

The Role of Green Taxation Governance in China: A Review of the Development and Impacts of Environmental Protection Tax

Chen Zhang^a
Qingdao University

Heyu Xu^b
Qingdao University

Xuli Wei^c
Qingdao University

Kee-Cheok Cheong^d
Universiti Malaya

Abstract: The initiatives from China’s “ecological civilisation construction” to “promoting the modernisation of harmonious coexistence between man and nature”, and then to the dual-carbon goal of “carbon peaking – carbon neutrality”, highlight China’s firm determination to promote green development further. On January 1, 2018, the Environmental Protection Tax Law of the People’s Republic of China was officially implemented as the first new green tax focused on environmental governance in China. This marks the formal entry of China’s environmental protection into the tax era and the establishment of a green tax system with environmental protection tax (EPT) as the core. By a comprehensive review of the development, multi-dimensional effects and tax optimisation paths of China’s EPT, this paper hopes to provide an important reference for government departments to improve the construction of the green tax system, for enterprises to enhance their green governance capabilities, and for scholars to extend the study of the green tax system.

Keywords: Environmental protection tax, environmental performance, double-dividends, innovation, ESG

JEL classification: H23, O23, Q58, Q52

^a School of Business, Qingdao University, No. 308, Ningxia Road, Qingdao, Shandong Province, 266071 China. Email: zhangchen9016@163.com; zhangchen@qdu.edu.cn

^b School of Business, Qingdao University, No. 308, Ningxia Road, Qingdao, Shandong Province, 266071 China. Email: xuheyu2024@163.com (Corresponding author)

^c School of Business, Qingdao University, No. 308, Ningxia Road, Qingdao, Shandong Province, 266071 China. Email: 1780847670@qq.com

^d Faculty of Business & Economics, Universiti Malaya, 50603 Kuala Lumpur, Malaysia.

* **Acknowledgements:** We thank Prof. Kee-Cheok Cheong for his guidance on this research. We would like to express our nostalgia for his academic contribution.

Funding: This research is funded by China’s National Social Science Fund (grant number 23CJL028), Shandong Province’s Natural Science Fund (grant number ZR2023QG033), and Qingdao University “Shandong Province Social Science Outstanding Achievement Award Cultivation Fund Project” (grant number RZ2100004728).

1. Introduction

China has experienced impressive economic growth over the last forty years. However, this growth has come at a significant cost of high energy consumption, pollution and greenhouse gas emissions leading to serious environmental problems. Currently, China's economy is transitioning from a period of high-speed growth to one of green and high-quality development. There is a conscious effort to promote green, circular and low-carbon development to integrate and synergise environmental protection with economic and social development. Green and high-quality development cannot be achieved without guaranteeing environmental protection regulations. Reasonable environmental regulations can lead to both environmental governance and economic growth (Porter & van der Linde, 1995a). Specifically, market-based incentives like environmental protection taxes can encourage enterprises to innovate in green technology, and improve productivity and competitiveness while driving economic growth.

On January 1, 2018, the Environmental Protection Tax Law of the People's Republic of China was officially implemented, as the first new green tax focused on environmental governance in China. This implementation means that China's environmental protection has officially entered the era of taxation, and the establishment of a green tax system with environmental protection tax (EPT) as the core. The Environmental Protection Tax law emphasises the mandatory and binding nature of the law, strengthens the responsibility of enterprises in energy conservation and emission reduction, and encourages them to improve environmental management and shift to more sustainable practices. The environmental tax further clarifies the governance and financial relationship between the central government and local governments in environmental governance and promotes local governments to participate more actively in environmental management and ecological monitoring. However, the introduction of the EPT has led to inconsistent evaluation results regarding its environmental, economic and social effects due to the short implementation period. This paper aims to review existing studies on the development, impacts and optimisation of the EPT, to provide a valuable reference for government departments to enhance the green tax system, assist enterprises in improving their environmental governance capabilities, and offer scholars useful insights for future research.

2. Development of China's Environmental Protection Tax

China has a long history of emphasising and exploring environmental tax systems. In contrast to the western "Pigouvian Tax", China initially used the pollutant fee system to take on the functions of the environmental tax system. China's environmental tax system has experienced four stages of development as follows:

- (1) *Trial Stage (1979–2002)*: The Environmental Protection Law (Trial) was introduced in 1979, marking the beginning of China's environmental protection system. In 1982, the State Council of the People's Republic of China promulgated the Interim Measures for the Collection of Pollution Charge. In 1993 and 1998, the Interim Measures for Compensated Use of the Special

Fund for Pollution Source Control and the Notice on the Collection of Sewage Discharge Charges were introduced respectively, and the corresponding environmental regulation means began to be fully implemented.

- (2) *Adjustment and Improvement Stage (2003–2016)*: In 2003, the Administrative Regulations on Levy and Use of Pollutant Discharge Fee¹ was introduced, and the total amount charge system began to be implemented. The provinces gradually adjusted the collection standards. Due to the relatively simple charging standards of the pollutant discharge fee system, which is implemented uniformly charging standard rates for pollutant emission below and above the concentration value, there is insufficient incentive for the green and low-carbon development of enterprises. The system also faces several problems, such as unclear positioning, lack of implementation of the responsibility of enterprises and institutions for pollution control, and inadequate supervision by the environmental protection departments. As a result, the management system's effectiveness is not fully utilised (Ministry of Ecological Environment, 2018).
- (3) *Fees to Taxes Stage (2017)*: To further protect and improve the environment, reduce the emission of pollutants and promote the construction of an ecological civilisation, the 25th session of the Standing Committee of the 12th National People's Congress passed the Environmental Protection Tax Law of the People's Republic of China on December 25, 2016.² The Environmental Protection Tax Law clearly states that enterprises, institutions and other producers and operators that discharge taxable pollutants directly into the environment are taxpayers of EPT and shall pay EPT in accordance with the provisions of this law. This marks the beginning of the transition from "fee" to "tax".
- (4) *Environmental Protection Tax Implementation Stage (2018–present)*: On January 1, 2018, the Environmental Protection Tax Law³ was formally implemented. As China's first independent tax aimed at environmental protection, it has officially begun to have an impact on the environment and economic development. This marks the rise of environmental protection from administrative regulations to the legal level, and the environmental justice system has entered a new stage, with the sewage charge system exiting the history.

The Environmental Protection Tax has brought about three major changes in comparison to the pollutant discharge fee. From the perspective of legal hierarchy, the Environmental Protection Tax Law was reviewed and passed by the Standing Committee of the National People's Congress, which gives it the highest national legal effect. This has prevented local governments from intervening in the collection of fees. From the

¹ For more information, please see "Decree of the State Council of the People's Republic of China, No. 369" (in Chinese), released in 2003. https://www.gov.cn/gongbao/content/2003/content_62565.htm

² For more information on the Environmental Protection Tax Law of the People's Republic of, please see (in Chinese). <https://flk.npc.gov.cn/detail2.html?MmM5MDImZGQ2NzhiZjE3OTAxNjc4YmY4NDI5YjA5YmY%3D>

³ For more information please see "Decree of the State Council of the People's Republic of China, No. 693" (in Chinese). https://www.gov.cn/zhengce/content/2017-12/30/content_5251797.htm

perspective of the collection method, it has shifted from administrative charges to legal taxes. The national tax authority is now responsible for tax collection, which has led to more detailed tax system rules and collection rules. This has strengthened the standardisation of law enforcement and has prevented rent-seeking behaviour. The new tax collection and management model is “enterprise declaration, tax collection, environmental protection monitoring and information sharing.” In addition, the revenue distribution between central (90%) and local (10%) governments has changed. The entire revenue now goes directly to local governments to encourage them to take more proactive measures towards pollution control. From the perspective of tax standards, the new Environmental Protection Tax Law requires that based on the principle of “Tax Shift”, the minimum standard of tax burden is set by the central government, and then raised by the local government according to its own situation, which may increase the cost pressure on enterprises, but it will also force enterprises to carry out industrial innovation. Moreover, the environmental tax also sets different levels of tax relief policies, which can further play an incentive leverage role.

3. The Impacts of Environmental Protection Tax

The research on the multi-dimensional effects of China’s EPT is carried out from the macro and micro perspectives.

3.1 Environmental Protection Tax and Environmental Performance

China’s initiatives from “ecological civilisation construction”, to “promoting the modernisation of harmonious coexistence between man and nature”, and then to the two-carbon goal of “carbon peaking – carbon neutrality” highlight the country’s firm determination to promote green development further. The Environmental Protection Tax Law is the first tax law in China that embodies a “green tax system”, making it an essential step in implementing China’s green development concept. The implementation of this law has increased environmental consciousness in China’s tax system and accelerated the process of greening reforms in the tax system. The primary goal of implementing an EPT is to ensure that polluters bear the costs of pollution control and environmental damage repair. The tax system is designed to make polluters pay more for higher emissions, pay less for lower emissions and pay nothing for no emissions. This approach aims to leverage taxes to encourage polluters to increase environmental awareness, improve environmental governance, reduce pollutant emissions and contribute to the development of an ecological civilisation.⁴ Therefore, it is essential to assess the impact of the EPT on environmental performance to improve the effectiveness of the green tax system and promote sustainable development.

From the perspective of short-term benefits, the EPT is a type of “Pigouvian tax” that can help mitigate the negative externalities caused by business pollution.

⁴ For more information, please see “Environmental Protection Tax Policy Interpretation” (in Chinese). <https://www.chinatax.gov.cn/chinatax/n810351/n810906/c5157152/content.html>

However, the success of this tax in achieving environmental benefits depends on whether enterprises can still profit from their production processes after paying the tax. Enterprises may reduce emissions voluntarily if the cost of producing pollutants exceeds the income generated from this activity. On the other hand, setting the EPT too low may not provide enough incentives for enterprises to reduce emissions, and could even encourage them to “pay to pollute” (Lu et al., 2019).

From the perspective of obtaining long-term core competitiveness, EPT reform is conducive to enterprises actively seeking green transformation. Implementing the Environmental Protection Tax Law signals the national and social trend towards green development, helping enterprises adjust their environmental protection strategies. Secondly, the implementation of EPT can promote technological innovation of enterprises, help upgrade industrial structure by increasing investment in scientific and technological innovation, attract foreign direct investment, strengthen tax collection and management, minimise harmful emissions, and enhance environmental quality (Karmaker et al., 2021).

From the perspective of compliance pressure, the EPT has the advantages of highly rigid law enforcement and less administrative intervention, which can create a standardised and fair green competition environment for enterprises. Meanwhile, it also compels enterprises to prioritise internal environmental governance and take effort to improve environmental performance (Guo et al., 2022).

Numerous empirical studies confirm that implementing EPT can enhance environmental performance (Chen et al., 2022; Hu et al., 2020; Long et al., 2021; Wang & Chen, 2023). From a micro perspective, many scholars found that implementing the EPT can encourage enterprises to reduce emissions and expedite the transition to a green economy through legal punishments and incentives, thereby improving the environmental performance of enterprises (Liu et al., 2022; Shi et al., 2023). Specifically, Shi et al. (2023) demonstrated that the EPT improves corporate environmental performance, particularly for companies with high internal transparency and financial constraints. They further found that the EPT law improves enterprise environmental performance by enforcing stricter laws, increasing the government’s emphasis on the environment, promoting green innovation, and preventing collusion between the government and enterprises. Liu et al. (2022) discovered that implementation of the EPT significantly improves corporate environment investments, especially for state-owned companies and those with high media attention. Moreover, many empirical studies in the context of China also agreed that EPT positively impacts macro-environmental performance (Chen et al., 2022; Guo et al., 2022; Han & Li, 2020; Hu et al., 2020; Li & Masui, 2019), which illustrated that EPT can reduce polluting emissions and promote ecological protection. Guo et al. (2022) showed that the imposition of the EPT has a significant impact on limiting urban air pollution and enhancing the overall environmental quality of cities. The positive effects of this tax are more prominent in large cities and areas north of the Qinling-Huaihe Line. Additionally, it has also been found that there are beneficial spillover effects on reducing air pollution in surrounding cities. Han and Li (2020) demonstrated that the EPT could effectively reduce PM_{2.5} (particulate matter 2.5 microns or less in diameter) and promote tourism. Li and Masui (2019) showed that enforcing the Environmental Protection Tax Law and carbon tax

policy with different tax rates in various sectors can effectively coordinate economic development and environmental pollution control.

3.2 “Dual Dividends” of Environmental Protection Tax

Economic development should not be at the costs of depleting resources and harming the ecological environment. Similarly, ecological environmental protection should not be the abandonment of economic development. Instead, it is crucial to prioritise protection in the process of development and development in the process of environmental protection. Against the backdrop of promoting the green and high-quality development concept in China, it has become imperative to explore ways to achieve a coordinated approach between environmental protection, and economic and social development. Since its official implementation in 2018, the environmental protection tax has achieved remarkable results in environmental improvement and pollution emission control. Thus, whether EPT can achieve the dual effect of coordinated development of the environment and economy has aroused widespread concern.

The “double dividend” was first proposed by British economist Pearce (1991). He argued that implementing taxes related to the environment could result in both environmental benefits (known as the “green dividend”) and economic benefits (known as the “blue dividend”). Since then, the number of studies on the “double dividend” of EPT has continued to grow and develop (Alola & Nwulu, 2022; Deng et al., 2023; Fullerton & Metcalf, 1997; Goulder, 1995; Pearce, 1991). The “green dividend” refers to the direct benefits of implementing an environmental tax to reduce harmful emissions, leading to a more sustainable environment. Meanwhile, the “blue dividend” refers to the indirect benefits of such a tax, which can lead to economic growth and improved macroeconomic indicators by shifting the tax burden from more distorting taxes to less distorting ones, thus achieving non-environmental objectives.

Specifically, the impact mechanism of implementing an EPT to achieve a double dividend effect is mainly from the following perspectives. First, Porter’s “innovation compensation effect” suggests that appropriate environmental regulations can motivate technological innovation in companies. This can lead to resource allocation and energy efficiency changes, impacting enterprise operations and pollution control, therefore, the innovation income can compensate for or even exceed the “compliance cost” (Porter & van der Linde, 1995a). The “substitution effect” of market competition is the second aspect to consider. Environmental protection tax collection is rigid, and enterprises that prioritise ecological awareness and have effective pollution control mechanisms will gradually replace those enterprises that have ineffective pollution control and low levels of production technology. This leads to the “Matthew effect” of the stronger the stronger and the weaker the weaker. According to the “Five Development Concepts” presented by the 19th National Congress of China, consumers began to pay more attention to the choice of environmentally friendly products as environmental consciousness grows. This trend indirectly encourages green enterprises to enter a virtuous development cycle, leading to faster capital returns and ultimately

improving the green total factor productivity. Third, the EPT has a more favourable incentive structure for tax-compliant companies than the pollutant discharge charging system, which has a resource supplement effect.⁵ The tax law explicitly states that the government is legally obligated to provide financial assistance for companies' investments in green transformation.⁶ This policy encourages companies to adopt environmentally friendly practices and incentivises them for their efforts, reducing the cost of corporate green innovation (Montmartin & Herrera, 2015). Fourth, implementing an EPT can improve the green social financing environment (Deng et al., 2023). When enterprises encounter stricter environmental regulations, they can alleviate the burden of increasing costs by obtaining external financing. An environment that supports green financing can boost the social financing of eco-friendly businesses, easing the strain of rising costs and expediting the green innovation process for enterprises (Li et al., 2018). On the other hand, a green financing environment can hurt high-polluting enterprises, resulting in some of them transferring or withdrawing from the market, affecting their production. Therefore, EPT has the potential to influence resource allocation through the social financing tendency, to promote innovation and pollution control, achieving a double dividend.

Many empirical studies conducted in the Chinese context support the effectiveness of implementing the EPT, which can lead to double dividends (Deng et al., 2023; Fan et al., 2021; Lu & Zhou, 2023). Specifically, Fan et al. (2021) found that without environmental regulatory policies, companies tend to ignore the social cost of pollution emissions and have no incentive to take proactive measures to control pollution. EPT increases the penalty cost of environmental pollution, encouraging companies to invest more funds in pollution control. Combining environmental tax policies with pollution control subsidies can provide incentives for companies to reduce pollution, resulting in increased output growth and better corporate governance. This approach ultimately helps to reduce pollution and boosts economic growth. He et al. (2022) discovered that the EPT has a positive impact on the total factor productivity of heavy polluting enterprises over time, suggesting that environmental taxes should be implemented in the long term and incentivise enterprises to increase investment in research and development. Deng et al. (2023) demonstrated that China's EPT reform has the potential to benefit energy firms in two ways. Firstly, it can improve energy resilience, simultaneously reducing CO₂ emissions, and appropriate government subsidies can further benefit the decarbonization effect. Secondly, EPT reform can also increase the scale of corporate social financing, which is conducive to helping enterprises achieve

⁵ The pollutant discharge fee system has only one level of preferential treatment for emission reduction, which stipulates that if the concentration of atmospheric or water pollutants discharged by a pollutant is more than 50% below the prescribed standard, the pollutant discharge fee shall be collected by half. On this basis, the Environmental Protection Tax Law of the People's Republic of China has added one stage of emission reduction incentives.

⁶ See Article 24 of the Environmental Protection Tax Law of the People's Republic of China: "People's governments at all levels shall encourage taxpayers to increase investment in environmental protection construction and provide financial and policy support for taxpayers' investment in automatic pollutant monitoring equipment."

double dividends. Lu and Zhou (2023) supported that implementation of the EPT can lead to a double dividend effect by facilitating green innovation and enhancing the long-term performance of enterprises.

Meanwhile, some scholars put forward different opinions on the blue effect of EPT from the perspective of compliance cost effect, positing that implementing environmental tax negatively impacts corporate profits by increasing their environment-related costs, reducing firms' R&D investments, and inhibiting firms performance (Long et al., 2022; Parry & Bento, 2000; Zhou et al., 2020). For example, He et al. (2020) found that most industries experienced negative market reactions due to increased environmental costs from environmental taxes, which negatively impacted firm performance. Zhou et al. (2020) found that higher tax rates reduce the use of polluting products, generating an "environmental dividend" but hurting employment, household incomes, and economic growth. The results show that the conditions for environmental tax reform to achieve a "double dividend" are quite challenging.

3.3 Environmental Protection Tax and Green Technology Innovation Development

Green innovation is pivotal for aligning economic growth with environmental protection and serves as a practical imperative to enhance the green competitiveness of enterprises. The research on the impact of EPT on green technology innovation has garnered increasing attention. The prevailing viewpoints include neoclassical economics' "crowding out effect" and Porter's "innovation offsets". The former, based on the "compliance cost hypothesis", posits that environmental regulations increase the cost burden on enterprises, thereby constraining R&D capital and impeding their innovation performance, particularly affecting industries with high pollution control costs (Luo et al., 2022; Wang et al., 2021; Yuan & Xiang, 2018). Conversely, Porter and van der Linde (1995b) argued that market-based environmental regulations can stimulate an "innovation offsets" effect through well-designed policies, encouraging enterprises to undertake green technological innovations, and ultimately enhancing their competitiveness. From the perspective of resource constraints, the imposition of the EPT merely reallocates firms' investment in innovation rather than altering its overall magnitude. With resource constraints, more stringent environmental regulations compel enterprises to redirect R&D resources from other technological innovations toward green innovation (Liu & Xiao, 2022).

Considering the current situation in China, implementing an environmental protection tax significantly impacts corporate green innovation behaviour. Firstly, the EPT has greater weight than the previous pollutant discharge fee, because it has changed from an administrative penalty to more legal authority and tax rigidity being levied by the taxation department. This strengthens the environmental regulatory nature of the tax, reducing the likelihood of enterprises using rent seeking to evade environmental governance. Therefore, the external pressure of taxation can change the inertia behaviour of enterprises, stimulate innovation initiatives, and promote green technology innovation (Wang et al., 2021). Secondly, the EPT has implemented reasonable tax incentive policies, including tax reductions and exemptions for emission reduction. Assuming that the pollutant emission concentration of enterprises is less than 30% of

the prescribed standard value, the EPT will be reduced by 75%,⁷ so as to encourage enterprises to take comprehensive measures such as technology and investment to reduce pollution emissions and improve the environment. Through tax incentives, the EPT guides enterprises in carrying out environmental protection and governance. Thirdly, implementing the EPT has brought about improvements in the tax collection and management procedures. In the past, the ecological protection department calculated and collected information on the amount of pollutant emissions of enterprises and they also collected the pollutant discharge fees. However, with the introduction of the EPT, enterprises are required to install their pollutant monitoring equipment. When the enterprises file tax returns, the tax authority will cross-check the emissions data submitted by the enterprises with the environmental department to determine the final amount of environmental protection tax. These measures significantly increase the collection rate and tax compliance of EPT and encourage enterprises to actively invest in pollution control measures. Enterprises that have developed advanced green technology can reap competitive advantages by maintaining lower pollution emission levels and thereby reducing their EPT burden. Fourthly, the transfer of environmental protection fee-to-tax is a clear manifestation of the government's determination to control environmental pollution. It also affects the mindset of consumers and investors. As a result, companies that focus on green technology innovation and provide high-quality products are more likely to improve their corporate reputation and gain competitive advantages in the market (Zhang, 2022).

Empirical studies in the context of China suggested that the mandatory nature of the EPT encourages companies to implement green technology innovation (Fang et al., 2021; Guo et al., 2022; Li & Li, 2022). Specifically, Fang et al. (2021) indicated that implementation of the EPT has put regulatory pressure on heavy polluters, prompting them to improve the quality of information disclosure, thereby promoting green innovation. Guo et al. (2022) showed that environmental tax reform can foster the development of green technology and promote industrial restructuring, resulting in improved air quality. They further found that EPT will raise enterprises' pollution discharge costs, and to achieve long-term emission reduction goals, companies will need to invest more heavily in green technological innovation which can improve overall investment efficiency. Lu and Zhou (2023) supported that EPT can promote green innovation via legitimacy pressure and management. It is worth noting that this effect is more pronounced in non-state-owned enterprises with lower financing constraints and in the eastern region. In addition, green innovation, driven by EPT, can improve long-term performance. Moreover, Jiang et al. (2023) found an inverted U-shaped relationship between EPT and green innovation. Tax rates below the threshold compel enterprises towards green innovation initiatives whereas tax rates above it

⁷ See Article 13 of the Environmental Protection Tax Law of the People's Republic of China: "Where a taxpayer discharges a taxable atmospheric pollutant or water pollutant in concentrations less than 30 percent of the pollutant discharge standards set by the State or local government, the environmental protection tax shall be levied at a reduced rate of 75 percent. Where a taxpayer discharges a taxable atmospheric pollutant or water pollutant in concentrations less than 50% of the pollutant discharge standards prescribed by the State or local government, the environmental protection tax shall be levied at a reduced rate of 50%."

tend to inhibit enterprise-level innovations. Notably, the research of Wang et al. (2023) suggested the impact of the EPT reform on corporate green innovation is negative and particularly inhibitory toward non-state owned enterprises, and companies located in the northern and low-marketisation regions. The tax reduces cash flow and financing, and hinders innovation. These research findings support and provide a useful reference for the government to encourage enterprises to actively engage in green innovation to promote sustainable development in the country.

3.4 Environmental Protection Tax and Corporate ESG Performance

The Chinese economy has shifted from a stage of high-speed growth to a stage of high-quality development and will unswervingly implement the new development concept of innovation, coordination, green, open and shared development. High-quality development is a long-term development concept. As the three pillars of sustainable development, economy, society and environment are the methods and paths to achieve high-quality development goals.

Enterprise is the basic unit of market economy, enterprise prosperity is the foundation of economic prosperity. Enterprise ESG (environmental, social, and governance) performance is a key indicator for evaluating the sustainability and comprehensive performance of enterprises worldwide (Drempetic et al., 2020), reflecting the harmonious coexistence between enterprises, nature and society, and it largely depends on the efficiency of the relevant policy formulation and implementation (Chen et al., 2022; Lu & Cheng, 2023). EPT policy is mainly aimed at enterprises and has an important impact on the sustainable development of enterprises. Therefore, the policy effect test of the EPT should not be limited to the short-term performance of enterprises. Instead, it should be measured from the perspective of sustainable development of enterprises with ESG as the core connotation from the legislative purpose.

Implementing the EPT marks a significant turning point. After changing the environmental protection fee to tax, tax authorities can use enforcement safeguards to supervise taxpayers' payments. Enterprises will opt for clean energy, low-pollution processes, and other eco-friendly technologies to reduce emissions due to high non-compliance costs and strict regulations. The EPT also creates both constraints and incentives. To maximise their performance, enterprises will need to weigh the benefits of green technological innovation against the costs of pollution emissions. As the cost of non-compliance with environmental regulations continues to rise, companies will eventually be compelled to adopt sustainable practices that reduce emissions. This shift towards sustainability also creates economic incentives for companies to invest in green technologies and improve their environmental governance capabilities. More importantly, the implementation of EPT also conveys to the public the green development concept of "assuming social responsibility and actively protecting the environment", enhances the initiative of enterprises to explore green transformation and upgrading actively, strengthens the green governance capacity of enterprises, and achieves sustainable development of enterprises.

Most of the empirical results based on the Chinese scenario support a positive significant relationship between EPT and ESG performance (He et al., 2023; Li & Hua,

2024; Liu et al., 2023; Wang & Ye, 2024). In particular, He et al. (2023) found that the EPT can promote the ESG performance of heavily polluting companies in China, thus confirming Porter's hypothesis from a micro perspective. The research suggests that the positive effect of the EPT increases over time. This tax has a stronger influence on the high-ESG companies than on the low-ESG ones. In addition, the impact of EPT on enterprise ESG can be exponentially increased by government-provided innovation compensation and financial subsidies. Li and Hua (2024) conducted research on the internal transmission mechanism between EPT and enterprise ESG performance. The research found that EPT can improve enterprise ESG performance by encouraging green technology innovation. Wang and Ye (2024) discovered that the positive impact of EPT on corporate ESG investment is more significant in private companies, companies with low competitiveness, and those located in cities with a strong focus on environmental justice. Additionally, the study also found the pressure on tax payment costs and the risk of non-compliance after EPT leads to improvement of corporate ESG investment. Therefore, ensuring that environmental protection is protected by tax law can help increase awareness among businesses about tax payments, strengthen their responsibility towards environmental protection, aid in controlling pollution, reduce emissions, and encourage green technological innovation. This, in turn, can improve corporate performance and promote sustainable development of the market economy.

4. Environmental Protection Tax Optimisation Paths

4.1 Increasing Environmental Protection Tax Rates

China's current environmental protection tax complies with the "tax transfer" principle, resulting in a relatively low tax rate (Maxim, 2020). This low tax rate makes it difficult to encourage enterprises to actively conserve energy and reduce emissions. The level of EPT rate directly affects the cost of pollutant emitting enterprises. When the tax rate is set at a low level, the tax cost of enterprise pollution is less than the expenditure of enterprise investment in energy conservation and emission reduction. In this case, enterprises will choose to pay EPT to maintain the original production mode and scale. On the other hand, when the EPT rate is high, the tax paid by the enterprise will be equal to or greater than the pollution control cost of the enterprise. This could boost incentives for companies to increase green investments and reduce pollutant emissions. Therefore, EPT can force green transformation and upgrading of enterprises.

Additionally, China's environmental protection tax currently adopts a floating tax rate that varies significantly from one place to another (Li & Li, 2022). This could potentially lead to issues such as "tax havens". The purpose of having a floating tax rate is to ensure that, after transitioning from environmental protection fees to taxes, different regions can protect the environment without hindering economic development. However, since businesses aim to make profits, they may relocate from areas with high taxes to those with lower taxes to lessen their tax burden. This could lead to significant environmental damage in regions with low environmental protection taxes. As a result, China should consider gradually increasing the environmental protection tax rate (Liu et al., 2022; Long et al., 2022) and effectively regulating unreasonable behaviours of enterprises, such as environmental pollution and waste of resources.

As China's economy enters the stage of comprehensive green development, scholars give the following suggestions to realise the role of EPT in promoting the development of the environment, economy and green technology. Li and Li (2022) recommended that China should avoid regional tax competition, implement differential taxation based on the differences in technical base, pollution level, and major pollutants of various industries, and gradually increase the EPT rate to guide society to change to green concepts and guide enterprises to improve environmental efficiency and fulfill their social responsibilities. They suggested giving priority to increasing the tax rate on more harmful pollutants (such as sulfur dioxide and nitrogen oxides in air pollutants and chemical aerobic substances in water pollutants), and then raising the tax rate on other pollutants in line with economic growth. Maxim (2020) proposed that EPT policies should be tailored to the uniqueness of localities and industries, the EPT rates to be gradually increased, and the overall impact of tax adjustments should be carefully monitored.

4.2 Improving Preferential Tax Policies of the Environmental Protection Tax

As a fiscal policy, the collection of EPT is a process of social income redistribution. A reasonable revision of the EPT preferential tax policies will help give full play to the green regulatory role of tax leverage, which can raise environmental awareness among polluters and motivate them to reduce emissions, encourage enterprises to invest in green technology innovation from product design to pollutant end treatment, and improve the efficiency of resource utilisation (Gao et al., 2022). But excessive government subsidies will lead to rent seeking, social corruption and other negative problems, easily causing resource waste and misallocation, which will not be conducive to the sustainable green development of enterprises (Deng et al., 2023). Therefore, designing tax subsidy policies reasonably and appropriately is beneficial for an effective allocation of government resources. It can also maximise the vitality of energy enterprises and achieve long-term green and stable development of enterprises.

Currently, most of China's environmental protection subsidies mainly emphasise the treatment of pollutants at the end, with a focus on achieving short-term and quick results. However, this approach does not encourage enterprises to carry out green technology research and development, and it may lead to complacency after meeting the emission standards (Ouyang et al., 2023). Scholars have made suggestions from different aspects to encourage enterprises to invest in environmental protection and technological advancements to help enterprises achieve pollution source control. To effectively regulate preferential subsidies for EPT and encourage enterprises to invest more in environmental protection and technological advancements to reduce pollutant emissions, scholars have proposed suggestions to optimise tax subsidy policies. Specifically, Long et al. (2022) proposed the establishment of a multi-level tax rate incentive mechanism. Liu (2022) demonstrated that the current tax incentives and reduction policies primarily focus on urban and rural sewage, domestic waste and agricultural production. This indicates that the scope of these incentives can be broadened to further enhance their role in encouraging environmentally preferable behaviour. Xu et al. (2023) suggested that the government should further adopt preferential tax policies to promote green innovation in enterprises. This can help

incentivise high-polluting enterprises to adopt cleaner production technology, and actively engage in technological innovation in the production process and waste treatment (Xiao et al., 2023), hence achieving control at the source of pollutant discharge.

4.3 Enhancing Environmental Protection Supervision

EPT is a complex and professional tax with a short implementation and collection time. It involves various types of taxes, complex testing, measurement and verification processes, and high management costs, which present significant challenges to tax collection and administration in China (Li et al., 2021). Previous studies have indicated that an effective government environmental supervision mechanism can deter heavy-polluting enterprises from illegal discharge (Lu, 2022), leading to improved tax compliance among businesses. Additionally, with higher penalties for violations, polluters are more likely to take measures to reduce pollutant emissions (Gao et al., 2022), thereby accelerating the transition to a more environmentally friendly development model.

Specifically, China's EPT has established a tax collection and administration model integrating "enterprise declaration, tax collection, environmental monitoring, and information sharing",⁸ and clarified the responsibilities and cooperation mechanisms of tax authorities and environmental protection departments. However, it is still necessary for the current tax collection process to further clarify and improve the rights and obligations of the tax authorities and environmental protection departments, encourage and promote the joint management of the tax departments, the Ministry of Ecology and Environment, and the Ministry of Industry and Information Technology, to improve the efficiency of EPT collection and management (Gao et al., 2022; Li et al., 2021). In addition, considering that the revenue of EPT belongs to local governments, Lu (2022) suggested that the central government should strengthen environmental supervision over the collection of local EPT to avoid collusion between the government and enterprise. Wang and Chen (2023) and Xu et al. (2023) recommended that while improving trans-regional joint prevention and control, regional information sharing and pollution co-governance mechanisms should be further improved to enhance trans-regional capacity to deal with pollution. Liu et al. (2022) proposed reinforcing the environmental tax supervision system by assigning dedicated personnel to oversee tax collection and installing pollution monitoring equipment for accurate detection of pollutant discharge. Therefore, to enhance the effectiveness and efficiency of EPT collection and management, China should reinforce organisational leadership, clarify work responsibilities, promote data sharing between departments, establish environmental data centres and ecological environment intelligent supervision platforms, and conduct targeted enforcement actions against environmental violations (Long et al., 2022).

⁸ For details, refer to Article 14 and Article 15, the Environmental Protection Tax Law of the People's Republic of China (in Chinese). Please see <https://flk.npc.gov.cn/detail2.html?MmM5MDImZGQ2NzhiZjE3OTAxNjc4YmY4NDI5YjA5YmY%3D>

4.4 Introducing the Carbon Tax

Green and low-carbon technology is an important prerequisite for China to achieve its “carbon peaking and carbon neutrality” goals and high-quality development. The current EPT mainly targets atmospheric pollutants such as sulfur dioxide and nitrogen oxides, water pollutants, and solid waste and noise, and has not yet involved carbon dioxide emissions, making it difficult to achieve the synergistic effect of reducing pollution and carbon dioxide. A “carbon dioxide” tax line in the current EPT to tax carbon dioxide emissions promptly may be considered (Gao et al., 2022). As a new sub-tax of EPT, a carbon tax also serves as a pricing mechanism. It creates a dual mechanism that combines constraints and incentives for enterprises with varying emission reduction capabilities, aiming to reduce carbon emissions and combat global warming. Additionally, it can promote the widespread use of clean energy, leading to a dual effect of reducing emissions and fostering sustainable energy development (Weng, 2021). However, as a new type of tax, the carbon tax may impose an “additional burden” on enterprises and residents, potentially distorting the allocation of resources. Ren and Wang (2021) suggested that if China implements a carbon tax system in the future, it could be included in the EPT as one of the tax items, and at the same time introduce a carbon tax revenue recycling mechanism under the principle of tax neutrality to reduce the impact of other distorting taxes to achieve economic structural adjustment (Ye & Wang, 2019). Fu et al. (2021) suggested the consideration of a more flexible stepped carbon tax, with different levels of tax set according to the related factors such as coal and crude oil usage. With more stringent emission limits, this approach would encourage the transition to clean energy sources such as natural gas and clean electricity, and effectively slow carbon emissions.

5. Conclusion

Based on the comprehensive literature review in this study, it is evident that significant progress is still needed in the development and enhancement of China’s Environmental Protection Tax. Nonetheless, the study has revealed insightful perspectives, lessons and recommendations for future policy action and research.

With the gradual emergence of environmental problems and the continuous attention of society to economic growth, more and more scholars have begun to discuss whether the implementation of environmental protection fee-to-tax change in China can improve the environment and achieve a double dividend (improvement of economic effect). Firstly, through this review, it can be basically summarised that: (1) most of the existing empirical studies supported that EPT can effectively improve the environment, which realises the main purpose of collecting such tax; (2) the realisation of the second dividend (the blue dividend, an increase in economic efficiency) is still uncertain. Most studies suggested that implementing environmental protection fee-to-tax reform in China can effectively enhance social environmental awareness, improve the green financing environment, and encourage enterprise innovation by improving legal rigidity and optimising tax incentives. This, in turn, can lead to positive economic effects. While a few studies have presented differing views on the benefits of implementing an EPT, suggesting that it could increase the environmental costs

for businesses, reduce their R&D investments, and hinder economic efficiency, these studies also indicated that with improvements to the tax system, it is possible to enhance non-environmental benefits.

Secondly, the review of green innovation in China's environmental protection fee-to-tax reform shows that: (1) most studies support Porter's "innovation compensation effect" (Porter & van der Linde, 1995a) that EPT can be guided by green policies (the trend of national green development), the strengthening of tax supervision, and the reasonable setting of tax incentive policies, to enhance enterprises' green technology innovation; (2) some other studies also empirically found that the implementation of EPT increases the cost burden of enterprises, reduces the cash flow and financing of enterprises, hinders the green innovation of enterprises, and has unequal impact on regions and industries, which is in line with the "crowding out effect" of neoclassical economics. However, these studies believe that improving environmental tax regulations, such as promoting flexible differentiation of environmental tax based on industry and regional heterogeneity, tax incentives, and other supporting policies, will help to improve enterprises' enthusiasm for green innovation. These research findings provide theoretical support and guidance for the government to promote active implementation of green innovation by enterprises.

Thirdly, by summarising comprehensively the studies on performance of micro-enterprises ESG of EPT, it is understood that the EPT can improve the ESG performance of enterprises by increasing the cost of pollution violations, enhancing the awareness of tax payment and strengthening the environmental responsibility of enterprises. As a result, this contributes to the sustainable development of the market economy.

Finally, given the shortcomings of the current EPT in China, this study tries to discuss the feasibility of optimisation paths of the EPT from four aspects: increasing environmental protection tax rates, improving preferential tax policies, enhancing environmental protection supervision, and introducing the carbon tax. By a comprehensive review of the development, effects, and optimisation paths of China's environmental protection tax, this study hopes to provide an important reference for the relevant government departments to improve the green tax system, for enterprises to enhance their green governance capabilities, and for scholars to develop future research.

References

- Alola, A.A., & Nwulu, N. (2022). Do energy-pollution-resource-transport taxes yield double dividend for Nordic economies? *Energy*, 254(Part C), Article 124275. <https://doi.org/10.1016/j.energy.2022.124275>
- Chen, Y.P., Zhuo, Z., Huang, Z., & Li, W. (2022). Environmental regulation and ESG of SMEs in China: Porter hypothesis re-tested. *Science of The Total Environment*, 850, Article 157967. <https://doi.org/10.1016/j.scitotenv.2022.157967>
- Deng, Y., Dong, K., Taghizadeh-Hesary, F., & Xue, J. (2023). How does environmental regulation affect the double dividend for energy firms? Evidence from China's EPT policy. *Economic Analysis and Policy*, 79, 807–820. <https://doi.org/10.1016/j.eap.2023.07.001>
- Drempetic, S., Klein, C., & Zwergel, B. (2020). The influence of firm size on the ESG score: Corporate sustainability ratings under review. *Journal of Business Ethics*, 167, 333–360. <https://doi.org/10.1007/s10551-019-04164-1>

- Fan, Q., Qiao, Y., Zhang, T., & Huang, K. (2021). Environmental regulation policy, corporate pollution control and economic growth effect: Evidence from China. *Environmental Challenges*, 5, Article 100244. <https://doi.org/10.1016/j.envc.2021.100244>
- Fang, Z., Kong, X., Sensoy, A., Cui, X., & Cheng, F. (2021). Government's awareness of environmental protection and corporate green innovation: A natural experiment from the new environmental protection law in China. *Economic Analysis and Policy*, 70, 294–312. <https://doi.org/10.1016/j.eap.2021.03.003>
- Fu, Y., Huang, G., Liu, L., & Zhai, M. (2021). A factorial CGE model for analyzing the impacts of stepped carbon tax on Chinese economy and carbon emission. *Science of The Total Environment*, 759, Article 143512. <https://doi.org/10.1016/j.scitotenv.2020.143512>
- Fullerton, D., & Metcalf, G.E. (1997). *Environmental taxes and the double-dividend hypothesis: Did you really expect something for nothing?* (NBER Working Paper 6199). National Bureau of Economic Research. <https://doi.org/10.3386/w6199>
- Gao, X., Liu, N., & Hua, Y. (2022). Environmental Protection Tax Law on the synergy of pollution reduction and carbon reduction in China: Evidence from a panel data of 107 cities. *Sustainable Production and Consumption*, 33, 425–437. <https://doi.org/10.1016/j.spc.2022.07.006>
- Goulder, L.H. (1995). Environmental taxation and the double dividend: A reader's guide. *International Tax and Public Finance*, 2, 157–183. <https://doi.org/10.1007/BF00877495>
- Guo, B., Wang, Y., Feng, Y., Liang, C., Tang, L., Yao, X., & Hu, F. (2022). The effects of environmental tax reform on urban air pollution: A quasi-natural experiment based on the Environmental Protection Tax Law. *Frontiers in Public Health*, 10, Article 967524. <https://doi.org/10.3389/fpubh.2022.967524>
- Han, F., & Li, J. (2020). Assessing impacts and determinants of China's environmental protection tax on improving air quality at provincial level based on Bayesian statistics. *Journal of Environmental Management*, 271, Article 111017. <https://doi.org/10.1016/j.jenvman.2020.111017>
- He, Y., Wen, C., & He, J. (2020). The influence of China Environmental Protection Tax Law on firm performance – evidence from stock markets. *Applied Economics Letters*, 27(13), 1044–1047. <https://doi.org/10.1080/13504851.2019.1659488>
- He, Y., Zhao, X., & Zheng, H. (2023). How does the environmental protection tax law affect firm ESG? Evidence from the Chinese stock markets. *Energy Economics*, 127(Part A), Article 107067. <https://doi.org/10.1016/j.eneco.2023.107067>
- He, Y., Zhu, X., & Zheng, H. (2022). The influence of environmental protection tax law on total factor productivity: Evidence from listed firms in China. *Energy Economics*, 113, Article 106248. <https://doi.org/10.1016/j.eneco.2022.106248>
- Hu, X., Liu, J., Yang, H., Meng, J., Wang, X., Ma, J., & Tao, S. (2020). Impacts of potential China's Environmental Protection Tax reforms on provincial air pollution missions and economy. *Earth's Future*, 8(4), 1–11. <https://doi.org/10.1029/2019EF001467>
- Jiang, Z., Xu, C., & Zhou, J. (2023). Government environmental protection subsidies, environmental tax collection, and green innovation: Evidence from listed enterprises in China. *Environmental Science and Pollution Research*, 30, 4627–4641. <https://doi.org/10.1007/s11356-022-22538-3>
- Karmaker, S.C., Hosan, S., Chapman, A.J., & Saha, B.B. (2021). The role of environmental taxes on technological innovation. *Energy*, 232, Article 121052. <https://doi.org/10.1016/j.energy.2021.121052>
- Li, G., & Masui, T. (2019). Assessing the impacts of China's environmental tax using a dynamic computable general equilibrium model. *Journal of Cleaner Production*, 208, 316–324. <https://doi.org/10.1016/j.jclepro.2018.10.016>

- Li, J., & Li, S. (2022). Environmental protection tax, corporate ESG performance, and green technological innovation. *Frontiers in Environmental Science*, 10, 1–10. <https://doi.org/10.3389/fenvs.2022.982132>
- Li, L., Zhang, S., Cao, X., & Zhang, Y. (2021). Assessing economic and environmental performance of multi-energy sharing communities considering different carbon emission responsibilities under carbon tax policy. *Journal of Cleaner Production*, 328, Article 129466. <https://doi.org/10.1016/j.jclepro.2021.129466>
- Li, Y., & Hua, Z. (2024). Environmental protection tax law and corporate ESG performance. *Finance Research Letters*, 64, Article 105423. <https://doi.org/10.1016/j.frl.2024.105423>
- Li, Z., Liao, G., Wang, Z., & Huang, Z. (2018). Green loan and subsidy for promoting clean production innovation. *Journal of Cleaner Production*, 187, 421–431. <https://doi.org/10.1016/j.jclepro.2018.03.066>
- Liu, A., Dai, S., & Wang, Z. (2023). Environmental protection tax on enterprise environmental, social and governance performance: A multi-perspective analysis based on financing constraints. *Journal of Asian Economics*, 89, Article 101671. <https://doi.org/10.1016/j.asieco.2023.101671>
- Liu, G., Yang, Z., Zhang, F., & Zhang, N. (2022). Environmental tax reform and environmental investment: A quasi-natural experiment based on China's Environmental Protection Tax Law. *Energy Economics*, 109, Article 106000. <https://doi.org/10.1016/j.eneco.2022.106000>
- Liu, J., & Xiao, Y. (2022). China's environmental protection tax and green innovation: Incentive effect or crowding-out effect. *Economic Research Journal*, 57(01), 72–88.
- Long, F., Ge, C., Lin, F., Lian, C., Bi, F., & Hu, T. (2021). Impact of environmental protection tax on corporate performance based on tax rate increase. *Chinese Journal of Environmental Management*, 13(05), 127–134+160. <https://doi.org/10.16868/j.cnki.1674-6252.2021.05.127>
- Long, F., Lin, F., & Ge, C. (2022). Impact of China's environmental protection tax on corporate performance: Empirical data from heavily polluting industries. *Environmental Impact Assessment Review*, 97, Article 106892. <https://doi.org/10.1016/j.eiar.2022.106892>
- Lu, H., Liu, Q., Xu, X., & Yang, N. (2019). Can environmental protection tax achieve 'reducing pollution' and 'economic growth'? Based on the change perspective of China's sewage charges. *China Population, Resources and Environment*, 29(06), 130–137.
- Lu, J. (2022). Can environmental protection tax aggravate illegal pollution discharge of heavy polluting enterprises? *Environmental Science and Pollution Research*, 29, 33796–33808. <https://doi.org/10.1007/s11356-021-18002-3>
- Lu, N., & Zhou, W. (2023). The impact of green taxes on green innovation of enterprises: A quasi-natural experiment based on the levy of environmental protection taxes. *Environmental Science and Pollution Research*, 30, 92568–92580. <https://doi.org/10.1007/s11356-023-28718-z>
- Lu, S., & Cheng, B. (2023). Does environmental regulation affect firms' ESG performance? Evidence from China. *Managerial and Decision Economics*, 44(4), 2004–2009. <https://doi.org/10.1002/mde.3796>
- Luo, Y., Nyarko Mensah, C., Lu, Z., & Wu, C. (2022). Environmental regulation and green total factor productivity in China: A perspective of Porter's and Compliance Hypothesis. *Ecological Indicators*, 145, Article 109744. <https://doi.org/10.1016/j.ecolind.2022.109744>
- Maxim, M.R. (2020). Environmental fiscal reform and the possibility of triple dividend in European and non-European countries: Evidence from a meta-regression analysis. *Environmental Economics and Policy Studies*, 22, 633–656. <https://doi.org/10.1007/s10018-020-00273-8>
- Ministry of Ecological Environment, D.o.P.a.F. (2018). Reform of China's Emission Permit System: History, reality and future (in Chinese). *China Environment Supervision (09)*, 63–67.

- Montmartin, B., & Herrera, M. (2015). Internal and external effects of R&D subsidies and fiscal incentives: Empirical evidence using spatial dynamic panel models. *Research Policy*, 44(5), 1065–1079. <https://doi.org/10.1016/j.respol.2014.11.013>
- Ouyang, H., Zhang, G., & Wang, Q. (2023). Do environmental protection fiscal and tax policies promote the green development of heavy polluting enterprises? Based on the perspective of policy choice of “tax” and “compensation” (in Chinese). *Sub National Fiscal Research* (07), 40–53.
- Parry, I.W.H., & Bento, A.M. (2000). Tax deductions, environmental policy, and the “double dividend” hypothesis. *Journal of Environmental Economics and Management*, 39(1), 67–96. <https://doi.org/10.1006/jjeem.1999.1093>
- Pearce, D. (1991). The role of carbon taxes in adjusting to global warming. *The Economic Journal*, 101(407), 938–948. <https://doi.org/10.2307/2233865>
- Porter, M.E., & van der Linde, C. (1995a). Green and competitive: Ending the stalemate. *Harvard Business Review*, 73(5), 120–134.
- Porter, M.E., & van der Linde, C. (1995b). Toward a new conception of the environment-competitiveness relationship. *Journal of Economic Perspectives*, 9(4), 97–118. <https://doi.org/10.1257/jep.9.4.97>
- Ren, C., & Wang, H. (2021). To explore the construction of carbon tax recycling mechanism from the principle of tax neutrality (in Chinese). *Finance and Accounting Monthly* (04), 155–160. <https://doi.org/10.19641/j.cnki.42-1290/f.2021.04.020>
- Shi, X., Jiang, Z., Bai, D., Fahad, S., & Irfan, M. (2023). Assessing the impact of green tax reforms on corporate environmental performance and economic growth: Do green reforms promote the environmental performance in heavily polluted enterprises? *Environmental Science and Pollution Research*, 30, 56054–56072. <https://doi.org/10.1007/s11356-023-26254-4>
- Wang, J., & Chen, Z. (2023). Emission reduction effects of China’s environmental protection tax: From the perspective of increasing the applicable tax amount of pollutants. *China Population, Resources and Environment*, 33(02), 30–37.
- Wang, M., Liao, G., & Li, Y. (2021). The relationship between environmental regulation, pollution and corporate environmental responsibility. *International Journal of Environmental Research and Public Health*, 18(15), Article 8018. <https://doi.org/10.3390/ijerph18158018>
- Wang, X., & Ye, Y. (2024). Environmental protection tax and firms’ ESG investment: Evidence from China. *Economic Modelling*, 131, Article 106621. <https://doi.org/10.1016/j.econmod.2023.106621>
- Wang, Y., Xu, S., & Meng, X. (2023). Environmental protection tax and green innovation. *Environmental Science and Pollution Research*, 30, 56670–56686. <https://doi.org/10.1007/s11356-023-26194-z>
- Weng, Z. (2021). Research on China’s market-oriented emission reduction mechanism to achieve carbon neutral long-term goals. *Environmental Protection*, 49(Z1), 66–69. <https://doi.org/10.14026/j.cnki.0253-9705.2021.z1.012>
- Xiao, Q., Jiang, Y., Li, R., & Xiao, S. (2023). Environmental protection tax and the labor income share of companies: Evidence from a quasi-natural experiment in China. *Environmental Science and Pollution Research*, 30, 41820–41833. <https://doi.org/10.1007/s11356-023-25239-7>
- Xu, Y., Wen, S., & Tao, C.-Q. (2023). Impact of environmental tax on pollution control: A sustainable development perspective. *Economic Analysis and Policy*, 79, 89–106. <https://doi.org/10.1016/j.eap.2023.06.006>
- Ye, L., & Wang, X. (2019). On a recycling mechanism for environmental tax revenue: Theory, reference and inspiration. *Taxation Research* (03), 96–100. <https://doi.org/10.19376/j.cnki.cn11-1011/f.2019.03.018>

- Yuan, B., & Xiang, Q. (2018). Environmental regulation, industrial innovation and green development of Chinese manufacturing: Based on an extended CDM model. *Journal of Cleaner Production*, 176, 895–908. <https://doi.org/10.1016/j.jclepro.2017.12.034>
- Zhang, D. (2022). Environmental regulation and firm product quality improvement: How does the greenwashing response? *International Review of Financial Analysis*, 80, Article 102058. <https://doi.org/10.1016/j.irfa.2022.102058>
- Zhou, Z., Zhang, W., Pan, X., Hu, J., & Pu, G. (2020). Environmental tax reform and the “double dividend” hypothesis in a small open economy. *International Journal of Environmental Research and Public Health*, 17(1), Article 217. <https://doi.org/10.3390/ijerph17010217>

