown in Table 3-2~5.

Table 3-2 Environmental condition in Beijing from 2010 to 2014

				2010	2011	2012	2013	2014
Environmental Quality	Air quality (Unit:μg/m3)	SO2		32	28	28	26.5	21.8
		NO2		57	55	52	56	56.7
		PM10		121	114	109	108.1	115.8
		PM2.5					89.5	85.9
		PH value (Acid rain frequency)		5.08(25.5%)	5.52(9.8%)	5.34(28.1%)	5.38(16%)	5.76(19%)
	Water quality (Unit: O2, mg/l)	Permanganate (MnO4)	Overall		8.55	7.75	7.89	8.05
			River		9.36	8.36	8.45	8.57
			Lake		5.94	5.9	6.08	6.43
			Reservoir		3.38	3.66	3.57	3.61
		Ammonia Nitrogen	Overall		6.87	5.97	6.17	5.94
			River		8.43	7.22	7.42	7.13
			Lake		0.62	0.66	0.63	0.56
			Reservoir		0.21	0.19	0.4	0.21
	Eco-environmental stauts (EI)			66.1	66.4	67.5	66.6	66.9
Pollution Discharge (Unit:10000-ton)	Waste gas	SO2		10.44	9.79	9.38	8.7	7.89
		Nitrogen Oxides		19.77	18.83	17.75	16.63	15.1
	Waste water	COD		20.03	19.32	18.65	17.85	16.88
		Ammonia Nitrogen		2.2	2.13	2.05	1.97	1.9
	Solid waste			1268.92	1125.59	1104.05		

Note: Made by the author. Data was mainly colleted from Beijing Environmental statement 2010-2014.

Table 3-3 Water quality in Beijing from 2010 to 2014

2010	Grade I	Grade Ⅱ	Grade III	Grade Ⅳ	Grade ⅴ	Worse than Grade V
River		55.5		1.3		43.2
Lake		76.2		17.5		6.3
Reservoir		89.5		10.5		
2011	Grade I	Grade Ⅱ	Grade III	Grade Ⅳ	Grade ⅴ	Worse than Grade V
River		55.1		1.3		43.6
Lake				85.4		14.6
Reservoir		87.4		12.6		
2012	Grade I	Grade Ⅱ	Grade III	Grade Ⅳ	Grade ⅴ	Worse than Grade V
River		53.6		4.3		42.1
Lake		44.9		40.5		14.6
Reservoir		90.8		9.2		
2013	Grade I	Grade Ⅱ	Grade III	Grade Ⅳ	Grade ⅴ	Worse than Grade V
River		49.8		6.1		44.1
Lake		4		81		15
Reservoir		87.7		12.3		
2014	Grade I	Grade Ⅱ	Grade III	Grade Ⅳ	Grade ⅴ	Worse than Grade V
River		46.9		7.3		45.8
Lake		6.4		53.6		40
Reservoir		84.1		15.9		

Note: 1. Made by the author, the data come from Beijing environmental statement.
2.Classification standard is *Surface Water Standards in China* (GB3838-2002)

Based on Table 3-2 and Table 3-3, the author found that there were no obvious changes in environmental quality in Beijing in the past five years, and the environmental condition is somewhat unsatisfactory. Regarding the air quality in Beijing, except the SO_2, the level of NO_2,

PM10 in 2010~2014 all exceeded the limit of China's *Class 2* of *Ambient Air Quality Standards* (GB3095-2012, hereafter referred as 2012 air standard, see Appendix-3). And the PM2.5 in 2013 and 2014 exceeded the limit of Class 2 of the 2012 air standard. In the past five years, the level of SO_2 has kept decreasing. The level of PM 2.5 in 2014 was lower than in 2013. Regarding the water quality in Beijing, according to the data of 2010~2014, the quality of reservoir water was better than the lake and river water, and the river water was the worst. And according to the data in Table 3-3, more than 40% of the rivers in 2010-2015 were worse than the *Grade V* of *Surface Water Standards in China* (GB3838-2002). Regarding the eco-environmental Status, the EI[1] of Beijing in 2010-2014 was around 66 based on the *Technical Criterion for Eco-environmental Status Evaluation of China (HJ/T192－2006)*. Regarding the pollution discharge, there has been a decrease in SO_2 and nitrogen oxides in the waste gas, the COD and ammonia nitrogen in the waste water, and the solid waste in the past 5 years.

[1] EI is abbreviation of Ecological Index. According to *Technical Criterion for Eco-environmental Status Evaluation (HJ/T192－ 2006)*, EI＝0.25×Biological Abundance Index (BAI)＋0.2×Vegetation Index (VI)＋0.2×Water Network Density Index＋0.2×Land Degradation Index＋0.15×Pollution Index

Table 3-4 Environmental condition in Hangzhou from 2010 to 2014

			2010	2011	2012	2013	2014
Environmental Quality	Air quality (Unit:μg/m3)	SO2	Class 2	Class 2	Class 2	Class 2	21
		NO2	Class 2	Class 2	Class 2	Class 2	50
		PM10	Class 2	Class 2	Class 2	1.03*Class2	98
		PM2.5				70	64.6
		PH value (Acid rain frequency)	4.62(72.6%)	4.60(82.6%)	4.65(88.9%)	4.58(86.8%)	4.65 (80%)
	Water quality (Unit: O2, mg/l)	Qiantang river	Grade III (90.9%)	Grade III (95.5%)	Grade III	Grade III (95%)	Grade III (95%)
		Tiao river	Grade III	Grade III (96.3%)		Grade III	Grade III
		West lake	Grade IV	Grade IV	Grade IV	Grade IV	Grade III
		Qiandao lake	Grade I	Grade I	Grade I	Grade I	Grade I
	Eco-environmental stauts	Actual cultivated area (Unit:10000-mu)			342.82	342.59	339.04	338.75
		Total water resources (Unit:hundred millon m3)	190.4	136.7	221.26	141.15	163.01
		Forestry area (Unit: 10000-mu)	1626.82	1629.95	1632.65	1635.27	1642.38
		Forest coverage rate (%)	64.44	64.56	64.67	64.77	65.14
		Plant species			1200		
		Animal species			505		
		EI	89.5			89.3	
Pollution Dischage (Unit:10000-ton)	Waste gas	SO2	8.49	9.25	8.69	8.27	8.1
		Nitrogen Oxides		12.53	11.69	10.92	10.29
	Waste water	COD	12.12	11.07	10.48	10.05	9.54
		Ammonia Nitrogen	0.66	1.42	1.38	1.3	1.25
	Solid waste	Industrial solid wastes	707.23	763.76	706.84	705.66	737.11
		City household waste	250.21	261.06	281	308	330.53
		Industrial hazardous wastes	8.2	11.84	12.65		17.48

Note: 1. Made by the author. Data was mainly colleted from Hangzhou environmental statement 2010-2014.
2. Standard for the air quality is *Ambient Air Quality Standards* (GB 3095-1996).
3. Standard fro the water quality is *Surface Water Standards in China* (GB3838-2002).

From Table 3-4, the author found the environmental quality in Hangzhou was stable in the past five years, and the environmental condition in Hangzhou is better than in Beijing. Regarding the air quality, SO_2, NO_2, and PM10 were all classified into *Class 2* level in 2010~2013; only the level of PM10 in 2013 exceed the limit of *class 2* of *Ambient Air Quality Standards* (GB 3095-1996, hereafter referred as 1996 air standard, see Appendix-3). Since the author did not find the specific level of these elements during these years, so the comparison results with Beijing cannot be given using the current data. However, for the level of PM10, the limit of Class 2 in 1996 air standard (see Appendix-3) of PM10 is 100 μ g/m^3, while in 2010-2013 the content of PM10 in Beijing exceeds 100 μ g/m^3, so it can be figure out that (regarding PM10) Hangzhou has the better air condition. From 2012, many regions started to monitor the level of PM2.5. In 2013 and 2014 the levels of PM2.5 in Hangzhou were 70 μ g/m^3

and 64.6 μ g/m^3 respectively, and are much lower than in Beijing (89.5 μ g/m^3 and 85.9 μ g/m^3). And in 2014 all the main air indexes in Hangzhou were lower than in Beijing, which indicates a better air condition. However, the frequency of acid rain in Hangzhou is much higher than in Beijing. Regarding the water quality, the quality of the rivers and lakes in Hangzhou were evaluated as from Grade I to Grade V level based on the S*urface Water Standards in China* (GB3838-2002). Both Beijing and Hangzhou used the same standards (GB3838-2002), so from the comparison the author found that the water condition in Hangzhou is also better than in Beijing. Regarding the eco-environmental status in Hangzhou, the forest coverage rate is around 65%, which is much higher than the national average (21.63%) and in Beijing (around 40%). The EI in Hangzhou in 2010 was 89.5 and was 89.3 in 2013, while in Beijing it was 64.44 and 64.77 respectively. Regarding the pollution discharge in Hangzhou, the SO_2 of waste gas in Hangzhou in 2014 was higher than in Beijing, but all the other indexes were lower than in Beijing from 2010-2014.

Table 3-5 Environmental condition in Tai'an from 2010 to 2014

			2010	2011	2012	2013	2014
Environmental Quality	Air quality (Unit:μg/m3)	SO2	49	52	53	65	50
		NO2	42	42	39	50	44
		PM10	97	98	94	141	136
		PM2.5					77
	Water quality (Unit: O2, mg/l)	Dongzhou reservoir	Grade III	Grade III	Grade III	Grade II	Grade III
		Wangtai bridge	Grade III	Grade III	Grade III	Grade III	Grade III
		Dawenkou rivier	Grade IV	Grade IV	Grade IV	Grade IV	Grade IV
		Dongping lake	Grade III	Grade III	Grade III	Grade III	Grade III
		Potable water	Grade III	Grade III	Grade III	Grade III	Grade III
	Noise level (Unit:dB)	Road traffic noise		342.82	342.59	339.04	338.75
		Daytime regional environment noise	190.4	136.7	221.26	141.15	163.01

As described previously, the environmental information in Ningyang county was not found, so the information issued by Tai'an city which is the next higher level of administrative

department of Ningyang county, is supplied as a reference. However, even the information from Tai'an city is somewhat incomplete. From Table 3-5, the author found that compared to Beijing, the level of SO_2 in Tai'an is much higher, while the level of NO_2 is somewhat lower during 2010-2014. For PM10 in 2010-2012, the level in Tai'an was lower than in Beijing. However, the PM10 in 2013 and 2014 in Tai'an was increased quickly and exceeded the level in Beijing. In 2014, the PM2.5 in Tai'an (77 μ g/m^3) was lower than in Beijing (85.9 μ g/m^3). Regarding the water in Tai'an, most of the water was evaluated as Grade III based on the *Surface Water Standards in China* (GB3838-2002). Information of pollution discharge in Tai'an was not found.

From the above description, the author found that the observed environmental indexes fluctuated up and down somewhat, yet still maintain steady in the past five years. From the current data, there was no obvious change in environmental condition in the surveyed areas. From the main indexes of environmental quality and pollution discharge, the author also found the environmental condition in Hangzhou was better than in Beijing and Tai'an. In actuality, the environmental condition in Hangzhou ranks among the best in China. And also taking the highly developed socioeconomic situation into consideration, environmental consciousness in Hangzhou is supposed to represent a well-developed level in China. Both located in the northern part of China, and geographically close to each other, Tai'an and Beijing present more similarities in environmental conditions with each other than with Hangzhou. In this study, the comparison analysis of environmental consciousness is firstly conducted between rural areas of Ningyang with Beijing, and then with Hangzhou.

3.4 Survey Information and Sampling Method

3.4.1 The Outlines of the Surveys

In order to learn about people's opinion toward the environment and environmental issues, social surveys were conducted in both rural and urban areas of China. Questionnaires were used by the investigators to interview the respondents who were scientifically selected. All Chinese citizens aged 18 and older were eligible survey participants provided they were capable of responding to the questions. Multistage sampling was adopted to select the samples in all surveyed areas. Face-to-face interviews were conducted in the selected sampling points. More detailed information of the surveys in each area is introduced in the following parts. However, since the detailed information about the surveys in Beijing and Hangzhou has been presented in *The East Asian survey on people's sense of culture, life and environment - Japan, South Korea and China (2010~2011)* - (Zheng, 2012), survey information in Beijing and Hangzhou are only introduced simply while the sampling and process of the survey in Ningyang are explained in detail in the following parts .

3.4.2 General Information on Sampling in Beijing

Among the 13 districts and 5 counties that fall under the administration of Beijing's government, 12 districts were selected to conduct the survey based on the population and the geographic position of the urban areas in Beijing, The general information is as following:

(1) Surveyed areas: Dongcheng, Xicheng, Chaoyang, Fengtai, Shijingshan, Haidian, Fangshan, Tongzhou, Shunyi, Changping, Daxing, Mentougou.

(2) Population: Beijing citizens aged from 18 to 79 years old.

(3) Number of sampling sites: 100

(4) Sampling method: Multistage sampling (Quota)

① Based on the population of the districts, 100 communities were selected

② Based on the population of different gender and age categories, 10 individuals were selected in each community.

(5) Survey time: October 2~16, 2011.

(6) Survey method: Face-to-face interview.

(7) Number of valid samples: 1000

Note: For information regarding population and detailed sampling methods in Beijing see *The East Asian survey on people's sense of culture, life and environment-Japan, South Korea and China (2010~2011)*- (Zheng, 2012).

3.4.3 General Information on Sampling in Hangzhou

Among the 8 districts, 3 county-level cities and 2 counties that fall under the administration of Hangzhou government, 8 districts and two county-level cities were selected to conduct the survey based on the population and the geographic position of the urban areas in Hangzhou. The survey method in Hangzhou was same with in Beijing. The general information is as following:

(1) Surveyed area: Shangcheng, Xiacheng, Jianggan, Gongshu, Xihu, Binjiang, Xiaoshan, Yuhang (8 districts), Fuyang, Linan (2 county level cities).

(2) Population: Hangzhou citizens aged from 18-79 years old.

(3) Number of sampling sites: 100

(4) Sampling method: Multistage sampling (Quota)

① Based on the population of the districts, 100 communities were selected

② Based on the population of different gender and age categories, 10 individuals were selected in each community.

(5) Survey time: October 13-25, 2011.

(6) Survey method: Face-to-face interview.

(7) Number of valid samples: 1011

Note: For the information regarding population and detailed sampling methods in Hangzhou see *The East Asian survey on people's sense of culture, life and environment-Japan, South Korea and China (2010~2011)*- (Zheng, 2012).

3.4.4 Sampling and Fieldwork in Ningyang

Ningyang is a county-level area, which includes 2 sub-districts (Wenmiao and Baxianqiao), 9 towns (Ciyao, Dongshu, Fushan, Lichegn, Huafeng, Geshi, Sidian, Jiangji and Dongzhuang) and two townships (Heshan and Xiangyin). In 2014, the census registered population is around 830,000, including 629,000 agricultural household registrations and 202,000 non-agricultural household registrations. The non-agricultural household registrations were mainly in the two sub-districts, Wenmiao and Baxianqiao. However, considering the geographic position and administrative level of these two sub-districts, they are ordinarily considered as rural areas.

3.4.4.1 Survey Planning

(1) Surveyed areas: Wenmiao (sub-district), Ciyao, Fushan, Huafeng, Sidian, Dongzhuang (town), Xiagnyin (township).

(2) Population: Ningyang residents aged from 18-79 years old.

(3) Number of sampling sites: 50

(4) Sampling method: Multistage sampling

① Select 7 township level areas by the equi-interval sampling method

② Select 50 villages based on the population

③ Select 10 individuals in each village according to the quota gender and age (one male and one female in each of the 5 designated age categories).

(5) Survey time: June 11-29, 2014.

(6) Survey method: face-to-face interview.

3.4.4.2 Basic Data and Sampling Method

According to the data in 2012 (see Table 3-6), Ningyang had 252,025 households and a population of 817,956, which included a non-agricultural population of 196,591. Based on the information in Table 3-6, 7 township-level areas, Wenmiao (sub-district), Ciyao, Fushan, Huafeng, Sidian, Dongzhuang (town), Xiangyin (township) were selected to conduct the social survey by equi-interval sampling method.

Table 3-6 Basic information of Ningyang County

Town	Households	Poplulation	Male	Female	Male/Female ratio	Uder18 years	Ratio in poplulation (%)	18~35 years	Ratio in poplulation (%)	35~60 years	Ratio in poplulation (%)	Over 60 years	Ratio in poplulation (%)
	252,025	817,956	416,882	401,074	1.04	146,321	17.9	222,031	27.1	326,070	39.9	123,534	15.1
Wenmiao	26,285	67,699	35,488	32,211	1.10	12,505	18.5	16,883	24.9	21,035	31.1	17,276	25.5
Baxianqiao	12,715	37,029	18,620	18,409	1.01	7,293	19.7	9,666	26.1	15,692	42.4	4,378	11.8
Ciyao	29,492	94,799	48,728	46,071	1.06	17,125	18.1	25,286	26.7	38,544	40.7	13,844	14.6
Dongshu	17,354	60,903	30,539	30,364	1.01	10,961	18.0	15,123	24.8	25,805	42.4	9,014	14.8
Fushan	19,382	66,566	33,122	33,444	0.99	11,455	17.2	19,303	29.0	27,430	41.2	8,378	12.6
Gangcheng	24,831	80,239	40,564	39,675	1.02	14,339	17.9	21,858	27.2	32,246	40.2	11,796	14.7
Huafeng	29,025	94,495	48,758	45,737	1.07	16,964	18.0	24,990	26.4	40,708	43.1	11,833	12.5
Geshi	21,485	67,813	34,859	32,954	1.06	10,937	16.1	19,059	28.1	27,400	40.4	10,417	15.4
Sidian	12,285	43,489	21,714	21,775	1.00	7,767	17.9	11,495	26.4	17,454	40.1	6,773	15.6
Jiangji	14,814	51,387	26,170	25,217	1.04	9,046	17.6	16,112	31.4	19,221	37.4	7,008	13.6
Dongzhuang	18,451	60,474	31,069	29,405	1.06	11,595	19.2	16,594	27.4	23,601	39.0	8,684	14.4
Heshan	14,393	56,213	28,461	27,752	1.03	10,275	18.3	15,210	27.1	22,372	39.8	8,356	14.9
Xiangyin	11,513	36,850	18,790	18,060	1.04	6,059	16.4	10,452	28.4	14,562	39.5	5,777	15.7

Note: Twon in bold were selected

The selected 7 towns have 315 villages and 370,188 residents in total. According to the survey design, 50 out of 315 villages were chosen. It is every other 7,403 persons chose one village. According to the population in each village, 50 villages were probabilistically selected firstly. In consideration of the studied area in pilot survey, Beichen village was also added to the surveyed areas. In total, 51 villages were selected. Based on the information in Table 3-6 and in other documents, the ratio of the population in designated age categories (18~29, 30~39, 40~49, 50~59, 60 years and older) in Ningyang couldn't be calculated. Therefore, during the survey, 10 individuals (one male and one female in each of the 5 designated age categories) in each selected village were selected to do the interview.

3.4.4.3 Executable Report of the Fieldwork

(1) Pre-preparation (June 11~14, 2014)

In this stage, the main tasks were questionnaire printing, respondent gift preparation, and interviewer selection and training. The delicately packed gift for the respondents and stationery (recording pen, paper file, inkpad[1], and so on) were bought, and questionnaires, quota forms and show cards were printed. 10 students in the local area were selected. Before the formal fieldwork, they were trained to follow the survey procedures and to understand the survey questions in the questionnaires. The gifts and stationeries were distributed to the interviewers. The interviewers were also provided with questionnaires (attached in Appendix), show cards, and per sample quotas for gender and age.

(2) Fieldwork (June 15-26, 2014)

In this stage, the main tasks were to conduct the interviews and the supervision of the survey. The interviewers were asked to finish 5 interviews per day by face to face as the sample quotas required. Most of the time, the interviewers were able to enter the respondents' home and do the interviews. The interviewers were also asked to record the starting and ending time and write them down in the front page of the questionnaires. The author also took part in the interviews, especially in the occasions that the interviewers could not finish. In the last several days, cars were rented to send the interviewers to the far villages, and also to the villages in where the sample quotas had not been fulfilled. In order to make sure the safety of all interviewers, and the survey process carried on in a planned way, interviewers were required to report the completion of the survey and the safety to the author every day. According to the status of the reports, the author managed the proceeding of the survey.

[1] Every surveyed respondent need sign in one prepared sheet in order to get the gift. However, considering the low education level in rural areas, inkpads were prepared for the respondents who couldn't sign to put their fingerprints to the sheet.

(3) Post-processing (June 27-29, 2014)

All the data of questionnaires were inputted two times into the prepared excel form by different interviewers. A simple program was used to check whether the two times input were same. If different, the original questionnaires would be used to decide what the correct answer is. The amount of the post-processing work was extremely huge. However, we tried to finish the two times check in the planned time. After came back to the university (in July), the author printed all the inputted data, and checked them by comparing to the data in original questionnaires one by one again to make sure the input are absolutely same with the questionnaires. After the third time check, all questionnaires were scanned and saved into the data files.

3.4.4.4 Valid Samples

Except two required respondents in Fushan and Xicui town couldn not find, the other 508 planned interviews were successfully finished.

3.5 Analysis Method

The main analysis methods used in this study are proportion test, correspondence analysis and logistic regression analysis.

Proportion test is used to test the null hypothesis in which the proportions (probabilities of success) in several groups are the same, or they are equal to a given value. The purpose of proportion test is to determine whether the differences of environmental consciousness between rural and urban regions are significant. However, many researchers argued that only the significant P value for an analysis is not adequate to fully understand the results, since with a sufficiently large sample, a statistical test will almost always demonstrate a significant difference. Thus in this study, not only the statistical significance (P value) is reported, the substantive significance (effect size) is also provided. The index used in this study is Cohen's d

value. Cohen classified effect sizes as small (d=0.2), medium (d=0.5), and large (d≥0.8) (Sullivan and Feinn, 2012).

Correspondence analysis (CA) has an extensive, multi-national literature. It was re-discovered several times in different fields and different countries. It is a descriptive/exploratory technique designed to analyze simple two-way and multi-way tables containing some measure of correspondence between the rows and columns (Friendly, 2000). CA provides visualizations of associations in a 2-ways contingency table in a small number of dimensions. The results allow us to explore the structure of categorical variables included in the table. Mathematically, CA is related to the biplot, to canonical correlation, and to principal components analysis (Friendly, 1991, quoted in Friendly 2000). CA finds scores for the row and column categories on a small number of dimensions, which account for the greatest proportion of the x^2 for association between the row and column categories, just as principal components account for maximum variance. These scores provide a quantification of the categories and have the property that they maximize the correlation between the row-and-column variables (Friendly, 2000).

Multiple correspondence analysis (MCA) is a generalization of CA to three or more variables based on representing the data as an indicator matrix. The usual MCA provides an analysis of the joint, bivariate relations between all pairs of variables. MCA method is a statistical technique for high-dimensional categorical data which allows us to analyze the pattern of relationships among more than three categorical variables (Zheng, 2009). The most typical analysis starts by defining indicator ("dummy") variables for each category and re-expresses the n-way contingency table in the form of a cases-by-variables indicator matrix, Z. Simple correspondence analysis for a 2-way table can, in fact, be derived as the canonical correlation analysis of the indicator matrix. Unfortunately, the generalization to more than two variables

follows a somewhat different path, so that simple CA does not turn out to be precisely a special case of MCA in some respects, particularly in the decomposition of an interpretable x^2 over the dimensions in the visual representation.

The purposes of conducting correspondent analysis are to clarify the regional features of environmental consciousness and the relationship among different variables of environmental consciousness in each region. For graphical display, two or three dimensions are typically used to give a reduced rank approximation to the data (Friendly, 2000). In this study, since in most of the MCA analyses, the cumulative contribution of the first two dimensions could supply more than 50% information, the graphical display only focuses on the first two dimensions.

Logistic regression is a form of statistical modeling that is often appropriate for categorical outcome variables. It describes the relationship between a categorical response variable and a set of explanatory variables. The response variable is usually dichotomous, but it may be polytomous, that is, have more than two response levels. These multiple-level response variables can be nominally or ordinally scaled (Stokes, Davis, Koch, 2012).

An odds ratio (OR) is a measure of association between an exposure and an outcome. The OR represents the odds that an outcome will occur given a particular exposure, compared to the odds of the outcome occurring in the absence of that exposure. OR=1 implies there is no difference between the outcomes within and without the exposure. OR> 1 implies the control is better than the intervention, and OR< 1 implies the intervention is better than the control. The regression coefficient of logistic regression is the estimated increase in the log odds of the outcome per unit increase in the value of the exposure. The confidence interval (CI) is used to estimate the precision of the OR. CI are used because a study recruits only a small sample of the overall population so by having an upper and lower confidence limit we can infer that the true population effect lies between these two points. Most studies report the 95% confidence interval

(95%CI).

In this study, logistic regression is conducted to clarify the causal reasons and their influencing effects to the formation of positive WTS and the environmental motivation. The OR and the 95%CI are given to present the effects of the controlled variables.

In the surveys, demographic factors including gender, age, education level and household income were investigated. In the analysis, the age, education and income were combined into low, middle and high categories. In consideration of the differently socioeconomic reality in surveyed rural and urban areas, as well as the distribution of the collected samples, the standards for classifying education and income categories in rural and urban areas are set as different. The classification is a relative standard used in a given region based on the regional reality. And the comparisons are also conducted in each region and try to figure out which group of people is more likely to have environmentally friendly consciousness. Thus, the different classification standards in the surveyed areas have no significant influence to the analysis results. The detail classification and proportion in each category in surveyed areas are shown in Table 3-7.

Table 3-7. Classification standard and proportion in each category

		Rural Area	**Urban Area**	
		51 villages (%)	Beijing (%)	Hangzhou (%)
Gender	Male	50	50.9	51
	Female	50	49.1	49
Age	Young	18-34 (27.0)	18-34 (40.1)	18-34 (33.1)
	Middle	35-49 (45.5)	35-49 (29.8)	35-49 (32.4)
	Old	Over 50 (27.6)	Over 50 (30.1)	Over 50 (34.4)
Education	Low	No education/Less than one year/ Elementary school no graduate/ Elimentary school (37.8)	Less than one year / Elementary school / Middle school (33.6)	Less than one year / Elementary school / Middle school (47.4)
	Middle	Junior high school (39.4)	High school (26.3)	High school (20.2)
	High	High school / Junior college / vocational school / University / Graduate school (22.9)	Junior college / vocational school / College / Graduate school (40.1)	Junior college / vocational school / College / Graduate school (32.4)
Income	Low	~20,000 yuan (39.2)	~40,000 yuan (42.7)	~40,000 yuan (27.9)
	Middle	20,000~50,000 yuan (47)	40,000~100,000 yuan (34.7)	40,000~100,000 yuan (44.6)
	High	50,000 yuan~ (13.8)	100,000 yuan~ (22.6)	100,000 yuan~ (27.6)

The software package used for statistical analysis in this study is IBM SPSS Statistics (2015). Percentages used in this study are valid percent which excludes the missing value. Variables that influenced obviously by the missing value are noted in the diagram.

Chapter 4

ANALYSIS REGARDING ENVIRONMENTAL WORLDVIEW AND VALUE JUDGMENTS

4.1 Introduction

Literatures on environmental worldview tend to refer to the concept of "paradigm". Pirages (1977:6, quoted in Dunlap and Van Liere, 1984) uses the concept of the "dominant social paradigm" or DSP as a useful shorthand term for the constellation of "common values, beliefs, and shared wisdom about the physical and social environments" that constitute a society's basic worldview. A substantial portion of research literatures in environmentalism have argued that environmental problems in large part stem from our society's traditional values, beliefs, and ideologies (Disch, 1970). Swan (1971) argued that "at the root of the ecological crisis are the basic values which have built our society". They are, as the final consequences, the results of the "crisis" in people's values. Thus, in order to solve the environmental issues fundamentally, a more ecologically benign worldview which is typically represented by the NEP, is needed.

Devaney Harblin (1977) summarized the current American values into Prominent American Values (PAV) and values within American culture that appear to some observers to be ascending in importance (AV). PAV were selected because of their collective pivotal importance as obstacles to a fairly comprehensive American cultural transition toward an expanded environmental consciousness and commitment to desirable human futures. AV, by contrast, is expected to establish firmly an environmental ethic as a guiding gyroscope for American cultural processes. Furthermore, Harblin also classified the selected values into general orientation (e.g., egoistic hedonism, materialistic progress and growth), human-environment relationship (e.g., exploitation

of the environment for economic gain), human-human relationship (encompassing radical individualism), and methods of problem solving (e.g., science as an adjunct of the marketplace) categories. Dunlap and Van Liere (1984) discussed the influences of commitments to the society's dominant values and beliefs (or DSP), to environmental concerns. Eight dimensions of the DSP, support for laissez faire government, support for the status quo, support for private property rights, and faith in science and technology, support for individual rights, support for economic growth, faith in material abundance, faith in future prosperity, were clarified and their negative relationships with environmental concern were supported.

NEP, on the contrary, represents a revolutionary new perspective, a coherent cognitive structure or worldview (Dunlap et al., 1992, quoted in Stern et al., 1995), which advocates limits to growth, the necessity of achieving a steady-state economy, the importance of preserving the balance of nature, and the need to reject the anthropocentric notion that nature exists solely for human use (see, e.g., Barbour, 1973; Commoner, 1971;Daly, 1973; Meadows, et al., 1972, quoted in Dunlap and Van Liere, 1978). By using the NEP scale and conducting the social survey, Dunlap and his colleagues found that the general public tends to accept the content of the emerging environmental paradigm much more than they expected, and when "consider that just a few short years ago concepts such as 'limits to growth' and 'spaceship earth' were virtually unheard of, the degree to which they have gained acceptance among the public is extremely spurring" (Dunlap and Van Liere, 1978).

Taking these previous researches as the reference, and also taking the reality of the surveyed areas into account, this study forms an environmental worldview scale, which includes people's value judgments regarding the relationship between human and nature, economic growth and environmental destructions, the role of technology in solving environmental problems, and people's opinions about the capacity and vulnerability of nature and the rights of

animals and plants. By this measurement, this study tries to clarify people's general beliefs towards the environment in order to explore the fundamental causes of environmental consciousness.

Before the detailed analysis on people's responses to the environmental worldview scale, people's value judgments to some non-environmental issues, such as public interest and others' interest, are firstly showed to supply a comparison and more information about people's opinions in surveyed areas.

4.2 Basic Social Value Judgments

In the survey, not only people's value judgments regarding environment-related issues were investigated, but also people's basic social value judgments regarding some non-environmental issues, such as the balance of an individual's rights versus public interest, and personal interest versus others' interest, are also investigated. The detailed question items are given in Table 4-1.

Table 4-1 Question items regarding basic social value judgments

Item name	Question	Answer
Individual rights vs. public interest	A-First: It is better to sacrifice public interests to certain extent, in order to protect individual rights. A-Second: It is better to sacrifice individual rights to certain extent in order to protect public interests.	1. A-First 2. A-Second
Personal interest vs. others' interest	B-First: I just like to do what I enjoy even if it doesn't serve other people. B-Second: Whether I like it or not is one thing, my priority is to do something that serves others.	1. B-First 2. B-Second

In the survey, the respondents in both rural and urban areas were asked to give their value priorities to two sets of interest balances. The questions were dichotomously designed. The second choices for each of the three sub-questions, A-Second (public interest prior), B-Second and (others' interest prior), are always be adored, and named as the positive responses; while the

first choices, A-First (individual rights prior), and B-First (personal interest prior), are named as the negative responses. People's responses to these questions are shown in Table 4-2.

Table 4-2 Responses to value judgments regarding interest balancing

		Rural Area	Urban Area					
	(%)	51 villages	Beijing	p-value	d-value	Hangzhou	p-value	d-value
a. Individual rights vs. public interest	Individual's rights prior	15.9	17.0			13.7		
	Public inerest prior	84.1	83.0			86.3		
b. Personal interest vs. others' interest	Personal interest prior	16.2	17.6			20.5	·	·
	Other's interest prior	83.8	82.4			79.5	·	·

Note: 1. Statistical significance: ·p≤0.1,*p≤0.05, **p ≤ 0.01, ***≤0.001
2. Substantive significance：·d≥0.1,*d≥0.2, **d≥ 0.5, ***≥0.8

From Table 4-2, the author found that the majority of the respondents in all surveyed areas believe public interest and others' interest should be firstly guaranteed rather than individual rights and one's own interest. More than 80% of the respondents in the three regions believe public interest should be prior. The difference between rural and urban areas on these issues is not significant. Also near 80% of the respondents in the three regions believe others' interest should be prior. There is no significant difference between rural areas and Beijing, while there is somewhat of a difference with Hangzhou. From this analysis, a high acceptance and similarity on the opinions regarding some basic social norms in rural and urban areas are found. Whether this high acceptance and similarity are also showed on the opinions regarding environment-related issues are the questions to be answered in the following sections.

4.3 Environmental Value Judgements

In this section, people's responses to the proposed environmental worldview scale, including people's opinions towards human-environment relation, environment-economy relation, and environment-technology relation, and people's opinions towards the capacity and vulnerability of the nature, and the rights of animals and plants, are analysed. The specific question items are shown in Table 4-3.

Table 4-3 Question items regarding environmental worldview scale

Item name	Surveyed regions	Question	Answer
Human-environement relation	Rural area & Urban area	Here are three opinions about man and nature. Which one of these do you think is closest to the truth?	1. In order to be happy, we must follow nature 2. In order to be happy, we must make use of nature 3. In order to be happy, we must conquer nature
Environment-economy relation	Rural area & Urban area	Economic growth always comes with environmental destruction	1. Agree completely 2. Agree / Agree somewhat 3. Disagree / Disagree somewhat 4. Disagree completely
Environment-technology relation	Rural area & Urban area	Advances in scientific technology can solve the environmental problem	1. Agree completely 2. Agree / Agree somewhat 3. Disagree / Disagree somewhat 4. Disagree completely
Capacity and vulnerability of nature	Rural area	The balance of nature is very delicate and easily upset	1. Agree completely 2. Agree somewhat 3. Disagree somewhat 4. Disagree completely
	Urban area	There is a danger that earth would not be able to support the increased population	1. Agree completely 2. Agree 3. Disagree 4. Disagree completely
Rights of animals and plants	Rural area	Same with human, animals and plants also have the survival right	1. Agree completely 2. Agree somewhat 3. Disagree somewhat 4. Disagree completely
	Urban area	Animals should not be subjected to medical experiments even for the purpose of saving human lives	1. Agree completely 2. Agree 3. Disagree 4. Disagree completely

Note: 1. The question items regarding "capacity and vulnerability of nature" and "rights of animal and plants" are somewhat different.
2. The specific wordings of the options to question items in rural area are somewhat different. The options in rural area are:
1. Agree completely 2. Agree somewhat 3. Disagree somewhat 4. Disagree completely

In the survey, as for the relation between human and nature, respondents in both rural and urban areas were asked to choose one opinion that they thought was the closest to the truth from "in order to be happy, we must follow nature", "in order to be happy, we must make use of nature" and "in order to be happy, we must conquer nature". Regarding the relation between environment and economy, respondents in both rural and urban areas were asked to which extent they agreed or disagreed with the opinion "economic growth always comes with environmental destruction". Regarding the relation between environment and technology, respondents in both rural and urban areas were asked to which extent they agreed or disagreed with the opinion "advances in scientific technology can solve the environmental problem". Regarding the capacity and vulnerability of the nature, respondents in rural areas were asked to which extent they agreed or disagreed with the opinion "the balance of nature is very delicate and easily upset", while respondents in urban areas were asked to which extent they agreed or disagreed with the opinion "there is a danger that earth would not be able to support the increased population". Regarding the rights of animal and plants, respondents in rural areas were asked to which extent they agreed or disagreed with the opinion "same with human, animals and plants also have the survival right", while respondents in urban areas were asked to which extent they agreed or disagreed with the opinion "animals should not be subjected to medical experiments even for the purpose of saving human lives".

According to the initial assumptions during questionnaires design, as well as referring to the beliefs of NEP, choosing "human should follow nature", agreeing with "economic growth always comes with environmental destruction", disagreeing with "advances in scientific technology can solve the environmental problem", agreeing with "the balance of nature is very delicate and easily upset" or "there is a danger that earth would not be able to support the increased population", and agreeing with "same with human, animals and plants also have the survival right " or "animals should not be subjected to medical experiments even for the purpose of saving human lives" are

more desirable, and were named as environmentally friendly worldviews. And the opposite opinions were advocated by the traditional DSP, and were named as unfriendly environmental worldviews. The responses to these questions are shown in Table 4-4.

From Table 4-4, regarding the relation between human and nature, the author found that except a somewhat lower percent on “conquer nature”, there is considerable approval on the opinions of “follow nature” and “make use of nature”. In rural areas, the highest portion (44.8%) of respondents believe “in order to be happy, we must make use of nature”, while 15.6% of respondents believe “in order to be happy, we must conquer nature”. As a comparison, in both two surveyed cities, the highest portion of people (46.8% in Beijing and 46.7% in Hangzhou) believes “in order to be happy, we must follow nature”, and also a small part of people (21% in Beijing and 7.6% in Hangzhou) believe “in order to be happy, we must conquer nature”. To some extent, these results indicate that urban areas may more likely to hold environmentally friendly worldview than rural areas, and the opinion “conquer nature” is getting the least agreement in both rural and urban areas. There are 39.6% of respondents in rural areas that believe the opinion “in order to be happy, we must follow nature”, while 46.8% in Beijing and 46.7% in Hangzhou hold the same opinion. By the proportion test, the author found that this opinion is more acceptable in the two cities than in rural areas which indicate an environmentally friendly worldview trend in urban areas. In rural areas, 44.8% of the respondents believe “in order to be happy, we must make use of nature”, while 32.2% in Beijing and 45.7% in Hangzhou think the same. By proportion test, the author found that although there is no significant difference between rural areas and Hangzhou, people in rural areas are more inclined to hold “make use of nature” than Beijing. Regarding the opinion “conquer nature”, the difference is mainly shown between the two cities of China. People in Beijing are more inclined to hold “conquer nature” than the other two regions.

Table 4-4 Responses to the environmental worldview scale

		Rural Area	Urban Area					
	(%)	51 villages	Beijing	p-value	d-value	Hangzhou	p-value	d-value
Human-nature relation	1. In order to be happy, we must follow nature	39.6	46.8	*	·	46.7	*	·
	2. In order to be happy, we must make use of nature	44.8	32.2	***	*	45.7		
	3. In order to be happy, we must conquer nature	15.6	21.0	*	·	7.6	***	*
Environment-economy relation	1. Agree completely	28.9	16.9	***	*	18.9	***	*
	2. Agree	46.1	44.0			45.5		
	3. Disagree	23.2	36.4	***	*	32.0	***	*
	4. Disagree completely	1.8	2.8		*	3.6		*
Environment-technology relation	1. Agree completely	30.7	21.5	***	*	18.6	***	*
	2. Agree	45.5	55.4	***	*	59.8	***	*
	3. Disagree	22.7	21.1			20.7		
	4. Disagree completely	1.1	2.0		*	0.9		·
Capacity and vulnerability of nature	1. Agree completely	40.6	24.9	***	*	23.0	***	*
	2. Agree	50.5	53.7			59.6	**	*
	3. Disagree	8.1	20.1	***	**	16.4	***	*
	4. Disagree completely	0.8	1.2		*	1.1		·
Rights of animals and plants	1. Agree completely	44.5	12.4	***	***	15.6	***	***
	2. Agree	48.9	29.4	***	*	31.0	***	*
	3. Disagree	6.3	50.9	***	***	49.8	***	***
	4. Disagree completely	0.2	7.3	***	***	3.5	***	***

Note: 1. Statistical significance: ·p≤0.1,*p≤0.05, **p ≤ 0.01, ***≤0.001
2. Substantive significance：·d≥0.1,*d≥0.2, **d≥ 0.5, ***≥0.8

Human and nature relation is one of the important dimensions of NEP, and also received empirical testing in previous social surveys, such as The East Asia value survey (Yoshino, 2006) and East Asian survey on people's sense of culture, life and environments (Zheng, 2012). In this study, it is also taken as an important content of environmental worldview. As a further reference to clarify the regional features regarding the opinion on human and nature relationship, correspondence analysis was conducted and the result is shown in Figure 4-1.

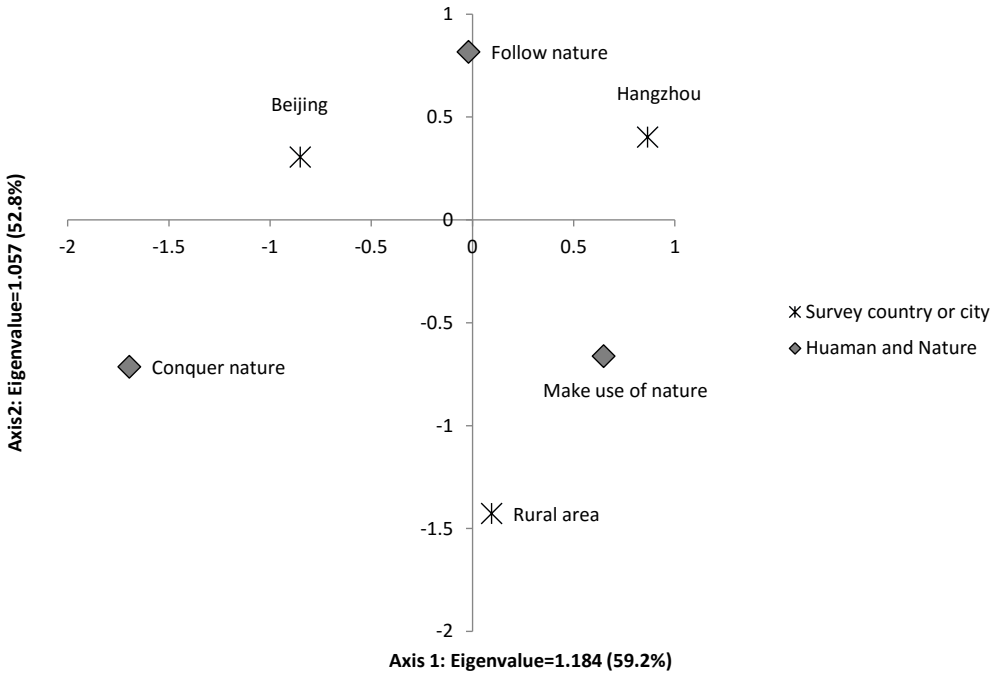


Figure 4-1 Regional feature on people's opinions regarding human and nature relationship

According to the relative positions of the variables in the Figure 4-1, rural area and "make use of nature" are located in the right lower quadrant; Beijing and Hangzhou with "follow nature" are located above axis 2; and "conquer nature" is located in the left lower quadrant. From this distribution, the closer relation between rural area and "make use nature" is indicated that people living in rural area tend to hold the opinion of "make used of nature".

Regarding the relation between environment and economy, most of the respondents in all three surveyed regions showed approved responses. In urban areas more than 60% of respondents (60.9% of the respondents in Beijing and 64.4% in Hangzhou) agree completely or agree with the opinion “economic growth always comes with environmental destruction”. In rural areas, the approved percentage is even higher with 75% of the respondents agree with this opinion. A proportion test shows that people in rural areas are more inclined to give a positive response to this opinion, while in urban areas people are more likely to give a negative response. As described in the previous content, positive response to this opinion is more desirable, thus the above analysis results indicate that people in rural areas are more inclined to hold environmentally friendly worldview on this issue compared to those in urban areas. However, recognizing the negative consequence of economy growth doesn’t necessarily indicate a more favorable attitude toward environmental conversation than economic growth.

Regarding the relation between environment and technology, most of the respondents in all three surveyed areas showed an approved response. There are 76.2% of respondents in rural areas, 76.9% in Beijing and 78.4% in Hangzhou that agree completely or agree with the opinion “advances in scientific technology can solve the environmental problem”. In rural areas, 30.7% of the respondents “agree completely” with this opinion, and 45.5% of the respondents “agree” with this opinion. In Beijing 21.5% and in Hangzhou18.6% “agree completely” with this opinion, and 55.4% in Beijing and 59.8% in Hangzhou “agree” with this opinion. A proportion test shows that there is a significantly higher proportion of people in rural areas “agree completely” with this opinion; however, there is also significantly high proportion of people in urban areas that “agree” with the same opinion. However, it is noted that as described in the previous section, a negative response to this opinion is more desired.

Regarding the capacity and vulnerability of the nature, there is an extremely high portion

of people in rural areas approving the opinions “the balance of nature is very delicate and easily upset” and “same with human, animals and plants also have the survival right”. Only less than 10% of the respondents in rural areas disagree or disagree completely with these two opinions. In urban areas, there is higher support for the opinion “there is a danger that earth would not be able to support the increased population”, by the fact that 78.6% in Beijing and 82.5% in Hangzhou agree completely or agree with this opinion. There is somewhat lower support for the opinion “animals should not be subjected to medical experiments even for the purpose of saving human lives”, by the fact that 41.8% in Beijing and 46.6% in Hangzhou agree completely or agree with the second opinion. Although the proportion test is also done, however, the results cannot be taken as reference for rural and urban comparison since the contents of the measurements in rural and urban are different. Compared to the surveyed questions used in rural areas, the questions used in urban areas are more specific, specializing in nature’s carrying capacity regarding population growth and animal testing. Although the comparison results cannot be given, the clarification of people’s opinions regarding these issues still enriches our understanding about people’s environmental consciousness in surveyed areas.

From the above analysis, environmental worldviews in rural and urban areas are generally clarified from three relations (human-environment relation, environment-economics relation, and environment-technology relation), and two opinions (the capacity and vulnerability of nature, and the rights of animal and plants). The data analysis indicated that most people in both rural and urban China are holding positive responses to the measurements of environmental worldview, except a somewhat lower support towards rights of animals and plants in urban areas. However, as the author proposed, the negative response to the environment-technology relation is more desirable and is defined as an environmentally friendly worldview. The analysis results showed that in both rural and urban areas, more than 76% of the respondents showed an

approval response to the opinion “advances in scientific technology can solve the environmental problem”. This may stem from the developing phase in present China. Science and technology are still playing an important role in China, and the opinion “science and technology are omnipotent” is still advocated by most people in China.

4.4 Validity of Environmental Worldview Scale

In the previous sections, an environmental worldview scale which includes people’s value judgments on three relations (human-environment relation, environment-economic relation, and environment-technology relation) and two opinions (the capacity and vulnerability of the nature, and the rights of animal and plants) was suggested. By analyzing the responses to this scale, the status and features of people’s environmental worldview in rural and urban China were clarified. The environmental worldview dimension is located in the top flow of the theoretical framework, and is supposed to exert influences to the following psychological variables.

Before promoting further analysis, the validity of the environmental worldview scale is firstly confirmed in this section. MCA is conducted to see whether the result is distorted by extreme values, and also to confirm the consistency of the scale. The results are shown in Figure 4-2a~c.

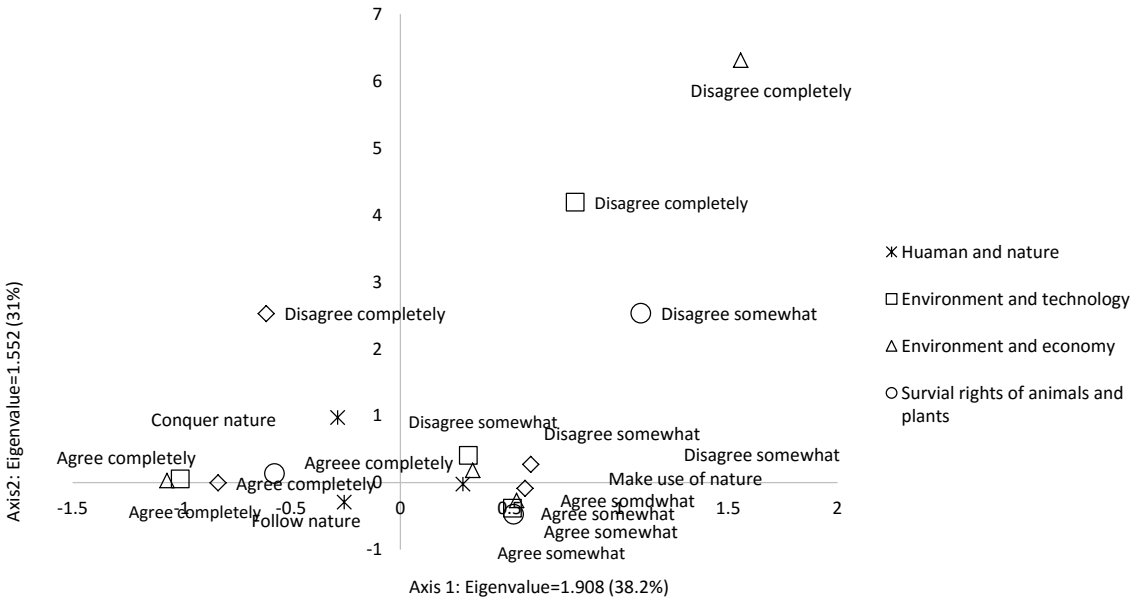


Figure 4-2a Analysis regarding the validity of environmental worldview scale in rural areas

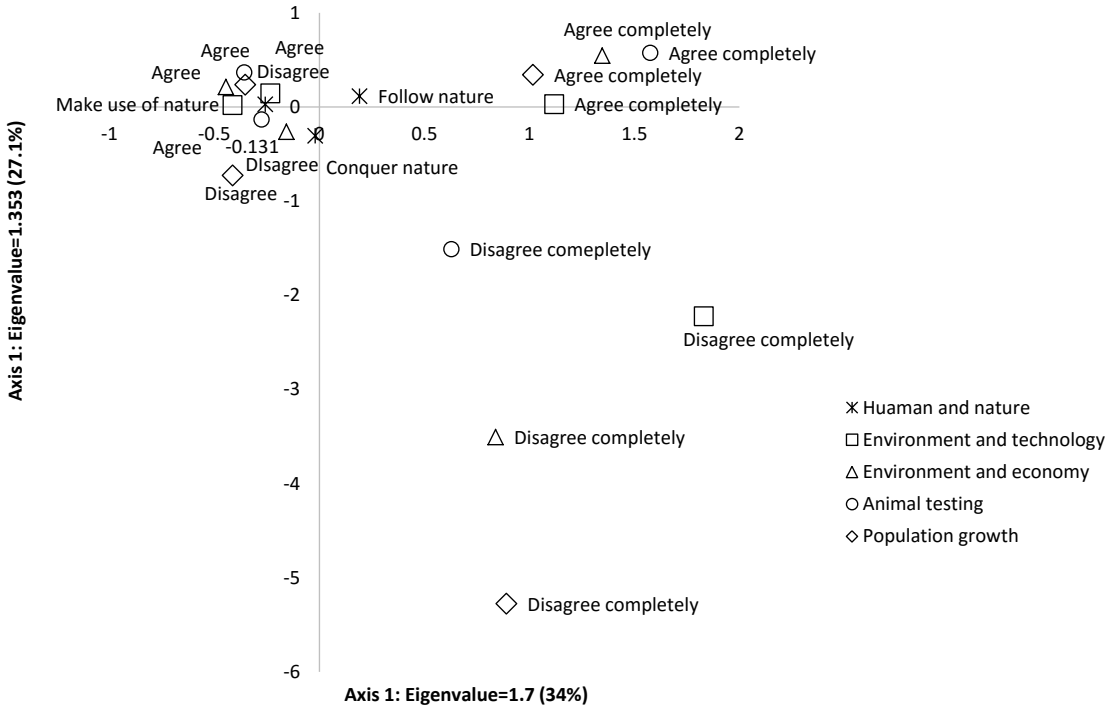


Figure 4-2b Analysis regarding the validity of environmental worldview scale in Beijing

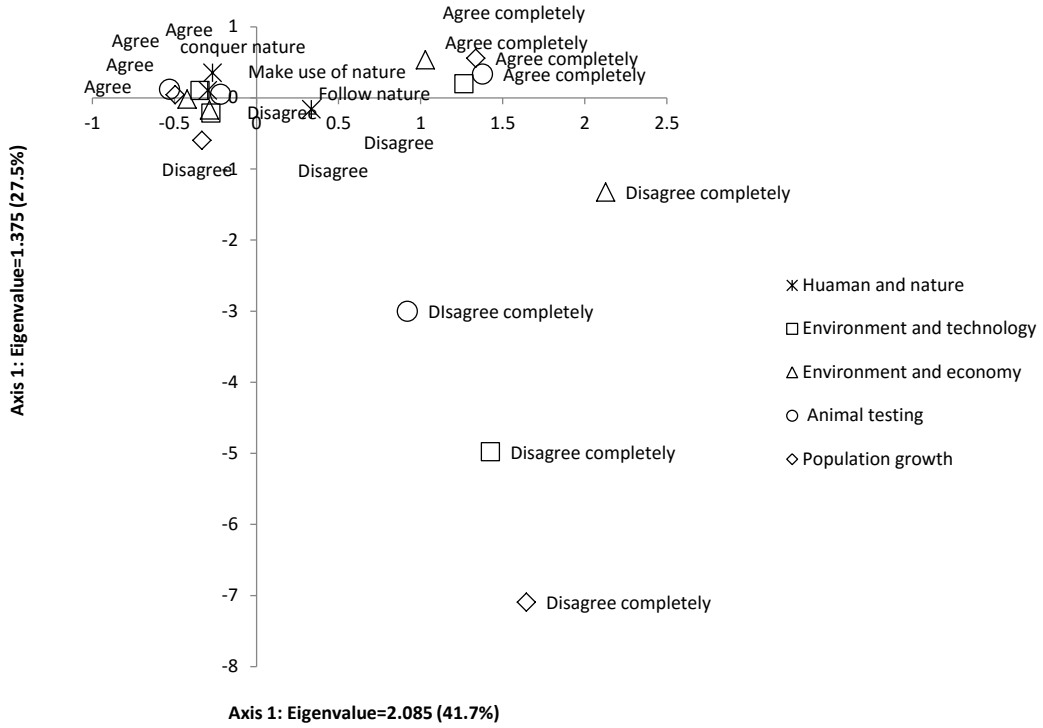


Figure 4-2c Analysis regarding the validity of environmental worldview scale in Hangzhou

From Figure 4-2a~c, the author found that the options of "disagree completely" separate from other options. By checking the percentage in Table 4-4, the author found that an extremely small portion of the respondents in the three survey areas chose "disagree completely" on each question item, especially in rural areas, where less than 10 people chose the "disagree completely" options. In order to guarantee enough samples in each category and to increase the validity of the analysis results, the author combined the options of "Disagree somewhat" and "Disagree completely" into "Disagree" in rural areas. Correspondently, in urban areas the option of "Disagree" and "Disagree completely" were also combined into "Disagree", to better conduct the comparison analysis in rural and urban areas. After combination, the MCA were conducted again and the results are shown in Figure 4-3a~c.

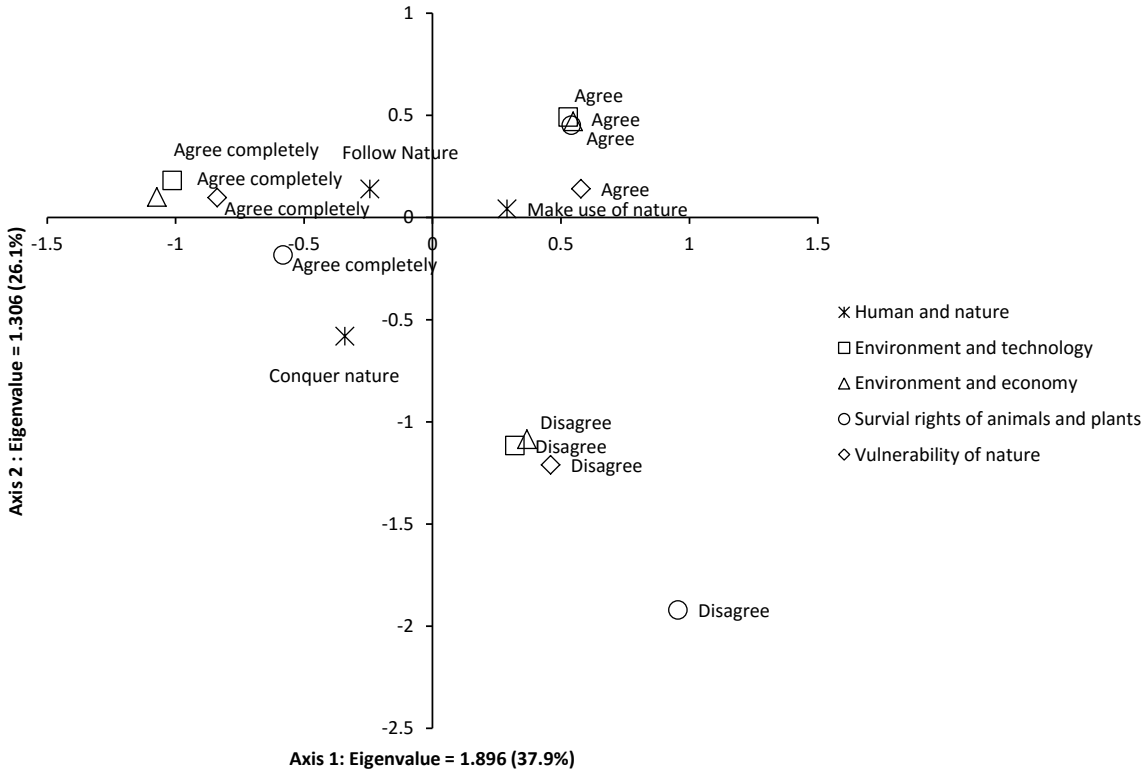
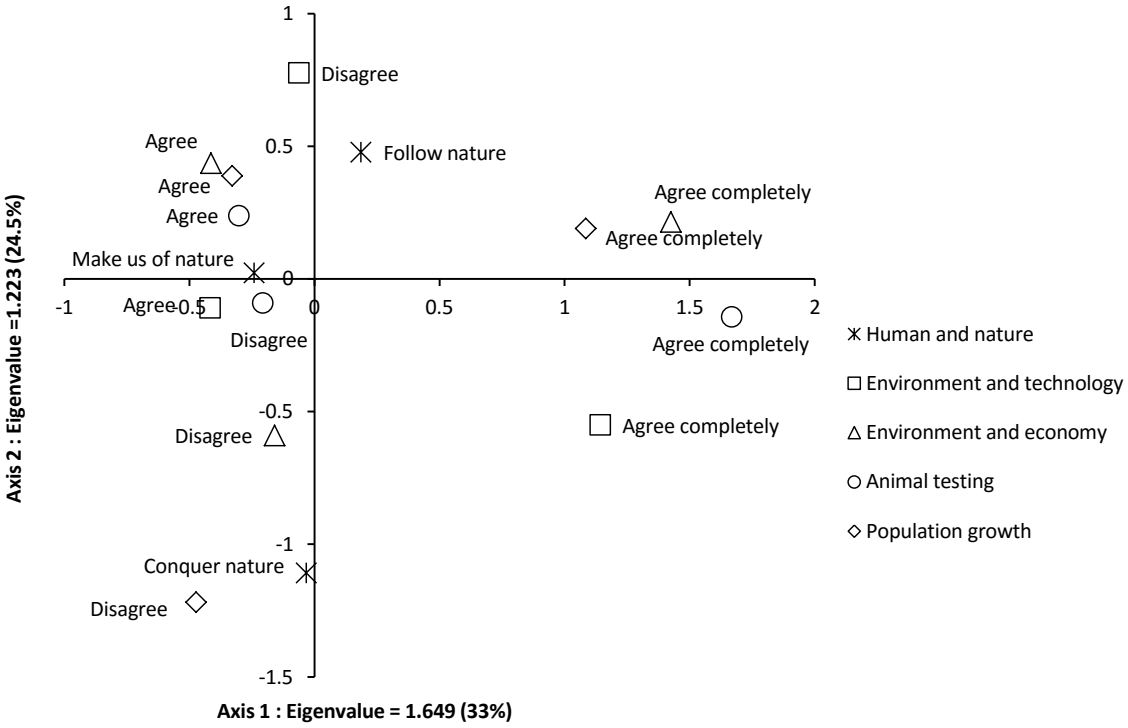


Figure 4-3a Analysis regarding the validity of environmental worldview scale in rural areas (combined)

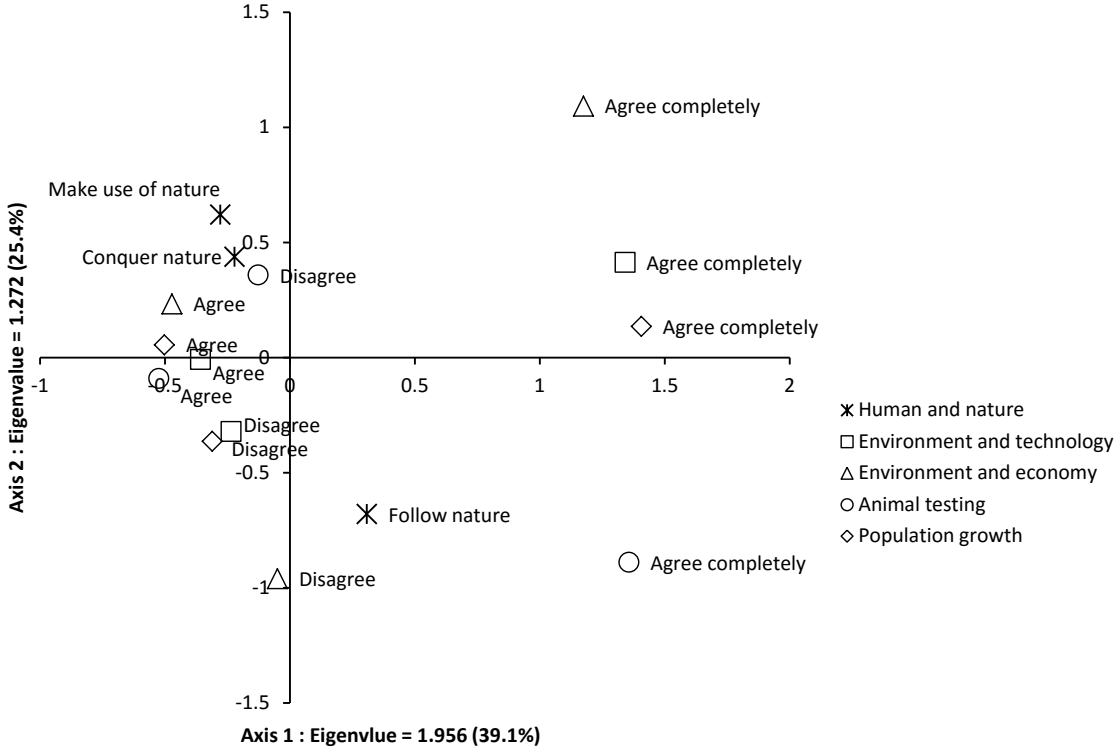
From the distribution of the variables in Figure 4-3a, three groups are generally distinguished. “Follow nature”, and “agree completely” with all four aspects of the environmental worldview scale are located in the upper left side of the figure; “make use of nature”, and “agree” with all four aspects of environmental worldview scale are located in the upper right quadrant; “conquer nature”, and “disagree” with all four aspects of the environmental worldview scale are located in the lower quadrants. However, it is noted that although “conquer nature” and “disagree” are included into pone group, they are located in the two directions of axi1. According to the research hypotheses discussed previously as well as taking the beliefs of NEP as a reference, the first group of opinions is more desirable and is taken as an environmentally friendly worldview.



4-3b Analysis regarding the validity of environmental worldview scale in Beijing (combined)

From the distribution of all the options in Figure 4-3b, “Follow nature” and “agree completely” with all four aspects of the environmental worldview scale are located in the right side of axis1; “make use of nature” and “agree” with all four aspects of the environmental worldview scale are generally located in the left upper quadrant. However, the negative responses that “disagree” with “advances in scientific technology can solve the environmental problem” and “animals should not be subjected to medical experiments even for the purpose of saving human lives” are also closed to this group; “conquer nature” with the left two negative responses that “disagree” with “economic growth always comes with environmental destruction”, “there is a danger that earth would not be able to support the increased population” are located in the left lower quadrant. According to the research hypotheses as well as taking the beliefs of NEP as a reference, the first group of opinions is more desirable and is taken as a

environmentally friendly worldview.



4-3c Analysis regarding the validity of environmental worldview scale in Hangzhou (combined)

From this distribution in Figure 4-3c, the groupings of the opinions are somewhat confusing. “Follow nature” and four “agree completely” with all four aspects of environmental scale are located in the right side of axis1; “make use of nature” and “conquer nature” together with “agree” and “disagree” with the some opinions of environmental worldview scale are located in the left side of axis 1.

From the above analysis, generally speaking, the first groups of opinions are more desirable and are taken as the environmentally friendly worldview. However, this group of opinions is somewhat different from the initial assumption, such that the positive response to the

opinion “advances in scientific technology can solve the environmental problem” is included into the environmentally friendly worldview group after the validity analysis. According to the data in Table 4-4 and the description in 4.3, in both rural and urban areas of present China, the majority of people still believe the power of scientific technology in solving the environmental problems. Although this is not advocated by NEP, it is difficult to give a correct or incorrect judgement to this status. And from the validity analysis, the author also found some limits of the proposed environmental worldview scale, such that the groupings of related variables are not obvious and stable, which indicates a somewhat weak correlation among different variables. Keeping these contents in mind, the author conducted the following analysis to clarify the influences of demographic factors to the formation of people’s friendly environmental worldviews.

4.5 Formation of Environmentally Friendly Worldview

Demographic factors are individuals’ inherent social attributes that have substantial influence on psychological variables. In this section, the author tries to clarify the formation reasons of people’s environmentally friendly worldviews from the influence of demographic factors, and aims to figure out the demographic features of the people who are more inclined to form environmentally friendly worldviews. The MCA is conducted and the results are shown in Figure 4-4~6.

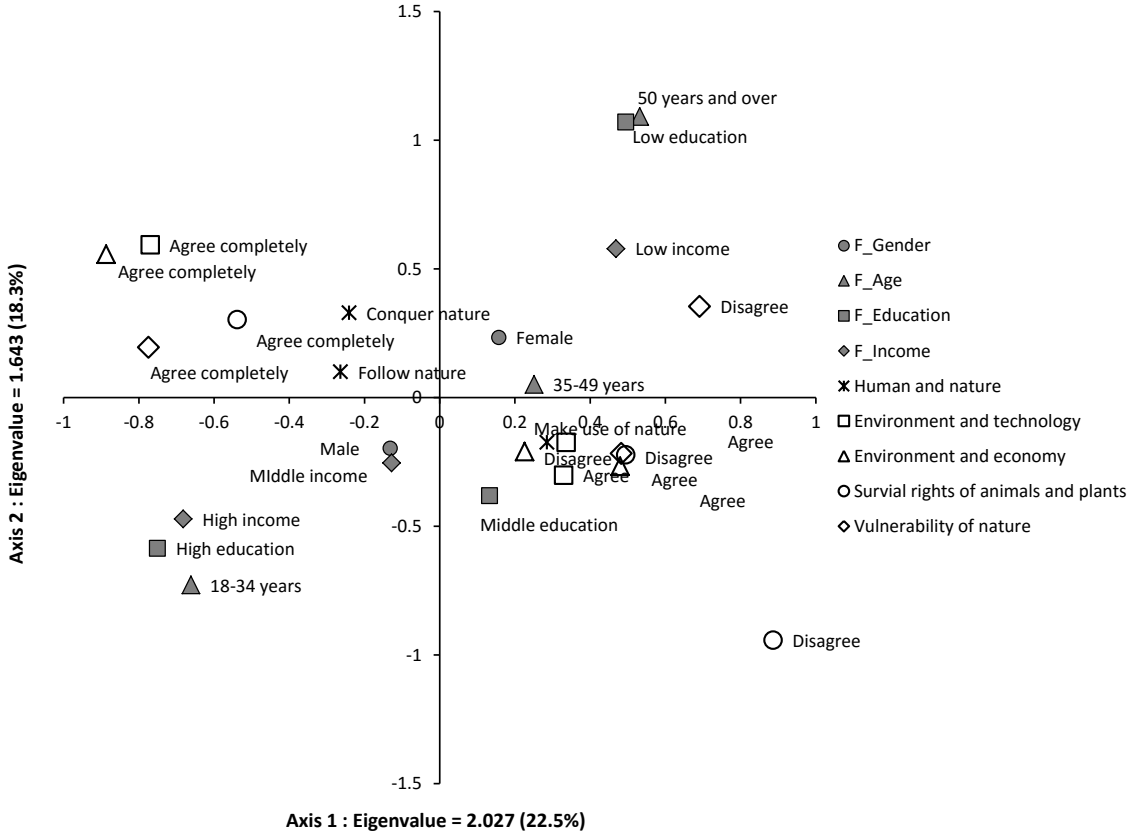


Figure 4-4 Formation of environmentally friendly worldview in rural areas

From Figure 4-4, “follow nature” and four very positive responses (agree completely) to environmental worldview scale are located in the left upper quadrant. However, “conquer nature” is also located in the same quadrant. This group of options together with young generation (18-34 years), high education, high and middle income and male are located in the left side of axis 1; “make use of nature” and “agree” or “disagree” with some of the aspects of environmental worldview scale are located in the right lower quadrant. It is noted that middle education and middle age are closed to this group. And female, low education, low income and old age (50 years and over) are located in the right upper quadrant.

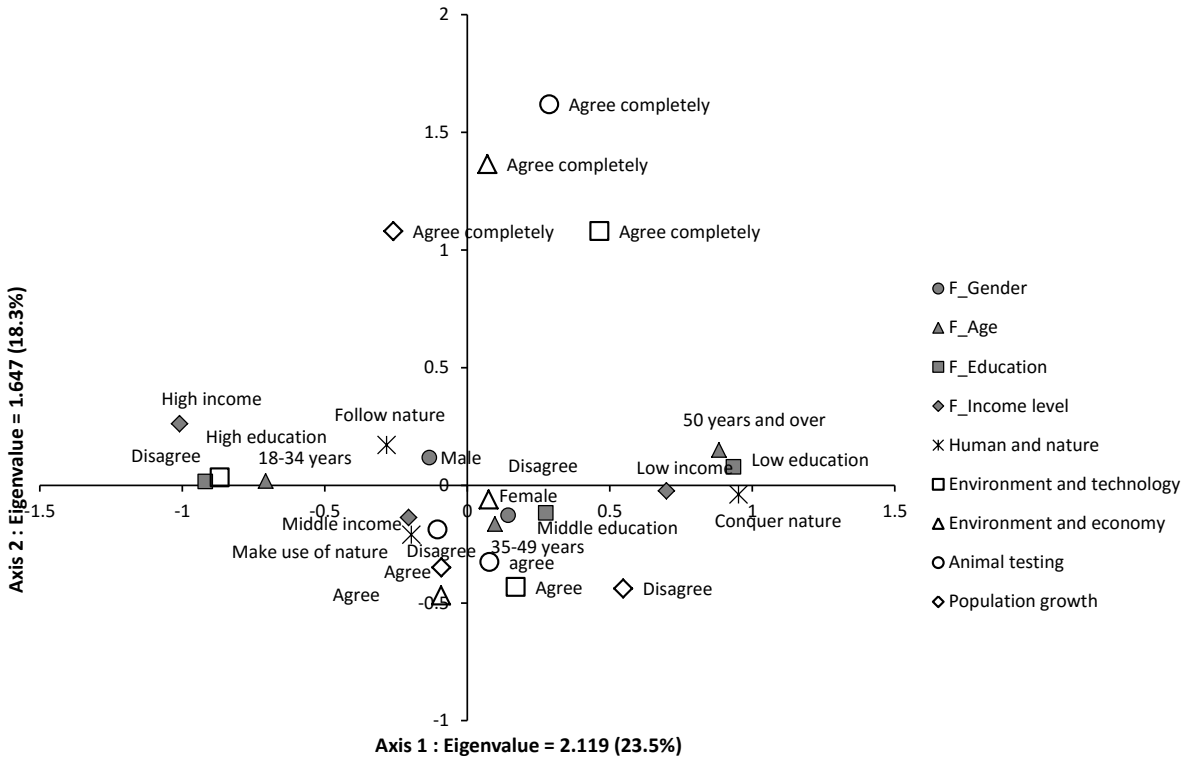


Figure 4-5 Formation of environmentally friendly worldview in Beijing

From Figure 4-5, the distribution of environmental worldview options is somewhat undesirable by the fact that the most positive responses (agree completely) are separated from other choices in the figure, and the positive and negative responses are mixed up in the lower side of axis. However, from the distance between the options, some trends are still indicated: young generation (18-34 years), people with high income and high education, and male are more likely to believe human should “follow nature”; while people with low education and income and old age (50 years and over) are more likely believe human should “conquer nature”.

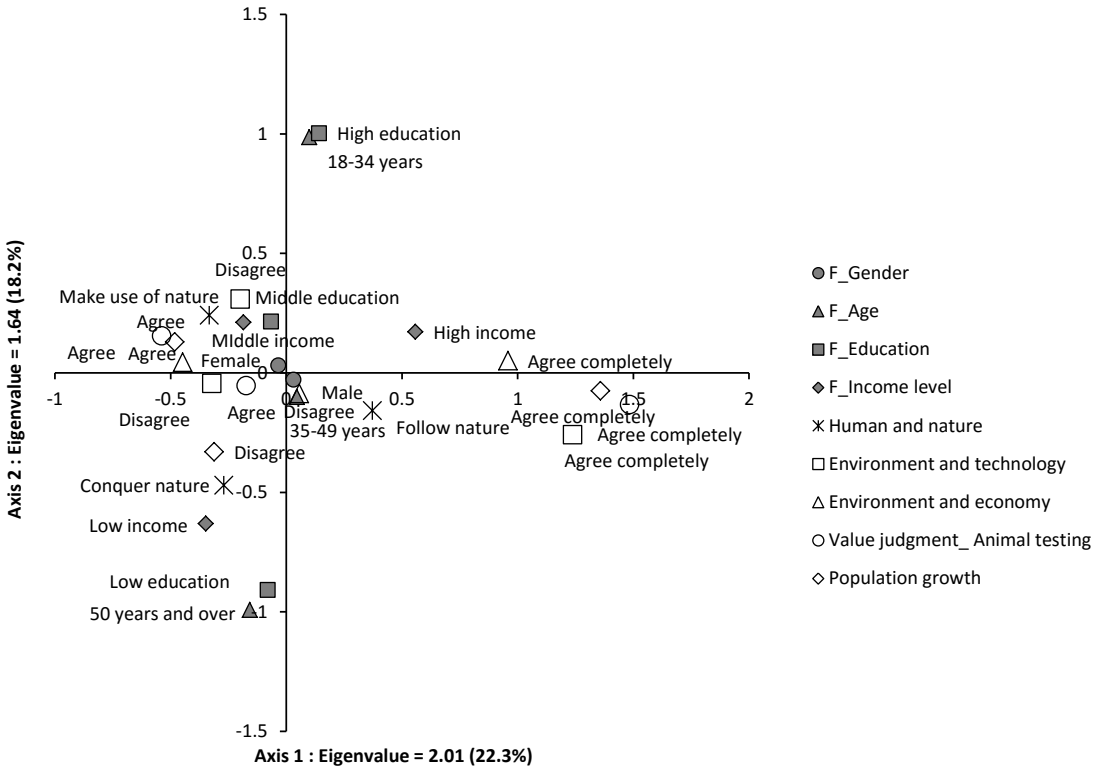


Figure 4-6 Formation of environmentally friendly worldview in Hangzhou

In Figure 4-6, “follow nature”, “agree completely” with four aspects of environmental worldview scale are located in the right side of axis 1. High income also closes to this group of options; “make use of nature”, positive responses (agree) as well as negative response to the opinion “advances in scientific technology can solve the environmental problem”, and middle education, middle income are located in the left upper quadrant of the figure. Although not obvious, female tends to close to the second group, while male tends to close to the first group; “conquer nature”, “agree” and “disagree” with some aspects of environmental worldview scale, and low income, low education, 50 years and over are located in the left lower quadrant.

From the above distribution, the author found that although combined some options of the questions, the internal consistency of environmentally friendly worldview scale still somewhat weak. The relationship between demographic factors and people’s environmental worldview is

somewhat vague. However, some tendencies are indicated: high-educated, high-rich and younger people generally tend to hold more environmentally friendly worldview, such as the opinion that “human should follow nature”, giving positive responses to environmentally friendly worldview beliefs; while low-educated, low-rich and old people are more inclined to hold somewhat unfriendly environmental worldview. Although not obvious, males in China are more inclined to hold environmentally friendly worldview than female.

4.6 Summary

From the above analysis, the author found that, most people in both rural and urban societies showed positive responses to the environmental worldview scale, which indicates an environmentally friendly worldview.

Regarding the relation between environment and nature, “conquer nature” got the least support in both rural and urban societies, which may indicate a progress in people’s environmental consciousness in China. However, the general tendency is that people in urban areas are more inclined to believe “human should follow nature”, while people in urban areas are more likely hold a “make use of nature” opinion. Hendee (1969) once proposed a nature-exploitation theory to explain the low environmental concern of rural residents. According to Hendee (1969), since rural occupations, such as farming, mining, and logging are typically based on the exploitation and consumption of natural resources, they might encourage an exploitative attitude toward natural resources. On the other hand, city residents are far from the natural environment and can more easily develop appreciative attitudes towards the environment. The result of this study verified this theory from the perspective of human and nature relations. And nature-exploitation theory, to some extent, also supplies some explanations to the formation of the “make use of nature” tendency in rural areas in this study. Except the explorative occupation, the lower education level in rural areas may also contribute to the

formation of this tendency, since “human should follow nature” requires more humanistic care to the environment, as well as a deeper understanding for environmental ethics.

Another feature of people’s environmental worldview is the confidence in science and technology in both rural and urban areas of China. Although not approved at the theoretical level, more than 76% of the respondents believe that the “advances in scientific technology can solve the environmental problem”. As described in the analysis, it is difficult to give a correct or incorrect judgement on this issue, but this is a real situation in China. Science and technology are still playing an important role in the development of China. This may be taken as a feature of, well as the product of the particular developmental phase in present-day China.

Regarding the influence of demographic factors on the formation of people’s environmental worldview, the author found somewhat unclear results. One of the possible reasons may stem from the lower internal consistency of the environmentally friendly worldview scale that proposed in this study. However, the measurement of the environmental worldview still reflects some important information concerning people’s value judgments on different environmental issues.

Chapter 5

ANALYSIS REGARDING ENVIRONMENTAL RECOGNITION AND ATTITUDE

5.1 Introduction

The study on environmental attitudes is considered an important approach because the attitude was typically thought of as a predictor of pro-environmental behaviours. Generally, people who have a strong pro-environmental attitude are more likely to behave environmentally. In the present study, environmental attitude is deemed as a link between environmental worldview and behaviour intention. Environmental attitude may be cognitive, emotional or both.

"Perceiving environmental problems as serious" (Van Liere and Dunlap, 1980) and the ability to "recognize environmental problems when they arise" (Roth, 1992) are important indicators of environmental concern. Therefore, people with more environmental consciousness are supposed to be more sensitive to environmental change, especially to environmental change in a bad way. Literatures regarding people's happiness or subjective well-being (with satisfaction, utility, well-being, and welfare interchangeable) indicate that people with more income, higher education, older age, and higher social class (mainly focusing on occupation) are, on average, happier than those with less (Argyle, 2003; Haring, Stock and Okun, 1984). Subjective well-being is an abstract concept and is usually used to measure people's satisfaction and happiness towards life. In this study, the author tries to clarify people's satisfaction with and evaluation of the environment. However, in this study, the author proposes a somewhat different assumption that richer, higher educated and younger people are inclined to be less satisfied with the environment from a perspective of environmental sensitivity.

The norm-activation theory (Schwarz, 1970, 1977) was originally proposed to explain "helping behaviour". This theory offers a normative explanation for helping behaviour based on the activation of internalized personal norms. The feelings of moral obligations are most likely to be activated when individuals are aware of the consequences (AC) of their behaviour towards the needy party, as well as when they ascribe responsibility (AR) to themselves for helping. As the most cited variables, AC and AR are also introduced to the present study. The purposes of analysis on AC and AR are to clarify people's cognitions regarding environmental consequence and the undertaking of environmental responsibility, and more important, to clarify their effect towards behaviour intention.

The ability to recognize environmental problems when they arise and the perception of consequences in general or around a particular issue are the important contents of a literate citizen (Roth, 1992). In this chapter, people's recognition of the severity of environmental issues and the governments' first effort in governing is firstly investigated, then people's environmental sensitivity to environmental quality and its change is measured, and at last the people's awareness of environmental consequence (AC) and ascription of environmental responsibility (AR) are analysed.

5.2 Recognition of Environmental Issues

People's recognition of the severity of environmental issues supplies the informational base to the formation of people's attitudes and behaviour commitments. In this section, people's opinions regarding the severity of the environmental problems and the importance of the environment are analysed. In the survey, respondents were asked to identify the most serious environmental problems among several environmental issues at different levels, from a national to local level in rural areas, and from a global to national level in urban areas. And they were also asked to choose the things they thought the government should most strongly focus on,

from environmental issues and other issues, including economy, education/culture, medical care/welfare and public safety.

For the severity of the environmental problems, respondents in rural areas were asked to choose the most serious environmental problem from given choices for the whole country and the local area, respectively. And respondents in urban areas were asked to choose the most serious environmental problem on a global and national scale. The specific question items and responses are shown in Table 5-1.

Table 5-1 People's opinions regarding the most serious environmental problem

		Question	Answer	Response (%)
Rural area	51 villages	a. Taking China as a whole, which one of the following do you think is the most serious environmental problem currently?	1. Air pollution	53.9
			2. Water pollution	15.4
			3. Decline in forest and vegetation	0.9
			4. Degradation of food safety	7.5
			5. Increase in the volume of garbage from home	16.4
			6. Increase in the volume of toxic waste	5.5
			7. Land pollution	0.4
		b. Taking the village you are living as whole, which one of the following do you think is the most serious environmental problem currently	1. Air pollution	20.0
			2. Water pollution	29.0
			3. Decline in forest and vegetation	3.0
			4. Degradation of food safety	5.1
			5. Increase in the volume of garbage from home	37.2
			6. Increase in the volume of toxic waste	3.7
			7. Land pollution	2.1
Urban area	Beijing	a. In thinkging about the world as a whole, these days which one of the following do you think is the most serious evnironmental problem	1. Destruction of ozone layers	15.0
			2. Acid rain	0.6
			3. Global warming	38.4
			4. Destruction of the forests	9.5
			5. Decline in biodiversity	7.9
			6. Marine pollution	7.3
			7. Transboundary spread of toxic waste	16.8
			8.Desertification	4.4
		b. In thinkging about the China as a whole, these days which one of the following do you think is the most serious evnironmental problem	1. Air pollution	32.4
			2. Water pollution	11.3
			3. Decline in forest and vegetation	7.1
			4. Degradation of food safety	35.9
			5. Increase in the volume of garbage from home	4.8
			6. Increase in the volume of toxic waste	8.5
	Hangzhou	a. In thinkging about the world as a whole, these days which one of the following do you think is the most serious evnironmental problem	1. Destruction of ozone layers	11.4
			2. Acid rain	5.7
			3. Global warming	49.2
			4. Destruction of the forests	11.8
			5. Decline in biodiversity	5.2
			6. Marine pollution	5.3
			7. Transboundary spread of toxic waste	10.0
			8.Desertification	1.4
		b. In thinkging about the China as a whole, these days which one of the following do you think is the most serious evnironmental problem	1. Air pollution	34.1
			2. Water pollution	16.0
			3. Decline in forest and vegetation	9.3
			4. Degradation of food safety	29.2
			5. Increase in the volume of garbage from home	5.5
			6. Increase in the volume of toxic waste	5.9

From Table 5-1, 53.9% of the respondents in rural areas believe the most serious problem in China as a whole is air pollution, followed by household waste (16.4%) and water pollution (15.4%). However, the percentages for these top three issues are quite different, by the fact that air pollution gets the strongest attention. While taking the village as a whole, the attention in rural areas is paid to the household waste issue (37.2%), water pollution (29%), and air pollution (20%). In rural areas, it is noted that, the severity of the household waste issue has been very obvious and has already surpassed the traditional pollutions, such as water and air pollution, and has become the residents' most concerning issue.

In Beijing, 38.4% of the respondents think global warming is the most serious problem on the global level, and then the transboundary spread of toxic waste (16.8%) and destruction of ozone layers issues (15%). In Hangzhou, similar to Beijing, 49.2% of the respondents believe global warming is the most serious problem on global level, and destruction of the forests (11.8%) and destruction of ozone layers (11.4%) also get considerable attention. As for a domestic level, 35.9% of the respondents in Beijing believe the food safety issue is the most serious environmental issue, while 32.4% of the respondents think air pollution is in the greates emergency. In Hangzhou, 34.1% of the respondents believe air pollution is the most serious problem, and 29.2% of them think food safety is the most serious issue. It is noted that, in both the two cities we surveyed, air pollution and food safety issues aroused people more attention and are deemed as the most serious problems in present-day China.

As a brief summary of the above analysis, rural residents believe air pollution, household waste and water pollution in overall China, and household waste, water pollution and air pollution in the local area are the most serious environmental problems. Among these issues, air pollution at the national level and household waste at the local level get more attention in rural areas. Urban residents believe that the most serious problem is global warming at the global

level, while air pollution and food safety issues are the most serious environmental problems at the domestic level.

Above are people's most concerned issues among several typical environmental problems. However, compared to other issues, such as education/culture and medical care/welfare, to which extent people are concerned with the environmental issue, is the next problem this study to focus. In order to clarify people's attitudes on environmental issues and other issues, people's opinions the on the governments' most important thing are investigated. The questions and the responses to these questions are shown in Table 5-2.

Table 5-2 People's opinions regarding the most important thing for governments

		Question	Answer	Response (%)
Rural area	51 villages	a. In our country, what kind of things do you think should the government first strongly focus on?	1. The economy	17.0
			2. Education/Culture	31.3
			3. Medical care/Welfare	33.1
			4. Environment	15.5
			5. Public safety	3.1
		b. Then, what kind of things do you think sould the government second strongly focus on?	1. The economy	15.7
			2. Education/Culture	27.4
			3. Medical care/Welfare	30.7
			4. Environment	19.4
			5. Public safety	6.7
Urban area	Beijing	a. In our country, what kind of things do you think should the national government most strongly focus on?	1. The economy	17.5
			2. Education/Culture	35.9
			3. Medical care/Welfare	31.6
			4. Environment	11.2
			5. Public safety	3.9
		b.Then, what kind of things do you think should the local municipalities focus on most strongly?	1. The economy	13.1
			2. Education/Culture	23.4
			3. Medical care/Welfare	31.3
			4. Environment	18.9
			5. Public safety	13.2
	Hangzhou	a. In our country, what kind of things do you think should the national government most strongly focus on?	1. The economy	22.6
			2. Education/Culture	29.8
			3. Medical care/Welfare	31.1
			4. Environment	14.4
			5. Public safety	2.0
		b.Then, what kind of things do you think should the local municipalities focus on most strongly?	1. The economy	18.0
			2. Education/Culture	22.1
			3. Medical care/Welfare	37.1
			4. Environment	18.2
			5. Public safety	4.6

In rural areas, respondents were asked to choose the things that the government should first and second strongly focus on among economy, education/culture, medical care/welfare, environment and public safety. In Beijing and Hangzhou, respondents were asked to choose the things that the national government and local government should most strongly focus on among economy, education/culture, medical care/welfare, environment and public safety. In rural areas, the first two things respondents said the government should focus on are medical care/welfare (33.1%) and education/culture (31.3%). The following things are economy (17%) and environment (15.5%). The second things government should focus on are also medical care/welfare (30.7%) and education/culture (27.4%). However, the following things are firstly environment (19.4%) and then economy (15.7%). In the urban area similar results were obtained. The most important things that national government should most strongly focus on are education/culture (35.9% in Beijing, 29.8% in Hangzhou) and medical care/welfare (31.6% in Beijing and 29.8% in Hangzhou). Then the following things are economy (17.5% in Beijing and 31.1% in Hangzhou) and then environment (11.2% in Beijing and 14.4% in Hangzhou). For the local municipalities, the most important things are also medical care/welfare (31.3% in Beijing and 37.1% in Hangzhou) and education/culture (23.4% in Beijing and 22.1% in Hangzhou). Then the following thing is the environment (18.9% in Beijing and 18.2% in Hangzhou).

As a brief summary of people's opinions regarding the most important thing that national or local government should strongly focus on, although the measurements in rural and urban areas are different, similar results are derived. The top two things for both rural and urban areas are medical care/welfare and education/culture, followed by the economy and the environment. It is also noted that although it is not obvious, the importance of the economy is more recognized than that of the environment in the present-day China. The above analysis showed that the severity of environmental issues have aroused different attentions in China. However, compared to medical

care/welfare and education/culture, and even to the economy, the importance of the environment in both rural and urban China still lowly recognized.

5.3 Sensitivity to Environmental Quality and Its Change

Environmental sensitivity is defined as the sensibility to perceive environmental changes as well as the evaluations regarding such changes. Sensibility is concerned with the issue of whether individuals perceive the change in environmental quality. Evaluation relates to the issue of how individuals evaluate such change, that is, whether they believe the environmental quality gets better (positive evaluation) or turns worse (negative evaluation) (Chen and Zheng, 2015). People with stronger environmental consciousness are supposed to be more sensitive to environmental change, especially to environmental change in a bad way. And thus, this group of people is expected to be more likely to perceive the deterioration of the environment and give negative evaluations to the environmental quality and change. Richer, higher educated and younger people are typically considered to be more environmental concerned, and they are supposed to be more sensitive to the environmental change in this study.

Many previous researches took a life cycle perspective to discuss the change of people's happiness, and the studies indicated that "people at any given point in the life cycle typically think that they will be better off in the future than at present, and that they are better off today than in the past" (Easterlin, 2001). In this study, environmental sensitivity is also investigated by a given time frame, which includes the perception of environmental change in the past, the satisfaction with the environmental quality in the present, and the prediction of environmental issues in the future. With a time series, this study also tries to clarify the temporal features of environmental sensitivity over time.

In the survey, we used three questions to examine: people's perception to the environmental change in the past several years; people's satisfaction with the current

environmental quality, including the clearness of air and water, the lushness of fauna (i.e., vegetation, forests), and the comfort level of the living conditions; and people's prediction regarding several environmental issues in the future. The questions are elaborated in detail in Table 5-3.

Table 5-3 Environmental sensitivity related question items in the survey

Item Name	Question	Answer
Perception of Past Environmental Change	Do you think that the environment in your contry as a whole has improved over the last several years, or do you thnk that it has gottern worse?	1. Improved 2. Improved somewhat 3. No change 4. Worsened somewhat 5. Worsend
Satisfaction with Present Environmental Quality	How satisfied are you with quality of the following environmental elements neaby your home? a.Cleanness of the air b.Cleaness of the water (i.e.,rivers or sea near your home) c.Lushness of fauna (i.e., vegetaion,forests) d.Comfort level of your residence.	1. Satisfied 2. Satisfied somewhat 3. Dissatisfied somewhat 4. Dissatisfied
Prediction Regarding Future Environmental Issues	In your country, do you think the following kinds of environmental issues will get better in the nest five years or do you think they will get worse. a.Air pollution b.Water contamination c.Deline in forestry and vegetation d.Degradation of food safety e.Increase in the volume of garbage from homes f.Increase in the volume of industrial waste	1. Improve dramatically 2. Improve 3. No change 4. Get worse 5. Get worse dramatically

Regarding people's perception of environmental change in the past, respondents in both rural and urban areas were asked whether they feel the domestic environment improved or worsened in the past several years. The responses are shown in table 5-4.

Table 5-4 Responses to domestic environmental change in the past

		Rural Area	Urban Area					
	(%)	51 villages	Beijing	p-value	d-value	Hangzhou	p-value	d-value
Perception_Domestic environmetal change	Improved	25.7	29.7		·	20.4	*	·
	Improved somewhat	35.8	32.5			35.2		
	No change	16.2	11.3	**	*	9.7	***	*
	Worsened somewhat	13.8	15.6			22.3	***	*
	Worsened	8.5	10.9		·	12.4	*	*

Note: 1. Statistical significance: ·p≤0.1,*p≤0.05, **p ≤ 0.01, ***≤0.001
2. Substantive significance：·d≥0.1,*d≥0.2, **d≥ 0.5, ***≥0.8

According to Table 5-4, more than half of the respondents in all three regions (61.5% in rural areas, 62.2% in Beijing and 55.6% in Hangzhou) believed that environmental quality was improved or improved somewhat in the past several years, especially in Beijing and rural areas. In Hangzhou, 34.7% of the respondents felt the environment quality worsened somewhat or worsened in the past, while 26.5% in Beijing and 22.3% in the surveyed villages felt it got worse. By proportion test analysis, the author found there are more differences between rural areas and Hangzhou than with Beijing. There is no significant difference in the evaluation of "improved somewhat" among the three surveyed areas. Compared to Beijing and Hangzhou, people in rural areas are more inclined to give a "no change" evaluation regarding the domestic environmental change. More differences are located between rural areas and Hangzhou by the fact that people in Hangzhou tend to hold a more negative evaluation (worsened somewhat and worsened) regarding the past domestic environmental change, while a smaller portion of people believe the domestic environment had "no change" in the past.

Regarding people's satisfaction with the present environmental quality, in the survey, respondents both in rural and urban areas were asked to describe their satisfaction with the quality of local environmental elements, including air purity, water quality, lushness of fauna, and comfort level of living environment. Respondents' satisfaction with present environmental quality in the three surveyed areas is shown in Table 5-5.

Table 5-5 Satisfaction with present environmental quality

		Rural Area	Urban Area					
	(%)	51 villages	Beijing	p-value	d-value	Hangzhou	p-value	d-value
a. Satisfation_Air	Satisfied	29.5	13.7	***	**	24.5	*	·
	Satisfied somewhat	50.1	46.5			54.5		
	Dissatisfied somewhat	15.2	27.7	***	*	17.9		·
	Dissatisfied	5.1	12.1	***	**	3.2	·	*
b. Satisfation_Water	Satisfied	24.4	15.5	***	*	22.8		
	Satisfied somewhat	37.8	43.2	·	·	56.4	***	*
	Dissatisfied somewhat	24	27.2			16.5	***	*
	Dissatisfied	13.9	14.1			4.4	***	**
c.Satisfation_Nature	Satisfied	26.5	21.1	*	·	30.8	·	·
	Satisfied somewhat	44.8	44.2			54.7	***	*
	Dissatisfied somewhat	19.9	23.3		·	13.2	***	*
	Dissatisfied	8.8	11.3		·	1.4	***	***
d. Satisfation_	Satisfied	26.4	16.7	***	*	29.6		
Living environment	Satisfied somewhat	45.4	50.7	·	·	57.4	***	*
	Dissatisfied somewhat	20	20.8			11.2	***	*
	Dissatisfied	8.1	11.7	*	*	1.8	***	***

Note: 1. Statistical significance: ·p≤0.1,*p≤0.05, **p ≤ 0.01, ***≤0.001
2. Substantive significance：·d≥0.1,*d≥0.2, **d≥ 0.5, ***≥0.8

According to Table 5-5, more than half of respondents in all three regions are satisfied or satisfied somewhat with all the environmental elements that we investigated in the survey. Compared to Hangzhou and the surveyed villages, respondents in Beijing showed more dissatisfaction (including dissatisfied somewhat). In Beijing 39.8% of the respondents are dissatisfied with the air purity, 41.3% are dissatisfied with water quality, 34.6% are dissatisfied with the lushness of fauna, and 32.6% are dissatisfied with the comfort the level of living environment. The percent of dissatisfaction in Beijing is highest among the three surveyed regions. On the contrary, people in Hangzhou showed a very high satisfaction with all environmental elements. Regarding the air purity, rural areas showed the most satisfaction while Beijing showed the least. Regarding the water quality and the lushness of fauna, people in Hangzhou showed a significantly higher satisfaction than people in Beijing and the surveyed villages. And regarding the comfort level of the living environment, people in Hangzhou also showed a significant high satisfaction with the present environmental quality.

Regarding people's prediction toward future environmental issues, respondents both in rural and urban areas were asked to predict changes regarding local environmental issues, such as air

pollution, water contamination, forestry declination, food safety, and the increase of household waste and industrial waste, in the next five years. Respondents' predictions regarding future environmental issues are shown in Table 5-6.

Table 5-6 Prediction regarding the environmental change in the future

		Rural Area	Urban Area					
	(%)	51 villages	Beijing	p-value	d-value	Hangzhou	p-value	d-value
a. Prediction_ Air pollution	Improve dramatically	13.8	8	***	*	6.1	***	*
	Improve	57.4	54.9			54.4		
	No change	16	16			14.4		
	Get worse	11.6	19.8	***	*	24.2	***	*
	Get worse Dramatically	1.2	1.3			0.9		·
b. Prediction_ Water contamination	Improve dramatically	11.5	4.8	***	**	5.9	***	*
	Improve	44.2	47.1			53.8	***	*
	No change	24.2	26.3			14.7	***	*
	Get worse	18.5	20.2			25.1	**	*
	Get worse Dramatically	1.6	1.6			0.6		**
c. Prediction_ Decline in forestry and vegetation	Improve dramatically	9.9	6.6	*	*	9.9		
	Improve	41.9	44.5			48	*	·
	No change	30.2	20.6	***	*	16.7	***	*
	Get worse	17.4	25.2	***	*	23.3	*	*
	Get worse Dramatically	0.6	3.2	**	***	2.2	*	**
d. Prediction__ Degradation of food safety	Improve dramatically	12.6	4.1	***	**	5.8	***	*
	Improve	49.6	43.6	*	·	45.3		
	No change	24.6	20.7		·	15.3	***	*
	Get worse	12.2	24.8	***	*	27.4	***	**
	Get worse Dramatically	1	6.8	***	***	6.2	***	***
e. Prediction__ Household waste	Improve dramatically	16.7	4	***	***	7.1	***	**
	Improve	47.7	31.8	***	*	42.3	·	·
	No change	16.1	29	***	*	21.7	*	*
	Get worse	17.3	31.6	***	*	27.1	***	*
	Get worse Dramatically	2.2	3.7		*	1.9		
f. Prediction_ Industrial waste	Improve dramatically	13	4.3	***	**	6.4	***	*
	Improve	42.6	34.4	**	·	41		
	No change	27.5	18.6	***	*	17.1	***	*
	Get worse	14.9	36.3	***	**	31	***	**
	Get worse Dramatically	2.1	6.5	***	**	4.5	*	*

Note: 1. Statistical significance: ·p≤0.1,*p≤0.05, **p ≤ 0.01, ***≤0.001
2. Substantive significance : ·d≥0.1,*d≥0.2, **d≥ 0.5, ***≥0.8

According to Table 5-6, more than half of respondents in rural areas showed positive (improve dramatically and improve) predictions towards all the environmental issues investigated in the survey. Generally speaking, compared to the people in rural areas, in Beijing and especially in Hangzhou, people are showing more worries for the future. Water contamination, the increase of household waste and the decline in forestry and vegetation are the top three worries in rural areas for the future, by the fact that more people hold negative

predictions for these three issues. The increase of industrial waste, degradation of food safety and the increase of household waste are the top three worries in urban areas for the future, since more people believe these three issues will get worse in the future. It should be noted that only 13.2% of the respondents in rural areas predict the food safety issue will get worse, while 31.6% of the respondents in Beijing and 33.6% in Hangzhou believe this issue will get worse. And also 42.8% of the respondents in Beijing and 35.5% in Hangzhou predict the industrial waste in the future will get worse, while only 17% of the rural respondents believe this issue will get worse.

As a further reference, based on the above data, the author also conducted a correspondence analysis and the result is shown Figure 5-1.

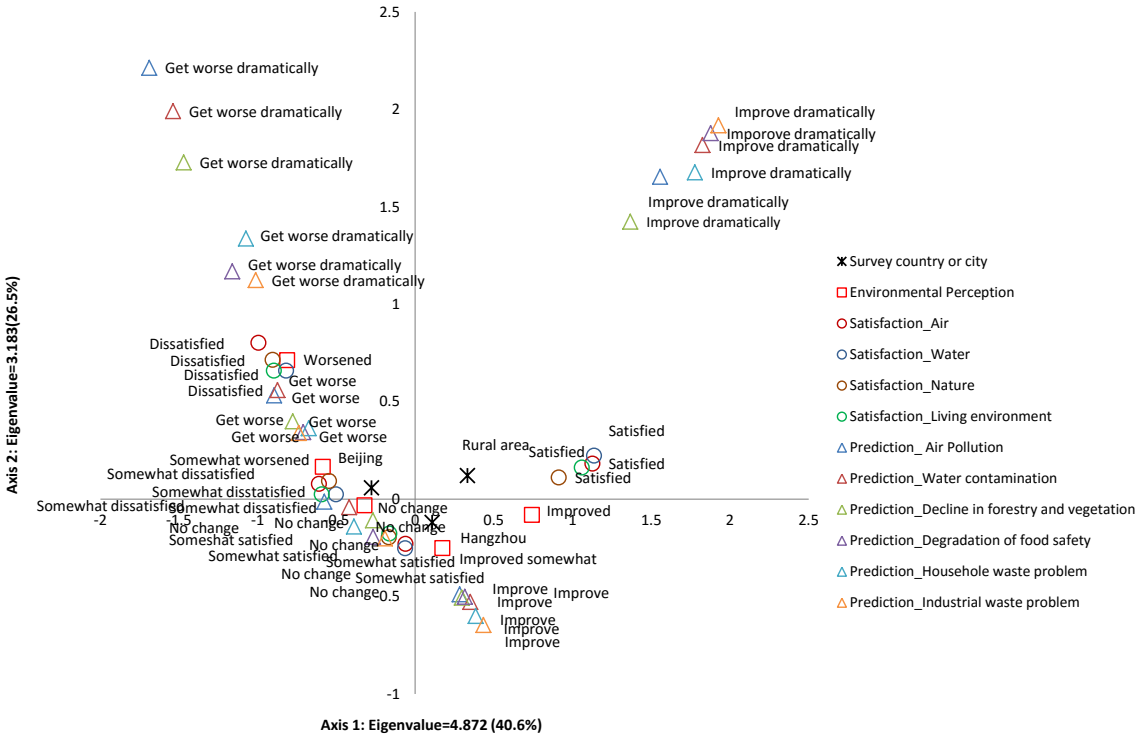


Figure 5-1 Correspondence analysis between environmental sensitivity and surveyed areas

From the positions of the options in Figure 5-1, the very positive options (improve dramatically, satisfied) are located in the right upper quadrant; positive options (improved,

improved somewhat in the past, and improve in the future) are located in the right lower quadrant; medium options (no change in the past, somewhat satisfied, no change in the future) are located in the left lower quadrant; and negative (somewhat worsened, somewhat dissatisfied, and get worse) and very negative options (worsened, dissatisfied and get worse dramatically) are located in the left upper quadrant. And rural area, Hangzhou and Beijing are located in the right upper, right lower, and left upper quadrant respectively.

From the above distribution, the positive evaluations towards the environmental quality and its change in rural areas, the somewhat positive evaluations in Hangzhou, and the most positive evaluations tendencies in Beijing are indicated. Generally speaking, people in rural areas tend to believe the environment in the past improved, they are satisfied with the present environmental quality, and they also hold very positive predictions regarding future environmental change. People in Beijing believe the environment in the past worsened or worsened somewhat, they are dissatisfied or somewhat dissatisfied with the present environment, and they also hold a very negative predictions regarding future environmental change. People in Hangzhou generally hold a somewhat positive evaluation.

5.4 Environmental Anxiety and Environmental Responsibility

According to Schwartz's model, the more severe the consequence individuals are aware of, and the more responsibility individuals feel they should take, the more likely they will perform the altruistic behaviour (Schwartz, 1970 and 1977; Stern, Dietz, 1994). Although developed mainly for the purpose of explaining altruistically motivated helping behaviour, this model has been extended extensively to apply to an environmental context. For instance, the needy party is no longer confined to an individual, group or social class but also applies to nonhuman species and the biosphere (Heberlein, 1972; Stem, Dietz and Guagnano, 1995). AC is not only used to describe the possible consequences of one's behaviour for the welfare of others. It also the

worries and beliefs to the negative consequences of environment deterioration and biosphere, by the fact that some researchers (Stem, Dietz and Guagnano, 1995; Wiidegren, 1998) took the items of the New Environmental Paradigm (NEP) scales (Dunlap, 1978 & 2000) to measure AC (Chen and Zheng, 2015).

Although somewhat different from the awareness of environmental consequence which is used in the norm-activation model, environmental anxiety proposed in this study is formed on the evaluation of environmental consequence and is taken as a measurement of AC. Governments, corporations and citizens are three entities that can reasonably be ascribed responsibility for environmental protection. People's judgments on the obligations of three entities are also supposed to influence people's environmental commitment and behaviour intention. The dominance of centralized governance from the government is deemed as one of the reasons for low sense of individual responsibility in environmental protection (Lo, A. Y., 2010), and the ascription of ecological responsibility to powerful others, such as the government, leads to the lack motivation of citizens to engage in pro-environmental behaviour (Kalamas, Cleveland and Laroche, 2014). Citizens who exert their influences to the environment in their different roles of consumers, voters and tax payers, are both the victims and villains of environmental deterioration. Whether they recognize their responsibilities in protecting the environment is supposed to affect the formation of their environmental intention and behaviour.

In the survey two questions were used to investigate people's environmental anxiety and judgments on the ascription of environmental responsibility. The survey questions are shown in Table 5-7 and the responses to these questions are shown in Table 5-8.

Table 5-7 Question items of AC and AR

Item Name	Question	Answer
Environmental anxiety (AC)	To what extent do you worry, either for yourself or for your family, about the environmental deterioration?	1. Very much 2. Somewhat 3. Slightly 4. Not at all
Environmental responsibility (AR)	Among the government, corporations and citizens, who do you think should play the most important role in protecting the environment?	1. Government 2. Corporation 3. Citizen

Table 5-8 Responses to AC and AR

		Rural Area	Urban Area					
	(%)	51 villages	Beijing	p-value	d-value	Hangzhou	p-value	d-value
Environmental anxiety (AC)	1. Very much	18.6	28.5	***	*	14.2	*	·
	2. Somewhat	48.1	38.9	***	*	37.7	***	*
	3. Slightly	28.3	25.1			33.9	*	·
	4. Not at all	5.0	7.5	·	*	14.1	***	**
Environmental responsibility (AR)	1. Government	48.9	68.1	***	*	57.2	**	·
	2. Corporation	25.2	14.2	***	*	22.0		
	3. Citizen	26.0	17.7	***	*	20.8	*	·

Note: 1. Statistical significance: ·p≤0.1,*p≤0.05, **p ≤ 0.01, ***≤0.001
2. Substantive significance：·d≥0.1,*d≥0.2, **d≥ 0.5, ***≥0.8

In the survey, the respondents were asked to which extent they worry about the environmental deterioration. From Table 5-8, the author found that more than half of the respondents in all three regions are very much worried or somewhat worried about the environmental deterioration. In Beijing 28.5% of the respondents feel “very much” worried about the deterioration of the environment, and Beijing’s residents’ anxiety is significantly higher than in the other two areas. In Hangzhou, only 14.2% of the respondents showed “very much” worry, and 18.6% of the respondents in rural areas are worried about the deterioration of the environment “very much”. In rural areas 48.1% of the respondents feel “somewhat” worried about the deterioration of the environment, and the rural areas’ anxiety is significantly different with the other two areas. In Beijing 38.9% of the respondents and in Hangzhou 37.7% of the

respondents are “somewhat” worried about the deterioration of the environment. In Hangzhou 33.9% of the respondents feel “slightly” worried about the deterioration of the environment, and Hangzhou residents’ anxiety at this level is significantly higher than in the other two regions. In rural areas 28.3% of the respondents and in Beijing 25.1% of the respondents are “slightly” worried about the deterioration of the environment. In Hangzhou, 14.1% of the respondents do not worry about the deterioration of the environment at all, and this percentage is significantly higher than in the other two regions.

From above analysis, the author found that Beijing residents tend to “very much” worry about the deterioration of the environment, rural residents tend to “somewhat” worry about the deterioration of the environment, and Hangzhou residents tend to “slightly” or do not worry about the deterioration of the environment at all.

On the undertaking of environmental responsibility, the biggest portion of the respondents in all three areas ascribed the most important responsibility to the government (48.9% in rural areas, 68.1% in Beijing and 57.2% in Hangzhou). However, the government-dependent tendency in the two cities is significantly stronger than in rural areas. In rural areas 25.2% of the respondents ascribed the most important responsibility to the corporation, 22% in Hangzhou, and only 14.2% in Beijing. In rural areas 26% of respondents, in Beijing 14.2% and in Hangzhou 22% scribed the most important responsibility to citizens. By a proportion test, the author found that the importance of citizens in undertaking the environmental responsibility is mostly recognized in rural areas. From the above analysis, the author found that the two cities tend to ascribe the most important responsibility to the government, while respondents in rural areas tend to emphasize the role of corporations and citizens.

5.5 Formation of Environmental Recognition and Attitude

In this section, the influence of demographic factors to the formation of people's recognition and attitude is discussed. Since the recognition of the most serious environmental issue is a part of environmentalism, there is no necessity and it also may be impossible to define which kind of people are more environmental on this issue. The cognition on governments' most important thing is a balance between environmental issues and other issues. It is important to clarify which group of people is more likely to emphasize the importance of environmental issues. Therefore, in this causal analysis of people's environmental recognition, only the cognition on governments' most important thing is further analysed.

5.5.1 Formation of Environmental Recognition

Regarding the influence of demographic factors to the fermion of environmental recognition in rural and urban areas, the MCA was conducted and the results are shown in Figure 5-2a-c.

Figure 5-2a Influence of demographic factors to environmental recognition in rural areas

In Figure 5-2a, the opinions that government should firstly focus attention on "environment" are located in the right lower quadrant. And education/culture, middle income and middle education are located in the same quadrant; male, young generation, high income and high education are located in the right upper quadrant; public safety, economy, and medical care/welfare, and low income and low education and old age (50 years and over) are located in the left upper quadrant. From this distribution, the author found in rural areas people with middle income and education are more likely to believe the government should put the first attention to environmental issue, while old, low-rich and low educated people are more likely to believe government should firstly focus on public safety, the growth of economy, or medical care/welfare.

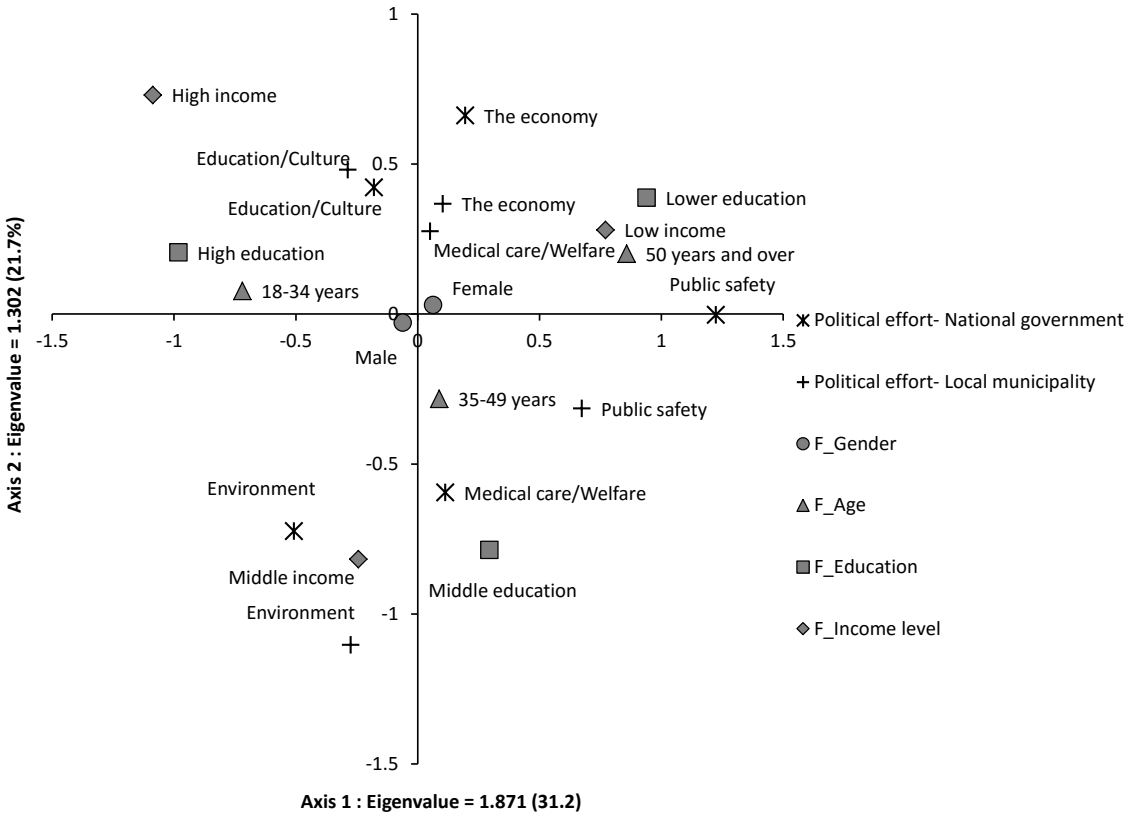


Figure 5-2b Influence of demographic factors to environmental recognition in Beijing

In Figure 5-2b, the opinions of the national government and municipality should most strongly focus on the environment are located in the left lower quadrant. Middle income is also located in the same quadrant. The demographic factors of middle education and middle age (35-49) are also close to this group. Education/culture, and younger age (18-34 years), upper education, high income are located in left upper quadrant. And economy, medical care/welfare and public safety, together with old age (50 years and over), low income and low education are located in the right upper quadrant. This distribution indicated that in Beijing, younger generation, high-educated, high-rich people focus more on the development of education/culture; middle-rich, middle-educated and middle-aged people are more likely to pay attention on the protection of the environment and medical care/welfare; old people, low-educated and low-rich

people emphasize more importance of economy growth, medical care/welfare and public safety. Gender difference to people's recognition in Beijing is not obvious. However, females are more close to the options of economy growth, medical care/welfare and public safety.

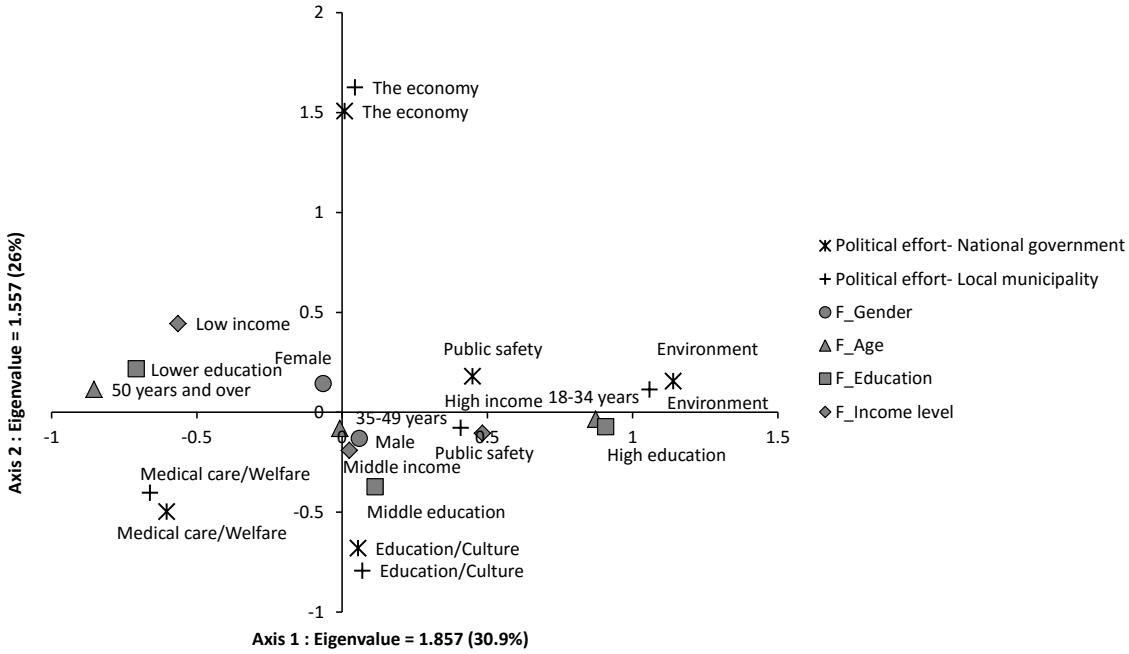


Figure 5-2c Influence of demographic factors to environmental recognition in Hangzhou

In Figure 5-2c, Axis 1 generally divides all the options into two groups. Environment, education/culture and public safety, together with young age (18-34 years), middle and high education, middle and high income and male are located in the right side of axis 1. And young age (18-34 years), high education, high income are closer to the options of environment. Medical care/welfare, together with old people (50 years and over), low-educated, low-rich and female are located in the left side of axis 1. The options of economy are somewhat deviate from other variables. This distribution indicates that in Hangzhou, high-educated, high-rich and younger people are more likely to recognize the importance of the environment. While low-educated, low-rich and old people are more inclined to emphasize the importance medical care/welfare. Although the influence of gender factor is not so obvious, compared to the female

in Hangzhou, male are more inclined to care the environment.

From the above analysis, the influence of demographic factors to people's environmental recognition is clarified. In rural areas and in Beijing the middle social class, such as people with middle education and income are more likely to concern themselves with the environment. While in Hangzhou, young people, and high educated and high-rich people are more concerned with the environment than other issues. Although the influence of gender difference is not obvious, generally speaking, compared to females, males in China more concerned with the environment.

5.5.2 Formation of Environmental Sensitivity

In this part, the author tries to clarify the influence of demographic factors on the formation of people's environmental sensitivity, which includes the perception of environmental change in the past, the satisfaction with the environmental quality in the present, and the prediction of environmental issues in the future. As described previously, people with more income, higher education, older age, and higher social class have a higher subjective well-being and are more satisfied with life than others. However, when it comes to the environment, what kind of influence those demographic factors will exert is the concern of the following analysis.

Regarding the influence of demographic factors to perception of environmental change in the past, the MCA results are shown in Figure 5-3a~c.

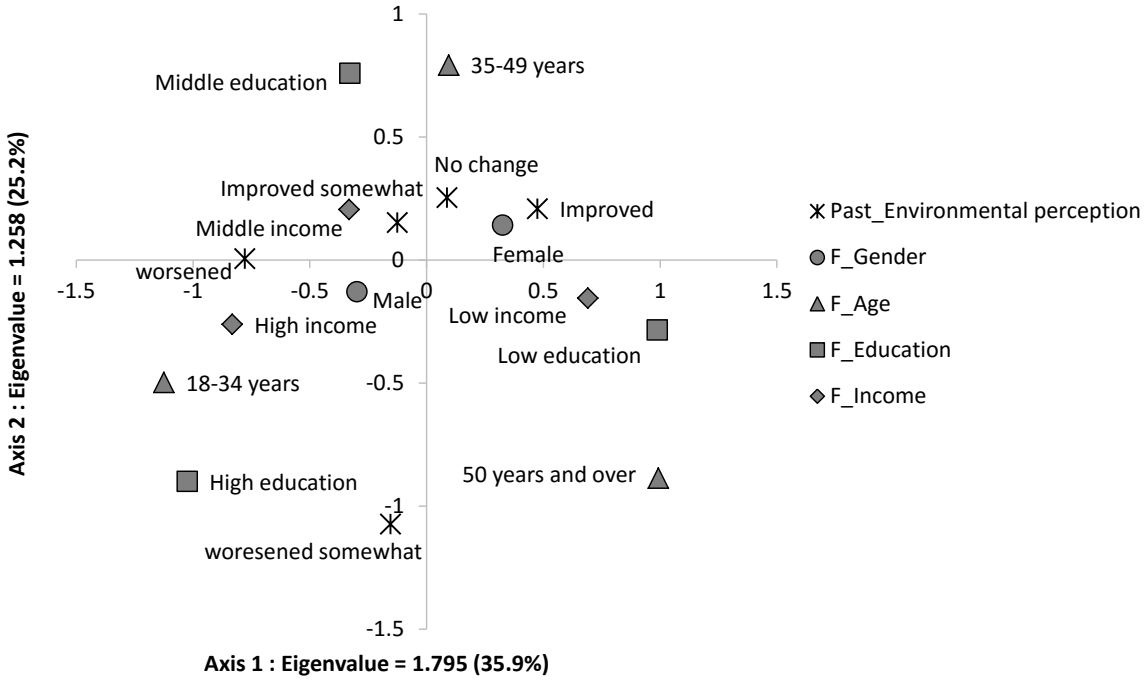


Figure 5-3a Influence of demographic factors to perception of environmental change in rural areas

In Figure 5-3a, negative evaluations (worsened and worsened somewhat) are located in the left lower quadrant. Positive (improved and improve somewhat) and medium evaluations (no change) are located on above axis 2. Individuals who are more close to the negative evaluation are defined as more sensitive to the past environmental deterioration. For the four factors we selected, we found that males in rural areas are more sensitive to the deterioration of the environment in the past than females. Young generation (18-34 years), high-educated and high-rich people are more sensitive to the deterioration of the environment. Middle social class, middle aged people and females are more inclined to hold medium or positive evaluations towards the change in the past. People with low income and low education also close to positive evaluations. From this distribution, a positive relationship between education and income with environmental sensitivity and a negative relationship between age and environmental sensitivity

have been verified. That are, the higher the education and income people have, the more negative evaluations they hold towards the environment, and with the increase of the age, people will become to approve the change in the past.

Figure 5-3b Influence of demographic factors to perception of environmental change in Beijing

In Figure 5-3b, the most positive evaluation (improved), together with low education, old age (50 years and over) and low income are located in the upper left quadrant. The somewhat positive evaluation (improved somewhat) together with female, middle age (35-49 years), and middle education are located in lower left quadrant. Medium evaluation (no change), together with younger generation (18-34 years) and middle income are located in the lower right quadrant. And the negative evaluations (worsened somewhat and worsened) together with male,

high income and high education are located in the upper right quadrant. From this distribution, the author found that, for the four factors selected, male in Beijing are more sensitive to the deterioration of the environment in the past than females. High-educated and high-income people showed the most sensitivity to the deterioration of the environment. And the positive relationship between education and income with environmental sensitivity, and negative relationship between age and environmental sensitivity are generally verified in Beijing.

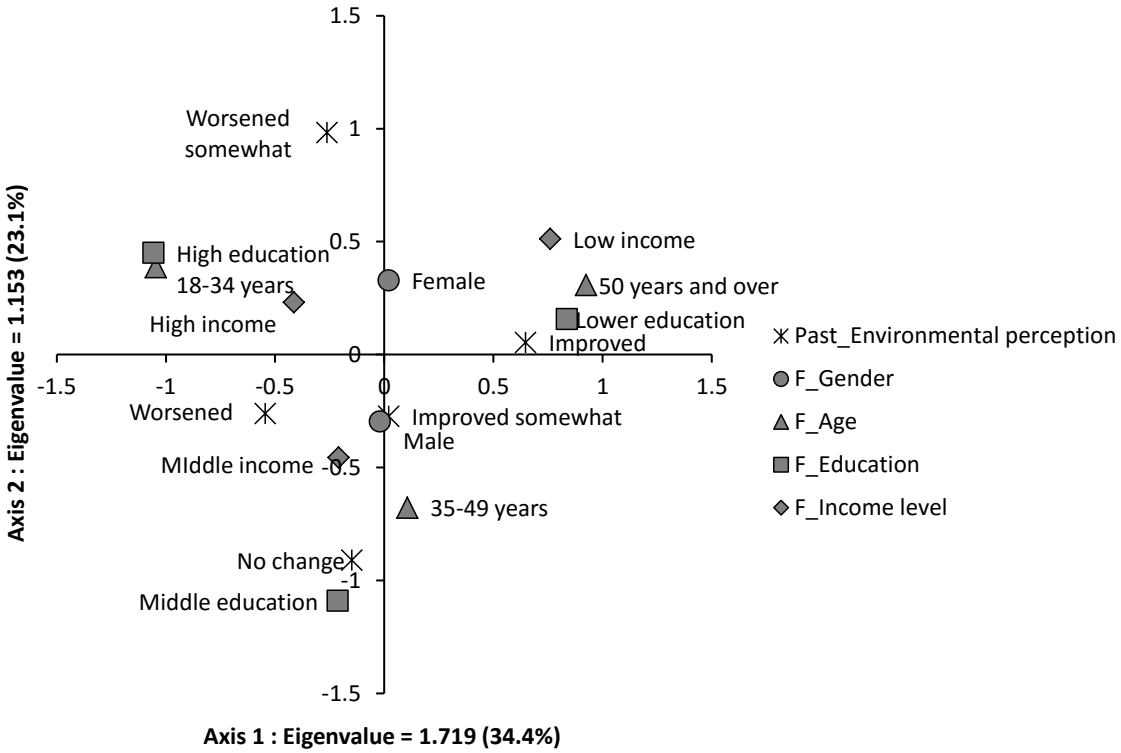


Figure 5-3c Influence of demographic factors to perception of environmental change in Hangzhou

In Figure 5-3c, the most positive evaluation (improved), together with low education, low income, and old age (50 years and over) are located in the upper right quadrant; The somewhat positive evaluation (improved somewhat) and medium evaluation (no change), together with male middle income, middle age (35-49 years) and middle education are located in the lower

direction of axis 2; the somewhat negative evaluation (worsened somewhat), together with younger generation (18-34 years), high education and high income are located in the upper left quadrant. It is noted the negative evaluation (worsened) is also closed to this group and is included into this group. From this distribution, the author found that, old people and low-educated and low-income people tend to believe environment in the past improved, while male, middle-aged, middle-educated and middle rich people are inclined to believer environment in the past improved somewhat or had no change. And younger, high-educated and high-income people showed the somewhat high sensitivity to the deterioration of the environment. The generally positive relationship between education and income with environmental sensitivity, and negative relationship between age and environmental sensitivity are also verified in Hangzhou.

From the above analysis, the author found that different from the conclusions that derived from the researches concerning people's subjective well-being, education and income are positively related with, and age is negatively related with environmental sensitivity in the past. Males in rural areas and Beijing are generally more sensitive to the deterioration of the environment.

Regarding the influence of demographic factors to people's satisfaction with the present quality, the analysis results are shown in Figure 5-4a-c.

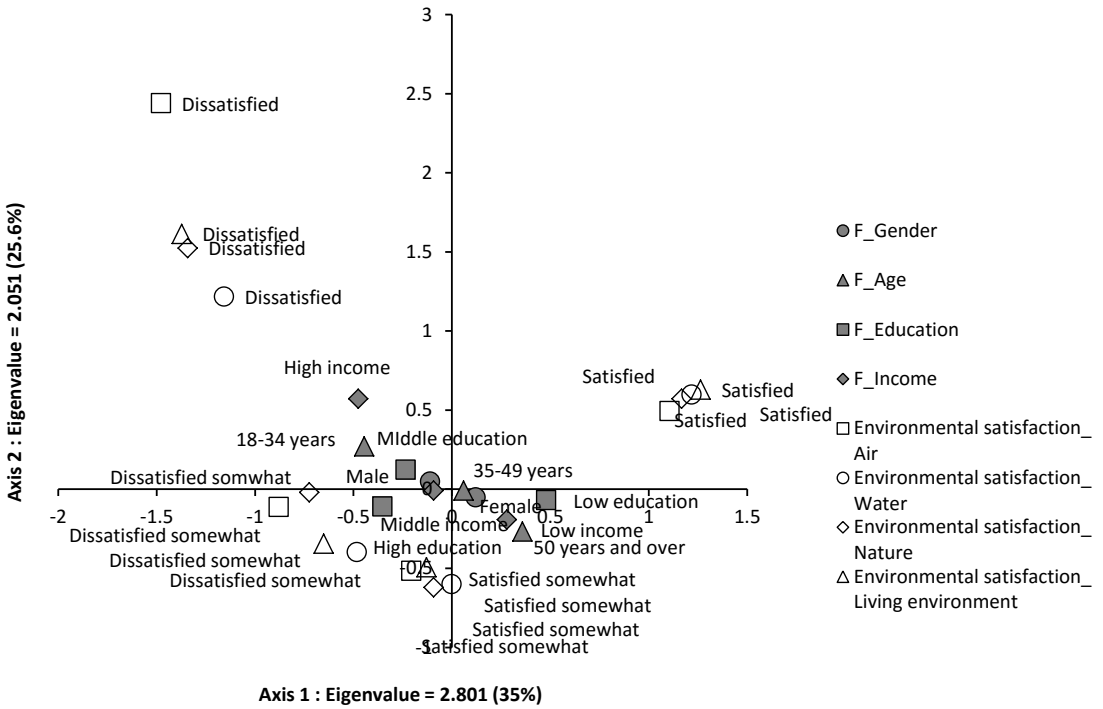


Figure 5-4a Influence of demographic factors to environmental satisfaction in rural areas

In Figure 5-4a, the options of "satisfied" are located in the upper right quadrant. And together with old age (50 years and over), low education and low income are located in the right side of axis 1. "Satisfied somewhat" and "dissatisfied somewhat", together with middle income and middle education are located in the lower left quadrant. And "dissatisfied" together with young generation (18-34 years), high income and high education are located in the upper left quadrant. From this distribution, the author found that in rural areas younger people, high-educated, high-rich people are inclined to be more dissatisfied with present environmental quality. Old people, low-educated and low-rich people tend to be more satisfied with the present environmental quality. Although not obvious, male in rural areas are inclined to be more dissatisfied with present environment.

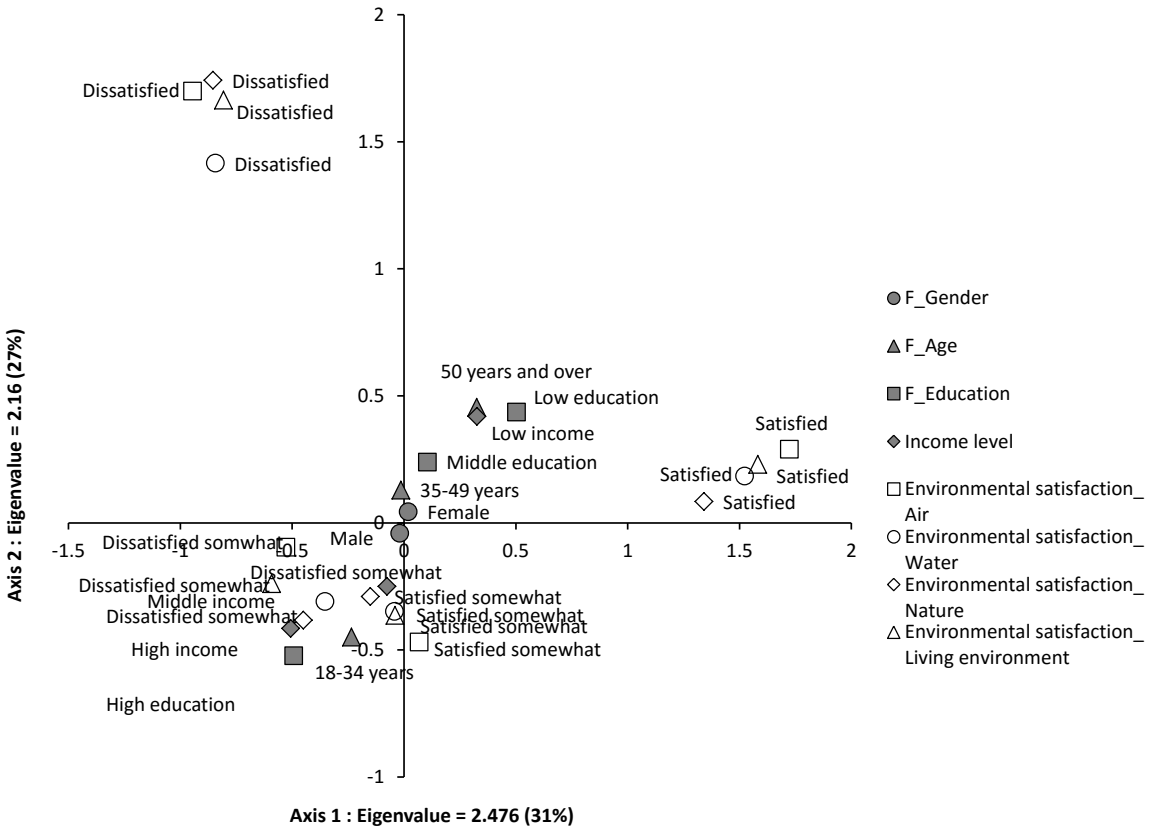


Figure 5-4b Influence of demographic factors to environmental satisfaction in Beijing

In Figure 5-4b, the options of "satisfied" together with low education, low income old age (50 years and over) and middle education are located in the upper right quadrant. "Somewhat satisfied" and "somewhat dissatisfied", together young generation (18-34 years), high and middle income, and high education are located in the lower left quadrant. And the options of "dissatisfied" are located in the upper left quadrant. Middle age and gender variables are near to the original point. From this distribution, the author found that in Beijing, old people, low-educated and low-rich people tend to be more satisfied with the present environmental quality. However, younger people, high-educated, and high-rich people tend to be somewhat satisfied or somewhat dissatisfied with the present environment.

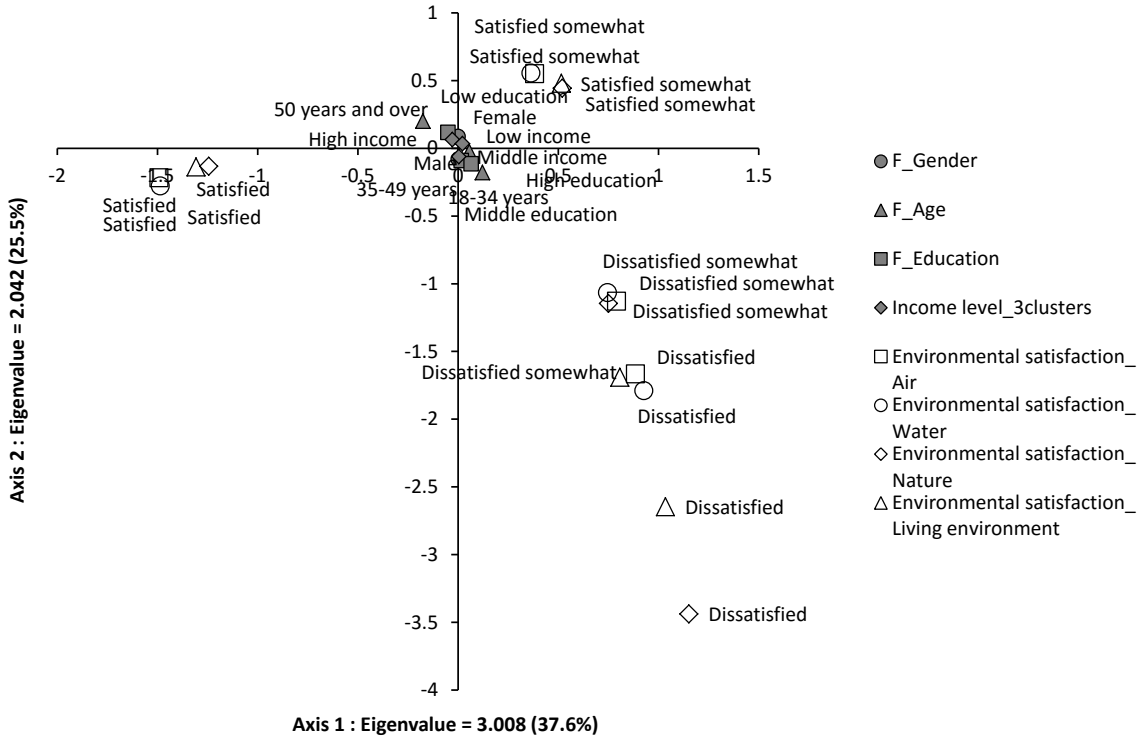


Figure 5-4c Influence of demographic factors to environmental satisfaction in Hangzhou

In Figure 5-4c, the options of "satisfied" are located in the lower left quadrant; the options of "somewhat satisfied" are located in the upper right quadrant; "somewhat dissatisfied" and "dissatisfied" are located in the lower right quadrat. However, all the demographic factors are near the original point. The influence of demographic factors to formation of environmental satisfaction in Hangzhou is not obvious.

From the above analysis, the author found that the causal effect of demographic factors to the formation of people's satisfaction with the present environment is somewhat weak, especially in Hangzhou. However, younger people, high-educated, and high-rich people in rural areas tend to be less satisfied with the present environmental quality, and old people, low-educated and low-rich people in Beijing tend to be more satisfied with the present environmental quality. Except in Hangzhou, the assumption that younger, better educated and richer people tend to be

less satisfied with the present environment is to some extent verified.

Regarding the influence of demographic factors to people's prediction regarding environmental issues in the future, the analysis results are shown in Figure 5-5a-c.

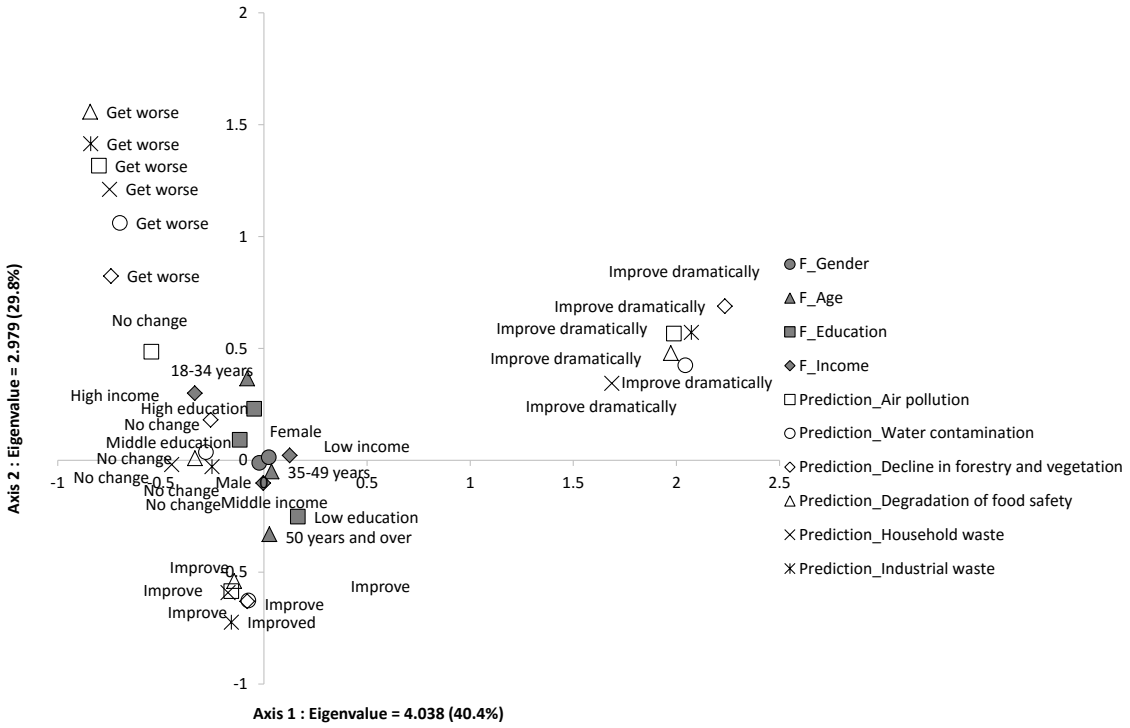


Figure 5-5a Influence of demographic factors to environmental prediction towards the future in rural areas

In Figure 5-5a, the most positive prediction (improve dramatically) and low income are located in the upper right quadrant. Positive prediction (improve), old age (50 years and over) and low education and middle income are located in the lower part of the figure. Medium responses (no change) are located on the minus part of axis 1. Negative responses (get worse), and young age (18-34 years), high and middle education are located in the upper left quadrant. From this distribution, the author found that in rural areas, the younger, middle and high educated, high-rich people are inclined to believe the surveyed environmental issues will get worse in the future.

While old people and low-educated people tend to believe that these environmental issues will get improve in the future.

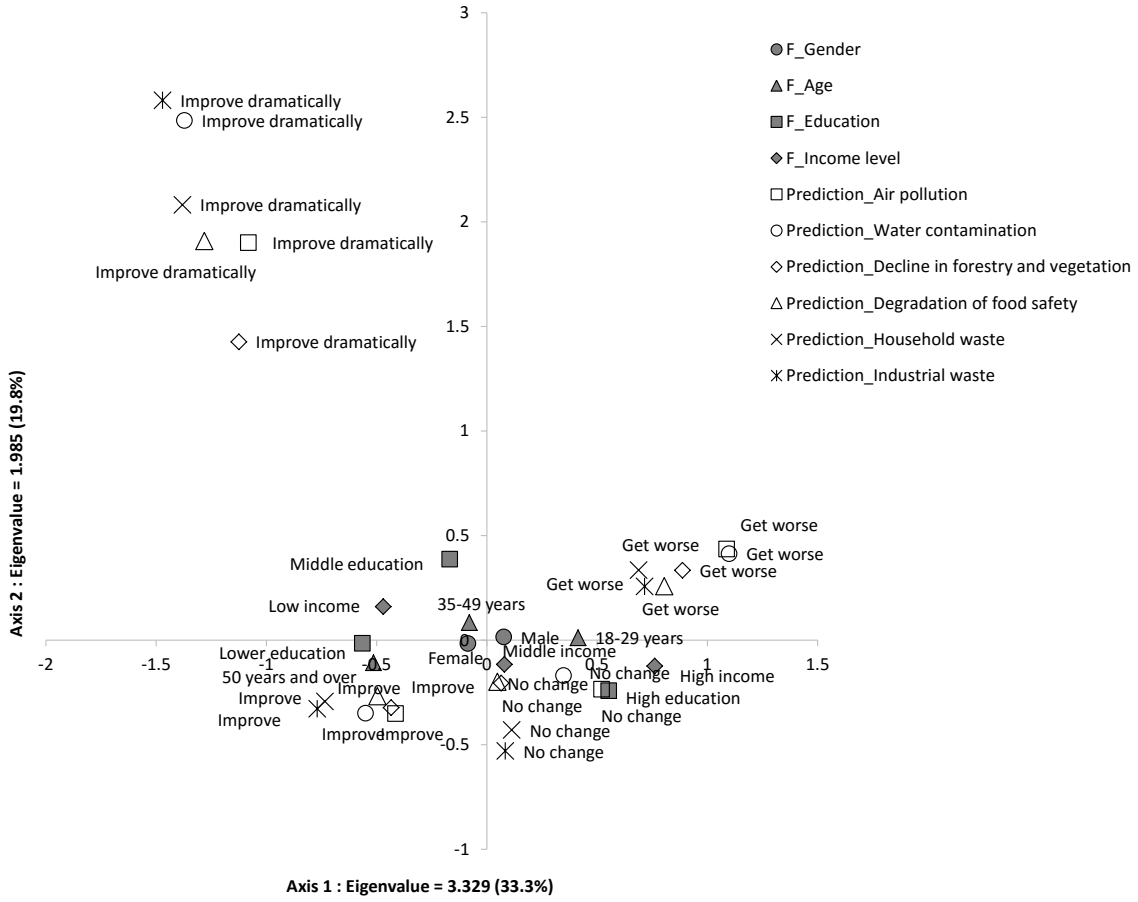


Figure 5-5b Influence of demographic factors to environmental prediction towards the future in Beijing

In Figure 5-5b, the most positive predictions (improve dramatically) are somewhat far away from other variables, however together with low and middle education, low income, and also middle age (35-49 years) are located in the upper left quadrant. Positive predictions (improve) and old age (50 years and over) are located in the lower left quadrant. Medium prediction (no change), together with middle and high income, and high education are located in the lower right quadrant. And negative predictions (get worse) and young age (18-34 years) are located in the upper right

quadrant. From this distribution, the author found that compared to the older, lower educated and less rich people, the younger generation, higher educated and richer people are more inclined to predict the environmental issues turn bad in the future. Although not obvious, male in Beijing are likely to give a native evaluation.

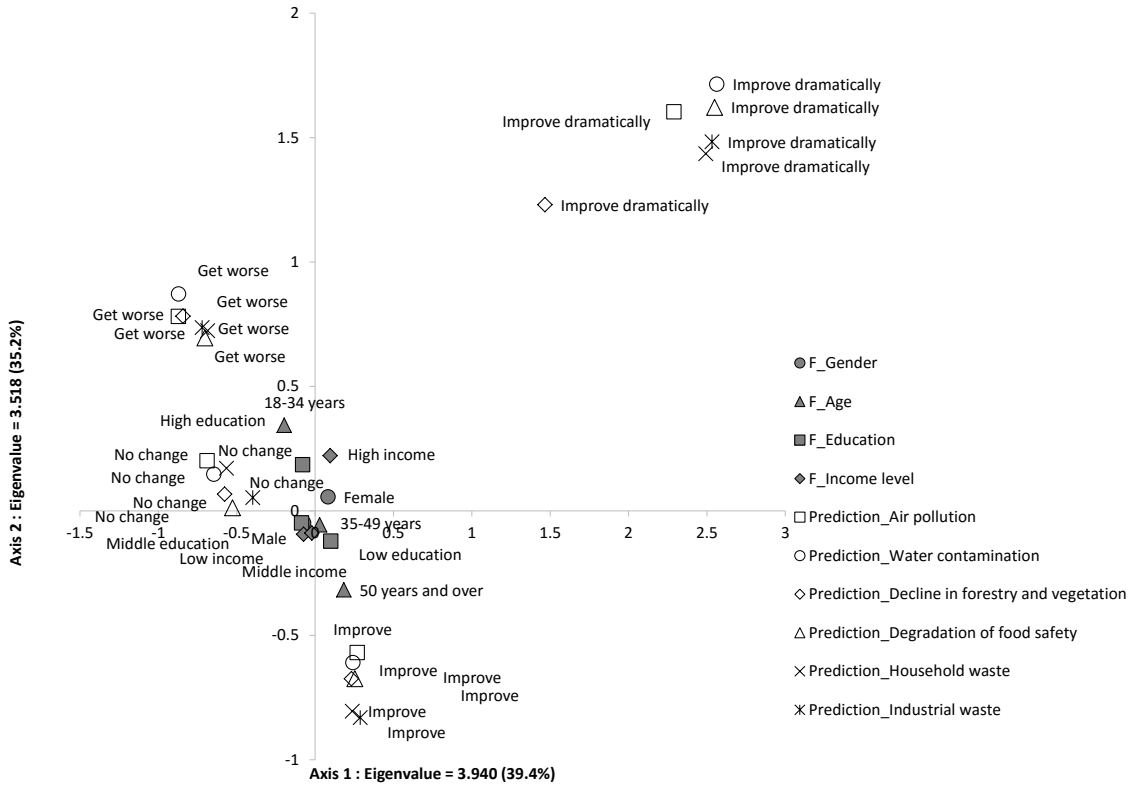


Figure 5-5c Influence of demographic factors to environmental prediction towards the future in Hangzhou

In Figure 5-5c, the most positive predictions (improve dramatically) are somewhat far away from other variables and are located in the upper right quadrant. Positive predictions (improve), together with old age (50 years and over), low education are located in the right lower quadrant of the figure. The medium predictions (no change) and negative predictions (get worse), together with young age (18-34 years) and high education are located in the upper left quadrant. From this

distribution, the author found that younger and higher educated people and maybe richer people are inclined to believe the environmental issues will get even worse in the future, than the older, less educated and rich people in Hangzhou.

From the above analysis, the author found a general conclusion that younger, higher educated and richer people are more inclined to give a negative prediction towards future environmental changes. Gender difference has very weak influence, except in Beijing, where males showed more worry for future environment. However, it should be noted that the distributions of demographic factors in the three surveyed regions are somewhat close to the original point, which indicates a weak relation. This makes it difficult to find more detail relations between demographic factors with environmental prediction. This may be because of the too detailed options (improve dramatically, improve, no change and get worse), although the author has already combined the options of "get worse" and "get worse dramatically" into one category.

As a summary of the above analysis, the author found that, different from the conclusion that derived from the researches concerning people's subjective well-being, younger, richer and better educated people, and males in some areas generally showed more "unhappiness" toward the environmental change, by the fact that this group of people are inclined to think the environmental quality worsened in the past, are dissatisfied with the present environment, and also tend to hold a negative prediction that environmental issues will get worse in the future.

5.5.3 Formation of Environmental Anxiety and Responsibility Judgments

As described in the introduction of this chapter, environmental anxiety (AC) is used to measure people's anxiety regarding the consequence of environmental deterioration. Environmental responsibility (AR) is used to measure people's judgments on the ascription of environmental responsibility. Environmental anxiety and environmental responsibility judgments are important indicators of people's environmental consciousness. On the other hand,

they are supposed to affect people's commitment and behaviour intention twards the environment. The hypothesis is that people with stronger environmental consciousness will show more anxiety to the environmental deterioration, and will be more likely to recognize their own responsibilities in protecting the environment.

About the influence of demographic factors to the formation of AC and AR in surveyed areas, the analysis results are shown in Figure 5-6abc

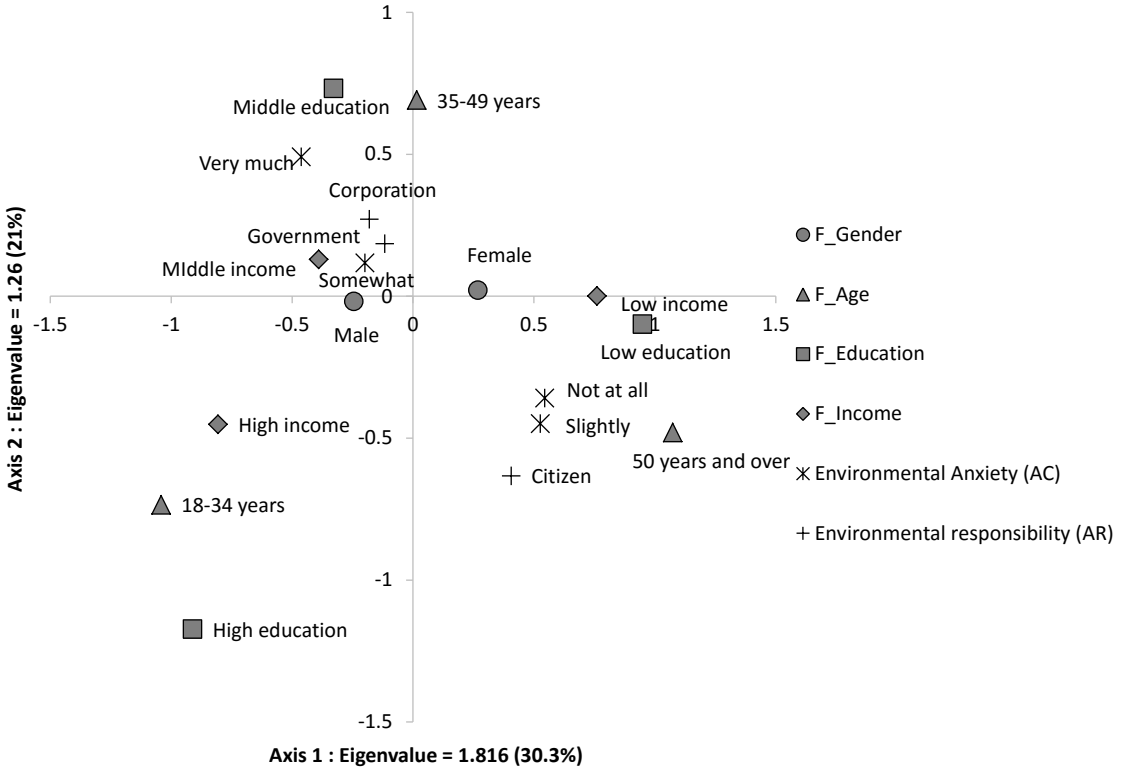


Figure 5-6a Influence of demographic factors to the formation of AC and AR in rural areas

Regarding the influence of demographic factors to the formation of AC and AR in rural areas, in Figure 5-6a, the higher anxiety (very much and somewhat) are locate in the upper left quadrant. And "corporation" and "government" also located in this same quadrant. Lower anxiety (slightly and not at all) is located in the lower right quadrant. And "citizen" also located in the same quadrant. From this distribution, the author found that people who are more anxious about the

environment tend to ascribe the environmental responsibility to the government and corporations. And people with less anxious tend to ascribe the environmental responsibility to the citizens. From the positions of demographic factors in the figure, the author also found in rural areas the middle-aged (35-49 years) people, middle-educated and middle-rich people tend worried more about the environment, and also this group of people is more inclined to ascribe the most important environmental responsibility to the government. On the other side, the old (50 years and over) people, low-educated and low-rich people tend worried less about the environment, and they are inclined to ascribe the most important environmental responsibility to the citizens. And in rural areas, male are more anxious about the environment than female.

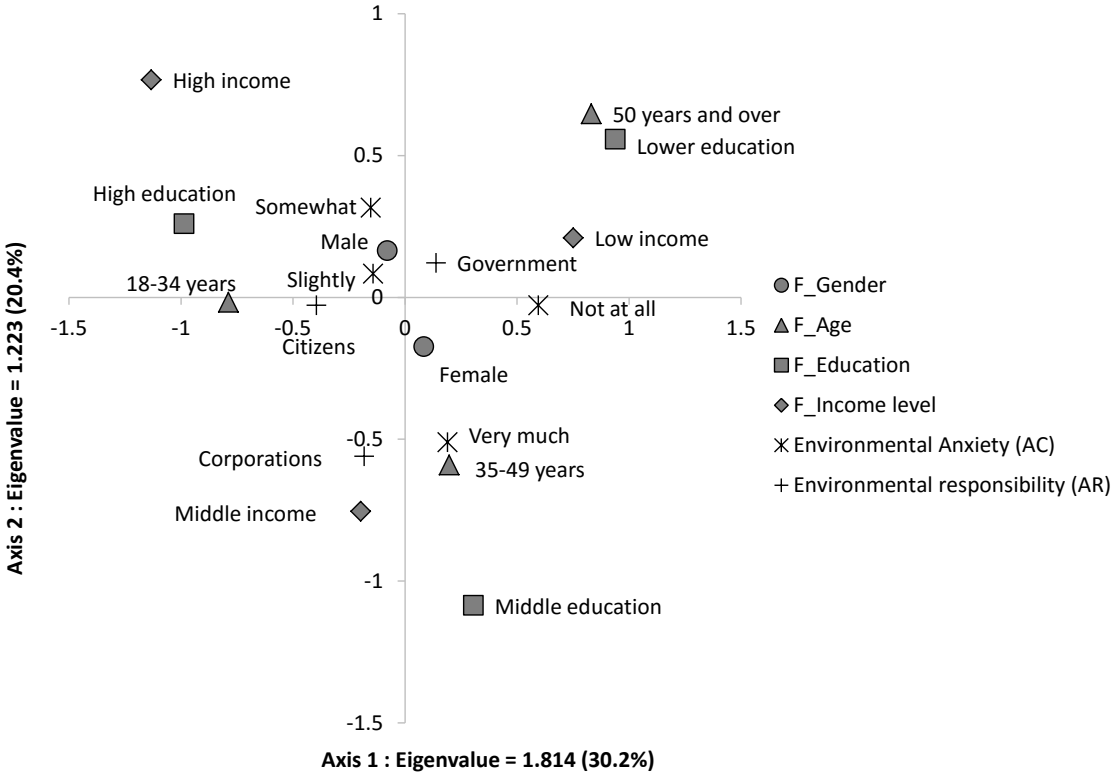


Figure 5-6b Influence of demographic factors to the formation of AC and AR in Beijing

Regarding the influence of demographic factors to the formation of AC and AR in Beijing, in

Figure 5-6b, the most anxiety (very much) and “corporations”, together with middle age (35-49 years), middle education and middle income are located in the lower part of the figure; “somewhat” and “slightly” anxiety, together with male, young age (18-34 years), high education and high income, as well as the option of “citizens” are located in the upper left quadrant. The least anxiety (not at all) is located in the right side of Axis 1, and together with “government”, low income, low education and old age (50 years and over) which are located in the upper right quadrant are taken as one group. From this distribution, the author found that in Beijing, middle-aged, middle-rich and middle-educated showed the most anxiety to the environment, and they tend to scribe the most important environmental responsibility to the corporations. Young generation, male, and high-educated, high-rich people showed somewhat or slightly anxiety, and they tend to scribe the most important environmental responsibility to the citizens. And old people, low-educated and low-rich people are inclined to don't worry about the environmental deterioration at all, and they believe it is the government should take the most important environmental responsibility.

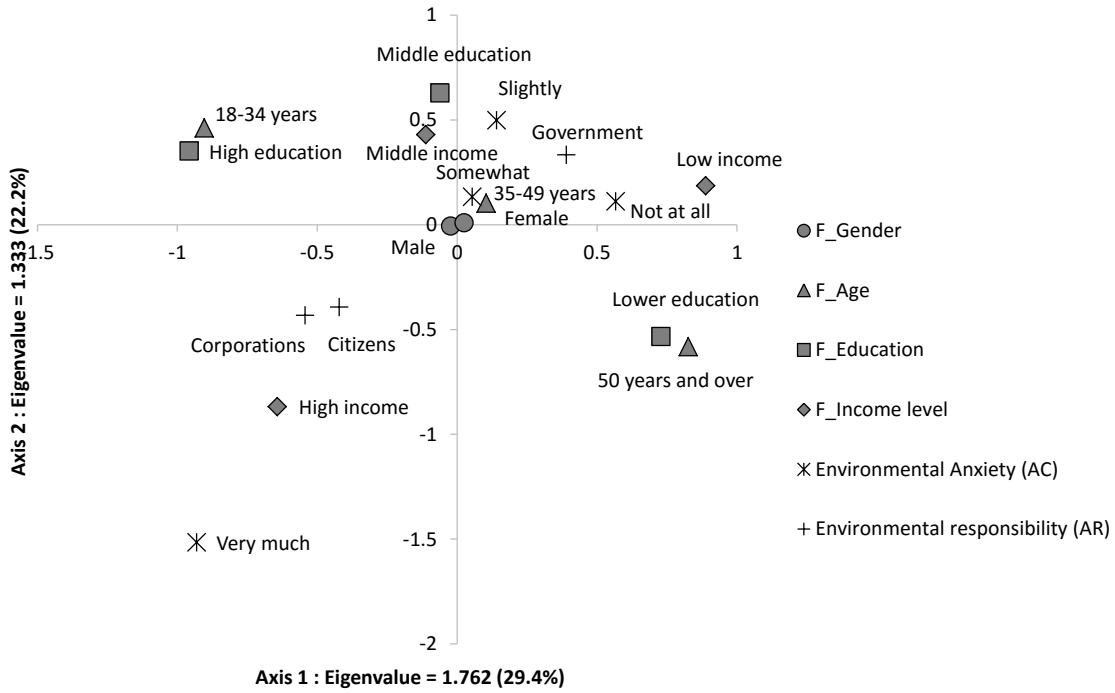


Figure 5-6c Influence of demographic factors to the formation of AC and AR in Hangzhou

Regarding the influence of demographic factors to the formation of AC and AR in Hangzhou, in Figure 5-6c, the most anxiety (very much) and "corporations" "citizens", together with high income are located in the lower left quadrant. The other three levels of anxiety, together with "government" are located in the upper right quadrant. However, from relative positions with the demographic factor, "somewhat" is closed to the middle age (35-49 years), "slightly" is closed to the middle education and middle income, and "not at all" is closed to low income. From this distribution, the author found that in Hangzhou, high-rich people hold the most anxiety toward the environmental deterioration, and they believe corporations and citizens should take the most importance responsibility in protecting the environment. People hold the other three levels' anxiety tend to ascribe the most important environmental responsibility to the government. If we connect each category of the variables by the line, the author found some tendencies that income and education are positively correlated with environmental anxiety. That is with the increase of

education and income people are inclined to be more worried about the environmental deterioration. And compared to the younger people, the old people are inclined to be less anxious about the environmental deterioration. The influence of gender in Hangzhou is not obvious.

From the above analysis, the author found that both in rural areas and in Beijing, the middle social class (include middle age, middle education and middle income) showed the most anxiety; while in Hangzhou a generally positive relation between income and education with environmental anxiety, and a weak negative relation between ages with environmental anxiety exist. Generally speaking, the younger, higher educated and richer people are inclined to worry more about the environment in surveyed regions. However, different from the two cities, people who ascribed the most important responsibility to governments in rural areas also tend to hold much anxiety, while in surveyed cities, government-dependent attitude links to less anxiety.

5.6 Summary

The analysis on environmental attitude dimension supplies plenty of information regarding people's cognition and evaluation towards the environment in rural and urban areas of China. Based on the above analysis, the following conclusions are indicated.

The severity of environmental issues has aroused different attentions in China. However, compared to the medical care/welfare and education/culture, and even to the economy, the importance of the environment in both rural and urban China still lowly recognized. The household waste issue in rural areas, air pollution and food safety issues in urban areas are the most serious environmental issue in the present. It is noted that, the severity of household waste issue in rural areas has surpassed the traditional pollution issues, such as water and air pollution, and becomes the rural areas' most concerning issue. The global warming issue on the global level aroused the most attention from people in urban areas, while the air pollution issue on the national level aroused the most attention from people in rural areas.

Regarding the environmental sensitivity in rural and urban areas, people in rural areas are generally inclined to hold a positive evaluation regarding environmental change in the past, in the present and in the future. People in the two cities perceived more deterioration in the past and also both showed more worries for the future. However, people in Hangzhou are very satisfied with the present environmental quality while Beijing citizens are not. The better environmental situation in Hangzhou is supposed to be an important reason for the relatively high satisfaction in Hangzhou, while severe environmental situation in Beijing contributes to the dissatisfaction of Beijing citizens.

In recent years rural areas have been facing increasingly serious environmental challenges, which stem from the backward life and production mode in local areas, and they also come from polluting enterprises transferred from the cities. However, the relatively positive evaluations on environmental quality and its change on the given time frame are clarified in rural areas. One important reason may be the remarkable economic growth in rural areas in recent years. People in rural areas were described as “too concerned with the exigencies of making a meagre living to worry about environmental problems” (Wheeler, Wang, and Dasgupta, 2003, Lo and Leung, 2000, Edmonds 1998, quoted in Tilt, 2009). Economic growth always is taken as a more important goal in rural areas. The rapid development in economics greatly benefits the life of peasants. The increasing satisfactions stem from the richer life and may show on many aspects of rural life, including the evaluation of environmental change.

As described in the previous section, people with more environmental consciousness are supposed to be more sensitive to environmental change, especially to environmental change in a bad way. In this sense, the positive attitude on the change of environmental quality in rural areas represents a lower environmental sensitivity, as well as a weaker environmental consciousness.

Another important finding in this chapter is the influence of demographic factors to the

formation of environmental sensitivity. Different from the conclusion that derived from the researches concerning people's subjective well-being, the author found that younger, richer and better educated people and males generally showed more "unhappiness" toward environmental change. And this "unhappiness" indicates a stronger environmental sensitivity as well as environmental consciousness in regard to this group of people.

AC represents the anxiety people hold regarding the deterioration of the environment. The analysis results indicated that Beijing residents tend to worry about the deterioration of the environment "very much", rural residents tend to "somewhat" worry about the deterioration of the environment, and Hangzhou residents tend "slightly" or do not worry about the deterioration of the environment at all. Again, the different environmental condition in the surveyed areas may play an important role in the formation of people's environmental anxiety.

AR represents people's ascription of the most important environmental responsibility. In urban areas, government-dependent attitude links to less anxiety, while rural areas where the most important responsibility was ascribed to governments tend to hold much anxiety. In rural areas, it is the people with old age, low education and low income are more inclined to ascribe the most important environmental responsibility to the citizens. And it is also this group of people that tends to hold the least environmental anxiety. From this result, the author found that the assumption that people with government-dependent attitude are inclined to be less concerned with the environment is not applicable to the rural areas. There is no previous reference for explaining this result. One conjecture may be that the individual's subjective evaluation in rural areas is lower. Because of their lower development and poorer socioeconomic situation, people in rural are may generally have less confidence in their ability to change the environment. And the group of people who really care and are eager to improve the environment in rural areas may thus turn to the government to find the possibility.

Chapter 6

ANALYSIS REGARDING BEHAVIOURAL INTENTION AND MOTIVATION

6.1 Introduction

A number of theoretical frameworks have been proposed to analyse the formation process of pro-environmental behaviour. A central factor that involved in these frameworks is behavioural intention. Many theorists agree that the disposition most closely linked to a specific behaviour is behaviour intention (Fishbein and Ajzen, 1975; Triandis, 1977; Fisher and Fisher, 1992; quoted in Ajzen, 2005). Intention is an indicator of how hard people are willing to try, of how much effort they are planning to exert in order to perform the behaviour, and it is assumed to capture the motivational factors that influence a behaviour. This chapter tries to explore people's behavioural intention by clarifying the self-sacrifice that people are willing to do, and the environmental motivations that under the behaviours in daily life.

Self-interest is traditionally identified as a major source of environmental problems (Hardin and Baden, 1977, Mansbridge, 1990, quoted in De Young, 2000). Rational actor models lead individuals to act in their own rational self-interest. The effect on the environment for individual behaviour is usually too marginal to serve as a rational motive for pro-environmental behaviour. Hence, the "free-rider" dilemma or collective action problem forms and levels of environmental degradation increase. From this perspective, the formation of altruistic or self-sacrificing motives is particularly important in leading people to behave in an environmental way.

Axelrod (1994) proposed a value structure that identifies a tribrach classification of

motivational domains: (a) economic, (b) social, and (c) universal. The first motivational domain refers primarily to goals such as economic security or achievement, material rewards and/or avoidance of economic, material, or time costs. The second motivational domain seeks belongingness and acceptance from others is a central guiding force in decisions to act. And the third motivational domain, "universal" involves the pursuit of self-respect from making a contribution to the betterment of the world, particularly as it pertains to pursuing and attaining outcomes that correspond with universalistic-type goals (e.g., equality, environmental preservation). Axelrod's three motivational domains are deemed as contents of environmental worldview dimension in this study. However, taking this classification of motivational domains as a reference, this research tries to identify people's direct motivations for several daily life activities, from money motivated to environment motivated.

6.2 Willingness to Sacrifice for the Environment

A substantial portion of literatures has focused on the theoretical analyses of altruistic motivation. However, empirical literature on the measurement of altruistic or self-sacrificing motivation is rarely seen. Diet, Stern and Guagnano (1998) once combined three items of the 1993 General Social Survey (GSS) (see Table 6-1) to form one behavioural indicator, known as "willingness to sacrifice for environmental quality", to conduct their analysis. However, the measurement and analysis on sacrificial willingness were not the purposes, and the respondents' responses were not seen in that study.

Willingness to Pay (WTP) is a typical intention indicator used to measure people's sacrificial willingness. However, WTP is mainly taken as an economic indicator and used to measure people's willingness mostly in a monetary context. The analysis in this part focuses on people's sacrificial willingness and tries to measure and analyse such sacrificial willingness from a somewhat comprehensive perspective that which involves money, life and even policy

contexts.

Table 6-1 Question items in of general social survey (1993)

Item Number	Item Name	Question	Answer
8a	The first aspect	How willing would you be to pay much higher prices in order to protect the environment?	1. Very willing 2. Fairly willing 3. Neither willing nor unwilling 4. Not very willing 5. Not at all willing
8c①	The second aspect	And how willing would you be to accept cuts in your standard of living in order to protect the environment?	1. Very willing 2. Fairly willing 3. Neither willing nor unwilling 4. Not very willing 5. Not at all willing
8b	The third aspect	And how willing would you be to pay much higher taxes in order to protect the environment?	1. Very willing 2. Fairly willing 3. Neither willing nor unwilling 4. Not very willing 5. Not at all willing

Note: ① The order of the 8c item is exchanged with 8b.

Taking the work of Diet, Stern and Guagnano (1998) as a reference, we term the sacrificial willingness in this study as “willingness to sacrifice” (WTS) for the environment. Similar to the GSS (1993), the measurement of WTS in this study also includes three aspects (see Table 6-2), which involve people’s sacrificial willingness not only monetarily but also regarding life aspect. However, there are also obvious differences between these two measurements.

Except the items design that our questions were dichotomously designed, the specific description and measurement of each aspect are also different. For the first aspect, the measurement in this study is more specific and specializes on buying expensive eco-goods, and hence it, can ensure that each respondent receives the same stimuli. For the second aspect, there is no obvious difference. Both of the measurements aim to investigate people’s sacrificial willingness regarding life aspect. For the third aspect, the GSS measurement still focuses on paying higher prices but on a more specific issue (taxes). While in this study, “the introduction

of a new and additional tax" is emphasized. Although both the first and third aspects involve money payment, the emphasis in the first aspect in this study is on higher prices (more expensive), while tax introduction is emphasized in the third aspect. If the first aspect only focuses on the willingness to sacrifice money, the third aspect in this study also involves people's support to an environmental policy. From the above comparison, the measurement in this study is supposed to be more specific and more reasonable to realize the purpose in this study. Despite some overlap, in this paper, we term these three aspects, respectively, as money-sacrifice willingness, life comfort-sacrifice willingness and tax-introduction willingness for the environment.

Table 6-2 WTS related question items in the survey

	Item Name	Question	Code	Answer
WTS	a. Money-sacrifice willingness	There are two contrasting views on a few issues related to environmental protection and improving the environment. Please select one answer that comes closest to your thoughts.	A-First Positive money-sacrifice willingness	If a product is good for the environment then we should try to purchase it even if it is a little more expensive.
			A-Second Negative money-sacrifice willingness	There is no need to choose a product that is more eco-friendly if it is more expensive
	b. Life comfort-sacrifice willingness	There are two contrasting views on a few issues related to environmental protection and improving the environment. Please select one answer that comes closest to your thoughts.	B-First Positive life comfort-sacrifice willingness	Decline in material comfort to a certain extent is acceptable in order to protect the environment
			B-Second Negative life comfort-sacrifice willingness	I can't accept a lower standard of living even if it were for the protection of environment
	c. Tax-payment willingness	There are two contrasting views on a few issues related to environmental protection and improving the evironment. Please select one answer that comes closest to your thoughts.	C-First Positive tax-payment willingness	A new, additional tax ought to be accepted in order to protect the environment
			C-Second Negative tax-payment willingness	I oppose any introduction of a new tax even if it were for environmental protection

In the survey, we used three sub-questions to explore individuals' sacrificial willingness for the environment from the aspects of money, daily life and tax introduction. The answers for each sub question were dichotomously designed. The first choices for each of the three sub questions, A-First, B-First and C-First, represent the positive WTS on money, daily life and tax introduction, while the second choices A-Second, B-Second and C-Second represent the negative WTS. The responses to the measurement of WTS in surveyed regions are shown in Table 6-3.

Table 6-3 Responses to WTS regarding money-sacrifice, life comfort-sacrifice and tax-introduction

		Rural Are	Urban Area					
		(%)51 villages	Beijing	p-value	d-value	Hangzhou	p-value	d-value
Money-sacrifice willingness	Positive money-sacrifice willingness	49.7	73.6	***	**	60.9	***	*
	Negative money-sacrifice willingness	50.3	26.4	***	**	39.1	***	*
Life comfort-sacrifice willingness	Positive life-sacrifice willingness	65.1	71.2	*	·	73.1	**	*
	Negative life-sacrifice willingness	34.9	28.8	*	·	26.9	**	*
Tax-introduction willingness	Positive tax-introduction willingness	63.7	66.8			79.2①	***	*
	Negative tax-introduction willingness	36.3	33.2			20.8	***	*

Note: 1. Statistical significance: ·p≤0.1,*p≤0.05, **p ≤ 0.01, ***≤0.001
2. Substantive significance：·d≥0.1,*d≥0.2, **d≥ 0.5, ***≥0.8
3. The ratio of missing value in all cases is 26.9% (other, 0.9%; DK, 26%)

From Table 6-3, the author found that the overall response to WTS in surveyed regions is somewhat positive. More than 60% of the respondents showed a positive response to all three aspects in surveyed areas, except the lower support for money-sacrifice in rural areas (49.7%). Especially on the aspect of life comfort-sacrifice, people in surveyed regions showed a high support by the fact that 65% of the respondents in all three surveyed regions showed positive sacrifice willingness on this aspect. Compared to the sacrifice in life comfort and the introduction of a new tax, people in rural areas are more prudent with their money. Furthermore, by a comparison analysis, the author found that there are more positive responses to WTS on all three aspects in urban areas than in rural areas. In actuality, except on tax-introduction willingness

aspect, the percentages of positive responses on the other two aspects in urban areas are all significantly higher than in rural areas. Regarding the money-sacrifice aspect, 49.7% of the respondents in rural areas indicated that they are willing to do such sacrifice for the environment, while 73.6% of the respondents in Beijing and 60.9% in Hangzhou showed their positive sacrifice willingness. Regarding the life comfort-sacrifice aspect, 65.1% of the respondents in rural areas indicated that they are willing to do such sacrifice for the environment, while 71.2% of the respondents in Beijing and 73.1% in Hangzhou showed their positive sacrifice willingness. Regarding the tax-introduction, 63.7% of the respondents in rural areas indicated that they are willing to do such sacrifice for the environment, while 66.8% of the respondents in Beijing and 79.2% in Hangzhou showed their positive sacrifice willingness.

From the above analysis, the author found that generally speaking, Chinese citizens showed a somewhat positive WTS on the whole. However, the WTS for environment is significantly different in rural and urban areas. People in urban areas are more inclined to do the sacrifice for the environment from their money, daily life comfort and even from a policy aspect.

6.3 Practice of Pro-environmental Behaviour and Its Motivation

In daily life, there are a lot of activities that are good for the environment and also easily conducted by the citizens. In the survey, we also investigated people's these activities as well as the motivations behind them. Five activities that are common for both rural and urban areas at the daily life level, purchase of eco-friendly products, reuse or recycle, water saving, energy saving, and use of own shopping bag, were selected. Furthermore, the motivations to conduct these activities, to save money or in consideration of the environment, were also investigated. The question items are shown in Table 6-4, and the responses to these questions are shown in Table 6-5.

Table 6-4 Environmental behaviours and motivations related question items in the survey

	Item Name	Question	Answer	
Behavior & Motivation	Purchase of eco-friendly products	We are now going to show you a list of several activities that you could be doing at the level of daily life. How often have you performed each of them during the past yesr or so? Plese choose one that comes closest to your actiohns. Note to interviewers: For each item from a to e,ask the follow up quesion masked "SQ" if the respindent has selected 1 or 2.	a. Buy products that are energy-efficient and/or have been designated	1. Do so always 2. Sometimes 3. Not very often 4. Not at all
			SQ. What is your reason for doing so?	1. To save monye 2. In consideration of the environment
	Reuse or recycle		b. Recycle things, or otherwise avoid throwing them away so as to reuse	1. Do so always 2. Sometimes 3. Not very often 4. Not at all
			SQ. What is your reason for doing so?	1. To save monye 2. In consideration of the environment
	Water saving		c.Try to avoid overusing water in washing things or in the shower.	1. Do so always 2. Sometimes 3. Not very often 4. Not at all
			SQ. What is your reason for doing so?	1. To save monye 2. In consideration of the environment
	Energy saving		d. Try to use energy for lighting, heat or air conditioning and so on, in	1. Do so always 2. Sometimes 3. Not very often 4. Not at all
			SQ. What is your reason for doing so?	1. To save monye 2. In consideration of the environment
	Use of own shopping bag		e. Turn down offers for bags or packaging during shopping and use	1. Do so always 2. Sometimes 3. Not very often 4. Not at all
			SQ. What is your reason for doing so?	1. To save monye 2. In consideration of the environment

Table 6-5 Practice of pro-environmental behaviours and their motivations

			Rural Are	Urban Area					
			(%)51 villages	Beijing	p-value	d-value	Hangzhou	p-value	d-value
BEHAVIOR	Purchase of eco-friendly products	Do so always	23.5	44.7	***	**	31.4	**	*
		Sometimes	55.7	46.0	***	*	49.6	*	·
		Not very often	20.2	6.4	***	**	17.7		
		Not at all	0.6	2.9	**	***	1.2		*
	Reuse or recycle	Do so always	31.7	41.6	***	*	22.7	***	*
		Sometimes	55.8	46.7	***	*	55.9		
		Not very often	12.3	9.2	·	·	20.5	***	*
		Not at all	0.2	2.5	**	***	0.9		***
	Water saving	Do so always	49.7	73.8	***	**	47.4		
		Sometimes	40.8	20.3	***	**	37.3		
		Not very often	9.1	5.1	**	*	14.5	**	*
		Not at all	0.4	0.8		*	0.8		*
	Energy saving	Do so always	53.7	71.7	***	*	48.3	·	·
		Sometimes	35.8	22.5	***	*	37.8		
		Not very often	10.6	5.1	***	*	13.6		·
		Not at all	0.0	0.6			0.4		
	Use of own shopping bag	Do so always	16.5	60.2	***	***	47.2	***	***
		Sometimes	29.2	29.0			32.2		
		Not very often	46.1	7.5	***	***	18.3	***	**
		Not at all	8.2	3.3	***	**	2.3	***	**
MOTIVATION	Purchase of eco-friendly products	To save money	47.7	30.1	***	*	42.8		·
		In consideration of the environment	52.3	69.9	***	*	57.2		·
	Reuse or recycle	To save money	66.1	38.3	***	**	57.0	**	*
		In consideration of the environment	33.9	61.7	***	**	43.0	**	*
	Water saving	To save money	69.6	36.9	***	**	56.0	***	*
		In consideration of the environment	30.4	63.1	***	**	44.0	***	*
	Energy saving	To save money	79.5	50.8	***	**	69.3	***	*
		In consideration of the environment	20.5	49.2	***	**	30.7	***	*
	Use of own shopping bag	To save money	46.9	26.2	***	**	40.0	·	·
		In consideration of the environment	53.1	73.8	***	**	60.0	·	·

Note: 1. Statistical significance based on p value: ·p≤0.1,*p≤0.05, **p ≤ 0.01, ***≤0.001
2. Effect size based on d value: ·d≥0.1,*d≥0.2, **d≥ 0.5, ***≥0.8

From Table 6-5, the author found that in urban areas, there are more than 78% of people are doing all the surveyed behaviours always or sometimes. In rural areas, except the lower practice on use of own shopping bag, there are also are more than 79% of the people are doing all the surveyed behaviours always or sometimes. That is, regardless of their motivation, there are nearly 80% of the people in both rural and urban areas are buying the eco-products, reusing

or recycling, and doing waste and energy saving, always and sometimes in their daily life. Regarding the purchase of eco-friendly products, there are 79.2% of respondents in rural areas, 90.7% of respondents in Beijing and 81% in Hangzhou indicated that they do so always or sometimes. It is noted that in Beijing, this proportion is very high. Regarding the reuse and recycle, there are 87.5% of respondents in rural areas, 88.3% of respondents in Beijing and 78.6% in Hangzhou indicated that they do so always or sometimes. The practice on this activity is somewhat lower in Hangzhou. Regarding water saving, there are 90.5% of respondents in rural areas, 94.1% of respondents in Beijing and 84.7% in Hangzhou indicated that they do so always or sometimes. It is still Hangzhou that has a lower practice on this behaviour. Regarding energy saving, there are 89.5% of respondents in rural areas, 94.2% of respondents in Beijing and 86.1% in Hangzhou indicated that they do so always or sometimes. Regarding the use of own shopping bag, there is big difference between rural and urban areas. Only 45.7% of respondents in rural areas indicated that they do so always or sometimes, while in Beijing 89.2% and in Hangzhou 79.4% indicated that they do so always or sometimes.

From the above percentages, the author found that, except for the low practice on the use of own shopping bag in rural areas, the practice rate of surveyed activities in both rural and urban areas is very high, especially in Beijing. More than 88% of the respondents in Beijing indicated that they do all the surveyed activities always or sometimes. Also the biggest portion (44.7% on purchase of eco-friendly products, 41.6% on reuse or recycle, 73.8% on water saving, 71.7% on energy saving, and 60.2% on use of own shopping bag) of people in Beijing “do so always” on all surveyed activities. The difference between rural and urban areas on the issue of use of own shopping bag, to a large extent, stems from the free plastic bags ban which took effect in June 1st 2008. This regulation forces stores to charge the consumers for the plastic bags. This regulation extremely reduced the use of plastic bags. However, this regulation in rural areas is

still loose, and consumers still can get free plastic bags from the stores.

From the above analysis, the author found that the practicing rates of the surveyed activities in both rural and urban areas are very high. However, what the motivation underlying these behaviors is, to save money or in consideration of environment; and whether there is a significant difference in the motivations underling these behaviours are the questions discussed in the following content.

In the survey, if the respondent chose the first and second options (1. do so always, 2. sometimes), they were further asked the reason why they do so, to save money or in consideration of the environment. The responses to these further questions are also showed in Table 6-5. From this table, regarding the purchase of eco-friendly products, 69.9% of respondents indicated that they do so because of the environment. This percentage is significantly higher than that in rural areas (52.3%). Regarding the reuse and recycle, there are 61.7% of respondents in Beijing and 43% in Hangzhou indicated that they do so because of the environment. These percentages are significantly higher than that in rural areas (33.9%). Regarding water saving, there are 63.1% in Beijing and 44% in Hangzhou indicated that they do so because of the environment. These percentages are significantly higher than that in rural areas (30.4%). Regarding energy saving, there are 49.2% in Beijing and 30.7% in Hangzhou indicated that they do so because of the environment. These percentages are significantly higher than that in rural areas (20.5%). Regarding the use of own shopping bag, there are 73.8% in Beijing and 60% in Hangzhou indicated that they do so because of the environment. These percentages are significantly higher than that in rural areas (53.1%).

From the above analysis, the author found that although the practice rates of the surveyed activities in both rural and urban areas are very high, the motivations underlying the behaviours are different. Generally, people in rural areas are more likely to be economically-motivated,

while people in urban areas are more environmentally-motivated. Especially in Beijing, most of the residents do so based on the consideration of the environment.

6.4 Formation of WTS and Behaviour Motivation

Behaviour intention is the function of the interaction of antecedent disposition, and also it is taken as the immediate determinant of behaviour. In this part, except the analysis on the influence of demographic factors, the norm-activation theory and the variables in different dimensions that proposed in this study are also used to explain the formation of behaviour intention. This more detailed casual analysis supplies more information regarding the formation of behaviour intention, and it also improves the understanding regarding the whole theoretical framework proposed in this study.

6.4.1 Application of Norm-activation Model in the Formation of WTS

WTS, as the name implies, is a kind of personal sacrifice that will benefit other members in society, especially future generations. The model of self-interest theory supplies little explanation for this personal sacrificial willingness while the norm-activation theory proposed by Schwartz (1970, 1977) is assumed to be helpful in explaining the formation of WTS. Norm-activation theory was originally proposed to explain “helping behaviour”. This theory offers a normative explanation for helping behaviour based on the activation of internalized personal norms. The feelings of moral obligation are most likely to be activated when individuals are aware of the consequences (AC) of their behaviour towards the needy party, as well as when they ascribe responsibility (AR) to themselves for helping. Although developed mainly for the purpose of explaining altruistically-motivated helping behaviour, this model has gotten plenty of empirical support in an environmental context.

WTS represents the willingness that individuals hold to help the environment even at the

expense of personal interest. As one kind of altruistic motivation, WTS is supposed to derive from the moral judgment that they have the moral obligation to do so. Environmental anxiety and responsibility judgments are assumed to affect the formation of such moral judgment. Although somewhat different from the awareness of environmental consequence which is used in the norm-activation model, environmental anxiety is formed on the evaluation of environmental consequence and is taken as a measurement of AC in this paper. Governments, corporations and citizens are three entities that can reasonably be ascribed responsibility for environmental protection. People's judgments on the obligations of the three entities are also supposed to influence people's WTS commitments. Citizens who exert their influences on the environment in their different roles of consumers, voters and tax payers, are both the victims and villains of environmental deterioration. Whether they recognize their responsibilities in protecting the environment is supposed to affect the formation of their sacrificial willingness. Hereby, we get a somewhat revised norm-activation model that WTS is one kind of altruistic motivation, and that environmental anxiety (AC) and environmentally responsible judgments (AR) will affect the formation of WTS. The analysis results regarding the causal effects of AC and AR to WTS in surveyed areas are shown in Figure 6-1abc.

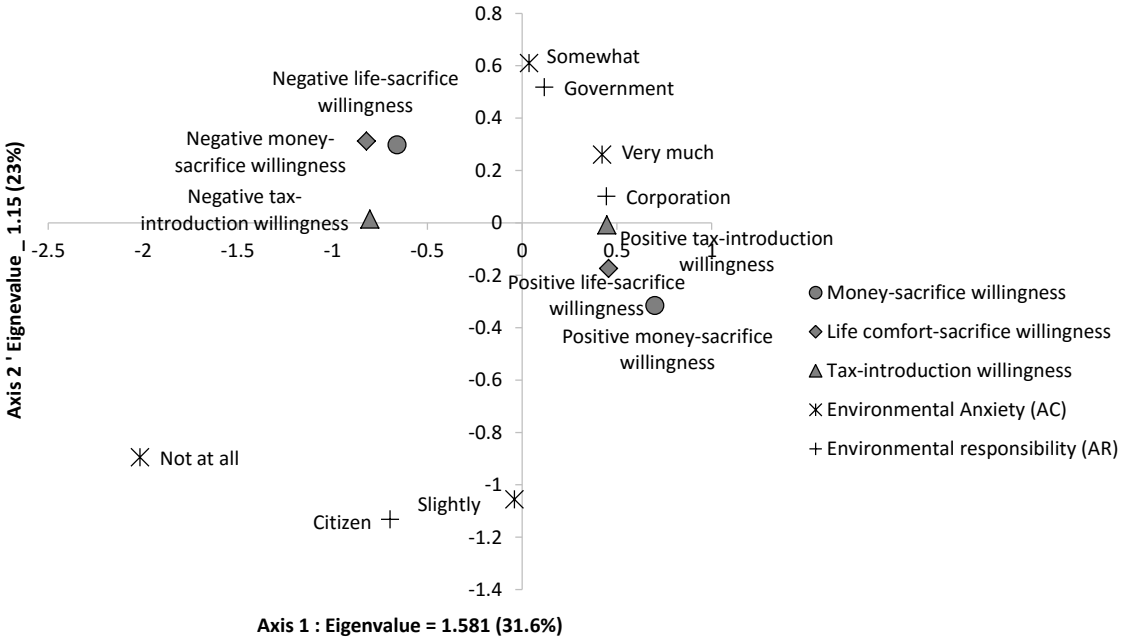


Figure 6-1a Causal effect of AC and AR to the formation of WTS in rural areas

In Figure 6-1a, axis 1 generally divides all options into two groups: government with corporations, very much and somewhat, and a positive WTS are located on the right side While citizen, slightly and not at all, and a negative WTS are located on the left side. From the distribution, a positive relation between WTS and AC is verified in rural areas. Furthermore in rural areas, people who ascribe the most important environmental responsibility to government and corporations are more likely to form a positive WTS than those who ascribe it to the citizens.

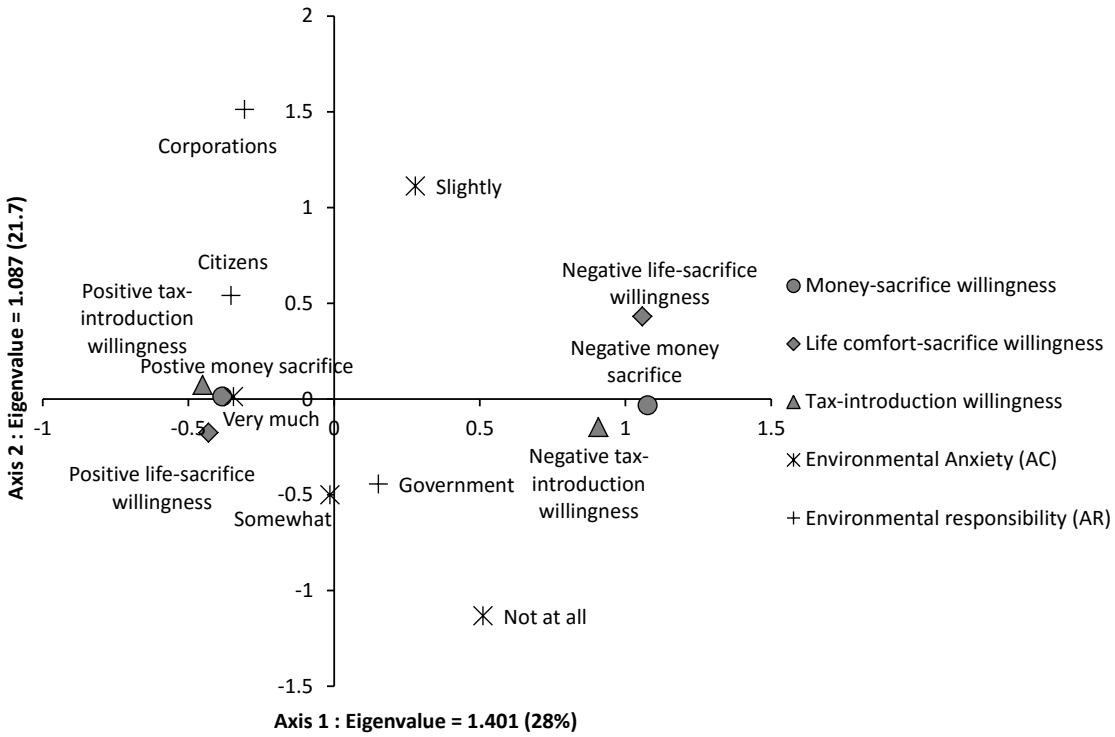


Figure 6-1b Causal effect of AC and AR to the formation of WTS in Beijing

In Figure 6-1b, axis 1 generally divides all variables into two groups: citizens with corporations, very much with somewhat, and positive WTS are located on the left side, while governments, slightly and not at all, and negative WTS are located on the right side. From the distribution, a positive relation between WTS and AC is verified in Beijing. Furthermore in Beijing, people who ascribe the most important environmental responsibility to citizens are more likely to form positive WTS than those who ascribe it to the government.

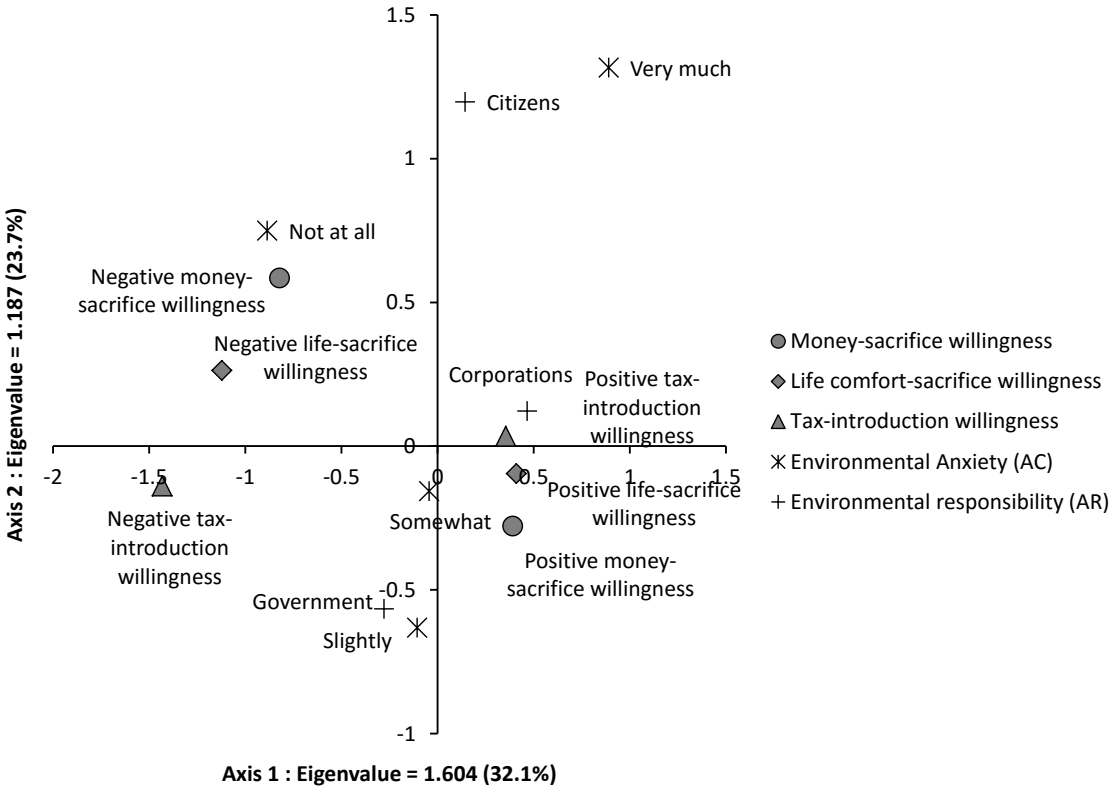


Figure 6-1c Causal effect of AC and AR to the formation of WTS in Hangzhou

In Figure 6-1c, axis 1 generally divides all variables into two groups: corporations with citizens, very much, and positive WTS are located on the right side, while governments, somewhat slightly and not at all, and negative WTS are located on the left side. However, it is noted that the option of "very much" is somewhat far from the positive WTS, while the option of "somewhat" is more closed to the positive responses. From the distribution, a positive relation between WTS and AC is generally verified in Hangzhou. Furthermore in Hangzhou, people who ascribe the most important environmental responsibility to corporations are more likely to form positive WTS than those who ascribe it to the government.

From the above analysis, the causal effects of AC and AR to the formation of WTS were clarified. In all four surveyed regions, a positive relation between AC and WTS was generally verified. The more people are worried about environmental deterioration, the more they are

inclined to form a positive WTS. However, the effect of AR to the formation of WTS differs from area to area. People who ascribed the most important responsibility to governments and corporations are more inclined to form positive WTS in rural areas, while the government-dependent attitude are more likely to link to negative WTS in both cities. In Beijing people who ascribed the most important responsibility to citizens and corporations, especially to citizens, and in Hangzhou people who ascribed the most important responsibility to corporations and citizens, especially to corporations are more likely to form positive WTS.

6.4.2 Logistic Regression Analysis Regarding the Formation of WTS

In this part, variables analysed in this study are all considered to explore the formation of WTS. Logistic regression analysis is conducted, and the results are shown in Table 6-6~6-11. The dependent variables are positive money-sacrifice, life comfort-sacrifice and tax introduction willingness. The independent variables are basic social value orientation, environmental worldview, environmental sensitivity, AC and AR, and demographic factors, which are all discussed in the previous chapters in detail.

Logistic regression analysis results of rural areas are shown in Table 6-6 and Table 6-7.

Regarding the influence of basic social value orientation to the formation of WTS in rural areas, from Table 6-6 and Table 6-7, the author found a generally positive relation between people's basic social value orientation and their WTS, which indicates that people who believe public interest prior, and others' interest prior are more inclined to make sacrifices in money, life and tax introduction aspects for the environment, than those who hold opposite opinions. However, there is also one expectation that people who think others' interest should be prior are less likely to do the life comfort-sacrifice for the environment.

Table 6-6 Logistic regression analysis regarding the formation of WTS in rural areas (coefficient and P value)

Rural area		WTS-Money sacrifice	p-value	WTS-Life comfort sacrifice	p-value	WTS-Tax introduction	p-value
	Intercept	-2.349		-1.664		-0.465	
Basic social value orientation	Public interest prior	0.029		1.197	**	0.198	
	Others' interest prior	0.193		-0.511		0.497	
Environmental worldview	Vulnerability of the nature [Agree]	0.102		0.516		0.489	
	Survial rights of animals and plants [Agree]	1.505	*	-0.045		0.648	
	Environment and economy [Agree]	0.447		0.736	*	-0.171	
	Environment and technology [Agree]	-0.299		0.614	·	0.616	·
	Human and nature[Follow nature]	0.271		-0.901	·	-1.853	***
	Human and nature[Make use of nature]	0.66		-0.377		-1.146	*
Environmental Sensitivity	Environmental perception [Improve]	-0.52		-0.286		-0.394	
	Environmental perception [No change]	-1.663	***	-0.679		-1.652	***
	Air [Satisfied]	0.031		0.045		0.769	·
	Water [Satisfied]	-0.378		-0.354		-0.13	
	Forestry [Satisfied]	0.796	*	0.324		0.437	
	Living condition [Satisfied]	-0.085		-0.624		-0.958	*
	Air pollution [Improve]	-0.104		0.474		0.507	
	Air pollution [No change]	-0.103		0.641		0.438	
	Water contamination [Improve]	0.736	·	0.321		-0.429	
	Water contamination [No change]	0.448		-0.122		-0.247	
	Decline in forestry and vegetation [Improve]	-0.041		-0.263		0.234	
	Decline in forestry and vegetation [No change	-0.385		-0.137		0.345	
	Degradation of food safety [improve]	-0.171		-0.184		-0.16	
	Degradation of food safety [No change]	0.557		0.463		-0.109	
	Household waste [Improve]	0.906	·	1.047	*	-0.125	
	Household waste [No change]	0.384		-0.015		-0.416	
	Industrial waste [Improve]	-0.81		-0.365		0.65	
	Industrial waste [No change]	-0.504		0.166		0.848	
AC & AR	Environmental axiety [Worried]	0.107		0.307		0.156	
	Environmental responsibility [Government]	-0.172		0.126		0.246	
	Environmental responsibility [Corporation]	-0.335		0.758	·	1.191	**
Demographic fators	Gender [Female]	-0.239		0.053		-0.286	
	Age [18-34 years]	0.443		1.193	*	0.945	·
	Age [35-49 years]	0.667	·	0.795	·	-0.092	
	Education [High education]	-0.104		-0.687		-1.597	**
	Education [Middle education]	0.106		-0.92	*	-0.683	
	Income [High income]	0.419		0.489		0.656	
	Income [Middle income]	-0.305		0.084		0.521	

Note: ***p ≤ 0.001, ** P≤0.01, * p≤0.05, · p≤0.1

Table 6-7 Logistic regression analysis regarding the formation of WTS in rural areas (odds and 95% confidence interval)

Rural area		WTS-Money sacrifice			WTS-Life comfort sacrifice			WTS-Tax introduction		
		Exp(B)	95% C.I.for EXP(B)		Exp(B)	95% C.I.for EXP(B)		Exp(B)	95% C.I.for EXP(B)	
			Lower	Upper		Lower	Upper		Lower	Upper
Basic social value	Public interest prior	1.029	0.44	2.408	3.311	1.356	8.087	1.219	0.479	3.1
	Other's interest prior	1.213	0.506	2.909	0.6	0.228	1.576	1.644	0.616	4.384
Environmental worldview	Vulnerability of the nature [Agree]	1.108	0.413	2.969	1.675	0.59	4.755	1.631	0.557	4.779
	Survial rights of animals and plants [Agree]	4.502	1.217	16.661	0.956	0.288	3.171	1.912	0.543	6.737
	Environment and economy [Agree]	1.563	0.804	3.041	2.088	1.016	4.29	0.842	0.396	1.794
	Environment and technology [Agree]	0.742	0.386	1.425	1.848	0.926	3.69	1.852	0.915	3.748
	Huaman and nature[Follow nature]	1.312	0.557	3.087	0.406	0.149	1.107	0.157	0.051	0.483
	Huaman and nature[Make use of nature]	1.935	0.823	4.554	0.686	0.249	1.886	0.318	0.104	0.968
Environmental Sensitivity	Environmental perception [Improve]	0.595	0.288	1.226	0.751	0.342	1.649	0.675	0.299	1.523
	Environmental perception [No change]	0.19	0.073	0.492	0.507	0.193	1.332	0.192	0.072	0.508
	Air [Satisfied]	1.031	0.469	2.268	1.046	0.446	2.453	2.157	0.903	5.151
	Water [Satisfied]	0.685	0.351	1.336	0.702	0.338	1.456	0.878	0.419	1.838
	Forestry [Satisfied]	2.216	1.071	4.587	1.383	0.644	2.971	1.549	0.711	3.374
	Living condition [Satisfied]	0.918	0.451	1.871	0.536	0.245	1.175	0.384	0.172	0.856
	Air pollution [Improve]	0.901	0.303	2.68	1.606	0.493	5.231	1.659	0.526	5.232
	Air pollution [No change]	0.903	0.288	2.831	1.898	0.562	6.401	1.549	0.478	5.027
	Water contamination [Improve]	2.088	0.884	4.931	1.379	0.556	3.421	0.651	0.258	1.641
	Water contamination [No change]	1.565	0.618	3.96	0.885	0.336	2.329	0.781	0.289	2.11
	Decline in forestry and vegetation [Improve]	0.96	0.415	2.219	0.769	0.315	1.878	1.263	0.507	3.149
	Decline in forestry and vegetation [No change]	0.681	0.283	1.639	0.872	0.337	2.258	1.413	0.535	3.731
	Degradation of food safety [improve]	0.843	0.289	2.46	0.832	0.262	2.642	0.852	0.273	2.664
	Degradation of food safety [No change]	1.745	0.518	5.882	1.589	0.433	5.83	0.897	0.245	3.278
	Household waste [Improve]	2.475	0.991	6.185	2.849	1.096	7.409	0.882	0.349	2.229
	Household waste [No change]	1.469	0.49	4.4	0.985	0.323	3.008	0.66	0.214	2.038
	Industrial waste [Improve]	0.445	0.147	1.345	0.695	0.215	2.242	1.915	0.618	5.933
	Industrial waste [No change]	0.604	0.2	1.824	1.181	0.361	3.862	2.335	0.74	7.37
AC & AR	Environmental axiety [Worried]	1.113	0.612	2.024	1.36	0.712	2.596	1.169	0.612	2.234
	Environmental responsibility [Government]	0.842	0.428	1.655	1.135	0.549	2.347	1.279	0.625	2.621
	Environmental responsibility [Corporation]	0.715	0.33	1.552	2.133	0.871	5.222	3.291	1.335	8.11
Demographic fators	Gender [Female]	0.787	0.448	1.382	1.054	0.573	1.939	0.752	0.403	1.402
	Age [18-34 years]	1.557	0.619	3.916	3.296	1.222	8.891	2.574	0.912	7.26
	Age [35-49 years]	1.948	0.884	4.293	2.215	0.95	5.165	0.912	0.388	2.144
	Education [High education]	0.902	0.368	2.211	0.503	0.183	1.38	0.203	0.072	0.569
	Education [Middle education]	1.111	0.535	2.307	0.398	0.175	0.905	0.505	0.223	1.142
	Income [High income]	1.52	0.612	3.777	1.631	0.618	4.306	1.928	0.716	5.195
	Income [Middle income]	0.737	0.392	1.388	1.088	0.552	2.146	1.683	0.835	3.392

Regarding the influence of environmental worldview on to the formation of WTS in rural areas, from the author found some cases that differ from the expected, such as that people who believe “same with humans, plants and animals also have the survival right” are less likely to form a positive WTS on life comfort-sacrifice, people who agree that “economic growth always comes with environmental destruction” are less willing to have the new tax introduced than those who don't,and people who agree that “advances in scientific technology can solve the environmental problem” are less likely to form a positive WTS, than those who hold opposite opinions. As expected, people who believe humans should follow nature and make use of nature are more willing to make the money sacrifice for the environment. Nevertheless, the influence of humans and nature on the formation of WTS in regard to the other two aspects are not verified, since opposite results are indicated. Except for the above expectations, the author found somewhat positive relations between environmental worldview and WTS, which indicates that people who have an environmentally friendly worldview are more inclined to form a positive WTS for the environment.

Regarding the influence of environmental sensitivity on the formation of WTS in rural areas, different causal effects of environmental perception, environmental satisfaction and environmental prediction are indicated. For the effect of people’s perception of environmental change in the past, there is a consistent influence on the formation of WTS, which is that people who believe environmental quality in the past several years improved or saw no change, are not more inclined to do sacrifice on money, life comfort, or tax introduction aspects to help the environment. In other words, people who believe environmental quality worsened in the past is more inclined do the sacrifice on all three aspects of WTS for the environment. This result is also consistent with the conclusion that this group of people is more sensitive to then environmental change, and is defined as more environmentally concerned people. For the effect

of people's satisfaction with present environmental quality on the formation of WTS, somewhat mixed results are indicated. People who are dissatisfied with the present water and living conditions are more inclined to do the sacrifice on all three aspects for the environment, while people who are satisfied with present air and living conditions are more inclined to do the sacrifice on all three aspects for the environment. For the influence of environmental prediction to the formation of WTS, somewhat mixed results are shown.

Regarding the influence of AC and AR, a positive relation between AC and WTS is indicated in rural areas. The more people worry more about the environmental deterioration, the more likely they are to form a positive WTS. And for the causal effect of AR, except on the money-sacrifice aspect, people who ascribe the most important environmental responsibility to governments or corporations are more likely to form a positive WTS for the environment than those who ascribe it to the citizens.

Regarding the influence of demographic factors, from the Tables, the author found that males are more inclined to do sacrifice for the environment than females, except on the life comfort aspect. Young and middle aged people are more inclined to do sacrifice for the environment than the old, except on the tax introduction aspect. For the influence of education, a somewhat negative relation with WTS is indicated. People with higher education in rural areas didn't show more positive WTS. And for the influence of income, a generally positive relation is shown which indicates that people with higher income are more likely to form a positive WTS.

From the above analysis, the author found that in rural areas, a somewhat positive relation between basic social value orientations and WTS and environmental worldview and WTS is indicated. Regarding the environmental sensitivity, an absolutely negative relation between WTS and environmental perception, a mixed relation with environmental satisfaction, and environmental prediction is indicated. People who worry more about the environmental

deterioration are more likely to form a positive WTS. And for the causal effect of AR, except on the money-sacrifice aspect, people who ascribe the most important environmental responsibility to governments or corporations are more likely to form a positive WTS for the environment than those who ascribe it to the citizens. Males, younger people, and richer people are inclined to form a positive WTS. However, the positive relationship between education and WTS is not verified in rural areas. And females in rural areas are more inclined to do some sacrifice on the life comfort aspect.

Logistic regression analysis results of Beijing are shown in Table 6-8 and Table 6-9.

Regarding the influence of basic social value orientation on the formation of WTS in Beijing, from Table 6-8 and Table 6-9, the author found a positive relationship between basic social value orientation and WTS, which indicated that people who hold positive social value orientations are more inclined to do the sacrifice on money, life and tax introduction aspects in order to help the environment, than those who hold opposite opinions.

Regarding the influence of environmental worldview on the formation of WTS in Beijing, there are some special cases that don't follow the positive relationship between environmental worldview and WTS. For all three aspects of WTS, people who believe "humans should make use of nature" are most likely to form a negative WTS, while people who believe "humans should follow nature" are most likely to form a positive WTS. People who hold a negative response to the opinion "there is a danger that earth would not be able to support the increased population" and "advances in scientific technology can solve the environmental problem" are more likely to make some sacrifice on life comfort than those who hold positive responses. Except for these expectations, the author found a positive relation between environmental worldview and WTS, which indicate that people who have an environmentally friendly worldview are more inclined to form a positive WTS.

Table 6-8 Logistic regression analysis regarding the formation of WTS in Beijing (coefficient and P value)

Beijing		WTS-Money sacrifice	p-value	WTS-Life comfort sacrifice	p-value	WTS-Tax introduction	p-value
	Intercept	-1.919	**	-0.061		-0.489	
Basic social value orientation	Public interest prior	0.169		0.141		0.335	
	Others' interest prior	0.883	***	0.704	**	0.084	
Environmental worldview	Vulnerability of the nature [Agree]	0.134		-0.649	***	0.083	
	Survial rights of animals and plants [Agree]	0.848	***	0.211		0.285	
	Environment and economy [Agree]	0.063		-0.071		0.032	
	Environment and technology [Agree]	0.239		0.288		0.196	
	Human and nature[Follow nature]	0.123		0.096		0.431	·
	Human and nature[Make use of nature]	-0.089		-0.455	·	-0.185	
Environmental Sensitivity	Environmental perception [Improve]	0.144		0.126		0.561	*
	Environmental perception [No change]	0.177		-0.115		-0.065	
	Air [Satisfied]	-0.388	·	0.220		0.010	
	Water [Satisfied]	-0.030		-0.125		0.204	
	Forestry [Satisfied]	0.033		-0.127		-0.249	
	Living condition [Satisfied]	0.319		0.160		-0.184	
	Air pollution [Improve]	-0.216		0.207		0.106	
	Air pollution [No change]	-0.088		0.195		0.235	
	Water contamination [Improve]	0.170		0.206		-0.152	
	Water contamination [No change]	0.383		-0.167		0.054	
	Decline in forestry and vegetation [Improve]	0.123		-0.505	*	-0.269	
	Decline in forestry and vegetation [No change	0.139		-0.368		-0.189	
	Degradation of food safety [improve]	-0.232		0.016		0.194	
	Degradation of food safety [No change]	-0.048		0.349		-0.462	·
	Household waste [Improve]	0.376		-0.161		0.172	
	Household waste [No change]	0.310		0.097		-0.051	
	Industrial waste [Improve]	0.552	*	-0.026		0.387	
	Industrial waste [No change]	0.230		0.011		0.676	*
AC & AR	Environmental axiety [Worried]	0.205		0.316	·	0.280	
	Environmental responsibility [Government]	0.023		-0.054		-0.532	*
	Environmental responsibility [Corporation]	0.609	·	-0.267		0.162	
Demographic fators	Gender [Female]	0.124		0.256		0.102	
	Age [18-34 years]	-0.076		-0.051		-0.239	
	Age [35-49 years]	-0.002		-0.159		-0.354	
	Education [High education]	0.621	*	0.074		0.254	
	Education [Middle education]	0.748	**	-0.182		0.138	
	Income [High income]	0.077		-0.093		-0.110	
	Income [Middle income]	-0.249		0.291		0.423	*

Note: ***p ≤ 0.001, ** P≤0.01, * p≤0.05, · p≤0.1

Table 6-9 Logistic regression analysis regarding the formation of WTS in Beijing (odds and 95% confidence interval)

Beijing		WTS-Money sacrifice			WTS-Life comfort sacrifice			WTS-Tax introduction		
		Exp(B)	95% C.I.for EXP(B) Lower	Upper	Exp(B)	95% C.I.for EXP(B) Lower	Upper	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Basic social value	Public interest prior	1.184	0.729	1.925	1.151	0.73	1.815	1.397	0.89	2.193
	Other's interest prior	2.419	1.518	3.854	2.021	1.295	3.156	1.088	0.685	1.728
Environmental worldview	Survial rights of animals and plants [Agree]	1.143	0.776	1.683	0.523	0.364	0.751	1.087	0.759	1.556
	Capacity of the nature [Agree]	2.335	1.504	3.627	1.235	0.791	1.927	1.33	0.863	2.049
	Environment and economy [Agree]	1.065	0.719	1.577	0.931	0.643	1.349	1.032	0.717	1.487
	Environment and technology [Agree]	1.27	0.79	2.04	1.333	0.861	2.065	1.217	0.789	1.876
	Huaman and nature[Follow nature]	1.131	0.673	1.9	1.101	0.67	1.809	1.539	0.956	2.478
	Huaman and nature[Make use of nature]	0.915	0.534	1.568	0.635	0.381	1.058	0.831	0.507	1.363
Environmental Sensitivity	Environmental perception [Improve]	1.155	0.69	1.933	1.134	0.694	1.854	1.752	1.091	2.814
	Environmental perception [No change]	1.193	0.598	2.383	0.891	0.477	1.666	0.937	0.511	1.717
	Air [Satisfied]	0.679	0.432	1.067	1.246	0.821	1.892	1.01	0.67	1.522
	Water [Satisfied]	0.97	0.64	1.47	0.882	0.599	1.299	1.226	0.839	1.793
	Forestry [Satisfied]	1.034	0.682	1.567	0.881	0.593	1.308	0.779	0.528	1.151
	Living condition [Satisfied]	1.376	0.894	2.118	1.174	0.774	1.778	0.832	0.553	1.251
	Air pollution [Improve]	0.806	0.422	1.538	1.23	0.682	2.218	1.112	0.623	1.987
	Air pollution [No change]	0.916	0.446	1.879	1.215	0.631	2.341	1.265	0.663	2.414
	Water contamination [Improve]	1.186	0.626	2.246	1.229	0.67	2.254	0.859	0.474	1.557
	Water contamination [No change]	1.467	0.774	2.779	0.846	0.469	1.528	1.056	0.59	1.892
	Decline in forestry and vegetation [Improve]	1.131	0.69	1.855	0.604	0.372	0.979	0.764	0.479	1.221
	Decline in forestry and vegetation [No change]	1.149	0.655	2.016	0.692	0.401	1.193	0.828	0.491	1.396
	Degradation of food safety [improve]	0.793	0.481	1.307	1.017	0.633	1.633	1.214	0.759	1.944
	Degradation of food safety [No change]	0.953	0.541	1.68	1.418	0.825	2.434	0.63	0.379	1.047
	Household waste [Improve]	1.456	0.853	2.486	0.851	0.513	1.413	1.188	0.726	1.944
	Household waste [No change]	1.363	0.828	2.243	1.102	0.685	1.772	0.95	0.601	1.501
	Industrial waste [Improve]	1.737	1.005	3.003	0.974	0.582	1.632	1.472	0.897	2.418
	Industrial waste [No change]	1.258	0.724	2.186	1.012	0.595	1.72	1.965	1.157	3.338
AC & AR	Environmental axiety [Worried]	1.227	0.823	1.83	1.372	0.941	2	1.324	0.909	1.928
	Environmental responsibility [Government]	1.023	0.618	1.692	0.947	0.584	1.535	0.587	0.358	0.962
	Environmental responsibility [Corporation]	1.838	0.893	3.782	0.766	0.411	1.426	1.176	0.607	2.28
Demographic fators	Gender [Female]	1.132	0.773	1.658	1.292	0.903	1.85	1.107	0.779	1.575
	Age [18-34 years]	0.927	0.54	1.59	0.95	0.57	1.585	0.788	0.476	1.303
	Age [35-49 years]	0.998	0.604	1.649	0.853	0.529	1.376	0.702	0.443	1.113
	Education [High education]	1.86	1.071	3.232	1.076	0.637	1.818	1.289	0.77	2.158
	Education [Middle education]	2.114	1.276	3.501	0.834	0.523	1.329	1.148	0.725	1.818
	Income [High income]	1.08	0.595	1.961	0.911	0.534	1.555	0.896	0.53	1.515
	Income [Middle income]	0.779	0.499	1.218	1.338	0.877	2.041	1.527	1.005	2.319

Regarding the influence of environmental sensitivity on the formation of WTS in Beijing, different causal effects of environmental perception, environmental satisfaction and environmental prediction on the formation of WTS are indicated. For the effect of people's perception of environmental change in the past, the author found that people who believe environmental quality in the past was improved are more likely to form a positive WTS, while people who believe environmental quality in the past had no change, are more likely to form a positive WTS on life and tax introduction. For the effect of people's satisfaction with present environmental quality on the formation of WTS, somewhat mixed results are indicated. People who are dissatisfied with the present air and water quality are more inclined to make money sacrifices for the environment; people who are dissatisfied with the present water and forestry conditions are more inclined to make life comfort sacrifices for the environment; while people who are dissatisfied with the present forestry and living conditions are more supportive of the tax introduction. The left part of cases indicates a positive relation between environmental satisfaction and WTS. For the influence of environmental prediction on the formation of WTS, a generally positive relation is shown. People who hold a positive prediction towards the change of the environmental issues are more likely to form a positive WTS and make more sacrifices for the environment. There are some expectations that people hold a positive prediction towards the environmental change, yet still hold a negative WTS for the environment

Regarding the influence of AC and AR in Beijing, MCA analysis results indicate that in Beijing the more people worry more about the environmental deterioration, the more likely are they are to form a positive WTS, and people who ascribe the most important environmental responsibility to citizens are more likely to form a positive WTS than those who ascribe it to the government. From the logistic analysis results, a positive relation between AC and WTS is also verified. And for the causal effect of AR, some different results are showed. People who ascribe

the most important environmental responsibility to citizens are not always more likely to form a positive WTS than those who ascribe the responsibility to the government and corporations. From the coefficients the author also found that the influence of AR on the formation of WTS is generally weaker than the influence of AC.

Regarding the influence of demographic factors, different from the rural areas, females in Beijing are more inclined to do sacrifice in all three aspects for the environment than the males. And also different from the rural areas, age factor is positively related to the WTS, which indicates that older people are more likely to form a positive WTS. Education factor is also positively correlated with WTS, except the middle education on the life comfort aspect. A positive relation between income and WTS is not verified in Beijing. High-rich people are more likely to form a positive WTS with money sacrifice, while not with life aspect and tax introduction. Middle-rich people are more likely do some sacrifice on the life comfort and tax payment, while not on spending more money.

From the above analysis, the author found that in Beijing an absolutely positive relationship between basic social value orientations and WTS, and a generally positive relation between environmental worldview and WTS are indicated. Regarding the environmental sensitivity, a somewhat mixed relation with WTS is showed. However, from environmental perception, to environmental satisfaction and to environmental prediction, the positive relation with WTS becomes more obvious. The absolutely positive relationship between AC and WTS is verified. Females, old people and highly educated people are more inclined to form a positive WTS.

Logistic regression analysis results of Hangzhou are shown in Table 6-10 and Table 6-11.

Table 6-10 Logistic regression analysis regarding the formation of WTS in Hangzhou (coefficient and p value)

Hangzhou		WTS-Money sacrifice	p-value	WTS-Life comfort sacrifice	p-value	WTS-Tax introduction	p-value
	Intercept	0.998		0.977		0.674	
Basic social value orientation	Public interest prior	0.181		0.643	*	0.527	
	Others' interest prior	-0.203		0.150		-0.289	
Environmental worldview	Vulnerability of the nature [Agree]	-0.306		0.354	·	-0.445	·
	Survial rights of animals and plants [Agree]	-0.433		-0.347		-0.036	
	Environment and economy [Agree]	0.489	*	0.482	*	-0.026	
	Environment and technology [Agree]	-0.034		-0.184		0.466	·
	Human and nature[Follow nature]	-0.353		0.300		0.393	
	Human and nature[Make use of nature]	-0.626		-0.258		0.180	
Environmental Sensitivity	Environmental perception [Improve]	0.250		0.480	·	0.167	
	Environmental perception [No change]	-1.088	**	-0.179		-1.189	**
	Air [Satisfied]	0.131		-0.055		-0.238	
	Water [Satisfied]	-0.316		0.396		0.393	
	Forestry [Satisfied]	0.294		-0.148		0.063	
	Living condition [Satisfied]	-0.312		-0.803	*	0.315	
	Air pollution [Improve]	-0.216		-0.436		0.048	
	Air pollution [No change]	0.366		-0.553		0.244	
	Water contamination [Improve]	0.067		0.468		0.503	
	Water contamination [No change]	-0.617		0.114		0.422	
	Decline in forestry and vegetation [Improve]	-0.378		0.105		0.148	
	Decline in forestry and vegetation [No change	-0.138		-0.004		-0.184	
	Degradation of food safety [improve]	0.052		-0.393		-1.167	**
	Degradation of food safety [No change]	-0.627	·	-0.040		-0.555	
	Household waste [Improve]	0.041		-1.277	***	-0.628	
	Household waste [No change]	0.261		-0.453		-0.813	·
	Industrial waste [Improve]	0.085		0.716	·	0.309	
	Industrial waste [No change]	0.724	·	0.400		0.922	·
AC & AR	Environmental axiety [Worried]	-0.020		-0.107		0.547	*
	Environmental responsibility [Government]	0.221		0.057		-0.171	
	Environmental responsibility [Corporation]	0.386		0.506		0.572	
Demographic fators	Gender [Female]	-0.242		0.043		0.115	
	Age [18-34 years]	-0.122		-0.136		0.233	
	Age [35-49 years]	0.116		0.252		0.051	
	Education [High education]	1.003	***	0.294		-0.116	
	Education [Middle education]	0.887	***	0.391		-0.360	
	Income [High income]	0.001		0.379		0.564	
	Income [Middle income]	-0.112		-0.510	*	-0.281	

Note: ***p ≤ 0.001, ** P≤0.01, * p≤0.05, · p≤0.1

Table 6-11 Logistic regression analysis regarding the formation of WTS in Hangzhou (odds and 95% confidence interval)

Hangzhou		WTS-Money sacrifice			WTS-Life comfort sacrifice			WTS-Tax introduction		
		Exp(B)	95% C.I.for EXP(B)		Exp(B)	95% C.I.for EXP(B)		Exp(B)	95% C.I.for EXP(B)	
			Lower	Upper		Lower	Upper		Lower	Upper
Basic social value	Public interest prior	1.198	0.654	2.195	1.901	1.03	3.511	1.693	0.806	3.556
	Other's interest prior	0.817	0.504	1.323	1.162	0.707	1.91	0.749	0.401	1.4
Environmental worldview	Survial rights of animals and plants [Agree]	0.737	0.5	1.084	1.424	0.952	2.132	0.641	0.388	1.057
	Capacity of the nature [Agree]	0.648	0.381	1.103	0.707	0.403	1.241	0.964	0.486	1.913
	Environment and economy [Agree]	1.631	1.08	2.462	1.619	1.04	2.52	0.974	0.566	1.677
	Environment and technology [Agree]	0.967	0.617	1.514	0.832	0.517	1.338	1.594	0.92	2.761
	Huaman and nature[Follow nature]	0.703	0.323	1.528	1.35	0.647	2.818	1.482	0.607	3.617
	Huaman and nature[Make use of nature]	0.535	0.245	1.165	0.773	0.37	1.616	1.197	0.492	2.916
Environmental Sensitivity	Environmental perception [Improve]	1.284	0.813	2.027	1.616	0.995	2.624	1.182	0.625	2.236
	Environmental perception [No change]	0.337	0.165	0.689	0.836	0.411	1.701	0.304	0.133	0.697
	Air [Satisfied]	1.14	0.649	2.002	0.946	0.517	1.731	0.788	0.375	1.657
	Water [Satisfied]	0.729	0.415	1.282	1.486	0.828	2.667	1.482	0.736	2.982
	Forestry [Satisfied]	1.342	0.714	2.522	0.862	0.432	1.719	1.065	0.471	2.409
	Living condition [Satisfied]	0.732	0.359	1.492	0.448	0.204	0.982	1.37	0.59	3.179
	Air pollution [Improve]	0.806	0.388	1.674	0.647	0.302	1.386	1.049	0.414	2.659
	Air pollution [No change]	1.442	0.651	3.192	0.575	0.26	1.272	1.276	0.473	3.444
	Water contamination [Improve]	1.07	0.493	2.323	1.598	0.719	3.548	1.654	0.6	4.563
	Water contamination [No change]	0.539	0.242	1.204	1.12	0.489	2.569	1.526	0.545	4.271
	Decline in forestry and vegetation [Improve]	0.685	0.374	1.254	1.111	0.574	2.149	1.159	0.489	2.749
	Decline in forestry and vegetation [No change]	0.871	0.431	1.759	0.996	0.48	2.065	0.832	0.349	1.982
	Degradation of food safety [improve]	1.054	0.579	1.917	0.675	0.366	1.248	0.311	0.14	0.69
	Degradation of food safety [No change]	0.534	0.273	1.045	0.961	0.455	2.029	0.574	0.225	1.461
	Household waste [Improve]	1.042	0.517	2.103	0.279	0.133	0.586	0.533	0.202	1.407
	Household waste [No change]	1.298	0.669	2.52	0.636	0.313	1.29	0.443	0.184	1.071
	Industrial waste [Improve]	1.089	0.545	2.176	2.045	0.966	4.332	1.362	0.551	3.368
	Industrial waste [No change]	2.064	0.993	4.288	1.492	0.696	3.2	2.514	0.959	6.589
AC & AR	Environmental axiety [Worried]	0.98	0.653	1.47	0.898	0.592	1.363	1.729	1.036	2.885
	Environmental responsibility [Government]	1.247	0.775	2.007	1.059	0.641	1.75	0.843	0.445	1.596
	Environmental responsibility [Corporation]	1.472	0.856	2.529	1.659	0.905	3.042	1.772	0.808	3.886
Demographic fators	Gender [Female]	0.785	0.544	1.133	1.044	0.708	1.538	1.122	0.69	1.826
	Age [18-34 years]	0.885	0.512	1.53	0.873	0.489	1.559	1.262	0.622	2.56
	Age [35-49 years]	1.123	0.7	1.804	1.287	0.777	2.131	1.052	0.565	1.96
	Education [High education]	2.728	1.631	4.562	1.342	0.782	2.303	0.89	0.459	1.728
	Education [Middle education]	2.428	1.426	4.134	1.479	0.841	2.6	0.698	0.362	1.346
	Income [High income]	1.001	0.579	1.732	1.46	0.797	2.675	1.757	0.828	3.729
	Income [Middle income]	0.894	0.549	1.457	0.6	0.362	0.994	0.755	0.401	1.42

Regarding the influence of basic social value orientation to the formation of WTS in Hangzhou, from Table 6-10, and Table 6-11 the author found that people who believe public interest should be prior are more likely to form positive WTS, while people who believe others' interest should be prior, are not positively related with WTS. The positive relationship between basic social value orientation and WTS is not presented in Hangzhou.

Regarding the influence of environmental worldview to the formation of WTS in Hangzhou, there is no obvious tendency. On the money sacrifice aspect, people with environmentally friendly worldview are less likely to form positive WTS. While on life sacrifice aspect, people hold positive responses to "there is a danger that earth would not be able to support the increased population" "economic growth always comes with environmental destruction" and "human should follow nature" are more likely to form positive WTS. While on tax introduction, people who agree "advances in scientific technology can solve the environmental problem" and human should "follow nature" "make use nature" are more likely to form positive WTS.

Regarding the influence of environmental sensitivity to the formation of WTS in Hangzhou, different causal effect of environmental perception, environmental satisfaction and environmental prediction to the formation of WTS are indicated. For the effect of people's perception of environmental change in the past, people who believe environmental quality in the past was improved are more likely to form positive WTS, while people believe environmental quality in the past had no change are more likely to form negative WTS. For the effect of people's satisfaction with present environmental quality to the formation of WTS, somewhat mixed results are indicated. People who satisfied with the present air and forestry condition are more inclined to do money sacrifice for the environment, people who satisfied with the present water condition are more inclined to do life comfort sacrifice for the environment, while people who satisfied with the present water, forest and living condition are more supportive to the tax

introduction. For the influence of environmental prediction to the formation of WTS, a mixed result is also showed.

Regarding the influence of AC and AR to the formation of WTS in Hangzhou, the positive relationship between AC and WTS is note verified on the aspects of money and life comfort sacrifice. However, the conclusion that people who ascribe the most important environmental responsibility to corporation are more likely to form positive WTS is applicative in this analysis.

Regarding the influence of demographic factors, female are more inclined to do sacrifice on the life comfort and tax introduction aspects than on the money sacrifice aspect. Middle aged people are more likely to form positive WTS on all three aspects. Middle and high educated people are more likely form positive WTS on money and life aspects. And the richest people are more likely form positive WTS on all three aspects.

From above analysis, the author found that in Hangzhou, generally speaking there is no obvious and clearly tendency between the relationship with WTS and other variables of environmental consciousness. However, some single foundlings are still indicated. Such as, people who believe public interest should be prior are more likely to form positive WTS, people who believe environmental quality in the past was improved are more likely to form positive WTS, while people believe environmental quality in the past had no change are more likely to form negative WTS. And the negative influence of “no change” to the formation of WTS is obvious since the coefficient is somewhat bigger. And middle-aged and high-rich people are more inclined to form positive WTS in Hangzhou.

6.4.3 Logistic Regression Analysis Regarding the Formation of Environmental Motivation

In this part, the key variables of environmental worldview and environmental attitude as well as demographic factors are also considered to explore the formation of environmental

motivation. Logistic regression analysis is conducted, and the results are shown in Table 6-12~6~17. The dependent variables are environmental motivation: in consideration of environment. The independent variables are basic social value orientation, environmental worldview, environmental sensitivity, AC and AR, and demographic factors, which all discussed in the previous chapters in detail. The analysis aims to explore the causal factors of the formation of environmental motivation by analyzing the relationship between other variables of environmental consciousness and behaviour motivation.

Logistic regression analysis results of rural areas are shown in Table 6-12 and Table 6-13.

Regarding the influence of basic social value orientation to the formation of environmental motivation in rural areas, from the Table，a positive relationship between social value orientation and environmental motivation are indicated except for the behaviour of using own shopping bag. People with positive responses to the measurement of social value orientation are more inclined to be environment-motivated. That is people who believe public interest prior and other's interest prior, are more incline to do some pro-environmental behaviour based on the consideration of the environment.

Table 6-12 Logistic regression analysis regarding the formation of environmental motivation in rural areas (coefficient and p value)

Rural area		MOTIVATION-Purchase of eco-friendly products	p-value	MOTIVATION-Reuse or recycle	p-value	MOTIVATION-Water saving	p-value	MOTIVATION-Energy saving	p-value	MOTIVATION-Use of own shopping bag	p-value
	Intercept	-0.784		-3.323	*	-2.986	*	-2.199		0.055	***
Basic social value orientation	Public interest prior	0.466		0.126		0.887		0.152		0.248	
	Others' interest prior	0.102		0.378		0.157		0.254		-0.176	
Environmental worldview	Vulnerability of the nature [Agree]	0.257		-0.368	·	-1.348		-0.532		-0.511	
	Survial rights of animals and plants [Agree]	-0.414	*	1.792		0.784	*	0.303		0.32	
	Environment and economy [Agree]	0.826		-0.03		0.91		0.663	*	0.691	
	Environment and technology [Agree]	0.022		-0.194		-0.236		-1.004		-0.024	
	Human and nature[Follow nature]	0.503		0.411		0.694		0.261		-0.818	
	Human and nature[Make use of nature]	0.114		0.14		0.609		0.594		-0.497	
Environmental Sensitivity	Environmental perception [Improve]	-0.262		0.058		-0.499	**	0.748		0.153	
	Environmental perception [No change]	-0.885		-0.642		-1.88		0.132	*	-0.712	
	Air [Satisfied]	-0.752	*	-0.408		0.613		-1.192		0.169	
	Water [Satisfied]	-0.912		-0.105		-0.581		-0.439		-0.129	
	Forestry [Satisfied]	0.287		0.155		-0.09		0.217		0.472	
	Living condition [Satisfied]	0.422	*	-0.416		-0.288	·	-0.111		-0.548	
	Air pollution [Improve]	1.348		0.209		-1.152		-0.429		0.099	
	Air pollution [No change]	0.77		0.587		-0.491	*	-0.271		0.039	
	Water contamination [Improve]	-0.606		0.038	*	1.183		0.81		1.136	
	Water contamination [No change]	-0.362		1.232		0.712		0.736		1.635	
	Decline in forestry and vegetation [Improve]	0.15		-0.649		-0.834	*	-0.413		-0.024	
	Decline in forestry and vegetation [No change	-0.66		-0.292		-1.296		-0.446		0.635	
	Degradation of food safety [improve]	-0.54		-0.466		0.435		0.343		-0.462	
	Degradation of food safety [No change]	-0.711		-0.749		-0.171		-0.105		0.943	
	Household waste [Improve]	0.799		-0.012	*	0.315		0.373		0.894	
	Household waste [No change]	0.759		-1.576		0.663	·	0.398		0.057	
	Industrial waste [Improve]	-0.889		0.421		-1.208		-0.181		-1.675	·
	Industrial waste [No change]	-0.532	***	0.193	***	-0.111	***	0.089		-2.401	
AC & AR	Environmental axiety [Worried]	1.224		1.497		1.516		0.645		0.377	
	Environmental responsibility [Government]	-0.378		-0.277		0.124		-0.113		-0.836	
	Environmental responsibility [Corporation]	0.171		-0.477		0.368		-0.379		0.271	
Demographic fators	Gender [Female]	-0.117		-0.519	·	0.009		0.296		-0.022	
	Age [18-34 years]	0.016		1.04	*	-0.054		0.063		-0.864	
	Age [35-49 years]	0.563		1.067		-0.074		-0.428		-1.233	
	Education [High education]	-0.464		0.556		0.761	·	0.842	*	0.725	
	Education [Middle education]	-0.161		0.6		0.848		1.03		0.005	
	Income [High income]	0.088		0.239		0.542	·	0.026		0.572	·
	Income [Middle income]	0.065		-0.061		0.786	·	-0.397		1.271	·

Note: ***p ≤ 0.001, ** P≤0.01, * p≤0.05, · p≤0.1

Table 6-13 Logistic regression analysis regarding the formation of environmental motivation in rural areas (odds and 95% confidence interval)

Rural area		Purchase of eco-friendly products			Reuse or recycle			Water saving			Energy saving			Use of own shopping bag		
		Exp(B)	95% C.I.for EXP(B) Lower	Upper	Exp(B)	95% C.I.for EXP(B) Lower	Upper	Exp(B)	95% C.I.for EXP(B) Lower	Upper	Exp(B)	95% C.I.for EXP(B) Lower	Upper	Exp(B)	95% C.I.for EXP(B) Lower	Upper
Basic social value	Public interest prior	1.593	0.578	4.392	1.135	0.401	3.215	2.428	0.733	8.036	1.164	0.353	3.842	1.281	0.337	4.863
	Others' interest prior	1.107	0.397	3.09	1.459	0.504	4.225	1.17	0.352	3.893	1.29	0.377	4.41	0.839	0.158	4.466
Environmental worldview	Vulnerability of the nature [Agree]	1.293	0.407	4.108	0.692	0.193	2.477	0.26	0.081	0.834	0.587	0.161	2.147	0.6	0.08	4.52
	Survial rights of animals and plants [Agree]	0.661	0.167	2.615	5.999	0.959	37.52	2.191	0.443	10.825	1.354	0.316	5.808	1.377	0.177	10.692
	Environment and economy [Agree]	2.283	1.012	5.151	0.97	0.439	2.145	2.485	1.076	5.738	1.941	0.813	4.633	1.996	0.594	6.712
	Environment and technology [Agree]	1.022	0.469	2.226	0.824	0.373	1.819	0.79	0.364	1.714	0.366	0.167	0.802	0.977	0.28	3.412
	Human and nature[Follow nature]	1.653	0.611	4.474	1.508	0.546	4.162	2.001	0.702	5.707	1.299	0.431	3.915	0.441	0.103	1.885
	Human and nature[Make use of nature]	1.121	0.413	3.043	1.151	0.426	3.106	1.838	0.645	5.238	1.811	0.61	5.373	0.608	0.131	2.828
Environmental Sensitivity	Environmental perception [Improve]	0.769	0.335	1.769	1.059	0.433	2.59	0.607	0.255	1.445	2.113	0.793	5.631	1.165	0.306	4.437
	Environmental perception [No change]	0.413	0.141	1.204	0.526	0.166	1.666	0.153	0.042	0.556	1.141	0.319	4.083	0.49	0.085	2.847
	Air [Satisfied]	0.471	0.177	1.253	0.665	0.265	1.67	1.847	0.7	4.872	0.304	0.118	0.779	1.184	0.251	5.594
	Water [Satisfied]	0.402	0.175	0.92	0.901	0.407	1.995	0.559	0.243	1.287	0.645	0.273	1.523	0.879	0.255	3.035
	Forestry [Satisfied]	1.333	0.569	3.121	1.168	0.5	2.726	0.914	0.379	2.204	1.242	0.499	3.095	1.603	0.422	6.085
	Living condition [Satisfied]	1.525	0.651	3.577	0.659	0.298	1.462	0.75	0.311	1.808	0.895	0.382	2.097	0.578	0.134	2.488
	Air pollution [Improve]	3.851	1.043	14.217	1.232	0.337	4.5	0.316	0.082	1.223	0.651	0.156	2.711	1.104	0.096	12.704
	Air pollution [No change]	2.16	0.588	7.934	1.798	0.464	6.967	0.612	0.156	2.402	0.763	0.177	3.286	1.039	0.127	8.54
	Water contamination [Improve]	0.545	0.182	1.636	1.039	0.342	3.16	3.265	1.062	10.032	2.247	0.693	7.291	3.115	0.275	35.322
	Water contamination [No change]	0.696	0.218	2.227	3.428	1.061	11.077	2.038	0.601	6.903	2.088	0.596	7.316	5.129	0.466	56.408
	Decline in forestry and vegetation [Improve]	1.162	0.407	3.318	0.522	0.184	1.479	0.435	0.152	1.241	0.662	0.239	1.833	0.976	0.165	5.775
	Decline in forestry and vegetation [No change	0.517	0.174	1.537	0.747	0.262	2.125	0.274	0.085	0.88	0.64	0.212	1.929	1.887	0.242	14.728
	Degradation of food safety [improve]	0.583	0.161	2.105	0.627	0.176	2.231	1.546	0.416	5.739	1.409	0.369	5.376	0.63	0.093	4.29
	Degradation of food safety [No change]	0.491	0.112	2.158	0.473	0.11	2.037	0.843	0.187	3.805	0.901	0.186	4.355	2.568	0.254	25.978
	Household waste [Improve]	2.222	0.751	6.575	0.988	0.345	2.827	1.37	0.454	4.136	1.453	0.488	4.324	2.444	0.459	13.008
	Household waste [No change]	2.137	0.556	8.218	0.207	0.052	0.823	1.941	0.496	7.592	1.489	0.394	5.625	1.058	0.107	10.499
	Industrial waste [Improve]	0.411	0.107	1.576	1.523	0.413	5.622	0.299	0.074	1.202	0.834	0.21	3.313	0.187	0.013	2.703
	Industrial waste [No change]	0.588	0.147	2.343	1.213	0.311	4.73	0.895	0.223	3.595	1.094	0.254	4.715	0.091	0.006	1.37
AC & AR	Environmental axiety [Worried]	3.401	1.647	7.021	4.468	1.973	10.116	4.556	1.877	11.059	1.906	0.801	4.536	1.458	0.415	5.124
	Environmental responsibility [Government]	0.685	0.295	1.592	0.758	0.323	1.781	1.132	0.463	2.764	0.893	0.359	2.221	0.433	0.116	1.613
	Environmental responsibility [Corporation]	1.187	0.46	3.059	0.621	0.235	1.637	1.444	0.516	4.045	0.684	0.24	1.949	1.311	0.262	6.56
Demographic fators	Gender [Female]	0.89	0.448	1.768	0.595	0.305	1.163	1.009	0.492	2.069	1.345	0.655	2.761	0.978	0.334	2.859
	Age [18-34 years]	1.016	0.34	3.037	2.829	0.884	9.054	0.948	0.303	2.966	1.065	0.338	3.358	0.421	0.065	2.749
	Age [35-49 years]	1.756	0.687	4.491	2.906	1.012	8.343	0.929	0.345	2.497	0.652	0.234	1.815	0.292	0.061	1.399
	Education [High education]	0.629	0.215	1.843	1.743	0.589	5.154	2.14	0.677	6.766	2.321	0.68	7.921	2.064	0.404	10.537
	Education [Middle education]	0.851	0.356	2.035	1.823	0.726	4.577	2.334	0.901	6.05	2.801	1.004	7.819	1.005	0.271	3.726
	Income [High income]	1.092	0.397	3.007	1.27	0.461	3.498	1.719	0.588	5.024	1.027	0.359	2.938	1.772	0.263	11.942
	Income [Middle income]	1.067	0.507	2.249	0.94	0.442	1.999	2.195	0.972	4.96	0.672	0.301	1.501	3.565	0.941	13.51

Regarding the influence of environmental worldview to the formation of environmental motivation in rural areas, the author found that people agree with the opinions that human should "follow nature" and "make use of nature" are more inclined to purchase of eco-friendly products, reuse or recycle, save water and save energy because of the environment, than those who believe human should "conquer nature". People who agree with the opinion that "advances in scientific technology can solve the environmental problem" and "same with human, animals and plants also have the survival rights" are less inclined to do all the investigated activities because of the environment, than those who disagree. For the other measurements of environmental worldview, somewhat positive relationships are indicated.

Regarding the influence of environmental sensitivity to the formation of environmental motivation in rural areas, for the effect of people's perception of environmental change in the past, there is a generally negative relationship with environmental motivation. People believe environmental quality in the past several years improved, are less inclined to conduct the pro-environmental activities in consideration of the environment, except on purchase of eco-friendly products and water saving. In other words, people who believe environmental quality worsened in the past are more inclined to do the pro-environmental activities because of the environment. For the effect of people's satisfaction with present environmental quality to the formation of environmental motivation, there are more negative relationships with environmental motivation than positive relationship, which indicated that the people who are dissatisfied with environmental are more inclined to do the pro-environmental activities because of the environmental instead of money saving. However, it is noted that there are some of the expectations. For the influence of environmental prediction to the formation of WTS, a somewhat mixed result is indicated.

Regarding the influence of AC and AR, the author found an obvious and consistent positive

relationship between environmental motivation and AC. The analysis results indicated that in rural areas the more people worried more about the environmental deterioration, the more likely are environment motivated to do all the surveyed pro-environmental activities. For influence of AR, the analysis results indicate government responsibility attitude lead to less environment motivation, except on water saving behaviour. While corporation responsibility attitude leads to more environment motivation, except on reuse or recycle and energy saving behaviour.

Regarding the influence of demographic factors, the analysis results show that female are more environment motivated to do the activities of water saving and energy saving, while male are more environment motivated to do eco-friendly products purchase, reuse or recycle and own shopping bag use. Young (18-34 years) people are more likely environment motivated to do pro-environmental activates except of using own shopping bag. And middle age people are more likely to be environment motivated to purchase eco-friendly products, reuse or recycle and save the energy. Education and income are generally positively related with environmental motivation which indicated that people with higher education and high income are more likely environment motivated to do something.

From the above analysis, the author found that in rural areas, a generally positive relation between environmental motivations with basic social value orientations, and a mixed relation with environmental worldview are indicated. Regarding the environmental sensitivity, a negative relation between environmental motivations with environmental perception and satisfaction, and a mixed relation with environmental prediction are indicated. The influence of AC is positive and consistent while the influence of AR is somewhat different.

Logistic regression analysis results of Beijing are shown in Table 6-14 and Table 6-15.

Regarding the influence of basic social value orientation to the formation of environmental motivation in Beijing, from Table 6-14 and Table 6-15, the analysis result indicates that people believe “others’ interest prior” are more likely to environment motivated to do the pro-environmental activities.

Regarding the influence of environmental worldview to the formation of environmental motivation in Beijing, the author found that people agree with the opinions that human should “follow nature” and “make use of nature” are more likely to be environment motivated to do the pro-environmental activities, except energy saving and using of own shopping bag. People agree with other dimensions of environmental worldview are less likely to be environment motivated to do the water saving. And people agree with the opinion that “animals should not be subjected to medical experiments even for the purpose of saving human lives” are less likely to be environment motivated to purchase eco-friendly products and used of own shopping bag. Except theses expectations, there is a positive relationship between environmental worldview and the formation of environmental motivation.

Regarding the influence of environmental sensitivity to the formation of environmental motivation in Beijing, the author found a mixed relationship with environmental motivation. However, there are more positive relationship between environmental sensitivity variables with environmental motivation than negative ones, especially for environmental satisfaction and environmental prediction.

Table 6-14 Logistic regression analysis regarding the formation of environmental motivation in Beijing (coefficient and p value)

Beijing		MOTIVATION-Purchase of eco-friendly products	p-value	MOTIVATION-Reuse or recycle	p-value	MOTIVATION-Water saving	p-value	MOTIVATION-Energy saving	p-value	MOTIVATION-Use of own shopping bag	p-value
	Intercept	-0.235		-1.059		-0.369		-1.470	*	-0.466	
Basic social value orientation	Public interest prior	-0.049		0.147		-0.063		-0.025		-0.013	
	Others' interest prior	0.691	**	0.466	·	0.391		0.367		0.054	
Environmental worldview	Vulnerability of the nature [Agree]	0.021		0.284		-0.159		0.061		0.073	
	Animal testing [Agree]	-0.317		0.153		-0.022		0.303		-0.232	
	Environment and economy [Agree]	0.443	*	0.184		-0.007		0.345	·	0.388	·
	Environment and technology [Agree]	0.127		0.348		-0.101		0.133		0.070	
	Human and nature[Follow nature]	0.385		0.141		0.211		0.210		-0.502	
	Human and nature[Make use of nature]	0.158		0.316		0.010		-0.213		-0.545	·
Environmental Sensitivity	Environmental perception [Improve]	-0.135		0.184		0.092		0.267		-0.215	
	Environmental perception [No change]	-0.155		0.431		-0.410		0.401		0.241	
	Air [Satisfied]	0.000		-0.067		0.136		0.017		-0.553	*
	Water [Satisfied]	-0.217		-0.151		0.248		0.162		0.066	
	Forestry [Satisfied]	-0.132		-0.112		0.080		0.068		0.376	
	Living condition [Satisfied]	0.196		-0.073		-0.364	·	-0.259		0.053	
	Air pollution [Improve]	0.653	·	-0.481		0.196		-0.072		0.216	
	Air pollution [No change]	0.262		-0.746	*	0.401		-0.503		-0.470	
	Water contamination [Improve]	-0.240		-0.017		0.040		-0.904	**	0.116	
	Water contamination [No change]	0.524		0.143		-0.087		-0.840	**	0.159	
	Decline in forestry and vegetation [Improve]	-0.099		0.015		0.448	·	0.278		0.530	·
	Decline in forestry and vegetation [No change	-0.166		-0.118		0.067		0.316		0.727	*
	Degradation of food safety [improve]	-0.078		-0.091		-0.072		0.030		0.101	
	Degradation of food safety [No change]	-0.094		-0.287		-0.183		0.062		0.228	
	Household waste [Improve]	0.772	**	0.205		0.337		0.479	·	0.927	**
	Household waste [No change]	0.015		0.035		-0.032		0.233		0.701	*
	Industrial waste [Improve]	-0.068		0.345		-0.410		0.175		-0.148	
	Industrial waste [No change]	-0.227		0.120		-0.345		0.034		-0.036	
AC & AR	Environmental axiety [Worried]	0.605	**	0.660	***	0.696	***	0.451	*	0.783	***
	Environmental responsibility [Government]	-0.848	**	-0.232		-0.130		-0.474	·	-0.044	
	Environmental responsibility [Corporation]	-0.572		0.056		0.577	·	0.231		0.165	
Demographic fators	Gender [Female]	-0.154		-0.161		-0.098		0.192		0.335	
	Age [18-34 years]	0.214		0.227		-0.184		-0.296		0.154	
	Age [35-49 years]	0.731	**	1.100	***	0.164		-0.172		0.047	
	Education [High education]	0.014		0.566	·	0.432		0.778	**	0.202	
	Education [Middle education]	0.069		0.075		-0.114		0.549	*	-0.046	
	Income [High income]	-0.088		-0.308		-0.017		0.581	*	0.343	
	Income [Middle income]	-0.120		-0.125		-0.276		0.340		0.250	

Note: ***p ≤ 0.001, ** P≤0.01, * p≤0.05, · p≤0.1

Table 6-15 Logistic regression analysis regarding the formation of environmental motivation in Beijing (odds and 95% confidence interval)

Beijing		Purchase of eco-friendly products			Reuse or recycle			Water saving			Energy saving			Use of own shopping bag		
		Exp(B)	95% C.I.for EXP(B)		Exp(B)	95% C.I.for EXP(B)		Exp(B)	95% C.I.for EXP(B)		Exp(B)	95% C.I.for EXP(B)		Exp(B)	95% C.I.for EXP(B)	
			Lower	Upper		Lower	Upper		Lower	Upper		Lower	Upper		Lower	Upper
Basic social value	Public interest prior	0.952	0.571	1.586	1.158	0.709	1.893	0.939	0.584	1.511	0.975	0.613	1.553	0.987	0.56	1.739
	Others' interest prior	1.995	1.215	3.277	1.593	0.961	2.641	1.479	0.913	2.396	1.443	0.89	2.341	1.055	0.581	1.917
Environmental worldview	Survial rights of animals and plants [Agree]	1.021	0.685	1.521	1.329	0.906	1.95	0.853	0.589	1.235	1.063	0.743	1.521	1.075	0.695	1.665
	Capacity of the nature [Agree]	0.728	0.431	1.229	1.165	0.731	1.857	0.979	0.616	1.554	1.354	0.871	2.103	0.793	0.46	1.368
	Environment and economy [Agree]	1.557	1.036	2.34	1.202	0.813	1.777	0.993	0.679	1.454	1.412	0.978	2.037	1.474	0.953	2.282
	Environment and technology [Agree]	1.136	0.692	1.865	1.416	0.875	2.29	0.904	0.566	1.443	1.142	0.726	1.796	1.073	0.618	1.862
	Human and nature[Follow nature]	1.47	0.873	2.476	1.151	0.694	1.908	1.235	0.755	2.019	1.234	0.763	1.996	0.606	0.328	1.118
	Human and nature[Make use of nature]	1.171	0.673	2.036	1.372	0.801	2.349	1.01	0.598	1.705	0.808	0.483	1.354	0.58	0.304	1.105
Environmental Sensitivity	Environmental perception [Improve]	0.873	0.502	1.521	1.202	0.714	2.023	1.096	0.663	1.812	1.307	0.805	2.121	0.806	0.452	1.439
	Environmental perception [No change]	0.857	0.423	1.734	1.539	0.746	3.178	0.664	0.35	1.257	1.494	0.777	2.872	1.272	0.569	2.841
	Air [Satisfied]	1	0.627	1.595	0.935	0.597	1.463	1.146	0.747	1.757	1.017	0.673	1.538	0.575	0.344	0.961
	Water [Satisfied]	0.805	0.524	1.236	0.86	0.567	1.304	1.282	0.861	1.907	1.176	0.802	1.724	1.069	0.669	1.706
	Forestry [Satisfied]	0.876	0.568	1.351	0.894	0.59	1.357	1.083	0.727	1.614	1.071	0.725	1.581	1.457	0.914	2.323
	Living condition [Satisfied]	1.217	0.768	1.928	0.93	0.595	1.452	0.695	0.453	1.067	0.772	0.512	1.163	1.054	0.64	1.736
	Air pollution [Improve]	1.921	0.989	3.731	0.618	0.312	1.225	1.217	0.651	2.273	0.93	0.509	1.699	1.242	0.605	2.55
	Air pollution [No change]	1.3	0.639	2.647	0.474	0.228	0.988	1.493	0.738	3.021	0.605	0.313	1.168	0.625	0.287	1.36
	Water contamination [Improve]	0.787	0.399	1.55	0.983	0.516	1.871	1.041	0.544	1.994	0.405	0.218	0.751	1.123	0.541	2.334
	Water contamination [No change]	1.689	0.854	3.341	1.154	0.606	2.199	0.917	0.483	1.742	0.432	0.234	0.795	1.172	0.577	2.381
	Decline in forestry and vegetation [Improve]	0.906	0.533	1.54	1.015	0.609	1.689	1.565	0.954	2.568	1.321	0.82	2.126	1.699	0.985	2.93
	Decline in forestry and vegetation [No change	0.847	0.469	1.529	0.888	0.504	1.567	1.069	0.625	1.829	1.372	0.8	2.354	2.068	1.081	3.956
	Degradation of food safety [improve]	0.925	0.552	1.548	0.913	0.552	1.51	0.93	0.575	1.506	1.03	0.64	1.658	1.106	0.642	1.907
	Degradation of food safety [No change]	0.911	0.507	1.635	0.75	0.427	1.317	0.833	0.49	1.416	1.064	0.631	1.793	1.256	0.653	2.415
	Household waste [Improve]	2.165	1.222	3.834	1.228	0.71	2.124	1.4	0.83	2.363	1.614	0.965	2.7	2.528	1.377	4.642
	Household waste [No change]	1.016	0.613	1.683	1.036	0.628	1.709	0.968	0.604	1.551	1.263	0.789	2.021	2.016	1.151	3.529
	Industrial waste [Improve]	0.934	0.53	1.647	1.411	0.826	2.412	0.664	0.39	1.129	1.191	0.719	1.973	0.863	0.466	1.599
	Industrial waste [No change]	0.797	0.453	1.402	1.128	0.641	1.983	0.708	0.418	1.199	1.035	0.616	1.74	0.965	0.508	1.832
AC & AR	Environmental axiety [Worried]	1.832	1.212	2.768	1.935	1.299	2.883	2.005	1.371	2.934	1.569	1.072	2.298	2.189	1.41	3.397
	Environmental responsibility [Government]	0.428	0.235	0.779	0.793	0.476	1.322	0.878	0.538	1.433	0.623	0.384	1.008	0.957	0.533	1.718
	Environmental responsibility [Corporation]	0.564	0.265	1.204	1.058	0.53	2.11	1.781	0.903	3.514	1.259	0.661	2.399	1.18	0.531	2.623
Demographic fators	Gender [Female]	0.857	0.578	1.271	0.852	0.585	1.241	0.907	0.631	1.303	1.212	0.852	1.725	1.397	0.911	2.143
	Age [18-34 years]	1.239	0.708	2.167	1.255	0.751	2.096	0.832	0.497	1.392	0.743	0.449	1.231	1.166	0.634	2.147
	Age [35-49 years]	2.076	1.221	3.53	3.004	1.806	4.998	1.178	0.731	1.897	0.842	0.532	1.334	1.048	0.604	1.818
	Education [High education]	1.014	0.567	1.813	1.762	0.996	3.115	1.541	0.902	2.633	2.176	1.299	3.645	1.224	0.643	2.328
	Education [Middle education]	1.071	0.635	1.806	1.078	0.663	1.751	0.893	0.559	1.424	1.731	1.091	2.746	0.955	0.547	1.667
	Income [High income]	0.916	0.505	1.66	0.735	0.404	1.335	0.983	0.559	1.727	1.787	1.034	3.088	1.409	0.725	2.738
	Income [Middle income]	0.887	0.558	1.409	0.883	0.56	1.391	0.759	0.496	1.161	1.405	0.926	2.131	1.284	0.78	2.115

Regarding the influence of AC and AR, the author found an obvious and consistent positive relationship between environmental motivation and AC. This indicates that in Beijing the more people worried more about the environmental deterioration, the more likely are environment motivated to do all the surveyed pro-environmental activities. For influence of AR, the analysis results indicate people who ascribe the most important environmental responsibility to the government are least likely to be environment motivated to do all the surveyed activist, while people ascribe it to the corporations are more likely to do the pro-environmental activities (except on purchasing eco-friendly products) for the sake of the environment.

Regarding the influence of demographic factors, from Table 6-6, the results show that female are more environment motivated to do energy saving and use their own shopping bags, while males are environment motivated to do the left surveyed activities. Middle aged people showed the most environmental motivation except on the energy saving. Education and income are generally positively related with environmental motivation, however, there are also expectations.

From the above analysis, the author found that in Beijing, people who believe “others’ interest prior” are more likely to environment motivated to do the pro-environmental activities. There is an absolutely positive relationship between environmental motivation and AC. People who ascribe the environmental responsibility are less likely to form environmental motivation.

Logistic regression analysis results of Hangzhou are shown in Table 6-16 and Table 6-17.

Regarding the influence of basic social value orientation to the formation of environmental motivation in Hangzhou, from Table 6-16 a positive relationship is generally clarified. People who believe that public interest prior and others’ interest prior are more likely to be environmental motivated to do the pro-environmental activities, expect using own shopping bags.

Regarding the influence of environmental worldview to the formation of environmental

motivation in Hangzhou, people agree with the opinions that human should “follow nature” and “make use of nature” are not necessarily form environmental motivation, other positive responses are not always led to environmental motivation.

Regarding the influence of environmental sensitivity to the formation of environmental motivation in Hangzhou, people who believe the past environmental quality improved always more likely to be environmental motivated to do the pro-environmental activities, while people believe past environmental quality had no change are least likely to form environmental motivation. People who dissatisfied with the water and forestry condition are more likely to form the environmental motivation, while people who satisfied with living condition are more likely to form the environmental motivation.

Regarding the influence of AC and AR, the author found a consistently positive relationship between environmental motivation and AC. This indicates that in Hangzhou the more people worried more about the environmental deterioration, the more likely are environment motivated to do all the surveyed pro-environmental activities. For influence of AR, the analysis results indicate people who ascribe the most important environmental responsibility to the corporations are more likely to be environment motivated to do all the surveyed activities.

Table 6-16 Logistic regression analysis regarding the formation of environmental motivation in Hangzhou (coefficient and p value)

Hangzhou		MOTIVATION-Purchase of eco-friendly products	p-value	MOTIVATION-Reuse or recycle	p-value	MOTIVATION-Water saving	p-value	MOTIVATION-Energy saving	p-value	MOTIVATION-Use of own shopping bag	p-value
	Intercept	-0.391		-1.783	*	-2.733	***	-3.464	***	-1.021	
Basic social value orientation	Public interest prior	0.680	·	0.495		0.819	*	0.610	·	0.620	
	Others' interest prior	0.377		0.857	**	0.721	*	0.555	*	-0.061	
Environmental worldview	Vulnerability of the nature [Agree]	-0.004		0.194		0.438	*	0.562	*	0.550	*
	Animal testing [Agree]	-0.437		-0.315		-0.200		-0.660	*	-0.139	
	Environment and economy [Agree]	0.265		0.270		0.258		-0.014		-0.164	
	Environment and technology [Agree]	0.379		0.249		0.196		0.674	*	0.514	·
	Human and nature[Follow nature]	-0.334		-0.589		0.182		-0.383		-0.783	
	Human and nature[Make use of nature]	-0.413		-0.378		0.498		-0.382		-1.058	*
Environmental Sensitivity	Environmental perception [Improve]	0.739	**	0.616	*	0.367		0.474	·	0.712	*
	Environmental perception [No change]	-0.061		0.019		-0.700	·	-0.060		-0.311	
	Air [Satisfied]	-0.269		0.115		0.033		0.233		0.107	
	Water [Satisfied]	-0.206		-0.784	*	-0.718	*	-0.372		-1.160	**
	Forestry [Satisfied]	-0.019		-0.119		-0.368		-0.126		-0.979	*
	Living condition [Satisfied]	0.299		0.059		0.664		0.338		1.131	*
	Air pollution [Improve]	0.029		-0.240		-0.028		-0.193		0.641	
	Air pollution [No change]	-0.586		0.026		0.182		-0.049		0.405	
	Water contamination [Improve]	0.340		0.743	·	0.156		0.466		0.598	
	Water contamination [No change]	0.706		0.291		-0.042		0.752		1.176	*
	Decline in forestry and vegetation [Improve]	0.068		-0.150		0.121		0.170		0.458	
	Decline in forestry and vegetation [No change	-0.231		-0.680	·	-0.440		-0.300		0.317	
	Degradation of food safety [improve]	-0.507		-0.694	*	-0.298		-0.269		-0.825	*
	Degradation of food safety [No change]	-0.352		-0.227		-0.447		-0.960	*	-1.056	*
	Household waste [Improve]	-0.436		0.239		0.547		0.545		0.239	
	Household waste [No change]	0.153		-0.167		0.536		0.087		0.130	
	Industrial waste [Improve]	-0.136		0.069		-0.627		-0.413		-0.792	·
	Industrial waste [No change]	-0.371		0.460		-0.182		0.012		-0.465	
AC & AR	Environmental axiety [Worried]	0.087		0.201		0.310		0.273		0.182	
	Environmental responsibility [Government]	0.009		-0.133		0.056		0.122		-0.189	
	Environmental responsibility [Corporation]	0.068		0.072		0.660	*	0.156		0.543	
Demographic fators	Gender [Female]	-0.256		0.017		-0.083		-0.262		-0.199	
	Age [18-34 years]	0.391		0.563	·	0.346		0.414		0.750	*
	Age [35-49 years]	0.264		0.331		0.354		0.298		0.240	
	Education [High education]	0.970	***	1.172	***	1.243	***	1.125	***	0.808	*
	Education [Middle education]	0.191		1.004	***	0.485	·	0.688	*	0.835	**
	Income [High income]	-0.463		0.002		-0.489	·	0.589	·	1.173	***
	Income [Middle income]	-0.302		0.200		-0.478	·	0.497	·	0.684	*

Note: ***p ≤ 0.001, ** P≤0.01, * p≤0.05, · p≤0.1

Table 6-17 Logistic regression analysis regarding the formation of environmental motivation in Hangzhou (odds and 95% confidence interval)

Hangzhou		Purchase of eco-friendly products			Reuse or recycle			Water saving			Energy saving			Use of own shopping bag		
		Exp(B)	95% C.I.for EXP(B)		Exp(B)	95% C.I.for EXP(B)		Exp(B)	95% C.I.for EXP(B)		Exp(B)	95% C.I.for EXP(B)		Exp(B)	95% C.I.for EXP(B)	
			Lower	Upper		Lower	Upper		Lower	Upper		Lower	Upper		Lower	Upper
Basic social value	Public interest prior	1.974	0.974	4.002	1.64	0.81	3.324	2.269	1.11	4.639	1.84	0.899	3.764	1.858	0.872	3.959
	Others' interest prior	1.458	0.863	2.462	2.357	1.354	4.103	2.057	1.177	3.594	1.743	1	3.037	0.941	0.532	1.662
Environmental worldview	Survial rights of animals and plants [Agree]	0.996	0.65	1.527	1.215	0.788	1.873	1.55	1.006	2.386	1.754	1.13	2.722	1.734	1.083	2.776
	Capacity of the nature [Agree]	0.646	0.363	1.148	0.73	0.413	1.291	0.819	0.469	1.43	0.517	0.298	0.898	0.87	0.471	1.608
	Environment and economy [Agree]	1.303	0.83	2.046	1.311	0.836	2.056	1.294	0.835	2.007	0.986	0.633	1.536	0.849	0.507	1.421
	Environment and technology [Agree]	1.461	0.899	2.374	1.283	0.777	2.119	1.217	0.748	1.981	1.961	1.162	3.309	1.671	0.985	2.835
	Human and nature[Follow nature]	0.716	0.325	1.58	0.555	0.234	1.319	1.2	0.487	2.956	0.682	0.291	1.596	0.457	0.165	1.263
	Human and nature[Make use of nature]	0.662	0.292	1.498	0.685	0.281	1.673	1.646	0.655	4.137	0.683	0.284	1.641	0.347	0.125	0.967
Environmental Sensitivity	Environmental perception [Improve]	2.094	1.269	3.454	1.851	1.12	3.059	1.443	0.882	2.36	1.607	0.967	2.669	2.037	1.167	3.557
	Environmental perception [No change]	0.941	0.439	2.017	1.019	0.478	2.169	0.497	0.229	1.077	0.941	0.434	2.044	0.733	0.314	1.712
	Air [Satisfied]	0.764	0.403	1.45	1.121	0.583	2.158	1.033	0.556	1.922	1.262	0.684	2.327	1.113	0.536	2.311
	Water [Satisfied]	0.814	0.437	1.517	0.457	0.245	0.85	0.488	0.263	0.903	0.69	0.375	1.269	0.313	0.145	0.675
	Forestry [Satisfied]	0.981	0.443	2.174	0.888	0.426	1.85	0.692	0.343	1.396	0.882	0.427	1.82	0.376	0.156	0.908
	Living condition [Satisfied]	1.348	0.587	3.098	1.061	0.462	2.437	1.942	0.851	4.43	1.402	0.628	3.126	3.097	1.191	8.052
	Air pollution [Improve]	1.029	0.435	2.438	0.787	0.339	1.828	0.973	0.424	2.234	0.825	0.367	1.853	1.898	0.742	4.857
	Air pollution [No change]	0.557	0.234	1.325	1.026	0.44	2.395	1.199	0.502	2.867	0.952	0.414	2.193	1.499	0.566	3.971
	Water contamination [Improve]	1.405	0.566	3.484	2.102	0.87	5.081	1.169	0.497	2.749	1.594	0.683	3.72	1.819	0.67	4.936
	Water contamination [No change]	2.027	0.776	5.296	1.338	0.552	3.245	0.959	0.389	2.364	2.121	0.849	5.3	3.24	1.105	9.505
	Decline in forestry and vegetation [Improve]	1.071	0.529	2.166	0.86	0.431	1.718	1.129	0.577	2.209	1.185	0.602	2.333	1.58	0.691	3.612
	Decline in forestry and vegetation [No change	0.793	0.349	1.805	0.507	0.227	1.13	0.644	0.29	1.429	0.741	0.331	1.66	1.373	0.548	3.439
	Degradation of food safety [improve]	0.602	0.309	1.173	0.5	0.255	0.98	0.742	0.386	1.427	0.764	0.405	1.441	0.438	0.194	0.989
	Degradation of food safety [No change]	0.703	0.322	1.536	0.797	0.371	1.711	0.639	0.307	1.331	0.383	0.173	0.847	0.348	0.14	0.865
	Household waste [Improve]	0.647	0.286	1.462	1.27	0.568	2.841	1.729	0.769	3.884	1.725	0.788	3.774	1.271	0.51	3.164
	Household waste [No change]	1.165	0.518	2.623	0.847	0.398	1.802	1.709	0.799	3.652	1.091	0.513	2.317	1.139	0.448	2.895
	Industrial waste [Improve]	0.873	0.375	2.031	1.071	0.477	2.407	0.534	0.238	1.197	0.662	0.299	1.463	0.453	0.18	1.139
	Industrial waste [No change]	0.69	0.301	1.584	1.584	0.711	3.531	0.834	0.375	1.854	1.012	0.468	2.189	0.628	0.237	1.663
AC & AR	Environmental axiety [Worried]	1.091	0.711	1.676	1.222	0.78	1.914	1.364	0.882	2.109	1.314	0.849	2.034	1.199	0.744	1.934
	Environmental responsibility [Government]	1.009	0.596	1.71	0.875	0.509	1.504	1.058	0.624	1.794	1.13	0.663	1.925	0.828	0.471	1.455
	Environmental responsibility [Corporation]	1.07	0.584	1.959	1.075	0.59	1.959	1.934	1.072	3.49	1.168	0.647	2.109	1.72	0.855	3.463
Demographic fators	Gender [Female]	0.774	0.519	1.156	1.017	0.676	1.53	0.921	0.62	1.368	0.77	0.514	1.154	0.82	0.526	1.279
	Age [18-34 years]	1.478	0.809	2.701	1.755	0.947	3.255	1.413	0.783	2.55	1.512	0.824	2.776	2.116	1.063	4.214
	Age [35-49 years]	1.302	0.785	2.159	1.392	0.834	2.323	1.425	0.859	2.363	1.347	0.795	2.281	1.271	0.735	2.198
	Education [High education]	2.637	1.522	4.569	3.227	1.851	5.626	3.464	2.002	5.993	3.081	1.768	5.37	2.243	1.204	4.176
	Education [Middle education]	1.21	0.7	2.092	2.73	1.542	4.836	1.624	0.937	2.815	1.989	1.115	3.55	2.304	1.231	4.311
	Income [High income]	0.629	0.341	1.16	1.002	0.546	1.84	0.613	0.337	1.115	1.802	0.967	3.358	3.232	1.663	6.279
	Income [Middle income]	0.74	0.424	1.291	1.221	0.706	2.112	0.62	0.362	1.064	1.644	0.935	2.892	1.982	1.118	3.514

Regarding the influence of demographic factors, from the tables, the results show that male are more likely to be environment motivated to do pro-environmental activities, except reusing and recycle than female. Younger age (young and middle age) are always more likely to do the surveyed pro-environmental activities for the sake of the environment than the old people. Education is positively related with environmental motivation on all surveyed pro-environmental activities. While income not always positively related with environmental motivation.

From the above analysis, the author found that in Hangzhou, a generally positive relation between basic social value orientations and environmental motivation is indicated. There is an absolutely positive relationship between environmental motivation and AC. Male, younger and better educated people are inclined to be environment motivated to do the activities.

6.4.4 Influence of Demographic Factors to the Formation of Behaviour Intention

Demographic factors are individuals' inherent social attribute which are supposed to have substantial influence on psychological variables. In this section, the influence of demographic factors to the formation of WTS and environmental motivation is analysed.

Regarding the influence of demographic factors to the formation of WTS in surveyed areas, the analysis results are shown in Figure 6-2abc.

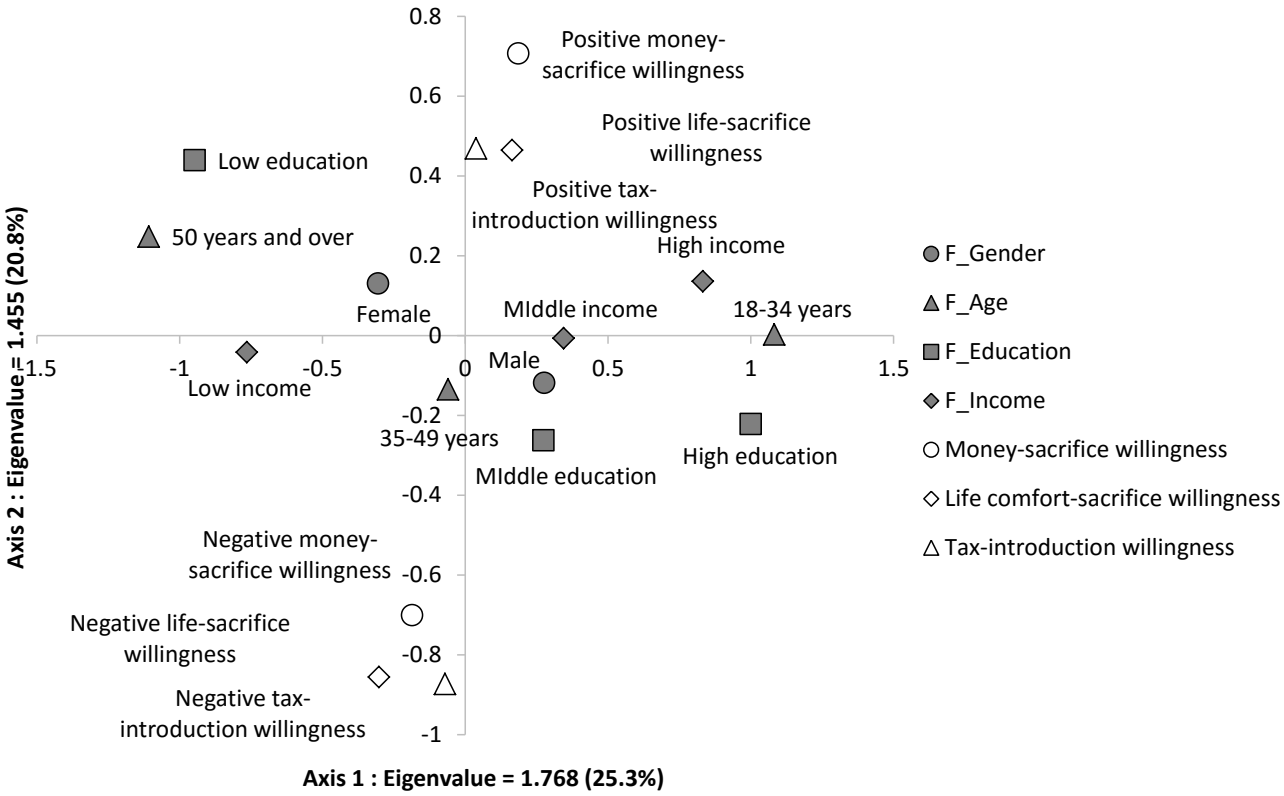


Figure 6-2a Influence of demographic factors to the formation of WTS in rural areas

In Figure 6-2a, the author found the positive and negative WTS responses are generally distributed on the two directions of axis 2, while the demographic factors are located along the axis 1. This indicates a weak relation between WTS and demographic factors. However, taking the axis 1 as the reference, the closer relations between positive WTS with high income, middle income and young age (18-34) are indicated. And the options of male, middle and high education are also located in right side of axis 1. By axis 1, the closer relationship between negative WTS with low income and middle age (35-49) are also indicated. And the options of female, old age (50 years and over) and low education are also located in the left side of axis 1.

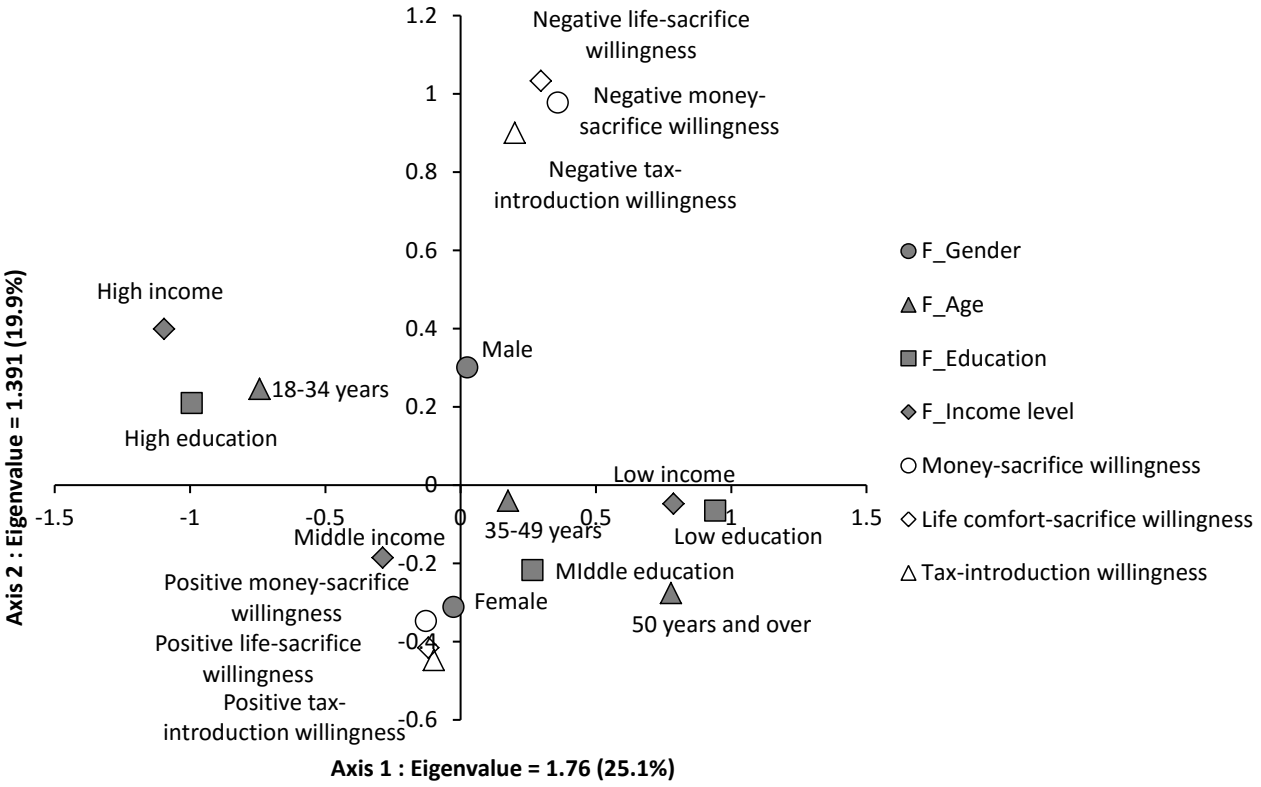


Figure 6-2b Influence of demographic factors to the formation of WTS in Beijing

In Figure 6-2b, the author found the positive and negative WTS responses are generally distributed on the two directions of axis 2, while the demographic factors are located along the axis 1 which indicates a weak relation between WTS and demographic factors. However, taking the axis 1 as the reference, the closer relations between positive WTS with female, middle income, and together with high education, high income and young age (18-34 years) are indicated. Also by axis 1, the negative WTS with low income, middle and low education, middle and old age are indicated.

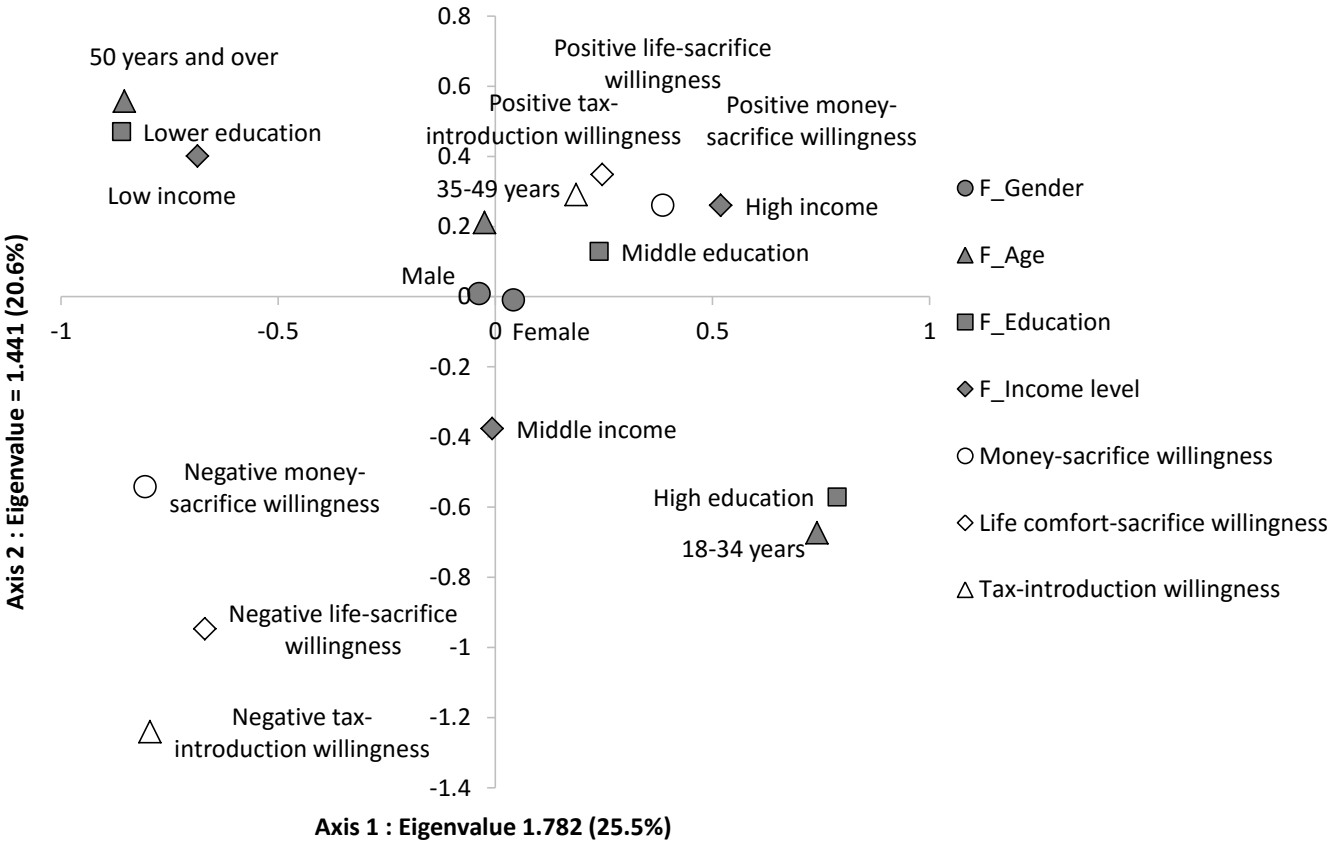


Figure 6-2c Influence of demographic factors to the formation of WTS in Hangzhou

In Figure 6-2c, positive WTS regarding money, life comfort and tax introduction aspects, together high income, middle education and middle age (35-49 years) are located in the upper right quadrant. This indicates that the high-educated, high-rich and middle aged people are more likely to form positive WTS. Negative WTS regarding money, life comfort and tax introduction aspects are located in the lower left quadrant. Old age (50 years and over), low education, and low income are located in the left upper quadrant. Taking the axis 1 as the reference, the somewhat closer relationship between negative WTS responses and old age, low education and low income can be seen. Gender factors are very close to the original point.

From the above analyses, the clearly causal relationship between WTS responses and demographic factors were not clearly showed, especially in Beijing. However, taking the axis 1 as a reference, a somewhat positive relationship between positive WTS with education and income, a somewhat negative relationship between positive WTS and age, were to some extent indicated. However, it is also should be noted that the contribution of axis 1 is not that high.

Regarding the influence of demographic factors to the formation of behaviour motivations, the analysis results are shown in Figure 6-3abc.

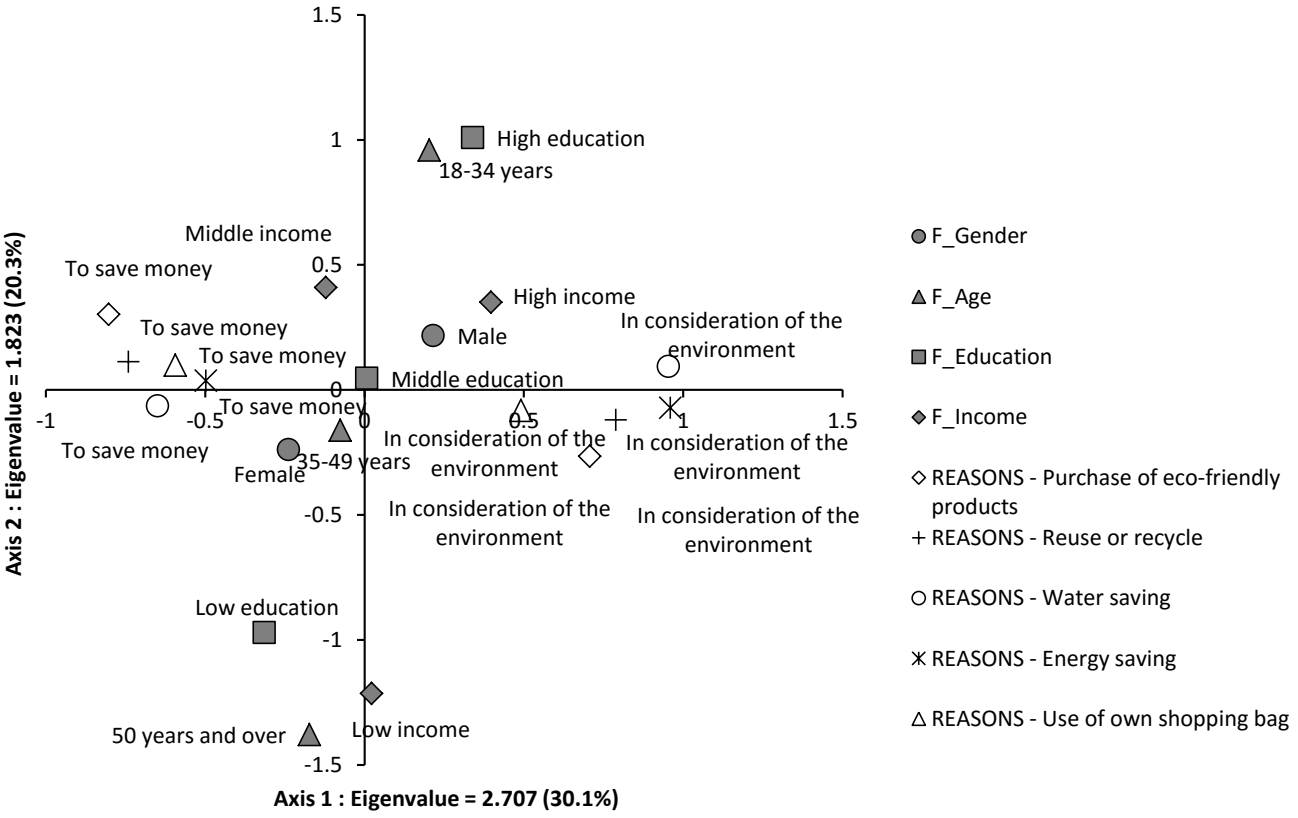


Figure 6-3a Influence of demographic factors to the formation of behavior motivation in rural areas

In Figure 6-3a, environment-motivated responses, together with male, high income as well as young age (18-34 years), high education are located in right side of axis 1. While money motivated responses, together with middle income, middle age and female as well as low education and old age are located in the left side of axis 1. From this distribution, the author found that in rural areas, male, high-rich, and also high educated and younger people are more inclined to be environment motivated. While female, middle age, and middle rich people, as well as low-educated and low rich people are inclined to be money motivated

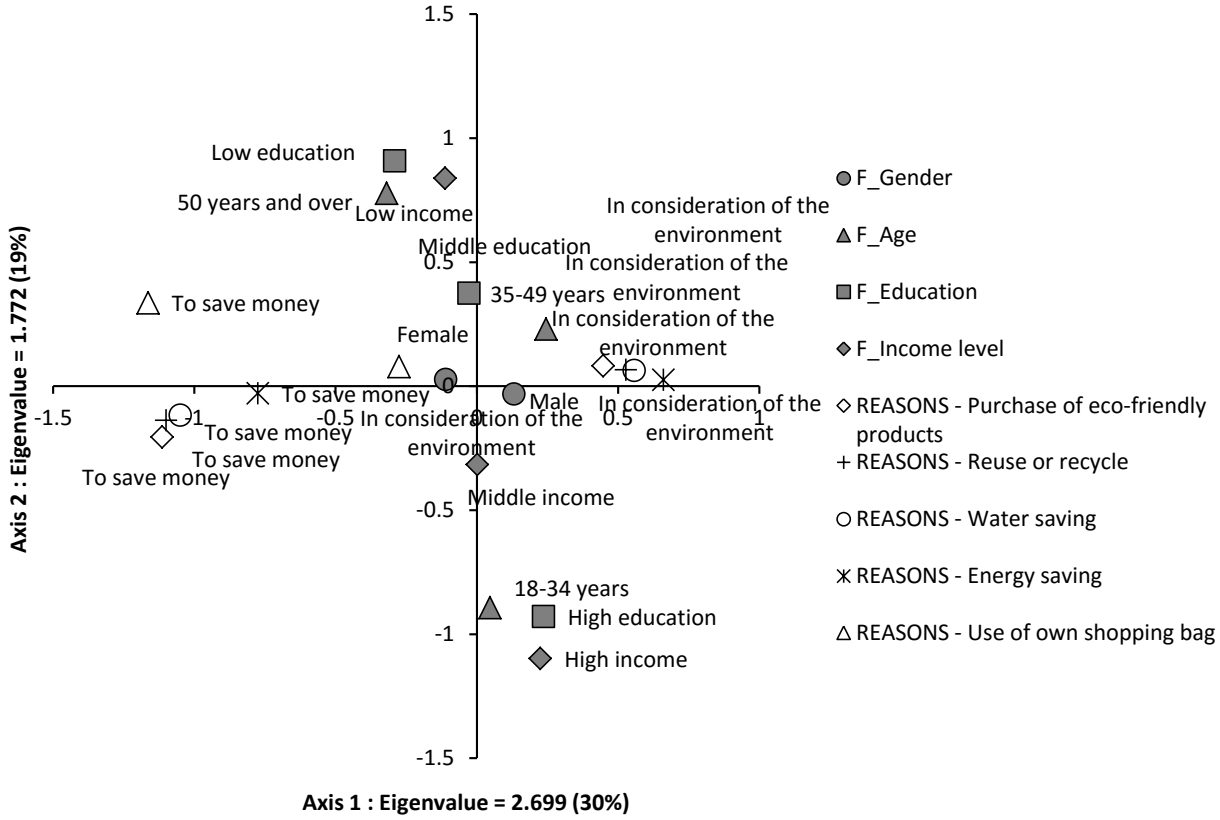


Figure 6-3b Influence of demographic factors to the formation of behavior motivation in Beijing

In Figure 6-3b, environment-motivated responses, together with middle age (35-49 years) and male are located in the right upper quadrant. This group of options together with high education, high income and young age are also located in the right side of axis 1. Money-motivated responses, together old age (50 years and over) with low income, low education and female are located in the left side of axis 1. From this distribution and by connecting the positions of related demographic factors, the author found that in Beijing, middle social class (indicated by middle age, middle education and income) and male to somewhat are more likely to be environment-motivated to do the surveyed actives.

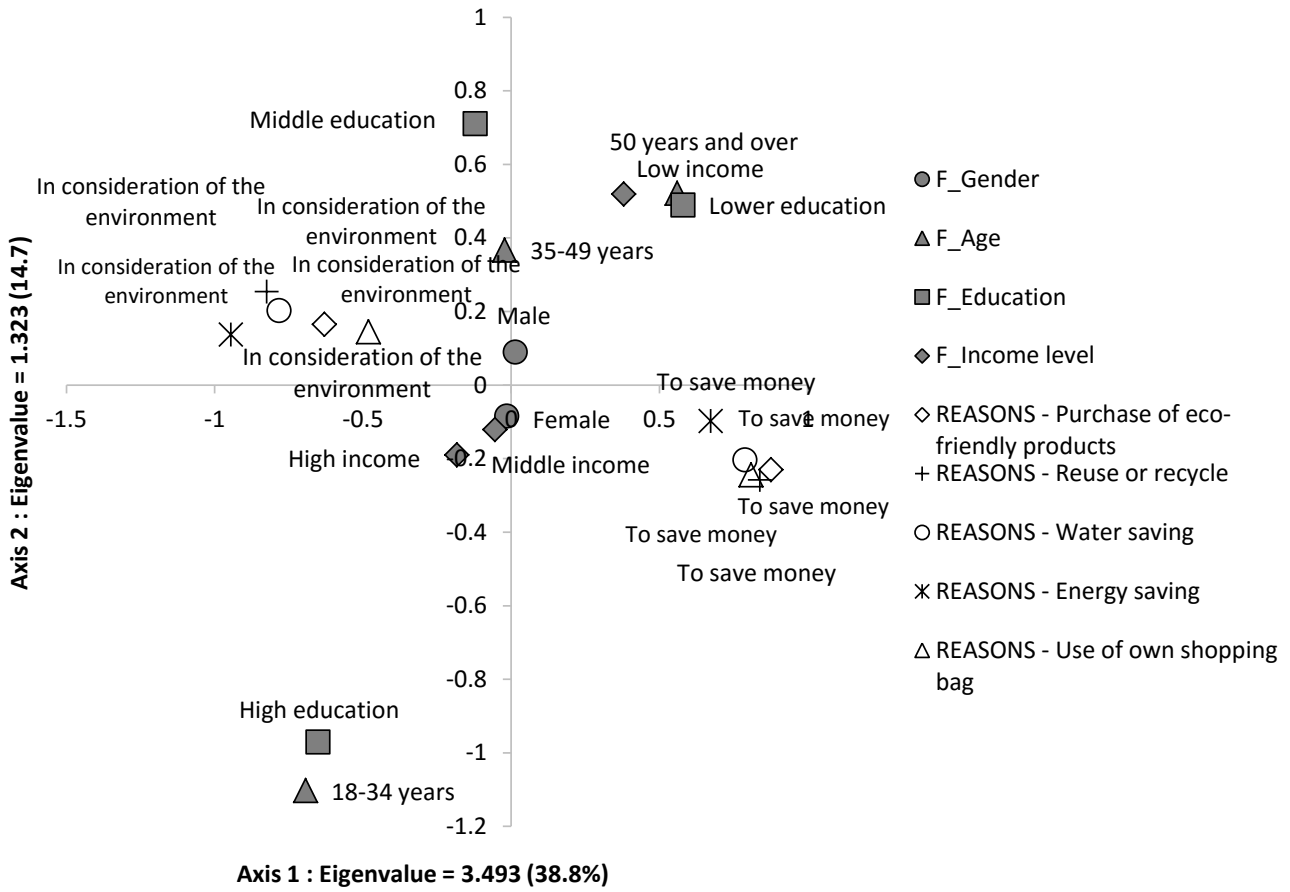


Figure 6-3c Influence of demographic factors to the formation of behavior motivation in Beijing

In Figure 6-3c, environment-motivated responses, together with middle education, high and middle income, middle age (35-49 years) are generally located in the left upper quadrant of the figure. High education and young age (18-34 years) are also located in the left side of axis 1. Money motivated responses, together with lower education, old age (50 years and over), low income are located in right side of axis 1. From this distribution, the author found that in Hangzhou, the middle age, middle education and richer people are generally more inclined to be environment-motivated. Although not obvious, males in Hangzhou are generally more likely to be environment-motivated.

From above analysis, the author found that although the influence of demographic factors to behaviour is somewhat weak and different from areas to area. However, a generally tendency is that male, younger generation, better educated and richer people are more likely to be environment-motivated to behave the surveyed activities.

6.5 Summary

Behaviour intention is the function of the interaction of antecedent dispositions and is deemed as the last link between consciousness and behaviour. It is supposed to exert great influence on the formation of the behaviour. Thus the study on this dimension of environmental consciousness has particular importance.

The analysis in this chapter indicated that compared to the results of environmental worldview and environmental attitude dimension, people in rural and urban areas showed more obvious differences in the behaviour intention. People in rural areas are typically more economy-oriented and money-motivated. On the three aspects of WTS, people in rural areas showed the least sacrificial willingness on the money sacrifice. Compared to the sacrifice in life comfort and the introduction of a new tax, people in rural areas are more prudent with their money. Furthermore, although the practices of surveyed activities in both rural and urban areas are very high, people in rural areas are more likely to do so because of saving money. Conversely, people in urban areas are typically more inclined to hold a positive WTS for the environment on all three aspects, and they showed more environmental motivations for doing the surveyed activities. It is not difficult to understand these differences. As it is described previously, because of the poorer socioeconomic situation and the lower development, economic growth always is taken as a more important goal in rural areas. The different economic bases in rural and urban societies, to a large extent, determine the intention and motivation differences in rural and urban areas.

AC is a relatively stable predictor of behaviour intention. In all four surveyed areas, a positive relation between AC and WTS was generally verified. And the logistic regression analysis also indicated a positive relationship between AC and environmental motivation. The more people are worried about environmental deterioration, the more likely they are to be environmentally motivated to do something. The environmental responsibility judgments in rural and urban areas are somewhat different. The Citizen-responsibility attitude links to the least environmental anxiety, as well as negative WTS in rural areas.

In the logistic regression analysis all the proposed variables in different dimensions in this study were used to explain the formation of behaviour intention and motivation. Because of the number of the involved

variables, perfect consistent tendency was not indicated. However, this analysis supplies some information regarding the formation of behaviour intention, and it also improves the understanding regarding the whole theoretical framework proposed in this study.

Generally speaking, males, the younger generation, the better educated and richer people are more inclined to form environmentally friendly intentions and motivations. Higher educated and richer people in rural areas, and middle-aged, middle-educated and middle-rich people in Beijing, and middle-aged, middle-educated and high-rich people in Hangzhou showed a more positive WTS for the environment. It is noted that there is a generally tendency that the middle social class in urban areas are more inclined to form positive WTS. One of the reasons maybe comes from the influence of AC. From the logistic analysis, the causal influence of AC is somewhat strong, and it is the middle social class that especially in Beijing, showed the most environmental anxiety.

Chapter 7

DISCUSSION AND CONCLUSIONS

This study aims to clarify the structure and formation mechanism of environmental consciousness under the different social backgrounds of rural and urban China by analyzing the survey data. Through developing an integrated theoretical framework that involves both social structure and social psychological variables, and analysing the three proposed dimensions respectively, the following main conclusions are indicated.

7.1 General Features of Environmental Consciousness in China

Through the analysis of environmental consciousness on three proposed dimensions, the general features of environmental consciousness in China are figured out. Generally speaking, the severity of China's environmental issues has aroused people's attentions, and environmentally friendly consciousness is getting considerable approval. This is reflected in the value judgments regarding environmental issues, and it is also reflected in people's commitments and intentions to help the environment.

Most of the Chinese people showed somewhat positive responses to the proposed environmental worldview scale. Regarding the relation between human and nature, "conquer nature" is getting the least support in both rural and urban societies in China. According to the data of *The Institute of Statistical Mathematics of Japan*, the percentage of "conquer nature" in Japan has decreased from around 30% in 1960s to 5% in 2008, while the opinion of "follow nature" has increased from around 20% in the 1960s, to 51% in 2008. Although the change of this opinion cannot be figured out in China, because of a lack of the longitudinal time data, the least support for "conquer nature" still indicates a good tendency toward and progress in China's environmental consciousness.

Facing the increasingly urgent environmental situation, Chinese people also prepared considerable willingness and intentions to help the environment. Except the somewhat lower willingness on the money sacrifice aspect in rural areas, most of the people in both rural and urban areas are willing to make the sacrifice for the environment. According to our previous study (Chen and Zheng, 2015), even compared to

other countries (Japan and South Korea) in East Asia, the percentages of positive WTS in China, including surveyed rural areas, are considerably high. And the environmentally friendly activities, such as purchase of eco-friendly products, reuse or recycle, water saving and energy saving are wildly conducted in rural and urban areas in their daily life. All of these results imply that there is a good public base to improve the environmental situation in China.

However, it should be also noted that, environmental consciousness in China still presents many problems. This is partly reflected in the fact that compared to the medical care/welfare and education/culture, and even to the economy, the importance of the environment in both rural and urban China is still lowly recognized, and also in the faith in science and technology in resolving environmental issues.

7.2 Rural-urban division of environmental consciousness in China

People embodied in different social backgrounds are supposed to present different social facets of environmental consciousness. Data analysis results indicated a remarkable difference in people's environmental consciousness in rural and urban China. By a rural-urban comparison, the following features of environmental consciousness in rural areas are clarified:

(1) A "make use of nature" value orientation in rural areas is clear. The general tendency is that people in urban areas are more inclined to believe "humans should follow nature", while people in rural areas are more likely hold a "make use of nature" opinion. Hendee (1969) once proposed a nature-exploitation theory to explain the low environmental concern of rural residents. According to Hendee, rural occupations, such as farming, mining, and logging are typically based on the exploitation and consumption of natural resources, and as such they might encourage an exploitative attitude toward natural resources. On the other hand, city residents are far from the natural environment and can more easily to develop appreciative attitudes towards the environment. This theory to some extent, supplies some explanation for the formation of "make use of nature" tendency in rural areas in this study.

(2) A lower environmental sensitivity in rural areas is found. "Perceiving environmental problems as serious" and the ability to "recognize environmental problems when they arise" are important indicators of

environmental concern. People with stronger environmental consciousness are supposed to be more sensitive to environmental change, especially to environmental change in a bad way. People in rural societies are inclined to believe the environmental quality was improved in the past, are satisfied with the present environment, and also hold a positive prediction towards the future environment change, which indicated a lower environmental sensitivity.

(3) Economy orientated and motivated practices in rural areas are clarified. People in rural areas are typically more economy-oriented and money-motivated. In the three aspects of WTS, people in rural areas showed the least sacrificial willingness on the money sacrifice. Compared to the sacrifice in life comfort and the introduction of a new tax, people in rural areas are more prudent with their money. And although the practices of the pro-environmental activities in both rural and urban areas are very high, the motivations underling the behaviours in rural areas are more likely "to save money" instead of "in consideration of the environment". The practices in rural life are showing a more economically motivated feature.

Correspondingly, urban areas residents show a more environmentally friendly consciousness, given the results that they are more inclined to believe "humans should follow nature". They tend to have a higher environmental sensitivity, are more likely to be motivated by environmental considerations.

However, it should be noted that this doesn't mean that there is no difference between the two surveyed cities. In actuality, from the data analysis, on some of the aspects of environmental consciousness, more differences were shown between the two cities, rather than with the rural areas. Such as, there is a significantly higher environmental anxiety in Beijing; while there is a significantly higher environmental satisfaction in Hangzhou; Furthermore, for the influence of demographic factors to the formation of environmental consciousness, more similarities were showed between Beijing and rural areas, rather than with Hangzhou.

7.3 Formation of Environmental Consciousness in Rural and Urban China

The research hypotheses are that environmental consciousness is a subjective formation based on individuals' cognition and personal experience; yet, it is also derived from, and is affected by the specific social structure that individuals imbedded in. The socioeconomic situations and environmental condition shape the features of individuals' environmental consciousness. By the data analysis, the above hypotheses are generally verified, and also supply a beneficial explanation to the formation of environmental consciousness.

(1) Different socioeconomic situations to a large extent explain the distinguishing features of environmental consciousness in rural and urban China. As it is described previously, rural and urban areas are different, yet coexisting systems in China. The disparities are reflected in many aspects, such as the economic development and provision of education and welfare. Rural China generally has lower mean income, lower standard of living, and lack of provision of education and infrastructure. People in rural areas were described as "too concerned with the exigencies of making a meagre living to worry about environmental problems" (Wheeler, Wang, and Dasgupta, 2003, Lo and Leung, 2000, Edmonds 1998, quoted in Tilt, 2009). The lower socioeconomic development is supposed to make economic growth become a more important goal in rural areas. This explained why people in rural areas are more likely to be money-motivated, and less likely to do the sacrifice for the environment.

(2) The fast developed economy may increase people's positive evaluations toward the environment quality and its change in rural areas. In the past decades, environmental situations in rural China have been getting worse. However, people in rural areas are still holding a very positive attitude towards the environmental change in the past, in the current and also in the future. This may stem from the constantly improving economic situations in rural areas. According to the report on the work of Chinese government, the per capita disposable income of rural residents grew rapidly in the past, 9.2% in 2014, and 9.3% in 2013, outpacing that of those living in urban areas (8% in 2014 and 7% in 2013). In 2014, the number of people living in poverty in rural areas was reduced by 12.32 million, and over 66 million more people gained access to safe drinking water. In the social survey, the author often heard voice that "we are richer now, and we are

earning more money" from the villagers. The rapid development in the economy is greatly benefitting the life of peasants. The increasing satisfactions stemming from the richer life may be reflected on many aspects of rural life, including the evaluation to the environmental change.

(3) Environmental quality and other social forces (media) play a part in the formation of environmental consciousness. From the main indexes of environmental quality in Chapter 3, the environmental condition in Hangzhou is much better than in Beijing. In actuality, the environmental condition in Hangzhou ranks among the best in China, while Beijing is called polluted capital city. The different environmental qualities in surveyed two cities explained the higher environmental satisfaction in Hangzhou and higher environmental anxiety in Beijing. And the different environmental quality can also be used to explain people's judgments on the environmental issues and environmental change. Air pollution and food safety issues got the most attention in two cities, and industrial waste is the biggest worries in the future in the cities. However, these issues didn't get considerable attention in rural areas. One possible reason is that people in rural and urban areas are facing different environmental condition and issues. Furthermore, people in rural areas believe the air pollution in over China is the most serious environmental problem, and people in two cities believe global warming in the overall world is the most serious environmental problem. However, air pollution for rural residents and global warming for our everyday life are somewhat far and not easily to be perceived. On these issues, social media may play the key role in formation of such cognition.

Environmental consciousness is a complicated composition. The formation of people's environmental consciousness is the results of interaction of different variables on multiple dimensions. In this study, three key dimensions of environmental consciousness were proposed. By analyzing the three dimensions, some stable and good indictors of environmental consciousness were indicated:

(1) AC represents the anxiety that people have towards the deterioration of the environment. Results derived from MCA and logistic analysis proved that AC is a good and stable causing factor of environmental consciousness. People with more environmental anxiety are more likely to form a positive WTS and are more environmentally motivated to practice the pro-environmental activates; (2) Environmental sensitivity is investigated in a given time frame which includes the perception of environmental change in the past, the

satisfaction with the environmental quality in the present, and the prediction of environmental issues in the future. Analysis indicated that the performances of three sub-dimensions of environmental sensitivity are generally consistent, which indicated that people with stronger environmental consciousness may be inclined to think the environmental quality worsened in the past, are dissatisfied with the present environment, and also hold a negative prediction that environmental issues will get even worse in the future. This is a new finding and is also verified by the analysis in this research. (3) WTS represents the willingness that individuals hold to help the environment even at the expense of personal interest. Since altruistic motivation has always been considered as the crucial motive to lead to environmentally responsible behaviours, clarification regarding reality as well as the causal factors of WTS identified some clues as to how to improve people's environmental consciousness as well as to evoke people's pro-environmental behaviours in daily life.

Demographic factors are individuals' inherent attributes. They are supposed to exert substantial influence to people's psychological judgments. The influence of demographic factors to the formation of environmental consciousness is a controversial issue which has been subjected to plenty of researches. Previous research focused mainly on the influence of demographic factors on environmental behaviour, and the main conclusions showed that younger generations, women and those of a higher social class (indicated by higher education, income and occupational prestige) are more inclined to behave environmentally. However, it is should be noted that the validity and applicability of these conclusions are limited. Many empirical investigations showed unsupportive results. In this study, the author also considered the influence of demographic factors to the formation of people's environmental consciousness. Despite some of the inconsistent and unstable results, the following tendencies are indicated:

(1) Males are more inclined to be environmental concerned and environmentally motivated than females in China. Studies in Western countries have found that women are generally more concerned about the environment than men for the reasons that "women are potentially more environmentalist than men due to biospheric orientation" (Stern, Dietz and Kalof, 1993), and their traditional roles as caregivers, nurturers, mothers, and protectors of children (Mohai, 1992; Yu, X., 2014). From data analysis results in this study, despite of some exceptions and unobvious differences, males in China are generally showing a stronger environmental

consciousness. They are more likely to form environmentally friendly worldviews, care for the environmental issues more, and are more environmentally motivated to practice the activities in the daily life. This result may stem from the special social structure and social labour division of China. From a historical perspective, China typically is a male-dominated society. Males are involved more in the social and political issues.

(2) Age is generally negatively related with environmental consciousness. Analysis results in this study showed that younger generations (including middle-aged people) are more concerned with the environment. Age hypothesis in previous research showed that younger people tend to be more concerned about environmental quality than older people. One explanation is that young people are less integrated into the dominant social order, which is deemed as the root cause of ecological problems (Dunlap and Van Liere, 1978).To which extent this explanation supplying the reference for this study is an issue needed to be further discussed. However, compared to the older people, the younger generation is surely more open to the new idea and concept. And environmentalism represents a new world view and a new way of thinking. Furthermore, the higher level of education of the younger generation is also an important reason.

(3) Education and income level are generally positively related with environmental consciousness. The social class (indicated by education, income and occupational prestige) hypothesis was discussed a lot in previous research. However, this study focuses on the analysis of consciousness, and taking different perspectives of environmental consciousness verified the positive relation between education and income with environmental consciousness.

As it is described previously, the relationship between demographic factors and environmentalism is a controversial issue. The above tendencies may not applicable to some cases. The unobvious and unstable influences of demographic factors indicated the necessaries of more studies on this topic.

7.4 Contribution and Limitation

Environmental consciousness is a complex and multidimensional composition. Based on the proposed integrated framework and three dimensions of environmental consciousness, this study explored the structure features and formation of people's environmental consciousness under the social backgrounds of rural and urban China. The main academic contributions of this study are as following.

Firstly, this study proposed an integrated theoretical framework and identified three key dimensions of environmental consciousness. Despite the complexity of environmental consciousness, this study figured out three key dimensions, including environmental worldview, environmental attitude and environmental intention, to conduct the analysis. In this study, the influences of different socioeconomic situation, demographic factors, and the interactions of variables on different dimensions were integrated to explore the formation of people's environmental consciousness.

Secondly, this study is a comparative approach which is supposed to be a significant endeavor in clarifying the effects of rural and urban living on people's environmental consciousness. From an empirical perspective, this research supplied primary data regarding the status of environmental consciousness in present China; and from a theoretical perspective this research deepened our understanding regarding the formation of environmental consciousness in different social patterns and contexts.

Thirdly, some important indicators and their causal effects to the formation of environmental consciousness are identified. The clarification of these indicators supplied a beneficial base to the studies on systematical formulation of environmental consciousness evaluation index. The study regarding the formation mechanism of environmental consciousness is expected to identify some important clues as to how to improve people's environmental consciousness and to evoke people's pro-environmental behaviours in daily life.

However, it should be noted that there are also some limitations in this study. Environmental consciousness is a complex composition. The three dimensions of environmental consciousness do not involve all the contents of environmental consciousness. This limitation indicates that further academic attention is needed in this field, and also to some extent it explains the weak correlation among the variables

in different dimensions of environmental consciousness. And as described previously, there is a time difference between the surveys conducted in rural and urban areas. Furthermore, China is a nation where has diverse cultures and biophysical environments. The studied areas, Beijing, Hangzhou, and especially the 51 villages in Shandong province, to which extent reflect the real reality of China, are also an issue that needs to be further considered. However, given the present research status, especially the lack of empirical studies, rigorous and scientific research in any type of culture and environment are still needed.

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Appendix-1:
Questionnaires and Translations

农 村 地 区 环 境 意 识 调 查

（山东省泰安市宁阳县·2014 年 6 月）

镇（乡）名	村名	回答者编号	调查员	检查员

【自我介绍】

您好！

我是来自宁阳县第二中学的学生（出示证件，报上姓名）。今天为了收集山东省泰安市宁阳县地区的农民对目前有关环境问题的看法、意见等方面的信息而打扰您，希望能够得到您的理解和协助。收集到的信息仅做科学研究使用。

非常抱歉耽误您的时间，谢谢您的合作！

调查记录

回答者信息	回答者姓名	
	回答者住址	
	电话号码	
调查时间	调查开始时间	
	调查结束时间	

问题1　如果用一句话来概括的话，您对于现在的生活是满意还是不满意呢？

1. 满意
2. 还算满意
3. 不太满意
4. 不满意
8. 其他（记入:　　）
9. 不知道

问题2　假设将现在的中国社会分为以下 5 个阶层的话，您认为您处在哪个阶层呢？

1. 上
2. 中上
3. 中
4. 中下
5. 下
8. 其他（记入:　　）
9. 不知道

问题3　**a.** 请问您认识多少本村的村民？

1.绝大多数　2.大多数　3.少数　4.极少数　8.其他（记入：　　）　9.不知道

b. 平时您与其他村民在生活、劳作或娱乐等方面的交往多么？

1.非常多　2.比较多　3.不太多　4.不多　8.其他（记入：　　）　9.不知道

问题4　a. 近年来，有越来越多的农民住进了楼房。请问您是愿意住在楼房还是传统的平房里呢？

1. 楼房　2. 平房　8. 其他（记入：　　）　9. 不知道

b. 那您现在住的是楼房还是传统的平房呢？

1. 楼房　2. 平房　8. 其他（记入：　　）　9. 不知道

问题5　a. 您认为环境保护重要么？

1.非常重要　2.重要　3.不太重要　4.完全不重要　8.其他（记入：　　）　9.不知道

b. 您认为村里的大部分村民重视环境保护吗？

1. 非常重视　2. 比较重视　3. 不太重视　4. 不重视　8.其他（记入：　　）　9.不知道

问题6　a. 从目前中国的整体状况来看，您认为现在最严重的环境问题是什么？

1. 空气污染
2. 水污染
3. 森林・绿地的减少
4. 食品安全性的低下
5. 家庭垃圾的增加
6. 工业废弃物的增加
7. 土地污染
8. 其他（记入:　　）
9. 不知道

b. 那么，从目前本村的整体状况来看，您认为现在最严重的环境问题是什么？

1. 空气污染
2. 水污染
3. 森林・绿地的减少
4. 食品安全性的低
5. 家庭垃圾的增加
6. 工业废弃物的增加
7. 土地污染
8. 其他（记入:　　）
9. 不知道

问题7　从整体上来看，包括我们周围的空气、河流、土壤、动植物等在内的环境状况，您认为在近几年是好转了，还是恶化了？

1.好转了　2.有点好转　3.没变化　4.有点恶化　5.恶化了　8.其他（　）　9.不知道

问题8　您对于住所附近的环境满意吗？请对以下列举的各项，分别选择与您的想法最为接近的一项。

	满意	还算满意	不太满意	不满意	其他	不知道
a.空气的清新度	1	2	3	4	8（　）	9
b.水的清洁度（附近的河流等）	1	2	3	4	8（　）	9
c.绿化程度	1	2	3	4	8（　）	9
d.居住地周围的清洁度（卫生状况等）	1	2	3	4	8（　）	9

问题9　在未来5年之内，您认为以下列举的环境问题在本村是会好转还是会恶化？

	有显著好转	有好转	没变化	恶化	急剧恶化	其他	不知道
a.空气污染	1	2	3	4	5	8（　）	9
b.水污染	1	2	3	4	5	8（　）	9
c.森林绿地减少	1	2	3	4	5	8（　）	9
d.食品安全性差	1	2	3	4	5	8（　）	9
e.家庭垃圾的增加	1	2	3	4	5	8（　）	9
f.工业废弃物的增加	1	2	3	4	5	8（　）	9

问题10　在下面所列举的问题中，您认为当前政府应该在哪些方面投入精力呢？

a.　首先，在下列问题中您认为最应该投入精力的是：

1.经济　2.教育文化　3.医疗福利　4.环境　5.治安　8.其他（记入：　　）　9.不知道

b.　其次应该投入精力的是：

1.经济　2.教育文化　3.医疗福利　4.环境　5.治安　8.其他（记入：　　）　9.不知道

问题11　为了保护环境，您认为在政府、企业以及公众之中，哪一方应该承担最重要的责任？

1. 政府　2. 企业　3.公众　8. 其他（记入：　　）　9. 不知道

问题12　您是否认为您个人的努力和行为，对于环境的改善具有重要性？

1. 非常重要　2.有点重要　3.不太重要　4.不重要　8.其他（记入：　　）9.不知道

问题13 有时我们可能会对一些事情感到不安。请问对于环境恶化您是否会感到不安？

1. 感到极其不安
2. 感到不安
3. 稍微有点不安
4. 完全没有不安
8. 其他（记入：　　）
9. 不知道

问题14　有两个人阐述了如下意见，您赞成哪种意见呢？

a.

甲：为了个人利益，即使牺牲一些公共利益，也是没办法的事情。

乙：为了公共利益，即使牺牲一些个人利益，也是没办法的事情。

1. 同意甲的意见　2. 同意乙的意见　8. 其他(记入：　　)　9.不知道

b.

甲：即使对别人没有益处，也要做自己喜欢的事情。

乙：不管是不是自己喜欢，都要做对别人有益的事情。

1. 同意甲的意见　2. 同意乙的意见　8. 其他(记入：　　)　9.不知道

c.

甲：即使环境质量在一定程度上恶化了，　也应该最优先保证经济增长。

乙：即使经济发展在一定程度上减缓了，也应该最注重环境保护。

1. 同意甲的意见　2. 同意乙的意见　8. 其他(记入：　　)　9.不知道

问题15　下面列出了被称作我国传统文化的项目。请您对列出的这些项目的重要程度做出评价。

	非常重要	比较重要	不太重要	非常不重要	其他	不知道
a.勤俭节约	1	2	3	4	8（　　）	9
b.宽容	1	2	3	4	8（　　）	9
c.报恩	1	2	3	4	8（　　）	9
d.孝顺父母	1	2	3	4	8（　　）	9
e.信义	1	2	3	4	8（　　）	9
f.邻里和睦	1	2	3	4	8（　　）	9

问题16　在中国社会经常会谈到“面子”问题。在您看来“面子”重要吗？

1. 非常重要　2.比较重要　3.不太重要　4.一点也不重要　8.其他（记入：　　）　9.不知道

问题17　在农村处理婚丧嫁娶等事宜时有许多传统的习俗或程序，您认为遵守这些习俗或程序重要吗？

1. 非常重要　2.重要　3.不太重要　4.完全不重要　8.其他（记入：　　）9.不知道

问题18　下列举的是一些在日常生活中能够实施的环保行动。请问您在过去一年中的实施情况如何？

【调查员提示：下列题目中，如果被访者选择[1][2]，追加提问后面的 SQ】

a. 购买节能效果好，有环保标志的商品

1.总是这样做　2.有时候这样做　3.没怎么这么做　4.完全没这么做　9.不知道

↓

SQ. 您这样做的理由是什么？

1.为了省钱　2.考虑到环境　8.其他（记入：　）　9. 不知道

---

b. 不把东西扔掉，而是用来再利用。

1.总是这样做　2.有时候这样做　3.没怎么这么做　4.完全没这么做　9.不知道

↓

SQ. 您这样做的理由是什么？

1.为了省钱　2.考虑到环境　8.其他（记入：　）　9. 不知道

---

c. 努力在洗东西，洗澡时节约用水。

1.总是这样做　2.有时候这样做　3.没怎么这么做　4.完全没这么做　9.不知道

↓

SQ1. 您这样做的理由是什么？

1.为了省钱　2.考虑到环境　8.其他（记入：　）　9. 不知道

SQ2 您一家人每个月大约消费多少吨水?（记入：　）

---

d.努力节约用于照明及空调等的能源

1.总是这样做　2.有时候这样做　3.没怎么这么做　4.完全没这么做　9.不知道

↓

SQ1.您这样做的理由是什么？

1.为了省钱　2.考虑到环境　8.其他（记入：　）　9. 不知道

SQ2.您一家人每个月大约消费多少度电？（记入：　）

---

e. 买东西时候，自己带个袋子或篮子，不用店家提供的塑料袋

1.总是这样做　2.有时候这样做　3.没怎么这么做　4.完全没这么做　9.不知道

↓

SQ. 您这样做的理由是什么？

1.为了省钱　2.考虑到环境　8.其他（记入：　）　9. 不知道

以下就农村中的水、空气、化肥・农药以及能源等方面，向您提几个问题。

问题19　您认为可能造成当地水污染（如河流污染等）的主要原因是什么？

1.工厂排污　2.化肥・农药污染　3.村民生活污染　8.其他 （记入：　） 9.不知道

问题20　在日常的生活中，您是否曾经将垃圾、废弃物等往河里倒过？

1. 经常会　2. 有时会　3.不太会　4.从来没有　8.其他（记入：　　）9.不知道

SQ：您这样做的理由是：（记入：　　）

问题21　a. 假设在一个没有设置垃圾箱的公共场所，您想要扔一些果皮、食品袋等废弃物，这时您会如何处理？

1. 随手扔掉
2. 趁人不注意时扔掉
3. 扔到不显眼的地方
4. 自己带回家
8. 其他（记入：　　）
9. 不知道

b. 在这种情况下，您认为您周围的其他人会怎么做？

1. 随手扔掉
2. 趁人不注意时扔掉
3. 扔到不显眼的地方
4. 自己带回家
8. 其他（记入：　　）
9. 不知道

问题22　随着自来水的使用，人们不再使用井水。您认为不再被人们利用的“井”是否还有必要保护？

1.很有必要　2.有必要　3.没太有必要　4.完全没有必要　8.其他（记入：　　）9.不知道

问题23　假设现在让您来治理村里的环境问题（如水污染，垃圾问题等），您认为最有效的措施是什么呢？

1. 普及环保教育，改善村民环保意识
2. 加大对工业废水废物的治理力度
3. 有效控制农业生产中的污染物
4. 发挥政府监管作用，加大惩罚力度
8. 其他（记入：　　）
9. 不知道

问题24　化肥和农药在农业中的使用越来越普遍。请问您家里使用化肥的效果如何？

1. 非常好　2.比较好　3.不太好　4.不好　8.其他（记入：　　）　9.不知道

问题25　关于化肥和农药的使用及其影响，有以下几种说法，请问您在多大程度上表示赞成？

	赞成	比较赞成	不太赞成	不赞成	其他	不知道
a. 化肥和农药的过量使用会造成水污染	1	2	3	4	8（　　）	9
b. 化肥和农药的使用会危害食品安全	1	2	3	4	8（　　）	9
c. 化肥和农药的使用会影响人体健康	1	2	3	4	8（　　）	9

问题26　请问您在种植农作物或蔬菜时，自家吃的和卖给别人的，在化肥农药的使用上有什么不同吗？

1. 完全一样　　2. 自家吃的尽量不用化肥用药　　8. 其他（记入：　　）　9. 不知道

问题27　现在的农村日常生活中存在多种能源并存使用的状况。请问您的家中主要使用哪一种或哪几种能源来满足生活需要（如做饭或取暖等）？利用该种能源的工具是什么（如灶台，炉子等）？什么场合下会使用（如烧水，做饭或者有客人时等）？

能源种类 \ 利用状况	用	不用	利用的工具	利用的场合
a.煤炭	1	2		
b.太阳能	1	2		
c.电能	1	2		
d.秸秆和薪柴（柴火）	1	2		
e.煤气、液化气	1	2		
f.其他（记入：　　）	1	2		

以上列举的这些能源利用方式中，您认为:

h.最便利的是(　　)；i.最省钱的是(　　)；j.最有效率的是(　　)；k.您最常用的是:(　　)。

问题28　过去农村做饭多用“灶台”。请问现在您的家中还在用灶台吗?

1. 用　　2. 不用　　8. 其他（记入：　　）　9. 不知道

SQ1.用的理由是：

1. 习惯
2. 省钱
8. 其他（记入：　　）

SQ2.不用的理由是：

1. 不清洁
2. 不健康
3. 效率低
4. 污染环境
8. 其他（记入：　　）

问题29　a. 2013 年雾霾成为中国环境问题的热点话题之一。在您看来，造成中国城市地区空气污染的主要原因是什么？（限选 3 项）

1. 汽车尾气
2. 工业废气
3. 生活污染源
4. 垃圾焚烧
5. 建筑施工
6. 燃煤取暖
8. 其他（记入：　　）
9. 不知道

b.对于本地来说，您认为造成空气污染的主要原因是什么？（限选 3 项）

1. 汽车尾气
2. 工业废气
3. 生活污染源
4. 垃圾焚烧
5. 建筑施工
6. 燃煤取暖
7. 秸秆焚烧
8. 其他（记入：　　）
9. 不知道

问题30　有下列一组意见，请问您在多大程度上表示赞成。

	非常赞成	比较赞成	不太赞成	很不赞成	其他	不知道
a. 生态平衡非常脆弱并且容易打破	1	2	3	4	8（　　）	9
b. 植物和动物与人类一样有生存的权利	1	2	3	4	8（　　）	9
c. 经济发展总是伴随着环境破坏	1	2	3	4	8（　　）	9
d. 环境问题可以由科学技术的进步来解决	1	2	3	4	8（　　）	9
e. 为了改善全球环境，公众的环保行动比技术革新更重要	1	2	3	4	8（　　）	9

问题31　为了保护舒适的环境及寻求环境的进一步改善，有下面的甲乙两种意见。请对 A～C 分别选出最接近您想法的回答。

a.

甲：如果是对环境有益的产品，即便在某种程度看来价格偏高，也应该购买。

乙：即使是对环境有益的产品，如果价格偏高的话，就没有必要购买。

1 同意甲的意见　　2 同意乙的意见　　8 其他（记入：　　）　　9 不知道

b.

甲：为了保护环境，即使现在的生活变得有些不方便，也是没办法的事情。

乙：即使是为了保护环境，也不能忍受现在的生活变得不方便。

1 同意甲的意见　　2 同意乙的意见　　8 其他（记入：　　）　　9 不知道

c.

甲：如果是为了保护环境，设立新的纳税制度也是没办法的事情。

乙：即便说为了保护环境，也反对设立新的纳税制度。

1 同意甲的意见　　2 同意乙的意见　　8 其他（记入：　　）　　9 不知道

问题32　关于自然和人的关系，有如下几种意见。请从中选择您认为最接近于事实(接近真实)的选项。

1．为了人类的幸福，必须**顺应**自然。
2．为了人类的幸福，必须**利用**自然。
3．为了人类的幸福，必须**征服**自然。
8. 其他(记入:　　)
9. 不知道

针对下面列举的一些场景，请给出最接近您想法的答案。

问题33　假设村里举行一些以环境保护为主题的推广班，免费教给大家如何在生活中保护环境、节水节电等知识。您是否愿意参与？

1. 非常愿意　2.愿意　3.不太愿意　4.不愿意　8.其他(记入：　　) 9.不知道

问题34　假设现在村里决定组织村民出钱治理河流，请问您是否愿意加入？

1. 愿意　2.有几分愿意　3.不太愿意　4.不愿意　8.其他（记入：　　）　9.不知道

问题35　如果您看到村里的人或村外人破坏村里的环境，如乱扔垃圾，乱砍乱伐，您是否会过问？

1. 会过问　　2.不会过问　　8. 其他（记入：　　）　9. 不知道

SQ1.如果过问，您的方式是：
1. 上前询问,劝阻
2. 报告给大队或村干部
3. 告诉其他村民
8. 其他（　　）

SQ2.如果不会过问，您的原因是：
1. 与己无关不必管
2. 管也没用
3. 怕得罪人
4. 不知道去哪里反映情况
8. 其他（　　）

问题36　假设现在县政府拟在本村建一个水泥厂，其产生的粉尘噪音、废水可能会对周边环境产生影响。现在县政府围绕“是否建该水泥厂，在哪里建，以及如何建”举行环境影响评价听证会，并向每个村民发出了邀请函。请问您是否愿意参加该听证会。

1. 非常愿意　2. 愿意　3. 不太愿意　4. 不愿意　8.其他 （记入：　　）9.不知道

SQ. 请问，您不愿参加的原因是：

1. 没时间，没精力
2. 参加了也不会对结果产生影响
3. 不太关心
8. 其他人会做决策
8. 其他（记入：　　）
9. 不知道

问题37　假设本村有一个经济效益很好的化肥厂，村民（包括您本人）的主要经济收人也来源于这个化肥厂。但是这个工厂的废水排人了附近的河流中，严重污染了下游地区的水源。如果有人提出要关闭这家工厂，您是否赞成这种提议？

1 非常赞成　2.比较赞成　3.不太赞成　4.完全不赞成　8.其他（记入：　　）　9.不知道

问题38　您关心您所生活的地区的环境状况吗？如该地区的空气质量，水污染状况，您居住地周围工厂的生产排污状况，或者该地区即将有哪些建设项目等。

1. 非常关心　2. 比较关心　3. 不太关心　4. 不关心　8. 其他(记入：　　)　9. 不知道

SQ. 如果您对以上信息比较关心，您是否会主动的去相关部门询问或查询相关的信息？

1. 会　2. 看是否影响到我的利益　3. 不会　8. 其他(记入：　　)　9. 不知道

问题39　a. 如果您认为您的环境权益受到损害，您会通过以下列举的哪种方式解决问题？

1. 找政府
2. 向媒体反映
3. 向法院起诉
4. 找村委会或有权威的人调解
6. 直接找侵害人
7. 找亲戚朋友
8. 忍气吞声
9. 其他（记入：　　）
10. 不知道

b. 您选择该种救济方式的原因是：

1. 成本大小　2. 有效与否　8. 其他（记入：　　）　9. 不知道

问题40　在您看来，通过诉讼途径救济自己受到侵害的环境权益存在什么问题呢？

1. 费用高
2. 审判不公
3. 执行难
4. 伤和气
8. 其他（记入：　　）
9. 不知道

接下来，就您平时接触信息的途径来提问一个问题。

问题41　您是从哪里获得有关环境问题的知识和信息的？请从下面选出所有符合您的选项。

1. 电视和广播
2. 报纸・杂志・书籍
3. 互联网
4. 国家或地方出版物
5. 大学及研究机构
6. 环保协会或企业的各种宣传
7. 其他村民
8. 家人以及朋友
9. 其他（记入：　　）
10. 不知道

最后，就您自身的情况来提问几个问题。

F1. 【性　别】

1. 男性　　2. 女性

F2. 您多大年龄？

F3. 您的最终毕业的学校是什么（退学和正在上学的情况也作为毕业学校来填写）？

1. 无
2. 上学时间不足一年
3. 小学一年以上、未毕业
4. 小学毕业
5. 初中毕业
6. 高中・职业高中毕业
7. 大学专科・职业技术学院毕业
8. 大学本科毕业
9. 研究生毕业
10. 其他（记入：　　）

F4. 您现在的婚姻状况如何？请从下列选项中选择一项。

1. 未婚
2. 已婚
3. 离异
4. 丧偶
8. 其他（记入：　　）
9. 不知道

F5. 包括您在内，现在一起生活的家人共有几个人？

1. 1 人
2. 2 人
3. 3 人
4. 4 人
5. 5 人
6. 6 人
7. 7 人以上

F6. 您在村里是否担任职务？担任何职？

1. 是（记入：　　）　　2. 没有

F7.您在现在居住的地方住了多少年了？

F8.最后，在过去的一年里，您家的所有家庭成员的总收入大概是多少？

1. 5 千元以下
2. 5 千到 1 万之间
3. 1 万到 2 万之间
4. 2 万到 3 万之间
5. 3 元到 5 万之间
6. 5 万到 8 万之间
7. 8 万以上
8. 其他（记入：　　）
9. 不知道

（我们对于您的合作表示诚挚的感谢！）

Environmental Consciousness Survey

in Rural Area of China

(Ningyang Prefecture, Shandong Province・June, 2014)

Q1 How satisfied are you with your life as a whole now?

1. Satisfied
2. Satisfied somewhat
3. Dissatisfied somewhat
4. Dissatisfied　　8. Other: Please specify (　　)　　9. DK

Q2 If the society in China can be divided into the following 5 social classes, which class do you think you are belonging to?

1. Upper
2. Upper middle
3. Middle
4. Lowe middle
5. Lower　　8. Other: Please specify (　　)　　9. DK

Q3 a. How many villagers in your village do you know?

1. Overwhelming majority
2. Majority
3. Minority
4. Tiny minority　　8. Other: Please specify (　　)　　9. DK

b. How often do you contact with other villagers based on your daily life, farming work or entertainment?

1. Very often
2. Often
3. Not very often
4. Not often　　8. Other: Please specify (　　)　　9. DK

Q4 a. In recent years, more and more villagers are moving to the building. Do you like living in the traditional bungalow or model building?

1. Building
2. Bungalow
8. Other: Please specify ( )
9. DK

b. What kind of house are you living now?

1. Building
2. Bungalow
8. Other: Please specify ( )
9. DK

Q5 a. Do you think environmental conservation is important?

1. Very important
2. Important
3. Not so important
4. Not important at all
8. Other: Please specify ( )
9. DK

b. Do you think most of the villagers in your village are paying attention to the problem of environmental conservation?

1. Paying great attention
2. Paying somewhat attention
3. Paying little attention
4. Paying no attention
8. Other: Please specify ( )
9. DK

Q6 a. Taking China as a whole, which one of the following do you think is the most serious environmental problem currently?

1. Air pollution
2. Water pollution
3. Decline in forest and vegetation
4. Degradation of food safety
5. Increase in the volume of garbage from home
6. Increase in the volume of toxic waste
7. Land pollution
8. Other: Please specify ( )
9. DK

.....

b. Taking the village you are living as whole, which one of the following do you think is the most serious environmental problem currently?

1. Air pollution
2. Water pollution
3. Decline in forest and vegetation
4. Degradation of food safety
5. Increase in the volume of garbage from home
6. Increase in the volume of toxic waste from fatories
7. Land pollution
8. Other: Please specify ( )
9. DK

Q7 Looking the condition around you as a whole, in terms of things like the quality of the air, water, soil, plants and animals, do you think the environment on earth in general has improved over the last several years, or do you think it has gotten worse?

1. Improved
2. Improved somewhat
3. No change
4. Worsened somewhat
5. Worsened
8. Other: Please specify ( )
9. DK

Q8 How satisfied are you with the quality of environment in areas nearby your home? For each of the following items, please choose the one that comes closest to your feelings.

	Satisfied	Satisfied Somewhat	dissatisfied Somewhat	Dissatisfied	Other	DK
a. Cleanness of air	1	2	3	4	8 ( )	9
b. Cleanness of water(i.e., rivers or sea near your home)	1	2	3	4	8 ( )	9
c. Lushness of fauna (i.e., rivers or sea nearby)	1	2	3	4	8 ( )	9
d. Comfort level of your residence	1	2	3	4	8 ( )	9

Q9 In the next five years, do you think the following environmental issues in your village will improve or get worse?

	Improved dramatically	Improved	No change	Get worse	Get worse dramatically	other	DK
a. Air pollution	1	2	3	4	5	8 ( )	9
b. Water contamination	1	2	3	4	5	8 ( )	9
c. Decline in forestry and vegetation	1	2	3	4	5	8 ( )	9
d. Degradation of food safety	1	2	3	4	5	8 ( )	9
e. Increase in the volume of garbage from homes	1	2	3	4	5	8 ( )	9
f. Increase in the volume of industrial waste	1	2	3	4	5	8 ( )	9

Q10 a. In our country, what kind of things do you think the national government should put the most attention on?

1. Economic
2. Education/culture
3. Medical care/Welfare
4. Environment
5. Public safety
8. Other: Please specify ( )
9. DK

b. what kind of things do you think the national government should put the second attention on?

1. Economic
2. Education/culture
3. Medical care/Welfare
4. Environment
5. Public safety
8. Other: Please specify ( )
9. DK

Q11 Among the government, corporation, and ordinary citizens, who do you think should play the most important role in protecting the environment?

1. Government
2. Corporation
3. Ordinary citizens
8. Other: Please specify ( )
9. DK

Q12 Do you think your personal endeavor and behavior is important to the improvement of the environment?

1. Very important
2. Somewhat important
3. Somewhat unimportant
4. Unimportant
8. Other: Please specify ( )
9. DK

Q13 From time to time we feel uneasy or worried about the issues for our families or ourselves. To what extent do you worry, either for yourself or for your family about the deterioration of the environment?

1. Very much
2. Somewhat
3. Slightly
4. Not at all
8. Other: Please specify ( )
9. DK

Q14 There are the following three pairs of opinions. Which do you agree with?

A.

A-First: It is better to sacrifice public interests to certain extent, in order to protect individual rights.

A-Second: It is better to sacrifice individual rights to certain extent in order to protect public interests.

1. Closer to A-First
2. Closer toA-Second
8. Other: Please specify ( )
9. DK

.....

B.

B-First: I just like to do what I enjoy even if it doesn't serve other people.

B-Second: Whether I like it or not is one thing, my priority is to do something that serves others.

1. Closer to B-First
2. Closer to B-Second
8. Other: Please specify ( )
9. DK

.....

C.

C-First: Even environment quality to some extent deteriorated, economic growth should be firstly guaranteed.

C-Second: Even economic growth to some extent become slower, environment conservation should be firstly guaranteed.

Q15 Next, we would like ask you some things that are often considered as part of our country's traditional culture. For each item, please say whether you believe it is very important, important, not very important, or not important at all.

	Very important	Somewhat important	Not very important	Not important at all	other	DK
a. Work ethic and frugality	1	2	3	4	8( )	9
b. Generosity	1	2	3	4	8( )	9
c. Returning of favors and obligations	1	2	3	4	8( )	9
d. Filial piety	1	2	3	4	8( )	9
e. Integrity (avoiding deception and keeping words)	1	2	3	4	8( )	9
f. Harmonious neighborhood	1	2	3	4	8( )	9

Q16 In China people always talk about the topic of "face". Do you think the "face" is important?

1. Very important
2. Somewhat important
3. Somewhat unimportant
4. Unimportant
8. Other: Please specify ( )
9. DK

Q17 In rural area, there are a lot of traditional customs, such as customs for wedding and funerals. Do you think it is important to follow these customs?

1. Very important
2. Somewhat important
3. Somewhat unimportant
4. Unimportant
8. Other: Please specify ( )
9. DK

Q18 We are now going to show you a list of several activities that you could be doing at the level of daily life. How often have you performed each of them during the past year? Please choose one that comes closest to your actions.

[Note to interviewers: For each item from a to e, ask the follow-up question marked "SQ" if the respondent has selected 1 or 2]

a. Buy products that are energy-efficient and/or have been designated by government as eco-friendly.

1. Do so always 2. Sometimes 3. Not very often 4. Not at all 9. DK

↓

SQ. What is your reason for doing so? Please choose only one from the list.

1. To save money
2. In consideration of the environment
8. Other: Please specify ( )
9. DK

---

b. Recycle things, or otherwise avoid throwing them away so as to reuse them again.

1. Do so always 2. Sometimes 3. Not very often 4. Not at all 9. DK

↓

SQ. What is your reason for doing so? Please choose only one from the list.

1. To save money
2. In consideration of the environment
8. Other: Please specify ( )
9. DK

---

c. Try to avoid overusing water in washing things or in the shower.

1. Do so always 2. Sometimes 3. Not very often 4. Not at all 9. DK

↓

SQ1. What is your reason for doing so? Please choose only one from the list.

1. To save money
2. In consideration of the environment
8. Other: Please specify ( )
9. DK

SQ2. How much water are you and families consuming for one month?

( ) Tons

---

d. Try to use energy for lighting, heat or air conditioning and so on, in moderation.

1. Do so always 2. Sometimes 3. Not very often 4. Not at all 9. DK

↓

SQ1. What is your reason for doing so? Please choose only one from the list.

1. To save money
2. In consideration of the environment
8. Other: Please specify ( )
9. DK

SQ2. How much electricity are you and families consuming in total for one month?

( ) KWH

e. Turn down offers for bags or packaging during shopping and use your own shopping bag.

1. Do so always 2. Sometimes 3. Not very often 4. Not at all 9. DK

↓

SQ1. What is your reason for doing so? Please choose only one from the list.

1. To save money
2. In consideration of the environment
8. Other: Please specify ( )
9. DK

Q19 What do you think is the main reason that caused the water pollution in local area?

1. The industrial waste from factories
2. The contaminant from fertilizer or pesticide
3. The household waste from villagers' life
8. Other: Please specify ( )
9. DK

Q20 In daily life, do you dump the garbage to the river nearby?

1. Very often 2. Sometimes 3. Not often 4. Never 8. Other: ( ) 9. DK

↓

SQ. What is your reason for doing so? Please specify.

( )

Q21a. Suppose you are in a public place where no garbage bins has, and you want to throw away some garbage, such as fruit peel or food packet. What would you do in this occasion? Please choose one that comes closest to your feelings.

1. Throw it away carelessly
2. Throw it away when other people pay no attention to
3. Throw it away to inconspicuous place
4. Take it back to home
8. Other: Please specify ( )
9. DK

b. In this situation, how do you think of others' behavior? What do you think the people around would do?

1. Throw it away carelessly
2. Throw it away when other people pay no attention to
3. Throw it away to inconspicuous place
4. Take it back to home
8. Other: Please specify ( )
9. DK

Q22 Along with the use of tap water, people no longer use well water. Do you think it is necessary to protect the well?

1. Absolutely necessary
2. Necessary
3. Not so necessary
4. Absolutely no necessary
8. Other: Please specify ( )
9. DK

Q23 If let you charge the business of environmental improvement. Which of the following measures do you think is the most effective?

1. Enhance environmental education and improve villagers' environmental consciousness
2. Strengthen pollution control of the industries
3. Strengthen pollution control of the agriculture
4. Strengthen the supervision of the government
8. Other: Please specify ( ) 9. DK

Q24 The use of fertilizer and pesticide are very common in agriculture. How about the using effect of fertilizer in your family?

1. Very good
2. Somewhat good
3. Not so good
4. Not good at all
8. Other: Please specify ( )
9. DK

Q25 There are several opinions about the use of fertilizer and pesticide. For each of the statement, to which extent do you agree with.

	Agree	Somewhat agree	Somewhat disagree	Disagree	Other	DK
a. The overuse of fertilizer and pesticide will pollutes the water	1	2	3	4	8（ ）	9
b. The use of fertilizer and pesticide may affect food safety	1	2	3	4	8（ ）	9
c. The use of fertilizer and pesticide may affect human health	1	2	3	4	8（ ）	9

Q26 When you plant the food or vegetable, will you treat the food that you eat and the food sold to others differently?

1. Same
2. The food for myself is usually don't use chemical fertilizer.
8. Other: Please specify ( )
9. DK

Q27 Nowadays there are multiple energies that are being used in rural China. What are you main energies? How can you make use of this energy (tool)? And when will you use such energy?

Use situation / Type of energy	Use	Disuse	Tool	Occasion
a. Coal	1	2		
b. Solar power	1	2		
c. Electricity	1	2		
d. Straw and firewood	1	2		
e. Coal gas and liquefied petroleum	1	2		
f. Ohter (Spcify:)				

Among the above energies, which one do you think is:

h. The most convenient ( ); I. Cheapest ( ); j. The most efficient ( );

k. The most frequently being used ( )

Q28 In the past, people always used traditional stove to cook. Do you still use the traditional stove now?

1. Use ↓ 2. Disuse ↓ 8. Other( ) 9. DK

SQ1. Why do you still use it?

1. Get used to it
2. Save money
8. Other ( )

SQ2. Why did you stop using it?

1. Dirty
2. Unhealthy
3. Inefficient
4. Pollute the environment
8. Other ( )

Q29 a. The haze whether in 2013 became one of the hot topics in China. What do you think are the main reasons that caused such whether in urban China? (Please choose there)

1. Automobile exhaust
2. Industrial gas
3. Living pollution
4. Waste incineration
5. Construction
6. Coal heating
8. Other ( )
9. DK

b. For the local area, what do you think are the main reasons? (Please choose three)

1. Automobile exhaust
2. Industrial waste gas
3. Living pollution
4. Waste incineration
5. Building construction
6. Coal heating
7. Straw burning
8. Other ( )
9. DK

Q30 There are a group of opinions as following. For each of the opinion, please choose an answer that comes closest to your feeling.

	Very agree	Agree somewhat	Disagree somewhat	Very disagree	Other	DK
a. The balance of nature is very delicate and easily upset	1	2	3	4	8( )	9
b. Same with human, plants and animals also have the survival right	1	2	3	4	8( )	9
c. Economic growth always comes with environmental destruction	1	2	3	4	8( )	9
d. Advances in scientific and technology can solve the environmental problem	1	2	3	4	8( )	9
e. In order to improve global environment, awareness and behavior of individual citizens is more impotent than technological advance	1	2	3	4	8( )	9

Q31 There are two contrasting views on a few issues related to environmental protection and improving the environment. For each pair of these opinions from A to C, please select one answer that comes closest to your thoughts.

A.

A-First: If a product is good for the environment then we should try to purchase it even if it is a little more expensive.

A-Second: There is no need to choose a product that is more eco-friendly if it is more expensive.

1. Closer to A-First
2. Closer to A-Second
8. Other: Please specify ( )
9. DK

B.

B-First: Decline in material comfort to a certain extent is acceptable in order to protect the environment.

B-Second: I cannot accept a lower standard of living even if it were for the protection of environment.

1. Closer to B-First
2. Closer to B-Second
8. Other: Please specify ( )
9. DK

C.

C-First: A new, additional tax ought to be accepted in order to protect the environment.

C-Second: I oppose any introduction of a new tax even if it were for environmental protection.

1. Closer to C-First
2. Closer to C-Second
8. Other: Please specify ( )
9. DK

Q32 Here are three opinions about man and nature. Which one of these do you think is closest to the truth?

1. In order to be happy, we must follow nature
2. In order to be happy, we must make use of nature
3. In order to be happy, we must conquer nature
8. Other: Please specify ( ) 9. DK

Suppose there are the following settings, please choose one answer that is closest to your thought.

Q33 Suppose there are several environmental protection promotional classes in our village that will teach you the way how to save energy or protect the environment. Would you like to join in?

1. Very want
2. Want
3. Somewhat don't want
4. Do not want
8. Other: Please specify ( )
9. DK

Q34 Suppose that our village decided to collect money from the villagers in order to remedy the water pollution. Would you like to join in?

1. Would like to
2. Somewhat would like to
3. Somewhat wouldn't like to
4. Wouldn't like to
8. Other: Please specify ( )
9. DK

Q35 If you see someone living inside or outside of this village, doing something that pollute the environment, such as throw the garbage carelessly or slash-cut. Will you interpose such business?

1. I will ↓ | 2. I will not ↓ | 8. Other( ) | 9. DK

SQ1. What will you do?

1. Inquire and dissuade
2. Report it to village committees
3. Tell to other villagers
8. Other: Please specify ( )

SQ2. Why you don't want?

1. It none of my business
2. Useless
3. Afraid of offending other people
4. Don't know the way to solve it
8. Other: Please specify ( )

Q36 Now the regional government plans to construct a cement plant in this village. Because the dust and the waste water may affect the village environment, now the regional government is holding a public hearing and invited you to join in. Would you like to participate in?

1. Very would like to
2. Would like to
3. Somewhat wouldn't like to
4. Wouldn't like to

↓

SQ. Why you don't want to join in?

1. No time and no energy
2. Even join in will not change the result
3. Not concern with
4. Other people will decide
8. Other: Please specify ( )
9. DK

Q37 Suppose there is a chemical fertilizer plant in this village and the main income of the villagers (include yourself) come from this plant. However, the waste water from this plant pollutes the river, and someone proposes that the plant should be closed. Do you agree with proposal?

1. Very agree
2. Somewhat agree
3. Somewhat disagree
4. Very disagree
8. Other: Please specify ( )
9. DK

Q38 Do you concern the environmental conditions around? Such as air quality, water pollution situation, waste disposal from factories, or what kind of construct project will be start?

1. Very concerned
2. Somewhat concerned
3. Somewhat unconcerned
4. Unconcerned
8. Other: Please specify ( ) 9. DK

Q39 a. Suppose your environmental right was prejudiced, which of the following way you will resort to in order to remedy your rights?

1. Resort to the government
2. Resort to the public media
3. Resort to the court
4. Resort to the village community or the person of authority to mediate
5. Go directly to tort feasor
6. Resort to relatives or friends
8. Do nothing 9. Other: Please specify ( ) 10. DK

.....

b. Why do you choose this way?

1. Cost
2. Efficacy
8. Other: Please specify ( )
9. DK

Q40 What do you think is the biggest problem that you don't want to resort to the court to resolve environmental issues?

1. The cost is high
2. The result is not fair
3. It is difficult to carry out
4. Offend the harmony with other
8. Other: Please specify ( ) 9. DK

Q41 From which kinds of source do you get information about environment? Please choose as many as apply from the following list.[Multiple Answers]

1. TV and radio
2. Newspapers, magazines or books
3. Internet
4. Publications by national or municipal government
5. Universities and research organizations
6. Organizations for environmental protection
7. Public relations materials from corporations
8. Family and friends
9. Other: Please specify ( )
10. DK

[Demographics]

We have now reached the last section of survey. We would like to ask you a bit about yourself.

F1. [Gender]

1. Male 2. Female

F2. [Age] How old are you?

F3. [Education] What is the highest level of education you completed? Do consider yourself as having graduated if you are either attending a school currently or have dropped out.

1. None
2. In total less than one year
3. More than one year but didn't graduate from elementary school
4. Elementary school
5. Junior high school
6. Senior high school or vocational high school
7. Junior college or vocational school
8. University
9. Graduate school
10. Other: Please specify ( )

F4. [Marital status] Are you currently married? Please select one answer from the following list.

1. Unmarried
2. Married
3. Divorced
4. Widowed
8. Other: Please specify ( )
9. DK

F5. [Household] What is the total number of persons in your household, including yourself?

1. 1 person
2. 2 persons
3. 3 persons
4. 4 persons
5. 5 persons
6. 6 persons
7. Over 7 persons

F6. [Occupation] Are you holding any position in this village?

1. Yes (Please specify:)
2. No

F7. [Number of years at current domicile] How many years have you been living in your current locality

---

F8. [Income] What is your total household income for the past accounting year before taxes (will fall/fell), including bonuses.

[Unit: CNY]

1. Less than 5,000
2. 5,000~10,000
3. 10,000~20,000
4. 20,000~30,000
5. 30,000~50,000
6. 50,000~80,000
7. More than 80,000
8. Other: Please specify ( )
9. DK

Thanks for your cooperation!

调查问卷编号:　　号

北京市民生活・文化・环境的意识调查

（东亚环境意识国际比较 2011 年中国调查）

2011 年 9 月

区・市	街　道	社　　区	回答者编号		调 查 员	检 查 员

【自我介绍】

您好！

我是从来自中国人民大学的（出示证件，报上姓名）。今天，受中国人民大学统计学院的委托，为了收集北京市民对目前的生活・文化・环境问题以及有关应对措施的看法、意见等方面的信息而打扰您，希望得到您的理解和协助。

此项调查研究，只对调查信息的全体回答结果进行统计处理及分析，不涉及任何个人信息。对于个人的回答结果，我们会进行严格保密，决不做他用。如果我们违反这个规则将会受到相关部门的处罚。非常抱歉耽误您的时间，谢谢您的合作！

中国人民大学统计学院
院长・教授　赵彦云
2011 年 9 月

调查记录

回答者填写栏	回答者姓名	
	详细住址	
	电话号码	
调查员填写栏	调查开始时间	
	调查结束时间	

※调查时间：请用 24 小时制填写

问题１ 〔提问卡１〕如果用一句话来概括的话，您对于现在的生活是满意，还是不满意呢?

1 满意
2 还算满意
3 不太满意
4 不满
8 其他（请填写: ）
9 不知道

问题２ 〔提问卡1〕您对于「自身的健康状况」是满意，还是不满意呢?

1 满意
2 还算满意
3 不太满意
4 不满
8 其他（请填写: ）
9 不知道

问题３ 〔提问卡３〕假如将现在的中国社会整体分为以下５个阶层的话，您认为您处在哪个阶层呢?

1 上
2 中上
3 中
4 中下
5 下
8 其他（请填写: ）
9 不知道

问题４ 〔提问卡４〕除了工作和学业以外，您在日常生活中最投入精力的是以下哪一项?

1 和家人团聚
2 兴趣爱好
3 人际交往
4 志愿活动
8 其他（请填写: ）
9 不知道

以下就目前中国及全世界所面临的环境问题，向您提几个问题。

问题５ 〔提问卡５〕从目前**世界整体状况**来看，您认为现在最严重的环境问题是什么? 请选择其中**一项**。

1 臭氧层破坏
2 酸雨
3 全球变暖
4 森林破坏
5 动植物减少
6 海洋污染
7 有害废弃物的越境转移
8 沙漠化
9 其他（请填写: ）
10 不知道

问题６〔提问卡６〕那么，从目前**中国整体状况**来看，您认为现在最严重的环境问题是什么? 请选择其中**１项**。

1 空气污染
2 水污染
3 森林·绿地的减少
4 食品安全性差
5 家庭垃圾的增加
6 工业废弃物的增加
8 其他（请填写: ）
9 不知道

问题７ 〔**提问卡７**〕您对于住所附近环境的满意程度如何？请对以下列举的各项，分别选择与您的想法最为接近的**一项**。

	满意	还算满意	不太满意	不满	其他(请填写)	不知道
a. 空气的清新度	1	2	3	4	8(　　)	9
b. 水的清洁度(附近的河或者海等)	1	2	3	4	8(　　)	9
c. 绿化程度	1	2	3	4	8(　　)	9
d. 居住环境的舒适度	1	2	3	4	8(　　)	9

问题８ 〔**提问卡８**〕您认为您现在所居住地区的生活环境如何？请分别对下列各项用[好] [还好] [有点差] [差]来回答。

	好	还好	有点差	差	其他(请填写)	不知道
a. 购物的方便程度	1	2	3	4	8(　　)	9
b. 交通的便捷程度	1	2	3	4	8(　　)	9
c. 医疗的便利程度	1	2	3	4	8(　　)	9
d. 接受教育的容易度	1	2	3	4	8(　　)	9
e. 自然环境的丰富程度	1	2	3	4	8(　　)	9
f. 治安状况	1	2	3	4	8(　　)	9

以上请您回答了你住所附近及所在地区的环境问题，接下来就我国及全球的环境问题来提几个问题。

问题９ 〔**提问卡９**〕在未来的５年之内，您认为以下列举的**我国**所面临的环境问题是会好转还是会恶化呢？

	有显著好转	有好转	没变化	恶化	急剧恶化	其他(请填写)	不知道
a. 空气污染	1	2	3	4	5	8(　　)	9
b. 水污染	1	2	3	4	5	8(　　)	9
c. 森林·绿地的减少	1	2	3	4	5	8(　　)	9
d. 食品安全性差	1	2	3	4	5	8(　　)	9
e. 家庭垃圾的增加	1	2	3	4	5	8(　　)	9
f. 工业废弃物的增加	1	2	3	4	5	8(　　)	9

问题10 〔提问卡 10〕您对以下举出的全球性环境问题的关心程度如何？请分别就 a～f 的各项给出您的回答。

	非常关心	有点关心	不怎么关心	完全不关心	其他(请填写)	不知道
a. 臭氧层破坏……	1	2	3	4	8(　　)	9
b. 酸雨……	1	2	3	4	8(　　)	9
c. 全球变暖……	1	2	3	4	8(　　)	9
d. 破坏森林……	1	2	3	4	8(　　)	9
e. 动植物减少……	1	2	3	4	8(　　)	9
f. 海洋污染……	1	2	3	4	8(　　)	9

问题11 〔提问卡 11〕有时，我们可能会对自己或家人的事情会感到不安。您对以下列举的项目有感到不安的时候吗?

	感到极其不安	感到很不安	稍微有点不安	完全没有不安	其他（请填写）	不知道
a.首先，对于「重病」的不安程度是如何?……	1	2	3	4	8(　　)	9
b.然后，对于「失业」又是如何?……	1	2	3	4	8(　　)	9
c.接下来，对于「治安恶化」又是如何?……	1	2	3	4	8(　　)	9
d.那么，对于「环境恶化」又是如何?……	1	2	3	4	8(　　)	9

问题12 〔提问卡 12〕从整体来看，包括我们周围的空气、水、土壤、动植物等等，您认为**全球范围**的环境在这近几年是好转了，还是恶化了?

1　好转了
2　有点好转
3　没变化
4　有点恶化
5　恶化了
8　其他（请填写:　　）
9　不知道

问题13〔提问卡 13〕那么，您认为**中国整体**的环境又是如何呢?

1　好转了
2　有点好转
3　没变化
4　有点恶化
5　恶化了
8　其他（请填写:　　）
9　不知道

问题14 〔提问卡 14〕下列所举出的与环境保护相关的行动当中，您曾经参加过的请回答「有」，没有参加过的请回答「没有」。

	有	没有	其他(请填写)	不知道
a. 参加过有关环境的演讲会或研讨会……	1	2	8(　　)	9
b. 参加过环保志愿活动……	1	2	8(　　)	9
c. 在有关环境问题的请愿书上签过名……	1	2	8(　　)	9
d. 给环保组织捐过款……	1	2	8(　　)	9

问题 15 〔提问卡 15〕以下列举的是一些在日常生活中能够实施的环保活动，请问您在过去一年当中的实施情况如何?

【调查员提示：对项目 a～f 选择「1」或「2」的回答者，追加提问后面的ＳＱ】

a．购买节能效果好、有环保标志的商品

1 总是这样做　2 有时这样做　3 没怎么这样做　4 完全没这样做　9 不知道

2 →（转到 SQ）

3 / 4 →（转到 15b）

ＳＱ．您这样做的理由是什么呢? 请选出最主要的一个理由。

1　为了省钱
2　考虑到环境
8　其他（请填写:　　）
9　不知道

（向所有调查对象提问）

b．不把东西扔掉，而是用来再利用。

1 总是这样做　2 有时候这样做　3 没怎么这样做　4 完全没这么做　9 不知道

1 / 2 →

3 / 4 →（转到 15c）

ＳＱ．您这样做的理由是什么呢? 请选出最主要的一个理由。

1　为了省钱
2　考虑到环境
8　其他（请填写:　　）
9　不知道

（向所有调查对象提问）

c．努力在洗东西、洗澡时节约用水。

1 总是这样做　2 有时候这样做　3 没怎么这样做　4 完全没这么做　9 不知道

1 / 2 →

3 / 4 →（转到 15d）

ＳＱ．您这样做的理由是什么呢? 请举出最主要的一个理由。

1　为了省钱
2　考虑到环境
8　其他（请填写:　　）
9　不知道

（向所有调查对象提问）

d．努力节约用于照明及空调等的能源

1	2	3	4	9
总是这样做	有时候这样做	没怎么这样做	完全没这么做	不知道

（转到 15e）

S Q．您这样做的理由是什么呢？请选出最主要的一个理由。

1 为了省钱
2 考虑到环境
8 其他（请填写: ）
9 不知道

（向所有调查对象提问）

e．不用私家车・出租车，而是利用公交、电车等公共交通工具。

1	2	3	4	9
总是这样做	有时候这样做	没怎么这样做	完全没这么做	不知道

（转到 15f）

S Q．您这样做的理由是什么呢？请选出最主要的一个理由。

1 为了省钱
2 考虑到环境
8 其他（请填写: ）
9 不知道

（向所有调查对象提问）

f．买东西的时候，不使用商店提供的塑料袋和包装袋，而是自备购物袋。

1	2	3	4	9
总是这样做	有时候这样做	没怎么这样做	完全没这么做	不知道

（转到 16）

S Q．您这样做的理由是什么呢？请选出最主要的一个理由。

1 为了省钱
2 考虑到环境
8 其他（请填写: ）
9 不知道

（向所有调查对象提问）

问题16 〔提问卡 16〕您认为以下列举的各种社会变化与我国以及全球的环境问题会有多大程度的关系?

	非常有关系	有点关系	没什么关系	完全没关系	其他(请填写)	不知道
a. 人口的急速增长……	1	2	3	4	8( )	9
b. 人们对舒适生活的追求……	1	2	3	4	8( )	9
c. 自然资源的过度利用……	1	2	3	4	8( )	9
d. 科学技术的进步……	1	2	3	4	8( )	9

问题17〔提问卡 17〕为了保护环境，您认为在政府、企业以及普通市民之中，哪一方应该承担最重要的责任呢？请选择**一项**。

1 政府　2 企业　3 普通市民　8 其他（请填写:　　）　9 不知道

问题18a 〔提问卡 18〕您认为我国的中央政府和地方政府最应该在哪方面投入精力呢？

首先，您认为中央政府最应该在哪方面投入精力呢？请选择**一项**。

1 经济
2 教育·文化
3 医疗・福利
4 环境
5 治安
8 其他（请填写:　　）
9 不知道

b 〔提问卡 18〕那么，您认为地方政府最应该在哪方面投入精力呢？

1 经济
2 教育·文化
3 医疗・福利
4 环境
5 治安
8 其他（请填写:　　）
9 不知道

问题19a 〔提问卡 19〕**从保护全球环境的角度出发**，您怎么看待中国政府现行的环境政策呢？请从以下选项中选择**一项**。

1 很有价值
2 有点价值
3 没什么价值
4 完全没有价值
8 其他（请填写:　　）
9 不知道

b 〔提问卡 19〕那么，**从保护我国环境的角度出发**，您怎么看待中国政府现行的环境政策呢？请从以下选项中选择**一项**。

1 很有价值
2 有点价值
3 没什么价值
4 完全没有价值
8 其他（请填写:　　）
9 不知道

问题20〔提问卡 20〕为了保护环境，中国政府可以采取以下一些环保措施。您怎么看这些环保措施的重要程度呢？请选出最接近您的想法的**一项**。

	非常重要	有点重要	不是很重要	完全不重要	其他(请填写)	不知道
a. 大力呼吁国民节能节水	1	2	3	4	8(　)	9
b. 普及环保商品	1	2	3	4	8(　)	9
c. 加强限制有公害的产业	1	2	3	4	8(　)	9
d. 支持环保技术开发	1	2	3	4	8(　)	9
e. 促进太阳能及风力发电	1	2	3	4	8(　)	9
f. 促进森林保护和绿化活动	1	2	3	4	8(　)	9
g. 积极导入环境税制度	1	2	3	4	8(　)	9

问题 21 〔**提问卡 21**〕您认为今后中国最应该在哪个领域促进和东亚的国际交流呢？请从以下选项中选择**<u>一项</u>**。

1 经济
2 文化
3 科学技术
4 环境
8 其他（请填写: ）
9 不知道

问题22 〔**提问卡 22**〕近年来，对于如何应对全球环境问题有各种看法。下面举出的 4 种意见，您是赞同还是反对呢？请对 a～d 分别进行回答。

	赞成	有几分赞成	说不准	有几分反对	反对	其他(请填写)	不知道
a. 即使经济发展在一定程度上减缓了，也应该最注重环境保护	1	2	3	4	5	8( )	9
b. 工业发达国家比发展中国家对环境问题负有更大的责任	1	2	3	4	5	8( )	9
c. 为了改善全球环境，跨越国境的国际合作是必不可少的	1	2	3	4	5	8( )	9
d. 为了改善全球环境，市民的环保行动比技术革新更为重要	1	2	3	4	5	8( )	9

问题23 为了保护舒适的环境及寻求环境的进一步改善，有下面的甲乙两种意见。请对 A～C 分别选出最接近您想法的回答。

A .〔**提问卡 23A**〕

甲：如果是对环境有益的产品，即便在某种程度看来价格偏高，也应该购买。
乙：即使是对环境有益的产品，如果价格偏高的话，就没有必要购买。

1 同意甲的意见
2 同意乙的意见
8 其他（请填写: ）
9 不知道

B .〔**提问卡 23B**〕

甲：为了保护环境，即使现在的生活变得有些不方便，也是没办法的事情。
乙：即使是为了保护环境，也不能忍受现在的生活变得不方便。

1 同意甲的意见
2 同意乙的意见
8 其他（请填写: ）
9 不知道

C .〔**提问卡 23C**〕

甲：如果是为了保护环境，设立新的纳税制度也是没办法的事情。
乙：即便说为了保护环境，也反对设立新的纳税制度。

1 同意甲的意见
2 同意乙的意见
8 其他（请填写: ）
9 不知道

问题24　有两个人阐述了如下意见。您赞成哪种意见呢?

Ａ.〔提问卡 24A〕

甲：为了个人的利益，即使牺牲一些公共利益，也是没办法的事情。

乙：为了公共利益，即使牺牲一些个人的利益，也是没办法的事情。

1　同意甲的意见　　8　其他（请填写:　　）

2　同意乙的意见　　9　不知道

Ｂ.〔提问卡 24B〕

甲：即使对别人没有益处，也要做自己喜欢的事情。

乙：不管是不是自己喜欢，都要做对别人有益的事情。

1　同意甲的意见　　8　其他（请填写:　　）

2　同意乙的意见　　9　不知道

问题25 〔提问卡 25〕您如何看下面所举出的 5 种意见？请对 a～e 分别选出最接近您想法的选项。

	完全同意	同意	不同意	绝对不同意	其他(请填写)	不知道
a. 即使是为了治病救人，也不能用动物做医学实验 ……	1	2	3	4	8(　　)	9
b. 地球恐怕难以支撑持续增长的人口……	1	2	3	4	8(　　)	9
c. 经济发展总是伴随着环境破坏……	1	2	3	4	8(　　)	9
d. 科学技术的进步带来的好处多于坏处……	1	2	3	4	8(　　)	9
e. 环境问题可以由科学技术的进步来解决……	1	2	3	4	8(　　)	9

问题26 〔提问卡 26〕近年来，人力・物力・资金等的跨国流动（全球化）带来了各种各样的影响。请对以下举出的各种影响，选择最接近您想法的选项。

	赞成	有几分赞成	说不准	有几分反对	反对	其他(请填写)	不知道
a. 金融・贸易的国际性扩大……	1	2	3	4	5	8(　　)	9
b. 外企的增加……	1	2	3	4	5	8(　　)	9
c. 外藉从业人员的增加……	1	2	3	4	5	8(　　)	9
d. 外国文化的流行……	1	2	3	4	5	8(　　)	9
e. 其他国家对国内问题的介入……	1	2	3	4	5	8(　　)	9
f. 国际环境合作的强化……	1	2	3	4	5	8(　　)	9

问题27 〔提问卡 27〕下面举出了被称作我国传统文化的项目。请分别用「非常重要」「有点重要」「不太重要」「完全不重要」来回答。

	非常重要	有点重要	不怎么重要	完全不重要	其他(请填写)	不知道
a. 勤奋·朴素……	1	2	3	4	8(　　)	9
b. 宽容……	1	2	3	4	8(　　)	9
c. 和为贵……	1	2	3	4	8(　　)	9
d. 报恩……	1	2	3	4	8(　　)	9
e. 孝顺父母……	1	2	3	4	8(　　)	9
f. 信义……	1	2	3	4	8(　　)	9

问题28　对于法律，有如下甲乙两种意见，您赞成哪一种?

Ａ.〔提问卡 28A〕关于遵守法律
甲：无论什么时候都必须遵守法律。
乙：如果确信目的是正确的，即使违反法律也是没办法的事情。

1　赞成甲的意见
2　赞成乙的意见
8　其他（请填写:　　）
9　不知道

Ｂ.〔提问卡 28B〕关于法和社会的关系
甲：即便是没有法律，一般来说也可以维持当今的社会秩序。
乙：如果没有法律，社会会陷入混乱、无秩序的状态。

1　赞成甲的意见
2　赞成乙的意见
8　其他（请填写:　　）
9　不知道

问题29 〔提问卡 29〕关于自然和人的关系，有如下的意见。请从中选择您认为最接近于事实(接近真实)的选项。

1　为了人类的幸福，必须顺应自然。
2　为了人类的幸福，必须利用自然。
3　为了人类的幸福，必须征服自然。
8　其他（请填写:　　）
9　不知道

问题30 〔提问卡 30〕对于今后的世界，有关中国应该做的事情有各种各样的意见。请从中选出对中国而言最重要的**一项**。

1　积极参与解决环境问题
2　参与解决战争和地区纠纷问题，支援难民及维持和平
3　促进科学技术的发展
4　积极对需要的国家和地区进行经济援助
5　致力于加深不同文化和不同宗教间的相互理解
8　其他（请填写:　　）
9　不知道

接下来，就您关于平时接触信息的程度来提几个问题。

问题31a　您使用互联网吗?

1 使用　　2 不使用　　9 不知道

2 不使用 → **(转到 32)**

b〔**提问卡 31b**〕那么，您使用互联网的目的是什么？请从下面选出最主要的**三项。**（３Ｍ．Ａ.）

1　收发电子邮件
2　制作和维护个人博客以及网页
3　阅览新闻
4　获得与文化和艺术相关的信息
5　获得与体育相关的信息
6　获得与环境相关的信息
7　获得与工作相关的信息
8　获得金融及投资方面的信息
9　网上购物
10　其他（请填写:　　）
11　不知道

（向所有调查对象提问）

问题32〔**提问卡 32**〕您是从哪里获得有关环境问题的知识和信息的？请从下面选出所有符合您的选项（Ｍ．Ａ.）

1　电视以及广播
2　报纸・杂志・书籍
3　互联网
4　国家出版物
5　地方政府出版物
6　大学及研究机构
7　环境保护协会
8　企业的各种宣传
9　家人及朋友
10　其他（请填写:　　）
11　不知道

问题33〔**提问卡 33**〕您对下列组织的信赖程度如何？请用「非常信赖」「有点信赖」「不怎么信赖」「完全不信赖」来回答。

	非常信赖	有点信赖	不怎么信赖	完全不信赖	其他(请填写)	不知道
a. 国家	1	2	3	4	8(　)	9
b. 地方政府	1	2	3	4	8(　)	9
c. 企业	1	2	3	4	8(　)	9
d. 环保组织	1	2	3	4	8(　)	9
e. 报社	1	2	3	4	8(　)	9
f. 广播电台及电视台	1	2	3	4	8(　)	9
g. 大学及研究机构	1	2	3	4	8(　)	9

问题34a　下面是有关于宗教方面的提问，您有什么信仰或者信奉的东西吗?

1 有・相信　　2 没有・不相信・不关心 → **(转到 35)**

【调查员注解：对问题 34a 回答「1 有・相信」的人提问以下问题。】

b〔提问卡 34b〕请问您的信仰是什么?

1 佛教
2 道教
3 基督教
4 天主教
5 伊斯兰教
8 其他（请填写: ）
9 不知道

（向所有调查对象提问）

问题35 不管到现在为止您有无宗教信仰，您认为「宗教心」重要还是不重要呢?

1 重要
2 不重要
8 其他（请填写: ）
9 不知道

问题36a 〔提问卡 36a〕您对占卜有兴趣吗?

1 很有兴趣
2 有点兴趣
3 没什么兴趣
4 完全没兴趣

（转到 37）

【调查员注解：只对问题 a 回答「1」或者「2」的人提问以下问题。】

b〔提问卡 36b〕您在意哪些方面的占卜呢? 请选出所有适合您的选项（M．A.）

1 人际关系
2 工作
3 恋爱
4 居住
5 健康
8 其他（请填写: ）
9 不知道
10 没有

（向所有调查对象提问）

问题37 〔提问卡 37〕您加入下列的协会或组织了吗? 请从中选出您加入的所有组织（M．A.）

1 与政治有关的团体或协会
2 行业协会
3 志愿者小组
4 市民运动・消费者运动团体
5 宗教组织
6 体育组织或俱乐部
7 同好会（同学会、老年俱乐部、合唱团、摄影、登山等）
8 互联网上的小组
9 其他（请填写: ）
10 没加入任何组织

最后，就您的自身情况来提几个问题。

F 1【性　　别】

1 男　性
2 女　性

F 2【年　　龄】您多大年龄?

□□ 岁

F 3【学　　历】〔提问卡Ｆ 3〕您的最终毕业学校是什么（退学和正在上学的情况也作为毕业学校来填写）

1　上学时间不足一年
2　小学毕业
3　初中毕业
4　高中・职业高中毕业
5　大学专科・职业技术学院毕业
6　大学本科毕业
7　研究生毕业
8　不明

F 4【职　　业】a. 您的职业是什么?

（请具体填写:　　）

b. 〔提问卡Ｆ 4〕那么，您的职业属于如下哪个工作种类呢?

1　农业水产业
2　个体工商业
3　专门人员或自由业（教师、研究人员、医生等）
4　管理职（科长以上）
5　办公室人员（白领）
6　技术工人（蓝领）
7　家庭主妇（全职家庭主妇）
8　学生
9　无职业

F 5【婚姻状况】〔提问卡Ｆ 5〕您现在的婚姻状况如何? 请从下列选项中选择一项。

1　未婚
2　已婚
3　离异
4　丧偶
8　其他（请填写:　　）
9　不知道

F 6【家庭成员数】**包括您在内**，现在一起生活的家人共有几个人?

1　１人
2　２人
3　３人
4　４人
5　５人
6　６人
7　７人以上

F 7【居住年数】您在现在居住的地方住了多少年了?

【调查员注解：在同一个地方有两次以上居住经历的人，请填写合计年数】

[请填写]　□□　年

F 8【家庭收入】〔提问卡Ｆ 8〕最后，在过去的一年里，您家的所有家庭成员的总收入大概是多少? 请回答包含奖金以及含税的收入。

1　不到 2 万元
2　2 万元到 4 万元之间
3　4 万元到 8 万元之间
4　8 万元到 10 万元之间
5　10 万元到 15 万元之间
6　15 万元以上
7　不想回答・不能回答
8　其他（请填写:　　）
9　不知道

（我们对于您的合作表示诚挚的感谢）

调查问卷编号:　　号

杭州市民生活・文化・环境的意识调查

（东亚环境意识国际比较 2011 年中国调查）

2011 年 10 月

区・市	街　道	社　区	回答者编号		调 查 员	检 查 员

【自我介绍】

您好！

我是从来自浙江农林大学的（出示证件，报上姓名）。今天，受浙江农林大学经济管理学院的委托，为了收集杭州市民对目前的生活・文化・环境问题以及有关应对措施的看法、意见等方面的信息而打扰您，希望得到您的理解和协助。

此项调查研究，只对调查信息的全体回答结果进行统计处理及分析，不涉及任何个人信息。对于个人的回答结果，我们会进行严格保密，决不做他用。如果我们违反这个规则将会受到相关部门的处罚。非常抱歉耽误您的时间，谢谢您的合作！

浙江农林大学　经济管理学院

2011 年 10 月

调查记录

回答者填写栏	回答者姓名	
	详细住址	
	电话号码	
调查员填写栏	调查开始时间	
	调查结束时间	

※调查时间：请用 24 小时制填写

问题１ 〔提问卡１〕如果用一句话来概括的话，您对于现在的生活是满意，还是不满意呢?

1 满意
2 还算满意
3 不太满意
4 不满
8 其他（请填写: ）
9 不知道

问题２ 〔提问卡１〕您对于「自身的健康状况」是满意，还是不满意呢?

1 满意
2 还算满意
3 不太满意
4 不满
8 其他（请填写: ）
9 不知道

问题３ 〔提问卡３〕假如将现在的中国社会整体分为以下５个阶层的话，您认为您处在哪个阶层呢?

1 上
2 中上
3 中
4 中下
5 下
8 其他（请填写: ）
9 不知道

问题４ 〔提问卡４〕除了工作和学业以外，您在日常生活中最投入精力的是以下哪一项?

1 和家人团聚
2 兴趣爱好
3 人际交往
4 志愿活动
8 其他（请填写: ）
9 不知道

以下就目前中国及全世界所面临的环境问题，向您提几个问题。

问题５ 〔提问卡５〕从目前**世界整体状况**来看，您认为现在最严重的环境问题是什么? 请选择其中**一项**。

1 臭氧层破坏
2 酸雨
3 全球变暖
4 森林破坏
5 动植物减少
6 海洋污染
7 有害废弃物的越境转移
8 沙漠化
9 其他（请填写: ）
10 不知道

问题６〔提问卡６〕那么，从目前**中国整体状况**来看，您认为现在最严重的环境问题是什么? 请选择其中**１项**。

1 空气污染
2 水污染
3 森林·绿地的减少
4 食品安全性的低下
5 家庭垃圾的增加
6 工业废弃物的增加
8 其他（请填写: ）
9 不知道

问题７ 〔**提问卡７**〕您对于住所附近环境的满意程度如何？请对以下列举的各项，分别选择与您的想法最为接近的**一项**。

	满意	还算满意	不太满意	不满	其他(请填写)	不知道
a. 空气的清新度……	1	2	3	4	8(　　)	9
b. 水的清洁度(附近的河或者海等)……	1	2	3	4	8(　　)	9
c. 绿化程度……	1	2	3	4	8(　　)	9
d. 居住环境的舒适度……	1	2	3	4	8(　　)	9

问题８ 〔**提问卡８**〕您认为您现在所居住地区的生活环境如何？请分别对下列各项用[好] [还好] [有点差] [差]来回答。

	好	还好	有点差	差	其他(请填写)	不知道
a. 购物的方便程度……	1	2	3	4	8(　　)	9
b. 交通的便捷程度……	1	2	3	4	8(　　)	9
c. 医疗的便利程度……	1	2	3	4	8(　　)	9
d. 接受教育的容易度……	1	2	3	4	8(　　)	9
e. 自然环境的丰富程度……	1	2	3	4	8(　　)	9
f. 治安状况……	1	2	3	4	8(　　)	9

以上请您回答了你住所附近及所在地区的环境问题，接下来就我国及全球的环境问题来提几个问题。

问题９ 〔**提问卡９**〕在未来的５年之内，您认为以下列举的**我国**所面临的环境问题是会好转还是会恶化呢？

	有显著好转	有好转	没变化	恶化	急剧恶化	其他(请填写)	不知道
a. 空气污染……	1	2	3	4	5	8(　　)	9
b. 水污染……	1	2	3	4	5	8(　　)	9
c. 森林･绿地的减少……	1	2	3	4	5	8(　　)	9
d. 食品安全性差……	1	2	3	4	5	8(　　)	9
e. 家庭垃圾的增加……	1	2	3	4	5	8(　　)	9
f. 工业废弃物的增加……	1	2	3	4	5	8(　　)	9

问题10 〔提问卡 10〕您对以下举出的**全球性环境问题**的关心程度如何？请分别就 a～f 的各项给出您的回答。

	非常关心	有点关心	不怎么关心	完全不关心	其他(请填写)	不知道
a. 臭氧层破坏……	1	2	3	4	8(　　)	9
b. 酸雨……	1	2	3	4	8(　　)	9
c. 全球变暖……	1	2	3	4	8(　　)	9
d. 破坏森林……	1	2	3	4	8(　　)	9
e. 动植物减少……	1	2	3	4	8(　　)	9
f. 海洋污染……	1	2	3	4	8(　　)	9

问题11 〔提问卡 11〕有时，我们可能会对自己或家人的事情会感到不安。您对以下列举的项目有感到不安的时候吗?

	感到极其不安	感到很不安	稍微有点不安	完全没有不安	其他（请填写）	不知道
a.首先，对于「重病」的不安程度是如何?……	1	2	3	4	8(　　)	9
b.然后，对于「失业」又是如何?……	1	2	3	4	8(　　)	9
c.接下来，对于「治安恶化」又是如何?……	1	2	3	4	8(　　)	9
d.那么，对于「环境恶化」又是如何?……	1	2	3	4	8(　　)	9

问题12 〔提问卡 12〕从整体来看，包括我们周围的空气、水、土壤、动植物等等，您认为**全球范围**的环境在这近几年是好转了，还是恶化了?

1　好转了
2　有点好转
3　没变化
4　有点恶化
5　恶化了
8　其他（请填写:　　）
9　不知道

问题13〔提问卡 13〕那么，您认为**中国整体**的环境又是如何呢?

1　好转了
2　有点好转
3　没变化
4　有点恶化
5　恶化了
8　其他（请填写:　　）
9　不知道

问题14 〔提问卡 14〕下列所举出的与环境保护相关的行动当中，您曾经参加过的请回答「有」，没有参加过的请回答「没有」。

	有	没有	其他(请填写)	不知道
a. 参加过有关环境的演讲会或研讨会……	1	2	8(　　)	9
b. 参加过环保志愿活动……	1	2	8(　　)	9
c. 在有关环境问题的请愿书上签过名……	1	2	8(　　)	9
d. 给环保组织捐过款……	1	2	8(　　)	9

问题 15 〔提问卡 15〕以下列举的是一些在日常生活中能够实施的环保活动，请问您在过去一年当中的实施情况如何?

【调查员提示：对项目 a～f 选择「1」或「2」的回答者，追加提问后面的ＳＱ】

a．购买节能效果好、有环保标志的商品

1 总是这样做　2 有时这样做　3 没怎么这样做　4 完全没这样做　9 不知道

2 有时这样做 → **(转到 SQ)**

3 没怎么这样做 / 4 完全没这样做 → **(转到 15b)**

ＳＱ．您这样做的理由是什么呢？请选出最主要的一个理由。

1　为了省钱
2　考虑到环境
8　其他（请填写:　　）
9　不知道

(向所有调查对象提问)

b．不把东西扔掉，而是用来再利用。

1 总是这样做　2 有时候这样做　3 没怎么这样做　4 完全没这么做　9 不知道

1 总是这样做 / 2 有时候这样做 → 继续

3 没怎么这样做 / 4 完全没这么做 → **(转到 15c)**

ＳＱ．您这样做的理由是什么呢？请选出最主要的一个理由。

1　为了省钱
2　考虑到环境
8　其他（请填写:　　）
9　不知道

(向所有调查对象提问)

c．努力在洗东西、洗澡时节约用水。

1 总是这样做　2 有时候这样做　3 没怎么这样做　4 完全没这么做　9 不知道

1 总是这样做 / 2 有时候这样做 → 继续

3 没怎么这样做 / 4 完全没这么做 → **(转到 15d)**

ＳＱ．您这样做的理由是什么呢？请举出最主要的一个理由。

1　为了省钱
2　考虑到环境
8　其他（请填写:　　）
9　不知道

（向所有调查对象提问）

d．努力节约用于照明及空调等的能源

1	2	3	4	9
总是这样做	有时候这样做	没怎么这样做	完全没这么做	不知道
↓	↓	→ **（转到 15e）**		

SQ．您这样做的理由是什么呢？请选出最主要的一个理由。

1　为了省钱　　8　其他（请填写:　　）
2　考虑到环境　　9　不知道

（向所有调查对象提问）

e．不用私家车・出租车，而是利用公交、电车等公共交通工具。

1	2	3	4	9
总是这样做	有时候这样做	没怎么这样做	完全没这么做	不知道
↓	↓	→ **（转到 15f）**		

SQ．您这样做的理由是什么呢？请选出最主要的一个理由。

1　为了省钱　　8　其他（请填写:　　）
2　考虑到环境　　9　不知道

（向所有调查对象提问）

f．买东西的时候，不使用商店提供的塑料袋和包装袋，而是自备购物袋。

1	2	3	4	9
总是这样做	有时候这样做	没怎么这样做	完全没这么做	不知道
↓	↓	→ **（转到 16）**		

SQ．您这样做的理由是什么呢？请选出最主要的一个理由。

1　为了省钱　　8　其他（请填写:　　）
2　考虑到环境　　9　不知道

（向所有调查对象提问）

问题16 〔提问卡 16〕您认为以下列举的各种社会变化与我国以及全球的环境问题会有多大程度的关系?

	非常有关系	有点关系	没什么关系	完全没关系	其他(请填写)	不知道
a. 人口的急速增长……	1	2	3	4	8(　　)	9
b. 人们对舒适生活的追求……	1	2	3	4	8(　　)	9
c. 自然资源的过度利用……	1	2	3	4	8(　　)	9
d. 科学技术的进步……	1	2	3	4	8(　　)	9

问题17〔提问卡 17〕为了保护环境，您认为在政府、企业以及普通市民之中，哪一方应该承担最重要的责任呢？请选择**一项**。

1 政府　　2 企业　　3 普通市民　　8 其他（请填写：　）　　9 不知道

问题18a〔提问卡 18〕您认为我国的中央政府和地方政府最应该在哪方面投入精力呢？

首先，您认为中央政府最应该在哪方面投入精力呢？请选择**一项**。

1 经济
2 教育·文化
3 医疗・福利
4 环境
5 治安
8 其他（请填写：　）
9 不知道

b 〔提问卡 18〕那么，您认为地方政府最应该在哪方面投入精力呢？

1 经济
2 教育·文化
3 医疗・福利
4 环境
5 治安
8 其他（请填写：　）
9 不知道

问题19a〔提问卡 19〕**从保护全球环境的角度出发**，您怎么看待中国政府现行的环境政策呢？请从以下选项中选择**一项**。

1 很有价值
2 有点价值
3 没什么价值
4 完全没有价值
8 其他（请填写：　）
9 不知道

b 〔提问卡 19〕那么，**从保护我国环境的角度出发**，您怎么看待中国政府现行的环境政策呢？请从以下选项中选择**一项**。

1 很有价值
2 有点价值
3 没什么价值
4 完全没有价值
8 其他（请填写：　）
9 不知道

问题20〔提问卡 20〕为了保护环境，中国政府可以采取以下一些环保措施。您怎么看这些环保措施的重要程度呢？请选出最接近您的想法的**一项**。

	非常重要	有点重要	不是很重要	完全不重要	其他(请填写)	不知道
a. 大力呼吁国民节能节水	1	2	3	4	8(　)	9
b. 普及环保商品	1	2	3	4	8(　)	9
c. 加强限制有公害的产业	1	2	3	4	8(　)	9
d. 支持环保技术开发	1	2	3	4	8(　)	9
e. 促进太阳能及风力发电	1	2	3	4	8(　)	9
f. 促进森林保护和绿化活动	1	2	3	4	8(　)	9
g. 积极导入环境税制度	1	2	3	4	8(　)	9

问题 21〔提问卡 21〕您认为今后中国最应该在哪个领域促进和东亚的国际交流呢？请从以下选项中选择**一项**。

1 经济
2 文化
3 科学技术
4 环境
8 其他（请填写: ）
9 不知道

问题22 〔提问卡 22〕近年来，对于如何应对全球环境问题有各种看法。下面举出的 4 种意见，您是赞同还是反对呢？请对 a～d 分别进行回答。

	赞成	有几分赞成	说不准	有几分反对	反对	其他（请填写）	不知道
a. 即使经济发展在一定程度上减缓了，也应该最注重环境保护	1	2	3	4	5	8( )	9
b. 工业发达国家比发展中国家对环境问题负有更大的责任	1	2	3	4	5	8( )	9
c. 为了改善全球环境，跨越国境的国际合作是必不可少的	1	2	3	4	5	8( )	9
d. 为了改善全球环境，市民的环保行动比技术革新更为重要	1	2	3	4	5	8( )	9

问题23 为了保护舒适的环境及寻求环境的进一步改善，有下面的甲乙两种意见。请对 A～C 分别选出最接近您想法的回答。

A.〔提问卡 23A〕
甲：如果是对环境有益的产品，即便在某种程度看来价格偏高，也应该购买。
乙：即使是对环境有益的产品，如果价格偏高的话，就没有必要购买。

1 同意甲的意见
2 同意乙的意见
8 其他（请填写: ）
9 不知道

B.〔提问卡 23B〕
甲：为了保护环境，即使现在的生活变得有些不方便，也是没办法的事情。
乙：即使是为了保护环境，也不能忍受现在的生活变得不方便。

1 同意甲的意见
2 同意乙的意见
8 其他（请填写: ）
9 不知道

C.〔提问卡 23C〕
甲：如果是为了保护环境，设立新的纳税制度也是没办法的事情。
乙：即便说为了保护环境，也反对设立新的纳税制度。

1 同意甲的意见
2 同意乙的意见
8 其他（请填写: ）
9 不知道

问题24　有两个人阐述了如下意见。您赞成哪种意见呢?

Ａ.〔提问卡 24A〕

甲：为了个人的利益，即使牺牲一些公共利益，也是没办法的事情。

乙：为了公共利益，即使牺牲一些个人的利益，也是没办法的事情。

1　同意甲的意见　　8　其他（请填写:　　）

2　同意乙的意见　　9　不知道

Ｂ.〔提问卡 24B〕

甲：即使对别人没有益处，也要做自己喜欢的事情。

乙：不管是不是自己喜欢，都要做对别人有益的事情。

1　同意甲的意见　　8　其他（请填写:　　）

2　同意乙的意见　　9　不知道

问题25 〔提问卡 25〕您如何看下面所举出的 5 种意见？请对 a～e 分别选出最接近您想法的选项。

	完全同意	同意	不同意	绝对不同意	其他(请填写)	不知道
a. 即使是为了治病救人，也不能用动物做医学实验 ……	1	2	3	4	8(　　)	9
b. 地球恐怕难以支撑持续增长的人口……	1	2	3	4	8(　　)	9
c. 经济发展总是伴随着环境破坏……	1	2	3	4	8(　　)	9
d. 科学技术的进步带来的好处多于坏处……	1	2	3	4	8(　　)	9
e. 环境问题可以由科学技术的进步来解决……	1	2	3	4	8(　　)	9

问题26 〔提问卡 26〕近年来，人力・物力・资金等的跨国流动（全球化）带来了各种各样的影响。请对以下举出的各种影响，选择最接近您想法的选项。

	赞成	有几分赞成	说不准	有几分反对	反对	其他(请填写)	不知道
a. 金融・贸易的国际性扩大……	1	2	3	4	5	8(　　)	9
b. 外企的增加……	1	2	3	4	5	8(　　)	9
c. 外藉从业人员的增加……	1	2	3	4	5	8(　　)	9
d. 外国文化的流行……	1	2	3	4	5	8(　　)	9
e. 其他国家对国内问题的介入……	1	2	3	4	5	8(　　)	9
f. 国际环境合作的强化……	1	2	3	4	5	8(　　)	9

问题27 〔提问卡 27〕下面举出了被称作我国传统文化的项目。请分别用「非常重要」「有点重要」「不太重要」「完全不重要」来回答。

	非常重要	有点重要	不怎么重要	完全不重要	其他(请填写)	不知道
a. 勤奋·朴素……	1	2	3	4	8(　　)	9
b. 宽容……	1	2	3	4	8(　　)	9
c. 和为贵……	1	2	3	4	8(　　)	9
d. 报恩……	1	2	3	4	8(　　)	9
e. 孝顺父母……	1	2	3	4	8(　　)	9
f. 信义……	1	2	3	4	8(　　)	9

问题28　对于法律，有如下甲乙两种意见，您赞成哪一种?

Ａ.〔提问卡 28A〕关于遵守法律
甲：无论什么时候都必须遵守法律。
乙：如果确信目的是正确的，即使违反法律也是没办法的事情。

1　赞成甲的意见
2　赞成乙的意见
8　其他（请填写:　　）
9　不知道

Ｂ.〔提问卡 28B〕关于法和社会的关系
甲：即便是没有法律，一般来说也可以维持当今的社会秩序。
乙：如果没有法律，社会会陷入混乱、无秩序的状态。

1　赞成甲的意见
2　赞成乙的意见
8　其他（请填写:　　）
9　不知道

问题29〔提问卡 29〕关于自然和人的关系，有如下的意见。请从中选择您认为最接近于事实(接近真实)的选项。

1　为了人类的幸福，必须顺应自然。
2　为了人类的幸福，必须利用自然。
3　为了人类的幸福，必须征服自然。
8　其他（请填写:　　）
9　不知道

问题30 〔提问卡 30〕对于今后的世界，有关中国应该做的事情有各种各样的意见。请从中选出对中国而言最重要的**一项**。

1　积极参与解决环境问题
2　参与解决战争和地区纠纷问题，支援难民及维持和平
3　促进科学技术的发展
4　积极对需要的国家和地区进行经济援助
5　致力于加深不同文化和不同宗教间的相互理解
8　其他（请填写:　　）
9　不知道

接下来，就您关于平时接触信息的程度来提几个问题。

问题31a　您使用互联网吗?

1	2	9
使用	不使用	不知道
↓	→（转到 32）	

b〔提问卡 31b〕那么，您使用互联网的目的是什么? 请从下面选出最主要的<u>三项。</u>（３Ｍ．Ａ.）

1　收发电子邮件
2　制作和维护个人博客以及网页
3　阅览新闻
4　获得与文化和艺术相关的信息
5　获得与体育相关的信息
6　获得与环境相关的信息
7　获得与工作相关的信息
8　获得金融及投资方面的信息
9　网上购物
10　其他（请填写:　　）
11　不知道

（向所有调查对象提问）

问题32〔提问卡 32〕您是从哪里获得有关环境问题的知识和信息的? 请从下面选出所有符合您的选项(Ｍ.Ａ.)

1　电视以及广播
2　报纸・杂志・书籍
3　互联网
4　国家出版物
5　地方政府出版物
6　大学及研究机构
7　环境保护协会
8　企业的各种宣传
9　家人及朋友
10　其他（请填写:　　）
11　不知道

问题33 〔提问卡 33〕您对下列组织的信赖程度如何? 请用「非常信赖」「有点信赖」「不怎么信赖」「完全不信赖」来回答。

	非常信赖	有点信赖	不怎么信赖	完全不信赖	其他(请填写)	不知道
a. 国家……	1	2	3	4	8(　　)	9
b. 地方政府……	1	2	3	4	8(　　)	9
c. 企业……	1	2	3	4	8(　　)	9
d. 环保组织……	1	2	3	4	8(　　)	9
e. 报社……	1	2	3	4	8(　　)	9
f. 广播电台及电视台……	1	2	3	4	8(　　)	9
g. 大学及研究机构……	1	2	3	4	8(　　)	9

问题34a　下面是有关于宗教方面的提问，您有什么信仰或者信奉的东西吗?

1	2
有・相信	没有・不相信・不关心
↓	→（转到 35）

【调查员注解：对问题 34a 回答「1 有・相信」的人提问以下问题。】

b〔提问卡 34b〕请问您的信仰是什么?

1 佛教
2 道教
3 基督教
4 天主教
5 伊斯兰教
8 其他（请填写: ）
9 不知道

（向所有调查对象提问）

问题35 不管到现在为止您有无宗教信仰，您认为「宗教心」重要还是不重要呢?

1 重要
2 不重要
8 其他（请填写: ）
9 不知道

问题36a 〔提问卡 36a〕您对占卜有兴趣吗?

1 很有兴趣
2 有点兴趣
3 没什么兴趣
4 完全没兴趣

（转到 37）

【调查员注解：只对问题 a 回答「1」或者「2」的人提问以下问题。】

b〔提问卡 36b〕您在意哪些方面的占卜呢? 请选出所有适合您的选项（M．A.）

1 人际关系
2 工作
3 恋爱
4 居住
5 健康
8 其他（请填写: ）
9 不知道
10 没有

（向所有调查对象提问）

问题37 〔提问卡 37〕您加入下列的协会或组织了吗? 请从中选出您加入的所有组织（M．A.）

1 与政治有关的团体或协会
2 行业协会
3 志愿者小组
4 市民运动・消费者运动团体
5 宗教组织
6 体育组织或俱乐部
7 同好会（同学会、老年俱乐部、合唱团、摄影、登山等）
8 互联网上的小组
9 其他（请填写: ）
10 没加入任何组织

最后，就您的自身情况来提几个问题。

F 1【性　　别】

1 男　性
2 女　性

F 2【年　　龄】您多大年龄?

□□ 岁

F 3【学　　历】〔提问卡Ｆ 3〕您的最终毕业学校是什么（退学和正在上学的情况也作为毕业学校来填写）

1　上学时间不足一年
2　小学毕业
3　初中毕业
4　高中・职业高中毕业
5　大学专科・职业技术学院毕业
6　大学本科毕业
7　研究生毕业
8　不明

F 4【职　　业】a. 您的职业是什么?

（请具体填写:　　）

b. 〔提问卡Ｆ 4〕那么，您的职业属于如下哪个工作种类呢?

1　农业水产业
2　个体工商业
3　专门人员或自由业（教师、研究人员、医生等）
4　管理职（科长以上）
5　办公室人员（白领）
6　技术工人（蓝领）
7　家庭主妇（全职家庭主妇）
8　学生
9　无职业

F 5【婚姻状况】〔提问卡Ｆ 5〕您现在的婚姻状况如何? 请从下列选项中选择一项。

1　未婚
2　已婚
3　离异
4　丧偶
8　其他（请填写:　　）
9　不知道

F 6【家庭成员数】<u>**包括您在内**</u>，现在一起生活的家人共有几个人?

1　１人
2　２人
3　３人
4　４人
5　５人
6　６人
7　７人以上

F 7【居住年数】您在现在居住的地方住了多少年了?

【调查员注解：在同一个地方有两次以上居住经历的人，请填写合计年数】

［请填写］　　年

F 8【家庭收入】〔提问卡Ｆ 8〕最后，在过去的一年里，您家的所有家庭成员的总收入大概是多少? 请回答包含奖金以及含税的收入。

1　不到 2 万元
2　2 万元到 4 万元之间
3　4 万元到 8 万元之间
4　8 万元到 10 万元之间
5　10 万元到 15 万元之间
6　15 万元以上
7　不想回答・不能回答
8　其他（请填写:　　）
9　不知道

（我们对于您的合作表示诚挚的感谢）

Survey Questionnaire on Lifestyle, Culture and the Environment

Doshisha University
February, 2011

Sample Point ID	Respondent ID	Interviewer Name	Reviewer Name

Record of Contacts

First Attempt: Date ( )		Second Attempt: Date( )		Third Attempt: Date( )		Fourth Attempt: Date( )	
Record Time: ( )		Record Time: ( )		Record Time: ( )		Record Time: ( )	
Person Contacted	Disposition Code	Person Contacted	Disposition Code	Person Contacted	Disposition Code	Person Contacted	Disposition Code
1. Respondent 2. Family 3. No One		1.Respondent 2. Family 3. No One		1. Respondent 2. Family 3. No One		1. Respondent 2. Family 3. No One	
Fifth Attempt: Date ( )		Sixth Attempt: Date( )		Seventh Attempt: Date( )		Eighth Attempt: Date( )	
Record Time: ( )		Record Time: ( )		Record Time: ( )		Record Time: ( )	
Person Contacted	Disposition Code	Person Contacted	Disposition Code	Person Contacted	Disposition Code	Person Contacted	Disposition Code
1. Respondent 2. Family 3. No One		1. Respondent 2. Family 3. No One		1. Respondent 2. Family 3. No One		1. Respondent 2. Family 3. No One	

Disposition Codes: 1. Completed 2. Asked about Availability at Home 3. Confirmed Next Appointment
4. Refusal 5. Screen-Out for Reasons other than Refusal

Good morning/afternoon/evening. We are conducting a survey about people's lifestyle and culture, as well as on the attitudes toward environmental issues and the ways we might deal with them, on behalf of the Doshisha University in Japan. This year the survey is being conducted in South Korea and Japan, also in China next year.

Your participation will be known only to the researcher and your answers will be recorded as part of the aggregate and not identified with you personally. All of the information you provide will be kept strictly confidential. We sincerely hope that you could help us with our survey research project.

Q1. [CARD 1] How satisfied are you with your life as a whole these days? Which number on this card comes closest to your feelings?

Satisfied---------- 1
Somewhat satisfied---------- 2
Somewhat dissatisfied---------- 3
Dissatisfied---------- 4
Other (VOL):Please Specify(_____)---- 8

DK---------- 9

Q2. [CARD 2] How satisfied are you with your health?

Satisfied---------- 1
Somewhat satisfied---------- 2
Somewhat dissatisfied---------- 3
Dissatisfied---------- 4
Other (VOL): Please Specify(_____) ---------- 8
DK ---------- 9

Q3. [CARD 3] Using the classifications on this card, how would you classify your current standard of living?

Upper---------- 1
Upper middle---------- 2
Middle---------- 3
Lower middle---------- 4
Lower---------- 5
Other(VOL): Please Specify(_____)----- 8
DK---------- 9

Q4. [CARD 4] Other than your work or study, which kind of activity are you most committed to? Please choose one from the card.

Times you spend with your family---------- 1
Hobby or leisure activities---------- 2
Times you spend with friends and acquaintances------ 3
Volunteering---------- 4
Other (VOL): Please Specify(_____)--- 8
DK---------- 9

Now, we would like to ask you some questions about the environmental problems Japan and the World are facing right now.

Q5. [CARD 5] In thinking about the world as a whole these days, which one of the following do you think is the most serious environmental problem? Please choose only one from the card.

Destruction of ozone layers---------- 1
Acid rain---------- 2
Global warming---------- 3
Destruction of the forests---------- 4
Decline in biodiversity---------- 5
Marine pollution---------- 6
Spread of toxic waste across national borders---------- 7
(Transboundary movement of hazardous wastes)
Desertification---------- 8
Other (VOL): Please Specify( )------- 9
DK---------- 10

Q6. [CARD 6] In thinking about Japan as a country, which one of the following do you think is the most serious environmental problem currently? Please choose only one from the card.

Air pollution---------- 1
Water Contamination---------- 2
Decline in forestry and vegetation---------- 3
Degradation of food safety---------- - 4
Increase in the volume of garbage from homes---------- 5
Increase in the volume of industrial waste---------- - 6
Other(VOL): Please Specify()---------- 8
DK---------- 9

Q7. [CARD 7] How satisfied are you with the quality of environment in areas nearby your home? For each of the following items, please choose the one that comes closest to your feelings. [Read the items in turn, from a. to d.]

	Satisfied	Somewhat satisfied	Somewhat dissatisfied	Dissatisfied	Other(VOL): Specify	DK
a. Cleanness of the air	1	2	3	4	8( )	9
b. Cleanness of the water (i.e., rivers or sea near your home)	1	2	3	4	8( )	9
c. Lushness of fauna (i.e., vegetation, forests)	1	2	3	4	8( )	9
d. Comfort level of your residence	1	2	3	4	8( )	9

Q8. [CARD 8] How do you feel about the conditions of the area (prefecture) you live in right now? For each of the following items, please say whether you think it is good, fairly good, fairly bad, or bad. [Read the items in turn, from a. to f.]

	Good	Fairly good	Fairly bad	Bad	Other(VOL)	DK
a. Access to shopping	1	2	3	4	8( )	9
b. Access to transportation	1	2	3	4	8( )	9
c. Access to health care	1	2	3	4	8( )	9
d. Access to schools and education	1	2	3	4	8( )	9
e. Richness of natural environment	1	2	3	4	8( )	9
f. Safety	1	2	3	4	8( )	9

Up to this point we have been asking questions about the neighborhood or local community you live in. Now, we would like to ask you some questions about the environment in our country as a whole or at the global level.

Q9. [CARD 9: In our country, do you think that the following kinds of environmental issues will get better in the next five years, or do you think that they will get worse? [Read the items in turn, from a. to f.]

	Improve dramatically	Improve	No change	Get worse	Get worse Dramatically	Other (VOL)	DK
a. Air pollution	1	2	3	4	5	8( )	9
b. Water contamination	1	2	3	4	5	8( )	9
c. Decline in forestry and vegetation	1	2	3	4	5	8( )	9
d. Degradation of food safety	1	2	3	4	5	8( )	9
e. Increase in the volume of garbage from homes	1	2	3	4	5	8( )	9
f. Increase in the volume of toxic waste	1	2	3	4	5	8( )	9

Q10. [CARD 10] How interested are you in each of the following kinds of environmental issues at the global level? Please answer for each item from a. to f.

	Very interested	Somewhat interested	Not very interested	Not interested at all	Other(VOL)	DK
a. Destruction of ozone layers	1	2	3	4	8( )	9
b. Acid rain	1	2	3	4	8( )	9
c. Global warming	1	2	3	4	8( )	9
d. Destruction of the forests	1	2	3	4	8( )	9
e. Decline in biodiversity	1	2	3	4	8( )	9
f. Marine pollution	1	2	3	4	8( )	9

Q11. [CARD 11] From time to time people feel uneasy about issues for themselves or their families. To what extent do you worry, either for yourself or for your family, about each of the following? Would you say very much, somewhat, slightly, or not at all? [Read the items in turn, from a. to d.]

	Very much	Somewhat	Slightly	Not at all	Other(VOL)	DK
a. Serious illness	1	2	3	4	8( )	9
b. Unemployment	1	2	3	4	8( )	9
c. Deterioration in safety on the streets	1	2	3	4	8( )	9
d. Deterioration of the environment	1	2	3	4	8( )	9

Q12. [CARD 12] When you look at conditions around you as a whole in terms of things like quality of the air, water, soil, and the plants and animals, do you think that the environment on earth in general has improved over the last several years, or do you think that it has gotten worse?

Improved	1
Improved somewhat	2
No change	3
Worsened somewhat	4
Worsened	5
Other(VOL):Specify (_____)	8
DK	9

Q13. [CARD 13] Now, how do you feel about the environment in Japan as a whole?

Improved	1
Improved somewhat	2
No change	3
Worsened somewhat	4
Worsened	5
Other(VOL):Specify(_____)	8
DK	9

Q14. [CARD 14] Have you ever had prior experience in doing the following kinds of activities in relation with the environmental issues? For each item on the card, please say "yes" if you have, and "no" if you have not. [Read the items in turn, from a. to d.]

	Yes	No	Other(VOL)	DK
a. Attending lectures or seminars on the environmental issues	1	2	8( )	9
b. Participating in volunteering activities for improving the environment	1	2	8( )	9
c. Signing petitions or letters of request regarding the environmental issues	1	2	8( )	9
d. Donating to an environmental organization	1	2	8( )	9

Q15. [CARD 15] We are now going to show you a list of several activities that you could be doing at the level of daily life. How often have you performed each of them during the past year or so? Please choose one that comes closest to your actions.

[Note to Interviewers: For each item from a. to f., ask the follow-up question marked "SQ" if the respondent has selected 1or 2]

a. Buy products that are energy-efficient and/or have been designated by government as eco-friendly.

1	2	3	4	9
Do so always	Sometimes	Not very often	Not at all	DK

(To Q15b)

SQ. What is your reason for doing so? Please choose only one from the list.

To save money	1
In consideration of the environment	2
Other (VOL):Specify (_____)	8
DK	9

b. Recycle things, or otherwise avoid throwing them away so as to reuse them again.

1	2	3	4	9
Do so always	Sometimes	Not very often	Not at all	DK

(To Q15c)

SQ. What is your reason for doing so? Please choose only one from the list.

To save money	1
In consideration of the environment	2
Other (VOL): Specify (_____)	8
DK	9

c. Try to avoid overusing water in washing things or in the shower.

1	2	3	4	9
Do so always	Sometimes	Not very often	Not at all	DK

(To Q15d)

SQ. What is your reason for doing so? Please choose only one from the list.

To save money---------- 1
In consideration of the environment---------- 2
Other (VOL): Specify (_____)-------- 8
DK---------- 9

d. Try to use energy for lighting, heat or air conditioning and so on, in moderation.

1	2	3	4	9
Do so always	Sometimes	Not very often	Not at all	DK

(To Q15e)

SQ. What is your reason for doing so? Please choose only one from the list.

To save money---------- 1
In consideration of the environment---------- 2
Other (VOL): Specify (_____)-------- 8
DK---------- 9

e. Avoid driving or taking a taxi and use mass transit such as bus or train.

1	2	3	4	9
Do so always	Sometimes	Not very often	Not at all	DK

(To 15f)

SQ. What is your reason for doing so? Please choose only one from the list.

To save money---------- 1
In consideration of the environment---------- 2
Other (VOL): Specify (_____)-------- 8
DK---------- 9

f. Turn down offers for bags or packaging during shopping and use your own shopping bag.

1	2	3	4	9
Do so always	Sometimes	Not very much	Not at all	DK

(To Q16)

SQ. What is your reason for doing so? Please choose only one from the list.

To save money---------- 1
In consideration of the environment---------- 2
Other (VOL): Specify (_____)-------- 8
DK---------- 9

Q16. [CARD 16] To what extent do you think is each of the following related to the environmental problems in our country and in the world as a whole?

	Very much related	Somewhat related	Not related very much	Not related at all	Other(VOL)	DK
a. Population increase	1	2	3	4	8( )	9
b. Pursuit of convenience by people	1	2	3	4	8( )	9
c. Excessive use of natural resources	1	2	3	4	8( )	9
d. Advance in scientific technology	1	2	3	4	8( )	9

Q17. [CARD 17] Among the government, corporations or ordinary citizens, who do you think should play the most important role in protecting the environment? Please choose only one.

Government	1
Corporations	2
Ordinary citizens	3
Other(VOL): Specify ( )	8
DK	9

Q18a. [CARD 18] In our country, what kind of things do you think should the national government and local municipalities focus on? First, please choose only one from the list that you believe the national government should most strongly focus on.

The economy	1
Education/Culture	2
Medical care/Welfare	3
Environment	4
Public safety	5
Other(VOL): Specify ( )	8
DK	9

b. [CARD 18] Then, which of the following do you think should the local municipalities focus on most strongly?

The economy	1
Education/Culture	2
Medical care/Welfare	3
Environment	4
Public safety	5
Other(VOL): Specify ( )	8
DK	9

Q19a. [CARD 19] What do you think of the environmental policies that the Japanese government has enacted in order to protect the global environment? Please choose one that comes closest to your thoughts.

Very praiseworthy	1
Somewhat praiseworthy	2
Not very praiseworthy	3
Not praiseworthy at all	4
Other(VOL): Specify ( )	8
DK	9

b. [CARD 19] Then, what do you think of the environmental policies the Japanese government has enacted in order to protect the environment domestically? Please choose one that comes closest to your thoughts.

Very praiseworthy	1
Somewhat praiseworthy	2
Not very praiseworthy	3
Not praiseworthy at all	4
Other(VOL): Specify( )	8
DK	9

Q20. [CARD 20] The following is a list of policy measures that the Japanese government could adopt in order to protect the environment. For each, please indicate the extent to which you believe it is important. [Read the items in turn, from a. to g.]

	Very important	Somewhat important	Not very important	Not important at all	Other (VOL)	DK
a. Call on the people to save water and energy further	1	2	3	4	8( )	9
b. Promote products that have been developed with environmental protection in mind	1	2	3	4	8( )	9
c. Strengthen regulation of industries that degrade the environment	1	2	3	4	8( )	9
d. Assist in the development of technologies that protect the environment	1	2	3	4	8( )	9
e. Promote electricity generation through solar or wind power	1	2	3	4	8( )	9
f. Facilitate the protection of forests and the planting of trees	1	2	3	4	8( )	9
g. Be proactive in introducing taxation aimed at environmental protection	1	2	3	4	8( )	9

Q21. [CARD 21] Which of the following should Japan emphasize the most from now on in order to deepen our international relations with East Asia? Please choose only one from the list.

The economy---------- 1
Culture---------- 2
Scientific technology---------- 3
Environment---------- 4
Other(VOL): Specify( )---------- 8
DK---------- 9

Q22. [CARD 22] In recent years, many issues with regards the ways in which we should respond to the global environmental problems have been debated on broadly. Do you agree with, or oppose, the following kinds of ideas? Please answer for each item from a. to d. [Read the items in turn, from a. to d.]

	Agree	Agree to certain extent	Can't say one way or another	Disagree to certain extent	Disagree	Other (VOL)	DK
a. Environmental protection should be the foremost priority even if it means slower economic growth to certain extent	1	2	3	4	5	8( )	9
b. The developed countries are more responsible to the environmental problems than are the developing countries	1	2	3	4	5	8( )	9
c. International cooperation across national borders is essential for global environment	1	2	3	4	5	8( )	9
d. Awareness of environmental issues by individual citizens is more important to protect the global environment than technological advance	1	2	3	4	5	8( )	9

Q23. Let's say there are two contrasting views on a few issues related to environmental protection and improving the environment. For each pair of these opinions from A to C, please select one answer that comes closest to your thoughts.

A. [CARD 23A]
A-First: If a product is good for the environment then we should try to purchase it even if it is a little more expensive.
A-Second: There is no need to choose a product that is more eco-friendly if it is more expensive.

Closer to A-First---------- 1
Closer to A-Second---------- 2
Other (VOL): Specify( )---------- 8
DK---------- 9

B. [CARD 23B]
B-First: Decline in material comfort to a certain extent is acceptable in order to protect the environment.
B-Second: I can't accept a lower standard of living even if it were for the protection of environment.

Closer to B-First---------- 1
Closer to B-Second---------- 2
Other(VOL): Specify ( )---------- 8
DK---------- 9

C. [CARD 23C]
C-First: A new, additional tax ought to be accepted in order to protect the environment.
C-Second: I oppose any introduction of a new tax even if it were for environmental protection.

Closer to C-First---------- 1
Closer to C-Second---------- 2
Other (VOL): Specify ( )---------- 8
DK---------- 9

Q24. [CARD 24A] Let's say the two following pairs of opinions have been expressed. Which do you agree with?

A. [CARD 24A]
A-First: It is better to sacrifice public interests to certain extent in order to protect individual rights.
A-Second: It is better to sacrifice individual rights to certain extent in order to protect public interests.

Closer to A-First---------- 1
Closer to A-Second---------- 2
Other(VOL): Specify ( )---------- 8
DK---------- 9

B. [CARD 24B]
B-First: I just like to do what I enjoy even if it does not serve other people.
B-Second: Whether I like it or not is one thing, but my priority is to do something that serves others.

Closer to B-First---------- 1
Closer to B-Second---------- 2
Other(VOL): Specify( )------ 8
DK---------- 9

Q25. [CARD 25] What do you think of the following five types of opinions? For each item from a. to e., please choose the answer that comes closest to your thoughts. [Read the items in turn, from a. to e.]

	Agree completely	Agree	Disagree	Disagree completely	Other (VOL)	DK
a. Animals should not be subjected to medical experiments even for the purpose of saving human lives	1	2	3	4	8( )	9
b. There is a danger that Earth would not be able to support the increased population	1	2	3	4	8( )	9
c. Economic growth always comes with environmental destruction	1	2	3	4	8( )	9
d. Scientific advances bring with them more benefits than harm	1	2	3	4	8( )	9
e. Advances in scientific technology can solve the environmental problems	1	2	3	4	8( )	9

Q26. [CARD 26] In recent years, movements of people, goods and money across national borders (i.e., globalization) are impacting our society in many different ways. For each of the social processes listed below, please choose an answer that comes closest to your opinion. [Read the items in turn, from a. to f.]

	Agree	Agree somewhat	Can't say one way or another	Disagree somewhat	Disagree	Other (VOL)	DK
a. The international expansion of trade and finance	1	2	3	4	5	8( )	9
b. Increase in the number of foreign corporations	1	2	3	4	5	8( )	9
c. Increase in the number of foreign workers	1	2	3	4	5	8( )	9
d. Spread of foreign culture as a trend	1	2	3	4	5	8( )	9
e. Intervention into domestic affairs of a country by another	1	2	3	4	5	8( )	9
f. Strengthening of international cooperation on the environment	1	2	3	4	5	8( )	9

Q27. [CARD 27] Next, we like to ask you about some things that are often considered part of our country's traditional culture. For each item, please say whether you believe it is very important, important, not very important, or not important at all.

	Very important	Important	Not very important	Not important at all	Other (VOL)	DK
a. Work ethic and frugality	1	2	3	4	8( )	9
b. Generosity	1	2	3	4	8( )	9
c. Social harmony	1	2	3	4	8( )	9
d. Returning of favors and obligations	1	2	3	4	8( )	9
e. Filial piety	1	2	3	4	8( )	9
f. Integrity (avoiding deception and keeping words)	1	2	3	4	8( )	9

Q28. The following are two contrasting opinions on the law. Which do you agree with?

A. [About observation of the law] [CARD 28A]
A-First: We should always obey the law.
A-Second: It is acceptable to break a law when one believes its purpose is truly just.

Agree with A-First---------- --- 1
Agree with A-Second---------- -------- 2
Other(VOL): Specify ( )---------- 8
DK---------- 9

B. [About the relationship between the law and society] [CARD 28B]
B-First: Even without the law, social order can be maintained basically.
B-Second: Without the law, society will be disrupted and disorderly.

Agree with B-First---------- 1
Agree with B-Second---------- ------- 2
Other(VOL): Specify( )---------- 8
DK---------- ------ ------- 9

Q29. [CARD 29] Here are three opinions about man and nature. Which one of these do you think is closest to the truth?

In order to be happy, we must follow nature---------- -------- ---------- 1
In order to be happy, we must make use of nature---------- ---------- 2
In order to be happy, we must conquer nature---------- ---------- 3
Other(VOL): Specify (_____)------ 8
DK---------- ---- 9

Q30. [CARD 30] The next question concerns politics as well as the relationships between Japan and the world. There are some opinions as to what Japan should do in the world on this card. Which one do you think is the most important course of action for Japan?

Make positive efforts on environmental issues	1
Resolve regional conflicts, provide assistance to refugees, or participate in peacekeeping operations	2
Promote scientific and technological development	3
Extend economic support to nations and areas that need it	4
Promote mutual understanding between different cultures and religions	5
Other(VOL):Specify(_____)	8
DK	9

From this point on, we would like to ask you about the extent to which you come into contact with the different kinds of information in your daily life.

Q31a. Do you use the Internet?

1	2	9
Yes	No	Don't know
↓	→ (To Q.32)	

Q31b. [CARD 31B] For which purpose do you use the Internet? Please select up to three from the list.

Sending and receiving of e-mail	1
Making and management of blogs and homepages	2
Reading news	3
Getting information on culture or art	4
Getting information on sports	5
Getting information on matters related to the environment	6
Getting information on matters related to job(s)	7
Getting information on finance and investing	8
Internet shopping	9
Other(VOL): Specify( )	10
DK	11

Q32. [CARD 32] From which kinds of source do you get information about environment? Please choose as many as apply from the following list. [Multiple Answers]

TV and radio	1
Newspapers, magazines or books	2
Internet	3
Publications by national government	4
Publications by municipal governments	5
Universities and research organizations	6
Organizations for environmental protection	7
Public relations materials from corporations	8
Family and friends	9
Other(VOL): Specify ( )	10
DK	11

Q33. [CARD 33] How much confidence do you have in the following – a great deal of confidence, quite a lot of confidence, not very much confidence, or none at all? (READ OUT AND CODE ONE ANSWER FOR EACH)

	A great deal	Quite a lot	Not very much	None at all	Other (VOL)	DK
a. National government	1	2	3	4	8( )	9
b. Municipal government(s)	1	2	3	4	8( )	9
c. Corporations	1	2	3	4	8( )	9
d. Organizations for environmental protection	1	2	3	4	8( )	9
e. Newspaper companies	1	2	3	4	8( )	9
f. Media outlets (e.g., radio and television)	1	2	3	4	8( )	9
g. Universities and research organizations	1	2	3	4	8( )	9

Q34a. Now I would like to ask you a few questions about religion. Do you have any personal religious faith?

1 Yes

2 No → (To Q35)

b [Ask and Show CARD 34B if Yes to Q34a – All others skip to Q35]
What is your religion?

Buddhism---------- 1
Protestant---------- 2
Catholic---------- 3
Other (VOL): Specify ( )---------- 8
DK---------- 9

Q35. Without reference to any of the established religions, do you think a religious mind is important, or not important?

Important---------- 1
Not important---------- 2
Other(VOL): Specify ( )--- ---- 8
DK---------- 9

Q36a. [CARD 36A] Do you have any interest in fortune telling?

1 Yes, very much | 2 Yes, a little | 3 Not really | 4 Not interested at all → (To Q37)

Q36b. [Note for Interviewers: Ask if 1 or 2 in Q36a]
About what matters among the following list do you tend to be concerned with fortune telling? (CHOOSE ALL THAT APPLY)

Relationships with other people---------- 1
Work---------- 2
Love and romance---------- 3
Residence---------- 4
Health---------- 5
Other (VOL): Specify( )---------- 8
DK---------- 9
Not any one particular thing---------- 10

Q.37. [CARD 37] To which of the organizations and activities on the Card do you belong or participate? (CHOOSE ALL THAT APPLY)

1. Political organization or group---------- 1
2. Industrial Association or Chamber of Commerce---------- 2
3. Group for volunteer activities---------- ---------- - ---------- 3
4. Group for citizen's or consumer's movements---------- -- ---------- 4
5. Religious organization or group---------- ---------- 5
6. Group or club for athletic or sporting activities---------- 6
7. Association or club for hobbies and pastimes--- ---------- 7
   (e.g., alumni club, senior citizen's club, choir, group for photography, mountaineering, etc.)
8. Group existing on the Internet---------- ---------- 8

9. Other(VOL): Specify ( )
10. Do not belong or participate

[Demographics]

We have now reached the last section of the survey. We would like to ask you a bit about yourself.

F1 [Gender]

1	2
Male	Female

F2 [Age] How old are you?

☐☐ years old

F3 [Education] What is the highest level of education you completed (Do consider yourself as having graduated if you are either attending a school currently or have dropped out).

Elementary school or Middle school---------- ---------- 1
High school---------- 2
Junior college or Vocational school---------- -------- ---------- 3
College or Graduate school---------- 4
DK---------- ---------- ---------- 5

F4 [Occupation] a. What is your current occupation?

(Specify concretely:)

〔Card F4〕 b. Then, which category of occupation in the following list does your current job belong to?

Primary industry (e.g., agriculture, forestry or fishery)---------- 1
Self-employed in commerce or manufacturing---------- ---------- 2
Free-lance professional or other specialist (e.g., teacher, researcher, physician)---------- ---------- 3
Manager or executive (i.e., higher than middle manager)---------- 4
White-collar worker---------- ---------- 5
Blue-collar worker (manual labor)---------- ------- ---------- 6
Housewife (Full-time homemaker)---------- ---------- 7
Student---------- ---------- 8
Unemployed---------- ----- ---------- 9

F5 [Marital Status] [CARD F5] Are you currently married? Please select one answer from the following list.

Unmarried---------- 1
Married---------- ---------- 2
Divorced---------- ---------- ---------- 3
Widowed---------- 4
Other (VOL): Specify( )---------- 8
DK---------- ---------- 9

F6 [Household] What is the total number of persons in your household, including yourself?

1 person---------	1	5 persons ----------	5
2 persons--------	2	6 persons ----------	6
3 persons--------	3	Over 7 persons-----	7
4 persons--------	4		

F7 [Number of years at current domicile] How many years have you been living in your current locality?
[Note to Interviewers: Write the total number of years if the respondent has lived in the current locality on two or more occasions.

[Write down]___years

F8 [Income] Please choose the category on the card within which your total household income for the past accounting year before taxes (will fall/fell), including any bonuses.

Less than 20,000,000 won----------	1
20,000,000 won – 30,000,000 won---------- ----------	2
30,000,000 won – 60,000,000 won---------- ----------	3
60,000,000 won – 90,000,000 won---------- ----------	4
More than 90,000,000 won----------	5
Refused/No answer----------	7
Other(VOL): Specify ( )----------	8
DK----------	9

Thanks for your cooperation.

Appendix-2
Simple and Cross Tabulation

Q6a The most serious environmental problem in China

a. Taking China as a whole, which one of the following issues do you think is the most serious environmental problem currently?

1. Air pollution
2. Water pollution
3. Decline in forest and vegetation
4. Degradation of food safety
5. Increase in the volume of garbage from home
6. Increase in the volume of toxic waste
7. Land pollution
8. Other: Please specify ( )
9. DK
(10. N.A.)

		1	2	3	4	5	6	7	8	9	10	%(sample)
Total		49.8	14.2	0.8	6.9	15.2	5.1	0.4	2.2	5.3	0.2	100.1(508)
Gender	Male	48.8	15.0	1.2	8.3	14.2	5.9	0.8	2.4	3.1	0.4	100.1(254)
	Female	50.8	13.4	0.4	5.5	16.1	4.3	−	2.0	7.5	−	100(254)
Age	18-34 yrs	51.1	13.1	1.5	8.8	16.8	7.3	0.7	0.7	−	−	100(137)
	35-49 yrs	48.5	16.9	−	7.4	13.9	4.8	0.4	2.2	5.6	0.4	100.1(231)
	50 yrs & over	50.7	10.7	1.4	4.3	15.7	3.6	−	3.6	10.0	−	100(140)

Q6b The most serious environmental problem in local area

b. Taking the village you are living as whole, which one of the following issues do you think is the most serious environmental problem currently?
1. Air pollution
2. Water pollution
3. Decline in forest and vegetation
4. Degradation of food safety
5. Increase in the volume of garbage from home
6. Increase in the volume of toxic waste from fatories
7. Land pollution
8. Other: Please specify ( )
9. DK
(10. N.A)

		1	2	3	4	5	6	7	8	9	10	%(sample)
Total		17.2	24.9	2.6	4.3	32.0	3.2	1.8	7.3	6.9	−	100.2(507)
Gender	Male	14.6	29.5	3.1	4.7	30.7	3.5	1.6	7.9	4.3	−	99.9(25.4)
	Female	19.8	20.2	2.0	4.0	33.2	2.8	2.0	6.7	9.5	−	100.2(253)
Age	18-34 yrs	16.1	24.8	3.6	3.6	36.5	4.4	2.9	5.1	2.9	−	99.9(137)
	35-49 yrs	17.0	23.9	1.7	4.8	33.5	2.6	1.3	7.8	7.4	−	100(230)
	50 yrs & over	18.6	26.4	2.9	4.3	25.0	2.9	1.4	8.6	10.0	−	100.1(140)

Q7 Perception of environmental change in the past

Looking the condition around you as a whole, in terms of things like the quality of the air, water, soil, plants and animals, do you think the environment on earth in general has improved over the last several years, or do you think it has gotten worse?

1. Improved
2. Improved somewhat
3. No change
4. Worsened somewhat
5. Worsened
8. Other: Please specify ( )
9. DK
(10. N.A)

		1	2	3	4	5	8	9	10	%(sample)
Total		25.6	35.7	16.2	13.8	8.5	–	0.2	–	100(507)
Gender	Male	22.0	35.4	16.9	15.0	10.6	–	–	–	99.9(254)
	Female	29.2	36.0	15.4	12.6	6.3	–	0.4	–	99.9(253)
Age	18-34 yrs	16.8	35.0	17.5	19.0	11.7	–	–	–	100(137)
	35-49 yrs	29.6	35.2	16.5	10.4	7.8	–	0.4	–	99.9(230)
	50 yrs & over	27.9	37.1	14.3	14.3	6.4	–	–	–	100(140)

Q8 Satisfaction with the environment in the present

How satisfied are you with the quality of environment in areas nearby your home? For each of the following items, please choose the one that comes closest to your feelings.

a. Cleanness of air
b. Cleanness of water(i.e., rivers or sea near your home)
c. Lushness of fauna (i.e., rivers or sea nearby)
d. Comfort level of living condition

1. Satisfied
2.Satisfied somewhat
3. Dissatisfied somewhat
4. Dissatisfied
8. Other
9.DK
(10. N.A.)

Q8a. Cleanness of air

		1	2	3	4	8	9	10	%(sample)
Total		29.4	49.9	15.2	5.1	–	0.2	0.2	100(507)
Gender	Male	28.0	48.0	17.7	5.9	–	0.4	–	100(254)
	Female	30.8	51.8	12.6	4.3	–	–	0.4	99.9(253)
Age	18-34 yrs	25.5	51.1	16.1	7.3	–	–	–	100(137)
	35-49 yrs	31.3	48.7	15.2	4.8	–	–	–	100(230)
	50 yrs & over	30.0	50.7	14.3	3.6	–	0.7	0.7	100(140)

Q8b. Cleanness of water

		1	2	3	4	8	9	10	%(sample)
Total		24.3	37.7	23.9	13.8	–	0.2	0.2	100.1(507)
Gender	Male	25.2	35.4	22.8	16.1	–	0.4	–	99.9(254)
	Female	23.3	39.9	24.9	11.5	–	–	0.4	100(253)
Age	18-34 yrs	20.4	38.0	23.4	18.2	–	–	–	100(137)
	35-49 yrs	24.3	34.3	27.0	14.3	–	–	–	99.9(230)
	50 yrs & over	27.9	42.9	19.3	8.6	–	0.7	0.7	100.1(140)

Q8c. Lushness of fauna

		1	2	3	4	8	9	10	%(sample)
Total		26.2	44.4	19.7	8.7	–	0.8	0.2	100(507)
Gender	Male	24.8	45.3	20.9	8.7	–	0.4	–	100.1(254)
	Female	27.7	43.5	18.6	8.7	–	1.2	0.4	100.1(253)
Age	18-34 yrs	22.6	38.0	27.0	12.4	–	–	–	100(137)
	35-49 yrs	24.8	48.3	18.7	7.8	–	0.4	–	100(230)
	50 yrs & over	32.1	44.3	14.3	6.4	–	2.1	0.7	99.9(140)

Q8d. Comfort level of living conditon

		1	2	3	4	8	9	10	%(sample)
Total		26.2	45.2	19.9	8.1		0.2	0.4	99.6(507)
Gender	Male	21.7	46.9	21.7	9.1		0.4	0.4	99.8(254)
	Female	30.8	43.5	18.2	7.1		–	0.4	99.6(253)
Age	18-34 yrs	18.2	44.5	24.1	12.4		–	0.7	99.2(137)
	35-49 yrs	28.7	43.9	20.0	7.4		–	–	100(230)
	50 yrs & over	30.0	47.9	15.7	5.0		0.7	0.7	99.3(140)

Q9 Prediction of environmental issues in the future

In the next five years, do you think the following environmental issues in your village will improve or get worse?

a. Air pollution
b. Water contamination
c. Decline in forestry and vegetation
d. Degradation of food safety
e. Increase in the volume of garbage from homes
f. Increase in the volume of industrial waste

1. Improve dramatically
2. Improved
3. No change
4. Get worse
5. Get worse dramatically
8. other ( )
9.DK
(10. N.A)

Q9a. Air pollution

		1	2	3	4	5	8	9	10	%(sample)
Total		13.6	56.6	15.8	11.4	1.2	–	1.4	–	507
Gender	Male	12.6	56.3	16.1	12.6	1.2	–	1.2	–	254
	Female	14.6	56.9	15.4	10.3	1.2	–	1.6	–	253
Age	18-34 yrs	14.6	46.0	24.8	13.1	1.5	–	–	–	137
	35-49 yrs	13.9	56.1	12.6	13.9	1.7	–	1.7	–	230
	50 yrs & over	12.1	67.9	12.1	5.7	–	–	2.1	–	140

Q9b. Water contamination

		1	2	3	4	5	8	9	10	%(sample)
Total		11.2	43.2	23.7	18.1	1.6	0.2	1.8	0.2	507
Gender	Male	9.8	44.9	24.8	17.7	1.2	–	1.2	0.4	254
	Female	12.6	41.5	22.5	18.6	2.0	0.4	2.4	–	253
Age	18-34 yrs	12.4	36.5	24.8	22.6	3.6	–	–	–	137
	35-49 yrs	10.9	42.6	22.6	20.0	1.3	–	2.2	0.4	230
	50 yrs & over	10.7	50.7	24.3	10.7	–	0.7	2.9	–	140

Q9c. Decline in forestry and vegatation

		1	2	3	4	5	8	9	10	%(sample)
Total		9.7	40.8	29.4	17.0	0.6	0.2	1.6	0.8	507
Gender	Male	9.4	43.3	29.5	15.7	0.4	–	0.8	0.8	254
	Female	9.9	38.3	29.2	18.2	0.8	0.4	2.4	0.8	253
Age	18-34 yrs	12.4	30.7	35.8	18.2	0.7	–	–	2.2	137
	35-49 yrs	8.7	45.2	26.1	17.8	0.9	–	0.9	0.4	230
	50 yrs & over	8.6	43.6	28.6	14.3	–	0.7	4.3	–	140

Q9d. Degradation of food safety

		1	2	3	4	5	8	9	10	%(sample)
Total		12.2	48.1	23.9	11.8	1.0	–	2.6	0.4	507
Gender	Male	11.4	49.2	23.2	13.0	0.4	–	2.4	0.4	254
	Female	13.0	47.0	24.5	10.7	1.6	–	2.8	0.4	253
Age	18-34 yrs	13.9	44.5	25.5	14.6	1.5	–	–	–	137
	35-49 yrs	12.2	50.0	24.3	10.0	1.3	–	1.7	0.4	230
	50 yrs & over	10.7	48.6	21.4	12.1	–	–	6.4	0.7	140

Q9e. Increase in the volume of garbage from homes

		1	2	3	4	5	8	9	10	%(sample)
Total		16.6	47.3	16.0	17.2	2.2	–	0.8	–	507
Gender	Male	17.3	47.6	16.1	15.7	2.4	–	0.8	–	254
	Female	15.8	47.0	15.8	18.6	2.0	–	0.8	–	253
Age	18-34 yrs	14.6	45.3	16.1	21.9	2.2	–		–	137
	35-49 yrs	17.8	48.7	14.3	17.4	1.7	–		–	230
	50 yrs & over	16.4	47.1	18.6	12.1	2.9	–	2.9	–	140

Q9f. Increase in the volume of industrial waste

		1	2	3	4	5	8	9	10	%(sample)
Total		12.2	40.0	25.8	14.0	2.0	3.0	3.0	–	507
Gender	Male	12.6	40.9	25.2	13.4	1.6	3.5	2.8	–	254
	Female	11.9	39.1	26.5	14.6	2.4	2.4	3.2	–	253
Age	18-34 yrs	14.6	36.5	27.0	17.5	3.6	–	0.7	–	137
	35-49 yrs	14.3	40.4	23.9	13.9	0.9	3.9	2.6	–	230
	50 yrs & over	6.4	42.9	27.9	10.7	2.1	4.3	5.7	–	140

Q10a Government effort - First attention

In our country, what kind of things do you think the national government should put the most attention on?

1. Economic
2. Education/culture
3. Medical care/Welfare
4. Environment
5. Public safety
8. Other: Please specify ( )
9. DK
(10. N.A)

		1	2	3	4	5	8	9	10	%(sample)
Total		16.4	30.2	32.0	15.0	3.0	1.0	2.6	–	507
Gender	Male	19.3	29.9	28.7	15.7	3.5	1.6	1.2	–	254
	Female	13.4	30.4	35.2	14.2	2.4	0.4	4.0	–	253
Age	18-34 yrs	16.1	38.0	22.6	19.7	2.9	0.7	–	–	137
	35-49 yrs	17.8	28.7	32.2	14.3	3.5	1.3	2.2	–	230
	50 yrs & over	14.3	25.0	40.7	11.4	2.1	0.7	5.7	–	140

Q10b Government effort - Second attention

b. and what kind of thing do you think the national government should put the second attention on?

1. Economic
2. Education/culture
3. Medical care/Welfare
4. Environment
5. Public safety
8. Other: Please specify ( )
9. DK
(10. N.A)

		1	2	3	4	5	8	9	10	%(sample)
Total		15.2	26.4	29.6	18.7	6.5	0.6	3.0	–	507
Gender	Male	14.6	24.8	32.3	19.3	7.1	0.8	1.2	–	254
	Female	15.8	28.1	26.9	18.2	5.9	0.4	4.7	–	253
Age	18-34 yrs	19.7	27.0	28.5	19.0	5.8	–	–	–	137
	35-49 yrs	10.9	26.5	30.4	21.7	7.4	0.9	2.2	–	230
	50 yrs & over	17.9	25.7	29.3	13.6	5.7	0.7	7.1	–	140

Q11 Environmental responsibility

Q11 Among the government, corporation, and ordinary citizens, who do you think should play the most important role in protecting the environment?

1. Government
2. Corporation
3. Ordinary citizens
8. Other: Please specify ( )
9. DK
(10. N.A)

		1	2	3	8	9	10	%(sample)
Total		47.1	24.3	25.0	0.2	3.4	−	100(507)
Gender	Male	50.4	25.2	22.0	0.4	2.0	−	100(254)
	Female	43.9	23.3	28.1	−	4.7	−	100(253)
Age	18-34 yrs	51.8	24.8	21.9	−	1.5	−	100(137)
	35-49 yrs	43.5	27.0	26.1	0.4	3.0	−	100(230)
	50 yrs & over	48.6	19.3	26.4	−	5.7	−	100(140)

Q13 Environmental anxiety

From time to time we feel uneasy or worried about the issues for our families or ourselves. To what extent do you worry, either for yourself or for your family about the deterioration of the environment?

1. Very much
2. Somewhat
3. Slightly
4. Not at all
8. Other: Please specify ( )
9. DK
(10. N.A)

		1	2	3	4	8	9	10	%(sample)
Total		18.3	47.2	27.8	4.9	0.2	1.4	0.2	99.8(508)
Gender	Male	23.2	43.7	27.2	4.3	0.4	1.2	−	100(254)
	Female	13.4	50.8	28.3	5.5	−	1.6	0.4	99.6(254)
Age	18-34 yrs	19.7	48.9	22.6	5.8	0.7	2.2	−	99.9(137)
	35-49 yrs	20.8	46.8	27.7	4.8	−	−	−	100.1(231)
	50 yrs & over	12.9	46.4	32.9	4.3	−	2.9	0.7	99.4(140)

Q14A Individual rights vs. public interests

There is the following pair of opinion. Which do you agree with?

A-First: It is better to sacrifice public interests to certain extent, in order to protect individual rights.
A-Second: It is better to sacrifice individual rights to certain extent in order to protect public interests.

1. Closer to A-First
2. Closer toA-Second
8. Other: Please specify ( )
9. DK
(10. N.A.)

		1	2	8	9	10	%(sample)
Total		15.4	81.3	0.4	3.0	−	100.1(508)
Gender	Male	14.2	83.5	−	2.4	−	100.1(254)
	Female	16.5	79.1	0.8	3.5	−	99.9(254)
Age	18-34 yrs	17.5	81.0	−	1.5	−	100(137)
	35-49 yrs	14.7	83.5	−	1.7	−	100(231)
	50 yrs & over	14.3	77.9	1.4	6.4	−	100(140)

Q14B Personal interest vs. others' interest

There is the following pair of opinion. Which do you agree with?

B-First: I just like to do what I enjoy even if it doesn't serve other people.
B-Second: Whether I like it or not is one thing, my priority is to do something that serves others.

1. Closer to B-First
2. Closer to B-Second
8. Other: Please specify ( )
9. DK
(10. N.A.)

		1	2	8	9	10	%(sample)
Total		15.6	80.3	1.2	2.8	0.2	100.1(508)
Gender	Male	16.9	79.9	1.6	1.6	−	100(254)
	Female	14.2	80.7	0.8	3.9	0.4	100(254)
Age	18-34 yrs	13.1	82.5	1.5	2.2	0.7	100(137)
	35-49 yrs	15.2	82.7	1.3	0.9	−	100.1(231)
	50 yrs & over	18.6	74.3	0.7	6.4	−	100(140)

Q14C Environmental protection vs. economic growth

There is the following pair of opinion. Which do you agree with?

C-First: Even environment quality to some extent deteriorated, economic growth should be firstly guaranteed.
C-Second: Even economic growth to some extent become slower, environment conservation should be firstly guaranteed.

1. Closer to B-First
2. Closer to B-Second
8. Other: Please specify ( )
9. DK
(10. N.A.)

		1	2	8	9	10	%(sample)
Total		18.1	76.0	1.0	4.3	0.6	100(508)
Gender	Male	16.9	78.3	0.8	2.8	1.2	100(254)
	Female	19.3	73.6	1.2	5.9	－	100(254)
Age	18-34 yrs	16.8	81.0	0.7	1.5	－	100(137)
	35-49 yrs	18.2	76.2	1.3	3.0	1.3	100(231)
	50 yrs & over	19.3	70.7	0.7	9.3	－	100(140)

Q18 Environmental protection vs. economic growth

We are now going to show you a list of several activities that you could be doing at the level of daily life. How often have you performed each of them during the past year? Please choose one that comes closest to your actions.
[Note to interviewers: For each item from a to e, ask the follow-up question marked "SQ" if the respondent has selected 1 or 2]

a. Buy products that are energy-efficient and/or have been designated by government as eco-friendly.
1. Do so always 2. Sometimes 3. Not very often 4. Not at all 9. DK (10. N.A.)
b. Recycle things, or otherwise avoid throwing them away so as to reuse them again.
1. Do so always 2. Sometimes 3. Not very often 4. Not at all 9. DK (10. N.A.)
c. Try to avoid overusing water in washing things or in the shower.
1. Do so always 2. Sometimes 3. Not very often 4. Not at all 9. DK (10. N.A.)
d. Try to use energy for lighting, heat or air conditioning and so on, in moderation.
1. Do so always 2. Sometimes 3. Not very often 4. Not at all 9. DK (10. N.A.)
e. Turn down offers for bags or packaging during shopping and use your own shopping bag.
1. Do so always 2. Sometimes 3. Not very often 4. Not at all 9. DK (10. N.A.)

SQ. What is your reason for doing so? Please choose only one from the list.
1. To save money
2. In consideration of the environment
8. Other: Please specify ( )
9. DK
(10. N.A.)

Q18a. Purchase of eco-friendly products

		1	2	3	4	8	9	10	%(sample)
Total		22.9	54.2	19.7	0.6		2.4	0.2	100(507)
Gender	Male	23.7	54.5	20.2	−		1.2	0.4	100(253)
	Female	22.0	53.9	19.3	1.2		3.5	−	99.9(254)
Age	18-34 yrs	24.8	57.7	17.5	−		−	−	100(137)
	35-49 yrs	25.2	55.7	17.0	0.4		1.3	0.4	100(230)
	50 yrs & over	17.1	48.6	26.4	1.4		6.4	−	99.9(140)

Q18a_SQ. Reason

		1	2	8	9	10	%(sample)
Total		45.0	49.4	4.3	1.3	−	100(507)
Gender	Male	44.0	52.0	3.0	1.0	−	100(200)
	Female	46.1	46.6	5.7	1.6	−	100(193)
Age	18-34 yrs	47.0	47.0	4.3	1.7	−	100(115)
	35-49 yrs	40.9	53.2	4.3	1.6	−	100(186)
	50 yrs & over	51.1	44.6	4.3	−	−	100(92)

Q18b. Reuse or recycle Crosstabulation

		1	2	3	4	8	9	10	%(sample)
Total		31.6	55.6	12.2	0.2	−	0.2	0.2	100(507)
Gender	Male	33.6	54.5	11.5	0.4	−	−	−	100(253)
	Female	29.5	56.7	13.0	−	−	0.4	0.4	100(254)
Age	18-34 yrs	26.3	58.4	13.9	0.7	−	−	0.7	100(137)
	35-49 yrs	31.7	54.8	13.5	−	−	−	−	100(230)
	50 yrs & over	36.4	54.3	8.6	−	−	0.7	−	100(140)

Q18b_SQ. Reason

		1	2	8	9	10	%(sample)
Total		65.8	33.7	0.2	0.2	−	99.9(442)
Gender	Male	58.3	40.8	0.4	0.4	−	99.9(223)
	Female	73.5	26.5	−	−	−	100(219)
Age	18-34 yrs	50.0	49.1	0.9	−	−	100(116)
	35-49 yrs	65.8	34.2	−	−	−	100(199)
	50 yrs & over	80.3	18.9	−	0.8	−	100(127)

Q18c. Water saving

		1	2	3	4	8	9	10	%(sample)
Total		49.5	40.6	9.1	0.4	−	0.2	0.2	100(507)
Gender	Male	48.6	38.3	12.3	0.8	−	−	−	100(253)
	Female	50.4	42.9	5.9	−	−	0.4	0.4	100(254)
Age	18-34 yrs	41.6	46.0	10.2	1.5	−	−	0.7	100(137)
	35-49 yrs	51.7	38.7	9.6	−	−	−	−	100(230)
	50 yrs & over	53.6	38.6	7.1	−	−	0.7	−	100(140)

Q18c_SQ. Reason

		1	2	8	9	10	%(sample)
Total		68.6	29.9	0.9	0.2	0.4	100(458)
Gender	Male	66.5	31.2	0.9	0.5	0.9	100(221)
	Female	70.5	28.7	0.8	−	−	100(237)
Age	18-34 yrs	57.0	40.5	1.7	−	0.8	100(121)
	35-49 yrs	71.2	26.9	1.0	0.5	0.5	100.1(208)
	50 yrs & over	75.2	24.8	−	−	−	100(129)

Q18d. Energy saving

		1	2	3	4	8	9	10	%(sample)
Total		52.1	34.7	10.3	−	−	2.4	0.6	100.1(507)
Gender	Male	51.8	36.8	9.9	−	−	1.2	0.4	100.1(253)
	Female	52.4	32.7	10.6	−	−	3.5	0.8	100(254)
Age	18-34 yrs	52.6	35.0	11.7	−	−	−	0.7	100(137)
	35-49 yrs	56.1	30.9	10.9	−	−	1.3	0.9	100.1(230)
	50 yrs & over	45.0	40.7	7.9	−	−	6.4	−	100(140)

Q18d_SQ. Reason

		1	2	8	9	10	%(sample)
Total		78.6	20.2	0.9	−	0.2	99.9(440)
Gender	Male	77.6	21.5	0.9	−	−	100(223)
	Female	79.7	18.9	0.9	−	0.5	100(217)
Age	18-34 yrs	71.4	26.9	1.7	−	−	100(119)
	35-49 yrs	79.6	18.9	1.0	−	0.5	100(201)
	50 yrs & over	84.2	15.8	−	−	−	100(120)

Q18e. Use of own shopping bag

		1	2	3	4	8	9	10	%(sample)
Total		16.4	29.0	45.8	8.1	−	−	0.8	100.1(507)
Gender	Male	18.2	26.9	43.5	10.7	−	−	0.8	100.1(253)
	Female	14.6	31.1	48.0	5.5	−	−	0.8	100(254)
Age	18-34 yrs	18.2	29.2	43.1	8.8	−	−	0.7	100(137)
	35-49 yrs	17.4	29.1	44.8	7.8	−	−	0.9	100(230)
	50 yrs & over	12.9	28.6	50.0	7.9	−	−	0.7	100.1(140)

Q18e_SQ. Reason

		1	2	8	9	10	%(sample)
Total		39.0	44.1	14.0	0.8	2.1	100(236)
Gender	Male	41.0	48.7	6.8	0.9	2.6	100(117)
	Female	37.0	39.5	21.0	0.8	1.7	100(119)
Age	18-34 yrs	34.8	56.1	7.6	−	1.5	100(66)
	35-49 yrs	39.3	41.1	16.1	0.9	2.7	100.1(112)
	50 yrs & over	43.1	36.2	17.2	1.7	1.7	99.9(58)

Q30 Environmental value judgments

There are a group of opinions as following. For each of the opinion, please choose an answer that comes closest to your feeling.
1. Very agree
2. Agree somewhat
3. Disagree somewhat
4. Very disagree
8. Other
9. DK
(10. N.A.)

Q30a. The balance of nature is very delicate and easily upset

		1	2	3	4	8	9	10	%(sample)
Total		30.7	38.2	6.1	0.6	0.2	23.8	0.4	100(508)
Gender	Male	34.3	37.8	5.9	0.8	0.4	20.5	0.4	100.1(254)
	Female	27.2	38.6	6.3	0.4	−	27.2	0.4	100.1(254)
Age	18-34 yrs	42.3	42.3	5.1	0.7	−	9.5	−	99.9(137)
	35-49 yrs	28.1	39.0	6.5	0.9	−	24.7	0.9	100.1(231)
	50 yrs & over	23.6	32.9	6.4	−	0.7	36.4	−	100(140)

Q30b. Same with human, plants and animals also have the survival right

		1	2	3	4	8	9	10	%(sample)
Total		40.2	44.1	5.7	0.2	–	9.4	0.4	100(508)
Gender	Male	40.9	43.7	6.7	–	–	8.3	0.4	100(254)
	Female	39.4	44.5	4.7	0.4	–	10.6	0.4	100(254)
Age	18-34 yrs	53.3	38.0	3.6	–	–	5.1	–	100(137)
	35-49 yrs	34.6	48.1	7.8	–	–	8.7	0.9	100.1(231)
	50 yrs & over	36.4	43.6	4.3	0.7	–	15.0	–	100(140)

Q30c. Economic growth always comes with environmental destruction

		1	2	3	4	8	9	10	%(sample)
Total		24.8	39.6	19.9	1.6	–	13.8	0.4	100.1(508)
Gender	Male	24.0	40.9	22.0	2.0	–	10.6	0.4	99.9(254)
	Female	25.6	38.2	17.7	1.2	–	16.9	0.4	100(254)
Age	18-34 yrs	35.0	40.9	20.4	–	–	3.6	–	99.9(137)
	35-49 yrs	20.8	42.0	20.3	2.2	–	13.9	0.9	100.1(231)
	50 yrs & over	21.4	34.3	18.6	2.1	–	23.6	–	100(140)

Q30d. Advances in scientific and technology can solve the environmental problem

		1	2	3	4	8	9	10	%(sample)
Total		26.4	39.2	19.5	1.0	–	12.8	1.2	100.1(508)
Gender	Male	32.3	38.2	19.3	1.2	–	7.9	1.2	100.1(254)
	Female	20.5	40.2	19.7	0.8	–	17.7	1.2	100.1(254)
Age	18-34 yrs	27.0	44.5	21.2	2.2	–	3.6	1.5	100(137)
	35-49 yrs	27.7	37.2	21.6	–	–	12.1	1.3	99.9(231)
	50 yrs & over	23.6	37.1	14.3	1.4	–	22.9	0.7	100(140)

Appendix-3:
China Ambient Air Quality Standards

GB 3095-1996 Ambient Air Quality Standards

Primary standards

Pollutant	Collecting time	Limit			Unit
		Class 1	Class 2	Class 3	
SO_2	annual	0.02	0.06	0.1	mg/m^3
	24 hours	0.05	0.15	0.25	
	hourly	0.15	0.5	0.7	
TSP	annual	0.08	0.2	0.3	
	24 hours	0.12	0.3	0.5	
PM10	annual	0.04	0.1	0.15	
	24 hours	0.05	0.15	0.25	
NO_2	annual	0.04	0.08	0.08	
	24 hours	0.08	0.12	0.12	
	hourly	0.12	0.24	0.24	
CO	24 hours	4	4	6	
	24 hours	10	10	20	
O_3	hourly	0.16	0.2	0.2	
Pb	seasonal	1.5			μg/m^3
	annual	1			
B[a]P	24 hours	0.01			
F	24 hours	7			
	hourly	20			
	monthly	1.8		3	μg/(dm^2・d)
	seasonal	1.2		2	

GB 3095-2012 Ambient Air Quality Standards

Primary standards

Pollutant	Averaging time	Limit		Unit
		Class 1	Class 2	
SO_2	annual	20	60	$\mu g/m^3$
	24 hours	50	150	
	hourly	150	500	
NO_2	annual	40	40	
	24 hours	80	80	
	hourly	200	200	
CO	24 hours	4	4	mg/m^3
	hourly	10	10	
O_3	daily, 8-hour maximum	100	160	$\mu g/m^3$
	hourly	160	200	
PM10	annual	40	70	
	24 hours	50	150	
$PM_{2.5}$	annual	15	35	
	24 hours	35	75	

Additional standards

Pollutant	Averaging time	Limit		Unit
		Class 1	Class 2	
Total Suspended Particles (TSP)	annual	80	200	$\mu g/m^3$
	24 hours	120	30	
NO_x	annual	50	50	
	24 hours	100	100	
	hourly	250	250	
Lead (Pb)	annual	0.5	0.5	
	seasonal	1	1	
Benzopyrene (BaP)	annual	0.001	0.001	
	24 hours	0.0025	0.0025	