

A Review of Research Progress on the Impact of Information Asymmetry on Green Consumption

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Abstract: This paper discusses the impact of information asymmetry on green consumption and sustainable consumption. It emphasizes the importance of information in promoting green consumer behavior and highlights the role of media publicity and evaluation systems in shaping consumer perception and decision-making. The paper also explores the influence of government policies and subsidies on green consumption, noting that government intervention can benefit the entire green product industry chain. The authors suggest that in order to reduce the impact of information asymmetry, comprehensive and high-quality information should be provided to consumers, and consumers should be educated on information filtering and processing. The paper concludes by emphasizing the need for further research on the quantitative assessment of green information dissemination, the influence of green information on consumer psychology and behavior, and the role of government information in promoting green consumption. It calls for a multi-party linkage mechanism to drive the sustainable development of green consumption.

Keywords: information asymmetry, green consumption, consumer behavior, consumer cognition, consumer cognition

1. Introduction

With the continuous deterioration of the ecological environment, the greenhouse effect has attracted more and more attention. Hence, people gradually realise that green transformation is one of the most important ways to achieve high-quality development, and how to promote green sustainable consumption has become a global concern. At the same time, it is undeniable that information, as an intermediary connecting consumers and green products, has a significant impact on the promotion of green consumption behaviour. This paper focuses on information asymmetry, green sustainable consumption and consumer behaviour, as well as the progress of research on the impact of information asymmetry on green sustainable consumption. It provides a brief review, and valuable ideas for the further promotion of sustainable economic development in the future.

2. Influencing factors of green consumption

2.1. The impact of information asymmetry on green consumption

With the popularisation of the Internet in recent decades and the rapid development of big data and artificial intelligence, information dissemination has become increasingly diverse. It has provided consumers with more ways to seek the information they need. [1] However, in the face of the huge amount of information, distinguishing the authenticity of information and selecting the effective information needed by individuals has become an important obstacle. Therefore, if information about green products and their endogenous value is presented to consumers so that they can receive the trend and advantages of this development, it will lead to green and sustainable consumption. However, there is an asymmetry in the provision of such information as suppliers have a more comprehensive understanding of the green attributes of their products, while consumers are at a disadvantage in identifying these attributes. [2]

From the supplier's point of view alone, Xu Guan et al. point out that there is also a lot of information asymmetry in the supply chain, with manufacturers lacking information on consumer preferences on the one hand, and retailers unsure of product quality on the other. [3] Therefore, it is particularly meaningful for manufacturers and retailers to share information about green products, so that manufacturers can produce products that meet consumers' preferences and, at the same time, disclose the quality of green products, which effectively creates healthy competition in the market and provides consumers with better quality resources. In the face of the uncertainty of green information, existing academic research has proposed eco-labelling as a key information provision method.

The existing academic research proposes to focus on eco-labelling and other aspects of information provision. [4] When consumers are in an information environment filled with green products and ecological protection policies, it will stimulate consumers to engage in environmentally friendly behaviours, and thus promote green consumption. [5]

Therefore, only by constantly achieving the richness of green information can we indirectly promote the formation of green consumer behaviour. The authors believe that in order to reduce the impact of information asymmetry on green sustainable consumption, we should not only start with the manipulators of information sources, i.e., through the means of government and the market, to provide consumers with comprehensive and high-quality information, and to compete with competent and high-quality entrepreneurs; moreover, we also need to improve the consumers' ability to choose and processing information, i.e., to popularise the learning of information filtering and processing, and to avoid the influence of information disseminators, so as to avoid the influence of information disseminators. In other words, in today's society, we are constantly learning how to filter and process information and try to avoid the deception of information disseminators. [6] The information should be made available for their use, and fragmented information should be synthesised.

2.2. Influence of Consumer Perception on Green Consumption Decision-Making

Deepening consumers' awareness of green products and the preservation of the ecological environment is an important factor in promoting green consumption decisions. In the digital age, media publicity plays an important role in consumer awareness. This is reflected in the fact that media campaigns act as intermediaries of information, potentially influencing and shaping consumers' values and deepening their perceptions of certain aspects. Therefore, if the aim is to motivate consumers to consume green, the information dissemination capacity of green products should be expanded indirectly through the medium of increasing media publicity, to enhance the brand effect of green products. Consumers will hesitate, hesitate, wait and see, and follow the crowd when

deciding whether to buy something new due to the uncertainty of information. At the same time, the mature evaluation system mechanism will show its extreme attraction to new customers, but undeniably old customers to new customers to provide evaluation information for reference, this way directly from the single game to repeat the game of buyers, in other people's evaluation and feelings in the search for their own need for effective information, thus constantly reducing the information asymmetry, but also improve the fairness of the transaction between buyers and sellers, not only conducive to the maintenance of the normal game, but also help to enhance the brand effect of green products, and to enhance the brand effect of green products, not only help to maintain the normal market. Fairness is not only conducive to the maintenance of normal market order but also increases the tolerance of consumers to buy green products. The study found that media publicity and the establishment of a sound evaluation system have increased consumer awareness of green products, which in turn promotes the formation of green consumption behaviours through word-of-mouth communication, information sharing and other derivative behaviours. [7]

The authors believe that both media publicity and a sound evaluation system rely on social behaviours, for example, whether the content of media publicity is ethical, whether it echoes the "dual-carbon" policy, and whether there is any unfair competition in the evaluation system, such as brushing up positive reviews or malicious reviews, which are all subject to chance. Therefore, education is still a top priority, such as strengthening environmental education and learning for school students and workers in enterprises, as well as organising community green publicity seminars, etc., to enable consumers to form positive green attitudes, thereby promoting green consumption decisions, enriching their knowledge of green environmental protection, and improving their ability to identify green products and their willingness to buy them.

Secondly, consumers' perception of themselves is also an important factor influencing their consumption behaviour. Studies have pointed out that consumers with low self-esteem levels tend to choose low-quality products, which is a result of the fact that consumers with low self-esteem levels can confirm their negative self-views with these products, and their tendency to choose poor-quality products disappears when low self-esteem consumers are induced to see themselves as consumers of high-quality products. [8]

Therefore, in the face of such consumers, salespeople should gradually guide all types of consumers to understand green product information while motivating them to achieve self-enhancement in order to realise effective green consumption decisions.

2.3. The role of information in the green consumer decision-making process

Kotler pointed out that consumers will go through five stages of the purchase decision-making process: problem recognition, information search, programme evaluation, purchase decision and post-purchase behaviour, which can be seen in the purchase of the consumer process is started before the actual purchase and lasts for a long time after the purchase. All these five stages highlight the crucial role of information in making green consumption decisions for consumers. In terms of problem recognition, as mentioned in this paper, when the information environment in which the consumer lives is filled with advertisements related to green products or recommendations from people around them, etc., the consumer becomes aware of their intrinsic need for green products and proceeds to the next stage. In the information search stage, consumers look for information about the green product or environmental service they need, such as trying out samples, consulting customer service, searching for product information on the Internet, and so on. The option evaluation stage is when consumers compare and evaluate the temporarily selected green product with other brands or similar products by combining information on its price, functions, quality, and so on. After this, the consumer makes a decision and selects the most satisfactory brand and product. In the post-purchase behaviour stage, consumers will provide feedback through their actual use experience.

The study points out that how product information is presented plays an important role in the effectiveness of digital content marketing; by optimising how product information is presented, using a combination of socially oriented text and specific images, it is possible to enhance consumers' willingness to buy; depending on the type of product and the gender of the consumer, it is possible to carry out personalised marketing, targeting to satisfy the needs of the consumer and to increase their willingness to buy. [9] Moreover, in addition to personal factors such as age, gender and psychological factors such as beliefs, social and market factors also play a great role in the decision-making process. Consumers as the centre, their families, friends, education, value orientation and the whole market for green culture attitude, advertising investment, the government attaches importance to the degree of information conveyed to consumers, which will, to a certain extent, affect the degree of consumer awareness of green products, and the green consumer awareness is to achieve the essential link of green consumer decision-making and will affect the consumer's choice and decision-making in various fields.

The authors believe that if society follows the trend of the times to help consumers better understand the environmental performance of green products and purchase channels, healthy competition in the market so that good products occupy an advantageous position, the media vigorously disseminate and promote, the government to support green products, multi-party co-operation can prompt consumers to make more informed green consumption decisions.

2.4. Influence of government information on green consumption

Government policy is the macro-orientation of a country and its people, symbolising the trend of future development. Therefore, the value orientation of "promoting green development and harmonious coexistence of human beings and nature" emphasised in the report of the 20th National Congress has a decisive role in promoting the development and innovation of green enterprises and increasing the market share of green products. Meanwhile, in the face of the new concept of promoting upward social development, the government will use government subsidies to help the research and development of related technologies and products. For example, Rui Yang Wansheng Tang et al. proposed that government subsidies promote the technological improvement of enterprises to promote the high-quality development of green products, and at the same time, using the utility function, the inverse demand function, the profit function of the enterprise, and the government's objective function and other calculations, it is concluded that government subsidies make the total production of green products and the social welfare of the government. The total production and social welfare of green products are higher than those without government subsidies. [10]

Government subsidies are designed to increase manufacturers' profits and consumers' well-being, and currently, in order to promote the overall green transformation of the economy and society, the government subsidies green firms and rewards relatively cleaner firms in order to reduce the overall pollution level and increase the overall well-being, and thus motivate firms to innovate in a green way and increase the competitiveness of green products in the marketplace. Jiawen Hua et al. conclude that when the government has a sufficient budget to promote green production, mixed government interventions can maximise equilibrium social welfare. And when the green budget is sufficient, the government's hybrid intervention will also bring the maximum consumer surplus and manufacturer's profit. [11] Therefore, the government's intervention on green consumption will benefit every part of the entire green product industry chain, including consumers and suppliers. By enacting relevant laws and regulations and providing tax incentives, the government can effectively guide and motivate enterprises to deepen their knowledge of the significance of green products, consciously research and develop new green technologies, and achieve technological leadership, while at the same time promoting green products to the public through the information media and stimulating consumers' enthusiasm for green consumption. The authors believe that as enterprises,

they should enhance their sensitivity to government measures, actively respond to the call of the state, timely adjust the direction of environmental protection technology and green product research and development within the enterprise, and continuously improve product quality and performance, so as to make scientific and technological innovation ahead of the market average, thus attracting the attention of consumers, and guiding the mainstream trend of green consumption.

3. Conclusion and Outlook

Summarising the above analysis, it can be concluded that the impact of information on green consumption and sustainable consumption cannot be ignored. Since advocating green consumption is a new concept and in a new stage of development, and the sources of information on green products and technologies on the Internet are wide-ranging and of varying quality, how to effectively shape a standardised information market, make green information play an effective and positive role in consumption, give people in need of information a true evaluation and feelings, and reduce deceptive behaviour caused by information asymmetry is the most important task of future research. The most important thing is to reduce the deceptive behaviour due to information asymmetry. Future research should further explore the quantitative assessment of the effect of green information dissemination, the in-depth influence of green information on consumer psychology and behaviour, and the implementation and effect of government information in social reality, to take advantage of information to promote the flourishing development of green consumption. At the same time, the government, enterprises and consumers should work together to form a multi-party linkage mechanism to promote the sustainable development of green consumption.

References

- [1] Bartschat, M., Cziehso, G. and Hennig-Thurau, T. (2022) 'Searching for word of mouth in the digital age: Determinants of consumers' uses of face-to-face information, internet opinion sites, and Social Media', *Journal of Business Research*, 141, pp. 393–409. doi:10.1016/j.jbusres.2021.11.035.
- [2] Luo, G.-L., Zheng, H. and Guo, Y.-L. (2023) 'Impact of consumer information capability on green consumption intention: The role of Green Trust and media publicity', *Frontiers in Psychology*, 14. doi:10.3389/fpsyg.2023.1247479.
- [3] Guan, X. and Chen, Y. (2017) 'The interplay between information acquisition and quality disclosure', *Production and Operations Management*, 26(3), pp. 389–408. doi:10.1111/poms.12651.
- [4] Sterling, B. et al. (2015) 'Assessing the value and role of seafood traceability from an entire value-chain perspective', *Comprehensive Reviews in Food Science and Food Safety*, 14(3), pp. 205–268. doi:10.1111/1541-4337.12130.
- [5] White, K., Habib, R. and Hardisty, D.J. (2019) 'How to shift consumer behaviors to be more sustainable: A literature review and guiding framework', *Journal of Marketing*, 83(3), pp. 22–49. doi:10.1177/0022242919825649.
- [6] Darby, M.R. and Karni, E. (1973) 'Free competition and the optimal amount of fraud', *The Journal of Law and Economics*, 16(1), pp. 67–88. doi:10.1086/466756.
- [7] Liu, Z. et al. (2023) 'How search and evaluation cues influence consumers' continuous watching and purchase intentions: An investigation of live-stream shopping from an information foraging perspective', *Journal of Business Research*, 168, p. 114233. doi:10.1016/j.jbusres.2023.114233.
- [8] Stuppy, A., Mead, N.L. and Van Osselaer, S.M. (2019) 'I am, therefore I buy: Low self-esteem and the pursuit of self-verifying consumption', *Journal of Consumer Research*, 46(5), pp. 956–973. doi:10.1093/jcr/ucz029.
- [9] Fan, L., Wang, Y. and Mou, J. (2024) 'Enjoy to read and enjoy to shop: An investigation on the impact of product information presentation on purchase intention in digital content marketing', *Journal of Retailing and Consumer Services*, 76, p. 103594. doi:10.1016/j.jretconser.2023.103594.
- [10] Yang, R., Tang, W. and Zhang, J. (2021) 'Technology improvement strategy for green products under competition: The role of government subsidy', *European Journal of Operational Research*, 289(2), pp. 553–568. doi:10.1016/j.ejor.2020.07.030.
- [11] Hua, J. et al. (2022) 'Government interventions in new technology adoption to improve product greenness', *SSRN Electronic Journal [Preprint]*. doi:10.2139/ssrn.4160350.