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ORIGINAL

Research on the influence of consumer Perceived Value on the purchase of new energy vehicles

Investigación sobre la influencia del Valor Percibido por el consumidor en la compra de vehículos de nueva energía

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ABSTRACT

In recent years, low carbon economy has gradually become a hot issue of global concern. At present, Chinese consumers are still in the initial stages of understanding and research on carbon tax. By analysing various carbon tax regimes domestically and abroad, this article employs a quantitative research methodology to explore the influence of consumer perceptions on customers' purchase of new energy vehicles. This paper concentrates on the operational models of several major carbon tax systems at home and abroad and provides a thorough overview of the setting of carbon tax schemes, risk management, and the economics of carbon trading in each country. Drawing on the experiences of foreign countries and regions in implementing carbon tax schemes, this paper offers suggestions on how China can design carbon tax policies to promote green consumption behavior among contemporary Chinese consumers.

Keywords: Carbon Tax; Perceived Value; Perceived Risk; Consumer Behavior; New Energy Vehicles.

RESUMEN

En los últimos años, la economía baja en carbono se ha convertido gradualmente en un tema candente de preocupación mundial. En la actualidad, los consumidores chinos aún se encuentran en las fases iniciales de comprensión e investigación sobre el impuesto sobre las emisiones de carbono. Mediante el análisis de varios regímenes fiscales sobre el carbono nacionales y extranjeros, este artículo emplea una metodología de investigación cuantitativa para explorar la influencia de las percepciones de los consumidores en la compra de vehículos de nueva energía por parte de éstos. El artículo se centra en los modelos operativos de varios de los principales sistemas de impuestos sobre el carbono nacionales y extranjeros y ofrece una visión exhaustiva de la configuración de los regímenes de impuestos sobre el carbono, la gestión del riesgo y la economía del comercio de derechos de emisión de carbono en cada país. A partir de las experiencias de países y regiones extranjeros en la aplicación de sistemas impositivos sobre el carbono, este documento ofrece sugerencias sobre cómo China puede diseñar políticas impositivas sobre el carbono para promover un comportamiento de consumo ecológico entre los consumidores chinos contemporáneos.

Palabras clave: Impuesto sobre el Carbono; Valor Percibido; Riesgo Percibido; Comportamiento del Consumidor; Vehículos de Nueva Energía.

INTRODUCTION

According to the United Nations' environmental protection and sustainable economic policies, the world will have a truly global carbon-neutral alliance by 2050. In the framework of global low-carbon economy, carbon neutrality is the goal of all countries, sectors and fields. Therefore, carbon economy has gradually become an important research topic in economics. In the next 5 to 10 years, the carbon economy or carbon tax incentives will be one of the main tools for global governments or markets to reduce carbon emissions.

Carbon neutralisation, from an economic standpoint, is not just a way of internalising the cost of ecological environmental harm, but also a way of changing how the economy functions. It involves numerous economic sectors, including established ones like power, steel, chemical manufacturing, and cement as well as new ones like high-tech and the internet industries. Countries must develop multiple pathways for reducing emissions, alter the structure of carbon emissions, direct the development of industrial technologies like carbon capture and storage technologies, direct production and demand, and actively encourage consumers to make environmentally friendly purchases in order to achieve carbon neutrality.

People are concerned about the uncertainties and potential negative effects of the carbon tax policy, especially given that research is still in its early stages and the practise process is still in its infancy. At the moment, China's subsidised carbon tax incentive policy is still in its infancy. China has made it clear that the reform of its tax system should take into account issues related to carbon taxation. Therefore, based on a thorough analysis of the operational models of several major carbon tax systems at home and abroad, the setting of carbon tax schemes in each country, risk management, and the economics of carbon trading, this study examines how carbon taxes affect consumers' purchasing behavior with a view to making suggestions for designing carbon tax policies in China.

History of carbon tax

Background on the Creation of the Carbon Tax

The fundamental justification for the carbon tax system is that the development of human society is hampered by the limited availability of natural resources, the unending nature of human development needs, the restriction of environmental pollution, and the incompatibility between economic development and environmental capacity. The carbon tax is derived from the environmental tax. Environmental tax is a tax levied on pollutant emissions, and the objective of environmental taxation system extends to promoting resource conservation, promoting the change of production and consumption patterns, etc. The tax is mainly based on carbon emissions or the carbon content of fossil fuels, and carbon tax is also applied. Turning the cost of environmental pollution into production costs for businesses is a powerful way to mitigate the warming problem.

Relevant studies show that Carbon tax policy can bring about economic, social, and political changes, which can have varying impacts on different stakeholders. The uncertainty surrounding the acceptance and implementation of carbon tax policies creates perceived risks and potential negative impacts. As studies have shown, countries like Sweden and Norway introduced carbon tax systems as early as 1991, while Canada implemented a carbon pricing mechanism in 2019. However, some countries have faced challenges in implementing carbon taxes. For instance, France implemented a carbon tax in 2014 with gradually increasing tax rates. However, in 2018, the policy sparked protests, leading the government to suspend the increase in carbon tax. At the national level, the United States has not implemented a comprehensive carbon tax policy. The introduction of carbon taxes has faced political controversy, although some states and cities have implemented carbon pricing or emission trading systems at the local level. Australia implemented a carbon pricing mechanism in 2012, but it was repealed in 2014. The government believed that carbon pricing had negative impacts on economic competitiveness, leading to widespread debate and controversy.

The introduction of carbon tax policies can create uncertainties and perceived risks, which are considered alongside the evaluation of the value of new energy vehicles. While countries like Sweden, Norway, and Canada have embraced carbon taxes, others have faced challenges and political resistance. It is important to consider the potential impacts on various stakeholders and address their concerns when designing and implementing carbon tax policies. Transparent communication, stakeholder engagement, and supportive measures can help mitigate perceived risks and enhance the acceptance and effectiveness of carbon tax policies. In this paper, we will review the development process of implementing carbon tax, summarize its positive and negative effects to assess the perceived risks of consumers and stakeholders, and analyze the pros and cons of implementing carbon tax in the new energy vehicle industry based on the premise of comparing the factors that ultimately affect consumer demand.

Carbon Tax Development Process

A price-oriented policy tool, the carbon tax is comparable to the "Pigouvian tax" in economics. According to the welfare economist Pegu, the discrepancy between private and social costs, which causes private optimality

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to result in social non-optimality, is the primary driver of environmental pollution externalities.

In foreign countries, the environmental tax system first appeared in the United Kingdom in 1909, and further to the 1950s, industrial development brought serious pollution problems and caused people to pay great attention to environmental protection and sustainable development. In the early 1960s, the world of economics began to study the "green economy" and taxation was, to some extent, given a new role. In order to fundamentally guarantee environmental protection in the long run and enhance people's awareness of environmental protection, since the 1990s, developed countries in the West have started to carry out "green taxation" reform, gradually establishing a sound environmental taxation system for the purpose of raising funds for environmental treatment, no longer limited to the "polluter pays" principle.

Finland was the first nation to enact a carbon price in the entire world. Based on the amount of carbon in each unit of fossil fuel, the Finnish government placed a carbon tax of $1.62/tCO2 on them in 1990. One of the most crucial instruments for Finland's transition to a low-carbon economy is the carbon tax. By June 2020, carbon tax policies had been put into place in more than 30 nations and regions, including Canada, the UK, and the US (certain states and cities). For instance, Sweden, Finland, and the Netherlands have developed distinct, targeted carbon emission taxes, while Japan, Italy, and Germany have added carbon emission factors to already-existing taxes like the energy consumption tax and the environmental tax to create a possible carbon tax.

Table 1. Timing of carbon taxes in countries around the world

Year	Countries that started to levy carbon taxes
1990	Finland takes the lead in carbon tax, Poland, Netherlands begin to impose carbon tax
1991	Sweden, Norway
1992	Denmark
1995	Latvia
1996	Slovenia
1999	Germany
2000	Estonia starts carbon tax The UK developed a climate change plan, centered on a climate change tax, which was enacted in 2001.
2007	Japan
2008	Switzerland, British Columbia, Canada
2010	Ireland, Iceland
2012	Australian Carbon Price Mechanism
2013	UK begins to implement carbon price floor policy
2014	France, Mexico started to levy carbon taxes Australian carbon pricing mechanism abolished
2015	South Africa introduces carbon tax bill Portugal started to levy carbon taxes
2016	Canada Announces National Carbon Price Floor Policy
2017	Alberta, Canada started to levy carbon taxes Chile, Colombia started to levy carbon taxes Singapore announces carbon tax to begin in 2019
2018	Canada Announces Nationwide Carbon Tax in 2019

How the carbon tax is levied

Carbon tax is divided into a broad carbon tax and a narrow carbon tax. A narrow carbon tax refers specifically to a tax on carbon dioxide emissions or on fossil fuels according to their carbon content. A broad carbon tax also includes a tax on energy use, as well as related subsidies and tax rebates.

In accordance with the World Bank's report "2021 Carbon Pricing Development Status and Future Trends," which was published on May 25, as of May 2020, there were 64 carbon pricing mechanisms in place worldwide, accounting for 21 % of all greenhouse gas emissions; 35 of these are carbon tax systems, involving 27 different countries. Countries also have different carbon taxes, which might be a standalone tax, an extension of long-standing energy or consumption tax programmes, or a replacement for earlier fuel taxes. According to statistics, countries that have implemented carbon taxes have a wide range of tax rates, ranging from less than $1 per tonne of CO2 equivalent to $137 per tonne of CO2 equivalent.

Different stages in the chain of production and consumption can impose carbon prices. In interactions between producers (like coal miners and oil miners) and suppliers (like coal shippers and refiners), some taxes are found at the top of the supply chain. A tax is levied on each tonne of CO2 created during the production

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process, and the government also applies tax breaks or subsidy policies based on goods made by new energy industries or enterprises that use a lot of energy. Distributors are affected by some taxes, including oil firms and electric utilities. Through the consumption chain and electricity bills, additional taxes and fees are directly collected from consumers.

Table 2. Carbon Tax Rates for Major U.S. Fuels

No.	Energy Type	Levy rate/ton	Remarks
1	Lignite	USD 1,47	Incremental yearly
2	Sub-bituminous coal	USD 1,45	Incremental yearly
3	Gasoline	USD 1,07	Incremental yearly
4	Natural Gas	USD 0,80	Incremental yearly
5	Bituminous coal	USD 1,40	Incremental yearly
6	Crude Oil	USD 1,12	Incremental yearly
7	Residual fuel oil	USD 1,18	Incremental yearly

In addition to taxation, there are some economic management methods such as carbon tax subsidies and tax breaks. For example, carbon tax revenues in the Netherlands have gone through an initial phase dedicated to environment-related public spending to subsidizing related businesses. Social, educational and non-profit organizations in the Netherlands receive a tax rebate of up to 50 % of their taxable income. Denmark provides tax breaks for specific industries and institutions, using a portion of tax revenues to subsidize energy efficiency projects for industrial enterprises. Danish companies enjoy different tax benefits depending on their net CO2 tax liability (including rebates) as a percentage of sales, while tax breaks are available for companies that participate in voluntary reduction agreements. Some of Sweden's environmentally friendly, energy-intensive businesses are eligible for tax breaks, and as the tax rate gradually increases, the percentage of the tax break increases accordingly to offset the increased tax burden on businesses due to the tax rate increase.

The Significance of Implementing Carbon Tax

Carbon tax is the least costly policy tool to achieve the set emission reduction targets, and it is more equitable as it is in line with the polluter pays principle. Implementing carbon tax holds immense significance in addressing climate change, reducing greenhouse gas emissions, and managing perceived risks while promoting perceived value. Carbon tax serves as a market-based policy instrument that assigns a monetary fee to carbon emissions, aiming to internalize the environmental costs associated with carbon pollution. By establishing a price on carbon, it creates economic incentives for industries, businesses, and individuals to reduce their carbon footprint and transition towards cleaner and more sustainable practices.

One of the key advantages of carbon tax is its ability to provide a clear price signal for carbon emissions, reducing perceived risk. By assigning a monetary value to carbon pollution, it encourages companies to invest in cleaner technologies, energy efficiency measures, and renewable energy sources. This incentivizes innovation and mitigates potential risks associated with climate change, while promoting a sustainable and low-carbon future.

Furthermore, the implementation of carbon tax generates revenue that can be utilized for various purposes, enhancing perceived value. The funds generated can be directed towards climate change mitigation and adaptation measures, such as investing in renewable energy infrastructure, supporting research and development of green technologies, and promoting sustainable practices. Additionally, revenue can be used to finance social programs, subsidize energy costs for low-income households, and facilitate a just transition for affected industries and communities. These actions increase the perceived value of carbon tax by highlighting its potential to drive positive social and environmental change.

Another significant aspect of carbon tax implementation is its ability to address perceived risk by creating a level playing field among industries. By internalizing the costs of carbon emissions, carbon tax ensures that polluters bear the financial responsibility for their environmental impact. This reduces perceived risks associated with unfair competition and encourages industries to adopt cleaner technologies, fostering the overall decarbonization of the economy.

Moreover, carbon tax sends a strong signal to markets, investors, and consumers, further promoting perceived value. By accounting for the environmental costs associated with carbon emissions, carbon tax provides certainty and stability to businesses, reducing policy uncertainty and facilitating long-term planning and investment in low-carbon solutions. This enhances the perceived value of carbon tax by signaling its potential to drive sustainable economic growth and attract investment in green technologies and practices.

However, the implementation of carbon tax should be done carefully, considering potential challenges and addressing perceived risks to ensure its effectiveness. Adequate stakeholder engagement, transparent

communication, and addressing concerns about potential economic impacts are crucial for garnering support and minimizing resistance. By effectively managing perceived risks and promoting perceived value, the implementation of carbon tax can be a significant step towards achieving climate goals and fostering a sustainable future.

In conclusion, the significance of implementing carbon tax lies in its ability to address perceived risks associated with climate change, while promoting perceived value through economic incentives, revenue generation for climate action, creating a fair competitive landscape, and providing long-term certainty for businesses. By internalizing the costs of carbon pollution, carbon tax serves as a valuable tool in combating climate change, managing perceived risks, and transitioning towards a low-carbon economy.

METHOD

Sample Selection

The carbon tax studied in this paper is a broad carbon tax, i.e., the subsidies and tax rebates, etc., implemented by the government to encourage the use of clean energy. This paper uses a questionnaire to study the effect of carbon tax on consumers' purchase of new energy vehicles.

In this paper, questionnaire Star software was used to generate and distribute the questionnaires. The sample consisted of 94 people, and the basic information of the sample is shown in Table 1. From the table, it can be seen that more than half of the sample does not often pay attention to the policies related to carbon tax.

Table 3. Basic information of the sample

Age	Total	Percentage	Income level	Total	Percentage
0~20	12	12,77 %	0~2000	14	14,89 %
20~35	56	59,57 %	2000-5000	27	28,72 %
35~45	24	25,53 %	5000-15000	46	48,94 %
45~55	1	1,06 %	15000以上	7	7,45 %
55 years old and above	1	1,06 %	Education		
Gender			Undergraduate	6	6,38 %
Male	24	25,53 %	Master	52	55,32 %
female	70	74,47 %	PhD	34	36,17 %
Driving experience			Others (below bachelor's degree)	2	2,13 %
0	15	15,96 %	Whether to pay attention to carbon tax policy		
1-3 years	15	15,96 %	Often	25	26,60 %
3-10 years	49	52,13 %	Occasionally	51	54,26 %
Over 10 years	15	15,96 %	Do not pay attention to	18	19,15 %

Questionnaire Design

There are 14 questions in this questionnaire. Among them, questions 1 - 6 are the basic information of the sample. Questions 7 - 14 are questions about whether the carbon tax affects consumers' purchase of new energy vehicles. To ensure the reliability and validity of the questionnaire, the Likert 5-point scale was chosen to design the questionnaire in this paper. The specific question content of the questionnaire is shown in table 4.

Table 4. Questionnaire Items

Title No.	Title content	Title No.	Title Content
1	Your age	8	The perceived value of new energy vehicles
2	Your monthly income	9	Perceived risks of new energy vehicles
3	Your gender	10	Expected conditions for the use of new energy vehicles
4	Your driving age	11	Acceptance attitude towards new energy vehicles
5	Are you concerned about carbon tax related policies	12	Group effect of purchasing new energy vehicles
6	Your educational background	13	The amount of subsidy before purchasing a car will influence your choice of new energy vehicles
7	Purchase intention of new energy vehicles	14	Factors influencing the purchase of new energy vehicles

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RESULTS

Consumer perception of new energy vehicles

Table 5 shows the results of the survey on consumers' perception of new energy vehicles. From Table 3, it can be seen that nearly 45 % of the respondents will give priority to new energy vehicles when they have the need to purchase a vehicle. And consumers' perception of new energy vehicles is not significantly different from that of traditional cars. The results of the survey for most topics were scored as 3 at most, meaning that respondents' perceptions of new energy vehicles were not significantly better than traditional fuel vehicles.

Although 60 %-70 % of those surveyed believe that new energy vehicles are more low-carbon and environmentally friendly, and also more in line with the use of demand, and should be vigorously promoted, but at the same time there is a lack of trust in new energy vehicles, and when buying a car, they prefer to choose a traditional car. Although consumers are more receptive to new energy vehicles conceptually, they prefer traditional vehicles when actually purchasing a car. Therefore, using questions 13-14, this paper explores the influencing factors that affect consumers' purchase of new energy vehicles.

Table 5. Consumer perceptions of new energy vehicles

Title	Options	1	2	3	4	5
7. Purchase intention of new energy vehicles	I will give priority to new energy vehicles when I need to buy a car	6(6,38 %)	14(14,89 %)	31(32,98 %)	25(26,6 %)	18(19,15 %)
8.The perceived value of new energy vehicles	I think purchasing a new energy vehicle is "value for money"	3(3,19 %)	4(4,26 %)	33(35,11 %)	34(36,17 %)	20(21,28 %)
	I think that buying a new energy vehicle "meets my needs"	4(4,26 %)	16(17,02 %)	38(40,43 %)	22(23,4 %)	14(14,89 %)
	I think the benefits of buying a new energy vehicle are worth the cost to me	5(5,32 %)	10(10,64 %)	39(41,49 %)	21(22,34 %)	19(20,21 %)
9.The perceived risk of new energy vehicles	I am concerned about the physical risks to me and my family associated with using a new energy vehicle.	8(8,51 %)	21(22,34 %)	30(31,91 %)	21(22,34 %)	14(14,89 %)
	I am concerned about the financial risks to my family of using a new energy vehicle	11(11,7 %)	28(29,79 %)	26(27,66 %)	20(21,28 %)	9(9,57 %)
	I am concerned that the functional risks, supporting facilities and services of the new energy vehicle will not be perfect and will cause me trouble	3(3,19 %)	12(12,77 %)	22(23,4 %)	36(38,3 %)	21(22,34 %)
	I am worried about the risk of supporting resources for new energy vehicles, especially charging piles	2(2,13 %)	7(7,45 %)	17(18,09 %)	35(37,23 %)	33(35,11 %)
10. Expected conditions for the use of new energy vehicles	There is a special after-sales service to help me solve the problems after the purchase of new energy vehicles	3(3,19 %)	11(11,7 %)	40(42,55 %)	28(29,79 %)	12(12,77 %)
	Exclusive car insurance for new energy vehicles makes me worry less about purchasing a car	2(2,13 %)	11(11,7 %)	45(47,87 %)	23(24,47 %)	13(13,83 %)
	There are enough special charging piles to make charging more convenient for me	5(5,32 %)	9(9,57 %)	30(31,91 %)	30(31,91 %)	20(21,28 %)
11.Acceptance attitude towards new energy vehicles	I think new energy vehicles should be promoted vigorously	2(2,13 %)	7(7,45 %)	24(25,53 %)	35(37,23 %)	26(27,66 %)
	I think the functions of new energy vehicles meet the needs of users	3(3,19 %)	5(5,32 %)	26(27,66 %)	32(34,04 %)	28(29,79 %)
	I think the use of new energy vehicles is low-carbon and environmentally friendly	3(3,19 %)	6(6,38 %)	14(14,89 %)	38(40,43 %)	33(35,11 %)
	I trust new energy vehicles more than traditional vehicles	7(7,45 %)	21(22,34 %)	36(38,3 %)	17(18,09 %)	13(13,83 %)
	I prefer to buy a new energy car to a traditional vehicle	9(9,57 %)	16(17,02 %)	31(32,98 %)	20(21,28 %)	18(19,15 %)
12.Group effect of purchasing new energy vehicles	People who buy new energy vehicles pay attention to low carbon and environmental protection	2(2,13 %)	7(7,45 %)	30(31,91 %)	32(34,04 %)	23(24,47 %)
	People who buy new energy vehicles are more fashionable and trendy	3(3,19 %)	11(11,7 %)	25(26,6 %)	37(39,36 %)	18(19,15 %)
	My friends around me approve of new energy vehicles	4(4,26 %)	18(19,15 %)	32(34,04 %)	28(29,79 %)	12(12,77 %)

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	My friends around me think buying new energy vehicles is a trend	3(3,19 %)	7(7,45 %)	28(29,79 %)	37(39,36 %)	19(20,21 %)
	If my friends around me are using new energy vehicles, I will also try new energy vehicles when I have the need to buy a car	7(7,45 %)	6(6,38 %)	31(32,98 %)	30(31,91 %)	20(21,28 %)

Factors affecting consumers' choice of new energy vehicles

Question item 13 investigated the extent to which a subsidized carbon tax influences consumers' choice of new energy vehicles, and the results are shown in Table 6. One fifth of the respondents indicated that the presence or absence of a carbon tax did not affect their choice of new energy vehicles. For the respondents, the 20 % subsidy amount is more attractive. 5 % and 10 % subsidy amounts are not very obvious to attract the respondents to switch to new energy vehicles.

Table 6. Impact of carbon tax on consumers' choice of new energy vehicles

	Options	Total	Percentage
13. How much subsidy will affect your choice of new energy vehicles before purchasing a car	The amount of subsidy exceeds 5 %	9	9,57 %
	The amount of subsidy exceeds 10 %	13	13,83 %
	The amount of subsidy exceeds 20 %	53	56,38 %
	No effect	19	20,21 %

Question item 14 investigated other factors that might influence consumers' choice of new energy vehicles, and the results are shown in table 7. From the table, we can see that the biggest factor affecting whether consumers choose new energy vehicles is whether consumers' purchasing power can afford to buy new energy vehicles. It shows that consumers have low product stickiness to new energy vehicles, and new energy vehicles can easily be replaced by traditional vehicles.

In addition, the charging time of new energy vehicles, the number of miles that can be exercised on a single charge and the availability of charging piles are the most important concerns of consumers when purchasing new energy vehicles. These are the inherent problems of new energy vehicles compared to traditional cars, and are also important reasons why new energy vehicles cannot fully replace traditional cars.

Table 7. Other factors affecting consumers' choice of new energy vehicles

Title	Options	1	2	3	4	5
14. Factors affecting the purchase of new energy vehicles	Driving range	7(7,45 %)	11(11,7 %)	25(26,6 %)	32(34,04 %)	19(20,21 %)
	Charging time	8(8,51 %)	11(11,7 %)	31(32,98 %)	26(27,66 %)	18(19,15 %)
	Is there a charging station nearby?	7(7,45 %)	9(9,57 %)	29(30,85 %)	29(30,85 %)	20(21,28 %)
	Government subsidy or not	3(3,19 %)	9(9,57 %)	33(35,11 %)	37(39,36 %)	12(12,77 %)
	New energy car used car price	6(6,38 %)	13(13,83 %)	43(45,74 %)	21(22,34 %)	11(11,7 %)
	Can I get a license plate quickly?	10(10,64 %)	7(7,45 %)	33(35,11 %)	26(27,66 %)	18(19,15 %)
	Does my income or ability to pay affect whether I buy?	4(4,26 %)	7(7,45 %)	28(29,79 %)	39(41,49 %)	16(17,02 %)
	Do my friends use it or not?	3(3,19 %)	12(12,77 %)	37(39,36 %)	28(29,79 %)	14(14,89 %)
	Are there any sales channels for new energy vehicles in my neighborhood?	4(4,26 %)	4(4,26 %)	28(29,79 %)	37(39,36 %)	21(22,34 %)
	Does my family's approval affect whether I buy or not?	4(4,26 %)	10(10,64 %)	34(36,17 %)	30(31,91 %)	16(17,02 %)
	Do discounts on new energy vehicles affect whether I buy one?	2(2,13 %)	9(9,57 %)	27(28,72 %)	40(42,55 %)	16(17,02 %)
	Does the safety assessment of the new energy vehicle affect whether I buy it or not?	2(2,13 %)	8(8,51 %)	34(36,17 %)	33(35,11 %)	17(18,09 %)

CONCLUSION

In this paper, we conducted a questionnaire survey on the impact of carbon tax on consumers' purchase of new energy vehicles based on the combination of carbon tax systems in various countries. The results of the survey show that price is the most important factor that consumers consider when making a vehicle purchase decision. Therefore, a subsidized carbon tax can have a positive encouraging effect on consumers' purchase of new energy vehicles.

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In order to achieve the goal of carbon neutrality, the popularity of new energy vehicles is imperative. According to the findings of this paper, the authorities can use a subsidized carbon tax to encourage consumers' purchasing behavior. In addition, the construction of infrastructure related to new energy vehicles also needs to be improved, and car manufacturers should also increase their scientific research efforts to solve the current problem of long charging time and limited travel distance of new energy vehicles.

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AUTHORSHIP CONTRIBUTION

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