

Original Research Article

Consumer Behavior in the Context of Carbon Emissions: A Behavioral Economics Perspective

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Abstract: This paper delves into the behavioral characteristics, existing problems, and optimization strategies of carbon consumers from the perspective of behavioral economics. The study finds that the behavior of carbon consumers is distinctly characterized by environmental consciousness, yet it is influenced by cognitive biases, emotional influences, and moral dilemmas. To optimize the behavior of carbon consumers, governments, businesses, and social organizations should collaborate to enhance environmental awareness, guide the formation of low-carbon lifestyles, and establish a comprehensive policy support system. This will contribute to the promotion of a low-carbon economy and the achievement of sustainable development goals.

Keywords: Behavioral economics; Carbon consumer; Behavioral characteristics; Existing problems

1. Introduction

As global climate change and environmental issues become increasingly severe, the low-carbon economy has emerged as an inevitable trend in global development. Carbon consumers, as significant drivers of the low-carbon economy, have drawn considerable attention due to their behavioral characteristics and influencing factors. This paper examines the behavioral characteristics, existing problems, and optimization strategies of carbon consumers from a behavioral economics perspective, aiming to provide theoretical support and practical guidance for advancing the development of a low-carbon economy.

2. Characteristics of Carbon Consumer Behavior from a Behavioral Economics Perspective

2.1. Behavioral Characteristics of Carbon Consumers

Carbon consumers are individuals who, in their daily lives, purchase and use low-carbon and environmentally friendly products and services to reduce carbon emissions. They exhibit distinct environmental consciousness, primarily manifested in the selection of eco-friendly products, the advocacy of low-carbon lifestyles, and a sense of responsibility towards environmental protection. When purchasing products, carbon consumers prioritize those with low-carbon and eco-friendly attributes, such as energy-efficient appliances, which reduce energy consumption and carbon emissions during use. In the case of vehicles, they opt for new energy vehicles that use clean energy, reducing exhaust emissions and environmental impact. Carbon consumers also choose products made from eco-friendly materials and produced through environmentally friendly processes to minimize environmental damage. They actively participate in low-carbon living practices, using reusable items like eco-bags and stainless steel water bottles instead of disposable plastics in their daily lives. In terms of transportation, they prefer public transport like subways and buses to reduce carbon emissions from private car usage^[1].

Carbon consumers have a high level of environmental protection awareness and are willing to bear certain

economic costs for environmental protection. For example, they are willing to pay higher prices for eco-friendly products to support environmental causes. Carbon consumers also engage in various environmental activities, such as tree planting and garbage sorting, to protect the environment through practical actions. They also actively promote environmental concepts to those around them, hoping to encourage more people to join the ranks of carbon consumers. The behavioral characteristics of carbon consumers, in terms of choosing environmentally friendly products, advocating for low-carbon lifestyles, and a sense of responsibility towards environmental protection, are of great significance for reducing carbon emissions and protecting the environment. The behavior of carbon consumers is also influenced by factors such as cognitive biases, emotional influences, and moral dilemmas. To optimize the behavior of carbon consumers, governments, businesses, and social organizations should work together to enhance environmental awareness, guide the formation of low-carbon lifestyles, and establish a comprehensive policy support system. This will help promote the development of a low-carbon economy and achieve sustainable development goals^[2].

2.2. Psychological Factors of Carbon Consumers

Psychological factors play a crucial role in driving the behavior of carbon consumers. These factors include environmental awareness, social responsibility, personal values, and more, which together constitute the intrinsic motivation behind carbon consumer behavior. Environmental awareness refers to an individual's recognition and concern for environmental issues. Carbon consumers typically have a high level of environmental awareness, not only paying attention to the current state and trends of environmental issues but also to the impact of their own behavior on the environment. This awareness drives them to actively seek methods to reduce carbon emissions in their daily lives, such as choosing energy-saving and eco-friendly products and participating in low-carbon living practices. Environmental awareness is an important factor influencing carbon consumer behavior because it directly relates to an individual's understanding and actions regarding environmental protection^[3].

Social responsibility refers to an individual's concern and sense of responsibility for social issues. Carbon consumers have a high sense of social responsibility, believing they have a duty to make efforts to reduce carbon emissions. This sense of responsibility stems from a concern for environmental protection and care for future generations. Carbon consumers actively fulfill their social responsibilities by purchasing low-carbon products and services and participating in environmental activities, contributing their own efforts to environmental protection. Personal values refer to an individual's evaluation and view point of things. The personal values of carbon consumers tend towards sustainability, believing that protecting the environment is an important way to achieve sustainable development for humanity. This value system leads them to prioritize the environmental performance and sustainability of products in their consumption decisions, willing to pay higher prices for environmentally friendly products. Guided by their personal values, carbon consumers form a strong belief and action force in protecting the environment^[4].

2.3. Decision-Making Process of Carbon Consumers

The decision-making process of carbon consumers is complex and meticulous, involving the entire process from cognition to implementation of low-carbon products and services. In this process, carbon consumers make consumption choices that align with low-carbon concepts based on their environmental awareness, social responsibility, and personal values. In the cognitive stage, carbon consumers actively or passively collect relevant information about low-carbon products and services. In this stage, they gather information through various

channels such as the internet, advertisements, and word-of-mouth to understand the environmental attributes of products, the application of low-carbon technology, and the environmental impact of production processes. Carbon consumers preliminarily screen this information, focusing on products and services that align with their environmental values^[5].

In the evaluation stage, carbon consumers will comprehensively assess the information they have gathered, taking into account their own needs, budget, and expectations for environmental protection. They will consider the environmental performance, economy, and practicality of low-carbon products. During this stage, carbon consumers may face multiple choices and will need to weigh various factors to determine the low-carbon products or services that best meet their needs. In the choice stage, carbon consumers will make a final decision based on the evaluation results, selecting low-carbon products or services that stand out in terms of environmental performance, economy, and practicality. In the implementation stage, carbon consumers will carry out the purchase and actively use and promote the low-carbon products and services they have bought. They will practice a low-carbon lifestyle through their own actions, such as using energy-saving appliances, choosing public transportation, and reducing the use of disposable plastic products.

3. Issues in Carbon Consumer Behavior from a Behavioral Economics Perspective

3.1. Cognitive Biases in Carbon Consumer Behavior

Carbon consumers may be influenced by cognitive biases during the cognitive process, which can significantly impact their purchasing decisions and consumption behaviors. Asymmetric information is a key factor leading to cognitive biases in carbon consumers. With the wide variety of low-carbon products and services in the market, and the complexity of information about each, it is difficult for carbon consumers to fully understand the environmental attributes of each product and service. This asymmetry of information may prevent carbon consumers from making completely rational consumption decisions, affecting their purchasing behavior. For example, consumers might choose one product over another due to insufficient knowledge of the low-carbon attributes of the latter, or they might favor a brand's eco-friendly image without considering other products that might be more environmentally friendly. Given the limited cognitive capacity of individuals, carbon consumers may experience cognitive overload when dealing with large amounts of information. In today's information-saturated era, consumers are faced with a vast amount of information and data, which may exceed their processing capabilities, leading them to adopt simplified decision-making strategies, such as relying on surface information like brand image and price, while ignoring the actual environmental performance of the product.

3.2. Emotional Influences on Carbon Consumer Behavior

Emotional factors play a significant role in the behavioral decisions of carbon consumers, potentially affecting their attitudes towards low-carbon products and services and their willingness to purchase them. Environmental protection is a long-term and complex process, and carbon consumers may experience negative emotions when they do not see immediate, significant environmental benefits from their actions. Such negative emotions can undermine confidence and motivation in low-carbon consumption, thus affecting consumption behavior. For instance, if a consumer buys an energy-efficient appliance but does not see a substantial reduction in their electricity bill, they might feel disappointed and doubt the effectiveness of low-carbon products. Since low-carbon products and services often come with higher prices, carbon consumers may experience negative emotions due to economic pressure, which can lead to anxiety and hesitation when purchasing low-carbon

products, worrying about their financial capacity to afford the higher prices. For example, when considering the purchase of a new energy vehicle, a consumer might hesitate and feel torn due to the higher price, eventually opting for a less expensive gasoline-powered car.

Emotional factors in carbon consumers can also be influenced by other factors, such as individual emotional states, social support, and cultural background. For example, consumers in a positive emotional state may be more willing to engage in low-carbon consumption, while feelings of loneliness or a lack of social support may reduce such behavior. To mitigate the impact of these emotional factors, governments and society should strengthen the promotion and education of low-carbon consumption, enhancing public awareness of the advantages of low-carbon products and services, and bolstering confidence and motivation. Businesses should also alleviate consumer economic pressure through reasonable pricing strategies and marketing techniques, increasing the acceptance of low-carbon products and services. Social organizations and volunteers can further support this cause by conducting promotional activities and practical initiatives for a low-carbon lifestyle, providing social support to help consumers overcome the negative effects of emotional factors, and promoting the widespread adoption and development of low-carbon consumption behaviors.

3.3. Moral Dilemmas in Carbon Consumer Behavior

When carbon consumers discover that a low-carbon product's production process is environmentally harmful, they may experience moral conflict when deciding whether to purchase the product. This conflict arises from the consumer's concern for environmental protection and their expectations of the product's environmental performance. Discovering environmental harm in the production of a low-carbon product can lead to feelings of disappointment and contradiction, leaving consumers uncertain about whether they should make the purchase. Since low-carbon products and services are typically more expensive, carbon consumers may face a moral dilemma if they choose not to purchase due to economic pressure. Consumers might feel a responsibility to buy low-carbon products and services to reduce carbon emissions and protect the environment. To resolve these moral dilemmas, governments and society should increase their promotion and education of low-carbon products and services, improving public understanding of their benefits and bolstering confidence and motivation. Businesses should actively fulfill their social responsibilities, enhancing the environmental performance of their products and services and reducing environmental pollution in the production process. Governments can also encourage the adoption of low-carbon products and services by providing subsidies and tax incentives, alleviating consumer economic pressure and promoting the widespread acceptance and development of these offerings.

4. Strategies for Optimizing Carbon Consumer Behavior from a Behavioral Economics Perspective

4.1. Enhancing Environmental Awareness of Carbon Consumers

Governments can enhance environmental awareness among carbon consumers by formulating and implementing relevant policies and regulations, and strengthening the promotion and education of environmental protection. For instance, governments can conduct campaigns on low-carbon living and energy conservation, using media such as television, radio, and the internet to disseminate environmental knowledge and raise public awareness of environmental issues. Governments can also promote environmental education in schools and social organizations, integrating environmental knowledge into school curricula, and guiding carbon consumers

towards a low-carbon lifestyle. Businesses should also fulfill their social responsibilities and increase their commitment to environmental protection. They can produce low-carbon products, provide low-carbon services to meet consumer demands, and engage in environmental public welfare activities and sponsor environmental projects to enhance public environmental awareness and cultivate carbon consumers' environmental values.

The media plays a crucial role in raising carbon consumers' environmental awareness. The media should increase its coverage and promotion of environmental protection, drawing public attention to environmental issues, and guiding the public towards a low-carbon lifestyle by reporting on the severity and urgency of environmental problems. Schools and social organizations should also actively carry out environmental education to enhance students' environmental awareness. Schools can integrate environmental knowledge into their curriculum and conduct environmental-themed activities to cultivate students' environmental awareness, while social organizations can raise public environmental awareness through activities such as hosting environmental lectures and conducting public welfare activities promoting a low-carbon lifestyle.

4.2. Guiding Carbon Consumers to Adopt a Low-Carbon Lifestyle

Governments can introduce policies that encourage low-carbon transportation and consumption, such as increasing investment in public transportation to enhance its convenience and comfort, encouraging citizens to choose public transportation over private cars. Governments can also implement policies that promote low-carbon consumption, such as offering tax incentives for the purchase of low-carbon products and subsidies for businesses producing low-carbon products, guiding consumers to choose low-carbon products and services. Businesses should produce low-carbon products and provide low-carbon services to meet the demands of carbon consumers, actively fulfill their social responsibilities, increase investment in low-carbon technology research and application, and produce more low-carbon and environmentally friendly products, offering more low-carbon services to satisfy consumer demand for low-carbon products and services.

Social organizations and volunteers should also actively promote a low-carbon lifestyle through awareness campaigns and practical activities, guiding carbon consumers to adopt a low-carbon lifestyle. Social organizations can raise awareness by organizing low-carbon living lectures and training sessions, while volunteers can participate in low-carbon public welfare activities and promote the concept of a low-carbon lifestyle, encouraging more people to pay attention to and adopt a low-carbon lifestyle. Schools should also strengthen low-carbon education for students, cultivating their low-carbon consciousness by integrating low-carbon knowledge into the curriculum and conducting low-carbon themed activities.

4.3. Establishing a Comprehensive Policy Support System for Carbon Consumer Behavior

Governments can use tax incentives to encourage consumers to purchase low-carbon products and services, such as offering tax deductions for the purchase of energy-efficient appliances and new energy vehicles, reducing the purchase cost for consumers and encouraging more people to choose low-carbon products. Governments can also provide subsidies to support businesses in producing low-carbon products and services, and offer subsidies to businesses providing low-carbon services such as public transportation and energy-saving services, promoting the development of the low-carbon service industry. Governments should formulate relevant laws and regulations to standardize the behavior of carbon consumers. For example, governments can introduce regulations requiring consumers to consider the environmental performance of products when making purchases, choosing low-carbon products and services, and can establish rules encouraging consumers to reduce the use of disposable plastics

and improve resource utilization, guiding consumers to adopt a low-carbon lifestyle.

5. Conclusion

This paper discusses the behavioral characteristics, existing problems, and optimization strategies of carbon consumers from the perspective of behavioral economics. The study finds that carbon consumers exhibit significant environmental consciousness in their behavior, but their behavior is influenced by cognitive biases, emotional influences, and moral dilemmas. To optimize the behavior of carbon consumers, governments, businesses, and social organizations should work together to enhance environmental awareness, guide the formation of a low-carbon lifestyle, and establish a comprehensive policy support system. The research has certain limitations, and future studies can further explore other factors influencing carbon consumer behavior to provide more comprehensive theoretical support for the development of a low-carbon economy.

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