

Research on the Impact of Perceived Implementation of Green Tax Policies on the Sustainable Development of Small and Medium-Sized Enterprises in Hanoi

Phuong Nguyen Thi¹ Hung Do Hai^{1*} Huy Mai Quang¹ Ngan Dang Thi Kim¹ Tu Duong Cam¹
Vu Nguyen Huy¹

1. School of Economics, Hanoi University of Industry, No. 298 Cau Dien Street, Minh Khai Ward, Tay Tuu District, Hanoi

* E-mail of the corresponding author: dohaihung@hau.edu.vn

Abstract

In the context of Vietnam's commitment to achieving net-zero emissions by 2050, green taxation has emerged as a critical fiscal instrument to promote green growth and sustainable development. However, the effectiveness of green tax policies depends not only on policy design but also on firms' perceptions and understanding during implementation. This study examines the impact of enterprises' perceptions of green tax policy implementation on sustainable development among small and medium-sized enterprises (SMEs) in Hanoi. Reliability and validity of the measurement scales were assessed using Cronbach's Alpha, AVE, VIF, ... while Partial Least Squares Structural Equation Modeling (PLS-SEM) was applied to test the proposed structural model. The findings indicate that positive perceptions of policy objectives, transparency, and enforcement mechanisms significantly enhance corporate sustainable development performance, particularly through stimulating green innovation and strengthening environmental responsibility. The study provides empirical evidence from an emerging economy and offers policy implications for improving institutional communication, ensuring policy stability, and supporting SMEs in their green transition process.

Keywords: *Green Tax Policy, Policy Implementation Perception, Sustainable Development, Small and Medium-Sized Enterprises (SMEs)*

DOI: 10.7176/EJBM/18-5-07

Publication date: May 30th 2026

1. Introduction

Against the backdrop of climate change as a critical global challenge, Vietnam has committed decisively to achieving net-zero emissions by 2050, as articulated by the Prime Minister at COP26. Within Hanoi, the economic center of the country, the imperative for green transformation transcends administrative rhetoric, increasingly affecting the financial outcomes and long-term viability of enterprises through the introduction of green tax policies.

Nevertheless, a significant gap persists between the legal provisions and the enforcement mindset. For small and medium enterprises (SMEs) in Hanoi – which constitute the majority yet face resource constraints – the green tax is frequently perceived as a financial burden rather than a strategic instrument. The transformation in perception from merely 'coping with tax impositions' to 'actively implementing policies for sustainable development' has become a pivotal determinant of an enterprise's survival within the modern supply chain.

This study segment thoroughly analyzes how the perception of green tax influences the sustainable development of SMEs in Hanoi. When enterprises possess an accurate and comprehensive understanding of tax incentives alongside their environmental responsibilities, do they effectively generate substantial advances in sustainable development? Or do the barriers posed by compliance costs continue to constitute an obstacle hindering their transition towards a circular economy?

By analyzing empirical data and conducting direct surveys in Hanoi, the study not only offers a comprehensive perspective on the prevailing perceptions of business owners but also suggests practical policy recommendations. This serves as a crucial basis for policymakers and enterprises to reach a consensus, thereby transforming the green tax from an obstacle into a catalyst that fosters sustainable growth within the private sector economy.

2. Literature Review And Theoretical Background

2.1 Literature review

In the context of a global shift towards green growth and sustainable development, green taxes and environmental policy tools are receiving increasing attention from academics and policymakers. Numerous studies have shown that environmental tax tools not only contribute to pollution reduction but also incentivize businesses to innovate and enhance their competitiveness.

One of the fundamental theoretical contributions is the study by Lawrence H. Goulder (1995) which addresses the double dividend of environmental taxes, emphasizing that environmental taxes not only reduce pollution but can also improve the efficiency of the tax system if revenue is allocated appropriately. This study is one of the most cited works when discussing the economic-environmental benefits of green tax policies.

In empirical analysis, Morley (2012) used data from European Union countries to demonstrate that environmental taxes are effective in reducing emissions, although the impact on energy consumption is not strong. This indicates that the effectiveness of environmental taxes may vary between different socio-economic contexts.

In addition, from the perspective of sustainable development and corporate responsibility, Sunita Pachar (2020) argues that corporate social responsibility (CSR) along with sustainable governance is a key factor in helping businesses adapt and develop in the context of increasingly stringent environmental policies. This study adds a perspective on the intrinsic role of businesses in the process of implementing green tax policies.

Experimental studies in Vietnam have also increased in recent years. Dinh Thi Hoa (2020) surveyed the impact of environmental tax collection on CO₂ emissions in Vietnam during the period 2001–2018, showing that environmental tax has a clear impact on reducing emissions. At the same time, Hoang Thi Xuan & Ngo Thai Hung (2025) analyzed the impact of green growth on the ecological footprint, affirming that environmental tax is a tool to promote green growth in the long term. In terms of policy and management, Nguyen Thi Hai Binh (2023) also assessed the current status of green tax policy in Vietnam and proposed improvements to promote sustainable development.

In addition to the above studies, several other works contribute to clarifying the relationship between green taxes and sustainable development, such as Khan et al (2022) examined the relationship between environmental taxes and green investment in developing countries, finding that environmental taxes help improve investment flows into green industries. OECD (2019) reported an overview showing that environmental taxes are increasingly widely applied worldwide and are often associated with national emission reduction commitments.

However, current research still lacks comprehensive analysis of the relationship between awareness of green tax policy implementation and sustainable development among small and medium-sized enterprises (SMEs), and the benefits of applying green taxes in the specific context of the Vietnamese market, especially in large cities like Hanoi. This study aims to fill that gap by analyzing the impact of enterprise awareness of green tax implementation on sustainable development effectiveness, while also examining the mediating role of green innovation in this relationship.

2.2 Theoretical background

2.2.1 Green taxes

(i) Concept

Green taxes, also known as environmental taxes, are economic instruments imposed by governments on activities or products that generate pollution or environmental degradation. They are based on the “polluter pays principle”, originally proposed by Arthur Cecil Pigou (2017). The fundamental nature of such taxes is to internalize negative externalities into product prices, thereby requiring economic actors to bear the environmental costs of their activities.

In Vietnam, this concept has been institutionalized through the Law on Environmental Protection Tax and through ongoing proposals related to carbon taxation, which aim to encourage emission reductions and promote the adoption of clean technologies. Within the scope of this study, green tax is defined as a tax applied to activities, products, or services that have negative impacts on ecosystems, with the objective of guiding behavior toward environmentally friendly practices.

(ii) Characteristics and Objectives of Green Tax Policies

Green tax policies are characterized by their ability to create price signals that reflect environmental costs rather than relying solely on rigid administrative regulations. Such policies are often designed to achieve the so-called

“double dividend”, meaning they improve environmental quality through emission reductions while minimizing economic distortions if the revenue generated is used to reduce other forms of taxation.

The primary objective of green taxes is not merely to increase government revenue but rather to influence the behavior of businesses and consumers. By increasing the cost of pollution-intensive activities, green taxes create economic incentives for firms to adopt cleaner technologies, improve energy efficiency, and transition toward more sustainable production models.

2.2.2 Perceptions of Policy Implementation

(i) Concept of Policy Implementation Perception

Policy implementation represents a complex interactive process that bridges the gap between the intentions of policymakers and actual outcomes in practice. In this context, perception of policy implementation refers to the level of understanding, evaluation, and interpretation by enterprises regarding the objectives, content, procedures, and practical implications of a policy.

When firms possess a clear and accurate understanding of policy requirements—knowing what to do, why it matters, and how to comply—they are more likely to cooperate proactively and comply with regulations. Conversely, vague or incorrect perceptions may lead to resistance, hesitation, or merely symbolic compliance.

(ii) Factors Influencing Perceptions

Corporate perceptions are shaped by several groups of factors. First, knowledge and the complexity of the tax system play a critical role. Insufficient knowledge combined with complicated or overlapping regulations increases compliance costs and may create concerns about regulatory risks.

Second, psychological and social factors are also important. Trust in the fairness and transparency of tax revenue allocation, as well as prevailing social norms, significantly influence voluntary compliance attitudes.

Finally, the institutional and business environment has a substantial impact. Policy stability and consistency in enforcement by government authorities provide important signals that help firms formulate appropriate strategic responses.

2.2.3 Corporate Sustainable Development

(i) Theoretical Basis of Small and Medium-Sized Enterprises (SMEs)

In Vietnam, small and medium-sized enterprises are defined under Decree No. 80/2021/ND-CP based on criteria related to employment (fewer than 300 employees) and capital or revenue (capital below VND 100 billion). SMEs are characterized by limited financial resources and restricted access to capital; however, they often possess high operational flexibility and adaptability to market changes. Although SMEs account for approximately 98% of all enterprises in Vietnam and play a vital role in employment generation and economic growth, they frequently face challenges in meeting stringent environmental requirements due to resource constraints.

(ii) Concept of Sustainable Development

Sustainable development is defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs (WCED) (1987). This concept has evolved through various global summits and has been operationalized through the 17 Sustainable Development Goals (SDGs) adopted by the United Nations. For businesses, sustainable development is not limited to short-term profit growth but represents a long-term strategy balancing economic performance, social responsibility, and environmental protection.

(iii) Characteristics of Sustainable Development

Corporate sustainable development is built upon three fundamental pillars. Environmental dimension: firms must efficiently utilize natural resources, reduce pollution, and adopt clean technologies. Social dimension: sustainability is reflected through fairness, improved employee well-being, and contributions to community development. Economic dimension: firms must maintain stable growth while adopting efficient technologies and shifting toward productivity-driven development rather than unsustainable expansion.

(iv) Factors Affecting Sustainable Development

The sustainable development process of SMEs is influenced by multiple factors. Economic and financial factors - such as access to capital, interest rates, and business performance - determine the availability of resources for innovation. Social factors include the implementation of corporate social responsibility (CSR) and the protection

of employees' rights, which enhance reputation and productivity. Environmental and legal factors require firms to comply with regulations and respond to pressures arising from tax policies and green standards in the marketplace. Finally, competitive pressures and increasing consumer demand for environmentally friendly products create strong incentives for businesses to adopt sustainable transformation strategies.

3. Research Methodology And Research Model

3.1 Research Methodology

The data used in this study were collected from small and medium-sized enterprises located in Hanoi, which represent a key target group for examining perceptions of green tax policy implementation. The questionnaire consisted of multi-item measurement scales assessed using a five-point Likert scale, ranging from (1) strongly disagree to (5) strongly agree. The questionnaire was divided into two sections: (1) Personal information; (2) The impact of perceptions regarding the implementation of green tax policies on the sustainable development of small and medium-sized enterprises comprises five components measured by 25 observed variables. Among these, The perceptions of green tax policy implementation (5 items), Green innovation (5 items), Social sustainability (5 items), Environmental sustainability (5 items), Governance sustainability (5 items). Since the research model contains 25 observed variables, the minimum sample size was determined according to the rule $n \geq 125 = 5 * 25$ (where n represents the sample size).

To ensure sufficient sample size, questionnaires were distributed in both printed form and online via Google Forms to SMEs in Hanoi. A non-probability convenience sampling method was applied. The survey collected 224 responses, of which 218 were valid (equivalent to 97.32%) during January 2026, providing sufficient data for statistical analysis. The valid data were analyzed through several steps, including reliability assessment using Cronbach's Alpha, Composite Reliability (CR), convergent validity (AVE), and discriminant validity (HTMT), ... in order to test the research hypotheses.

3.2 Research Model

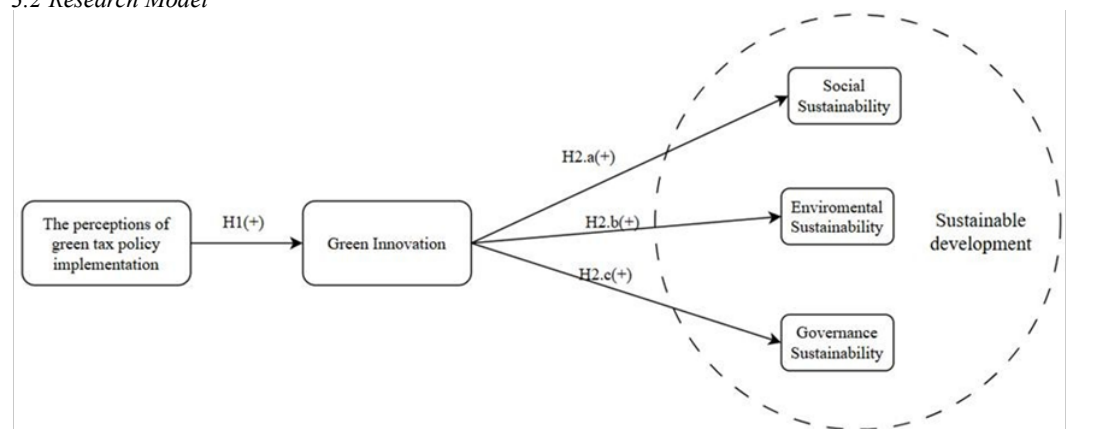


Figure 3: Research model

(Source: Compiled by the authors)

Research Hypotheses:

H1: Perceptions of green tax policy implementation positively affect firms' green innovation.

Studies by Wang et al. (2024) and Duan (2025) indicate that when firms clearly understand green tax policies, they tend to invest more in research and development as well as environmentally friendly technologies. Similarly, Zheng (2023) argues that the impact of ecological tax policies becomes truly effective only when firms clearly perceive the objectives and mechanisms of the policy.

H2a: Green innovation positively affects the social dimension of corporate sustainable development.

Green innovation contributes to improving corporate social responsibility by enhancing working conditions, increasing employee welfare, and providing safer products for the community. Studies by Chen et al. (2020) and Liu et al. (2024) show that firms implementing green innovation often receive stronger support from employees and the community.

H2b: Green innovation positively affects the environmental dimension of corporate sustainable development.

Research conducted by Chen (2025) and Wang et al. (2024) indicates that firms engaging in green innovation often achieve higher environmental performance and significantly improve environmental indicators reported in ESG disclosures.

H2c: Green innovation positively affects the governance dimension of corporate sustainable development.

Green innovation also encourages firms to improve governance systems, enhance transparency, and strengthen environmental risk management. Zhen (2025) found that firms with strong green innovation activities tend to achieve higher governance scores in ESG evaluation systems.

H3: Green innovation mediates the relationship between perceptions of green tax policy implementation and sustainable development.

Studies by Duan (2025) and Wang et al. (2024) confirm that perceptions of green tax policies encourage firms to invest in green innovation, and these innovation activities subsequently transform policy impacts into sustainable development outcomes.

4. Research Results

4.1 Descriptive Statistics of the Research Sample

With 218 valid responses, the authors processed and analyzed the data using Microsoft Excel and SmartPLS 4. Initially, the authors conducted a preliminary analysis using frequency statistics to describe the characteristics of the research sample.

Criteria		Frequency	%
Business sector	Manufacturing	71	32.57%
	Trading	58	26.61%
	Services	50	22.94%
	Construction	39	17.89%
	Total	218	100%
Firm operating period	Less than 3 years	33	15.14%
	3 - 5 years	68	31.19%
	5 - 10 years	75	34.40%
	More than 10 years	42	19.27%
	Total	218	100%
Management level of respondents	Board member	22	10.09%
	Director	78	35.78%
	Deputy Director	82	37.61%
	Head/Deputy Head of Department	36	16.51%
	Total	218	100%
Level of green tax policy implementation	Very poor	3	1.38%
	Poor	19	8.72%
	Average	72	33.03%
	Good	93	42.66%
	Very good	31	14.22%
	Total	218	100%

(Source: Smart - PLS data analysis results)

The frequency statistics for the variable business sector of the surveyed enterprises indicate that among the 218 valid responses, 71 firms operate in the manufacturing sector (32.57%), 58 firms operate in the trading sector (26.61%), 50 firms belong to the service sector (22.94%), and 39 firms operate in the construction sector

(17.89%).

Regarding the operating period of the enterprises, the results show that 33 firms have been operating for less than three years (15.14%), 68 firms have operated for 3–5 years (31.19%), 75 firms have operated for 5–10 years (34.40%), and 42 firms have operated for more than 10 years (19.27%).

With respect to the management level of respondents, the frequency statistics reveal that among the 218 respondents, 22 are members of the Board of Directors (10.09%), 78 are Directors (35.78%), 82 are Deputy Directors (37.61%), and 36 are Heads or Deputy Heads of departments (16.51%).

Among the 218 surveyed enterprises, the majority evaluated the level of green tax policy implementation within their firms as ranging from “average” to “very good.” Specifically, the “good” level accounts for the largest proportion with 93 firms (42.66%), followed by the “average” level with 72 firms (33.03%). Although lower than these two levels, the “very good” level still represents 14.22% with 31 firms. Meanwhile, 22 enterprises (10.10%) assessed the implementation of green tax policies in their firms as “very poor” or “poor.”

4.2 Reliability Test of the Measurement Scales

The results indicate that the Cronbach’s Alpha coefficients of all measurement scales are satisfactory, with values exceeding the acceptable threshold of 0.6, ranging from 0.831 to 0.874. In addition, the Corrected Item–Total Correlation values of all observed variables are greater than 0.3. These results suggest that the variables used in the study titled “The Impact of Perceptions of Green Tax Policy Implementation on the Sustainable Development of Small and Medium-Sized Enterprises in Hanoi” demonstrate high internal consistency and strong reliability. No observed variables were removed as none violated the reliability criteria. Therefore, these findings provide an important foundation and ensure the accuracy and robustness of subsequent analyses and the testing of the proposed research hypotheses.

4.3 Model Testing

4.3.1 Measurement Model Assessment

When evaluating the measurement model using SmartPLS, several key criteria need to be considered, including:

Outer Loadings ≥ 0.7 ; Cronbach’s Alpha ≥ 0.7 ; Composite Reliability ≥ 0.7 ; Average Variance Extracted (AVE) ≥ 0.5 ; Heterotrait–Monotrait Ratio (HTMT) ≤ 0.85

(i) Composite Reliability and Internal Consistency

Composite Reliability (CR) is often preferred by many researchers over Cronbach’s Alpha because Cronbach’s Alpha tends to underestimate the reliability of constructs compared with CR. According to Wynne W. Chin (1998), in exploratory research, the CR value should be 0.6 or higher. Meanwhile, Jörg Henseler and Marko Sarstedt (2013) argue that in confirmatory studies, a threshold of 0.7 is considered appropriate for the CR index. Several other studies also support the 0.7 threshold as an acceptable benchmark for assessing reliability in most research contexts.

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Environmental	0.874	0.876	0.908	0.665
	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Implementation	0.853	0.859	0.895	0.631
Governance	0.867	0.869	0.904	0.652
Social	0.831	0.847	0.879	0.594
Green Innovation	0.849	0.852	0.893	0.628

(Source: Smart - PLS data analysis results)

According to the evaluation results, all observed variables have reliability values greater than 0.7; therefore, the measurement scales ensure the reliability of the model.

(ii) Average Variance Extracted (AVE)

To assess convergent validity using SmartPLS, the Average Variance Extracted (AVE) indicator is commonly

used. Hock and Christian M. Ringle (2010) suggest that a measurement scale achieves convergent validity when the AVE value is equal to or greater than 0.5. This threshold of 0.5 (50%) implies that the latent construct explains at least 50% of the variance of its observed indicators on average. Based on the analysis results, all measurement scales in the study satisfy the requirement for convergent validity, as the AVE values of all constructs are greater than 0.5.

4.3.2 Structural Model Assessment

(i) Results regarding model fit (Model Fit)

Model_Fit		
Fit Summary		
	Saturated Model	Estimated Model
SRMR	0.056	0.100
d_ ULS	1.032	3.240
d_ G	0.360	0.482
Chi-Square	434.786	534.094
NFI	0.847	0.812
rms Theta	0.122	

(Source: Smart - PLS data analysis results)

SRMR: the difference between the observed data and the model-predicted data. This index reflects how well the proposed model fits the empirical data. An SRMR value of 0.100 or lower indicates that the model predictions are reasonably consistent with the observed data, suggesting an acceptable model fit.

(ii) P-value and T-value

	Original Sample (O)	P Values
Implementation -> Environmental	0.281	0.000
Implementation -> Governance	0.421	0.000
Implementation -> Social	0.045	0.525
Implementation -> Green Innovation	0.330	0.000
Green Innovation -> Environmental	0.097	0.169
Green Innovation -> Governance	0.366	0.000
Green Innovation -> Social	0.370	0.000

(Source: Smart - PLS data analysis results)

Most of the P-value tests produced results below the 5% significance level, indicating statistically significant relationships among the variables in the research model. However, two relationships generated P-values greater than 5%, suggesting that these hypotheses are not supported.

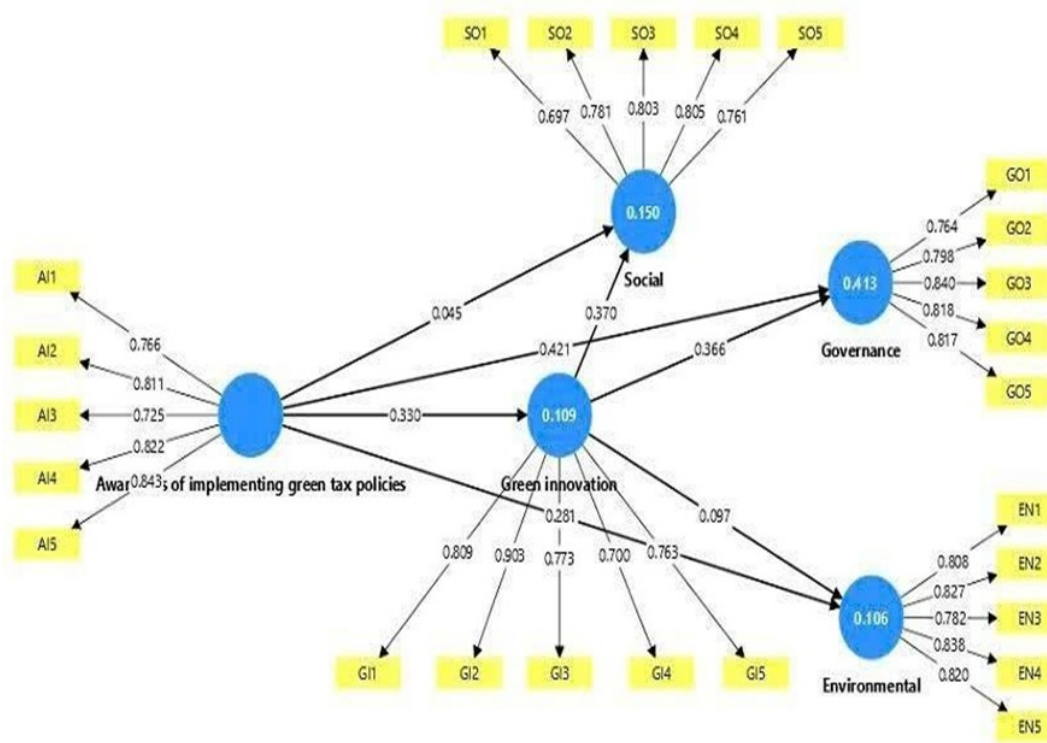
First, the analysis examining the impact of perception on the social dimension of sustainable development produced a P-value greater than 0.05, indicating that the assumption that perception directly influences social sustainability is not supported. For small and medium-sized enterprises (SMEs), awareness alone does not necessarily lead to concrete actions that positively affect society. Due to their relatively small scale and limited human resources, many SMEs face difficulties in implementing specific initiatives that directly contribute to social sustainability.

Second, the analysis investigating the impact of green innovation on environmental sustainability also yielded a P-value greater than 0.05. This result suggests that green innovation does not have a direct impact on the environmental dimension of sustainable development in this context. Although many SMEs have introduced certain policies and initiatives aimed at promoting green innovation, their environmental impact remains limited. This is largely due to financial constraints, as investments in environmentally friendly technologies or equipment upgrades require substantial capital and often involve long-term processes of technological transformation and organizational adaptation.

Overall, although these relationships produced P-values greater than 5%, the results accurately reflect the current realities faced by SMEs. While firms are increasingly aware of the importance of implementing green tax policies and have begun to adopt certain changes, their limited resources restrict their ability to directly influence the environmental and social dimensions of sustainable development. These constraints partly hinder the

transition toward more comprehensive green innovation practices.

(iii) Evaluation of the Impact of Influencing Factors



(Source: Smart - PLS data analysis results)

The results of the structural model assessment indicate that only one observed variable, DX2, has a Variance Inflation Factor (VIF) value within the range of $3 \leq VIF \leq 5$, suggesting a potential multicollinearity issue. However, the remaining observed variables all have VIF values below 3, indicating that multicollinearity is unlikely to occur. Overall, since all VIF values are below 5, no observed variables need to be removed from the model.

The adjusted R^2 value for Environmental Sustainability is 0.098, indicating that the independent variables explain 9.8% of the variance in the environmental construct, while the remaining 90.2% is attributed to systematic errors and other unexplained factors. The adjusted R^2 value for Governance Sustainability is 0.407, meaning that the independent variables explain 40.7% of the variance in governance sustainability, while 59.3% is explained by other factors outside the model. Similarly, the adjusted R^2 value for Social Sustainability is 0.142, indicating that 14.2% of the variance in social sustainability is explained by the independent variables, while 85.8% is due to other factors. For Green Innovation, the adjusted R^2 value is 0.105, meaning that the independent variables explain 10.5% of the variance, with the remaining 89.5% attributed to other factors and random errors.

Regarding the magnitude of effects, the structural model results reveal that the factor “Perception of Green Tax Policy Implementation” has the strongest direct impact on Governance Sustainability ($\beta = 0.421$). This is followed by its impact on Environmental Sustainability ($\beta = 0.281$), while the weakest effect is observed on Social Sustainability ($\beta = 0.045$). These findings indicate that perceptions of green tax policy implementation positively influence corporate sustainable development across three dimensions: social, environmental, and governance. Therefore, none of the research hypotheses need to be rejected.

5. Conclusion

This study was conducted to analyze the impact of perceptions of green tax policy implementation on the sustainable development of small and medium-sized enterprises (SMEs) in Hanoi, within the context of Vietnam promoting the transition toward a green economy and fulfilling its commitments to reducing greenhouse gas

emissions. Based on survey data collected from enterprises, the results indicate that firms' perceptions of green tax policies have a positive impact on green innovation and corporate sustainable development, particularly in the governance dimension. This finding suggests that when enterprises clearly understand the objectives, significance, and implementation mechanisms of green tax policies, they tend to proactively adjust their governance strategies and production activities toward greater transparency, efficiency, and sustainability.

The research findings also reveal that green innovation plays a mediating role in the relationship between perceptions of green tax policies and corporate sustainable development. Enterprises with a positive perception of green tax policies are more likely to promote improvements in production processes, adopt energy-saving technologies, and enhance internal governance efficiency. However, the study also indicates that the direct impact of perception on social sustainability, as well as the impact of green innovation on environmental sustainability, is not particularly strong. This reflects the reality that most SMEs still face significant limitations in terms of financial resources, technological capabilities, and human capital, which restrict the ability of green transformation processes to generate substantial changes in the short term.

From these findings, it can be concluded that enhancing enterprises' awareness of green tax policies is a crucial factor in promoting the transition toward sustainable development models. Accordingly, the study suggests that enterprises should increase investment in green innovation activities, improve governance systems, and strengthen corporate social responsibility in order to ensure long-term sustainable development. In addition, improved access to green finance, gradual technological upgrading, and stronger cooperation among firms within green value chains could significantly enhance the effectiveness of environmental policy implementation while reducing negative environmental impacts.

Despite achieving several meaningful findings, this study also has certain limitations. First, the research scope focuses solely on SMEs in Hanoi; therefore, the results may not fully reflect the characteristics of enterprises in other regions. Second, the research data mainly rely on the perceptions of enterprise indicators. This limitation may affect the objectivity of the research findings. Furthermore, the survey response rate did not reach an optimal level, which may lead to potential sampling bias.

Based on these limitations, future studies could expand the research scope to other regions in order to improve the representativeness of the findings. Additionally, incorporating mediating or moderating variables, such as financial capability, technological capacity, or the level of government support, may help clarify the mechanisms through which perceptions of green tax policies influence corporate sustainable development. Longitudinal studies that track changes in corporate perceptions and sustainable development performance over time would also provide a more comprehensive assessment of the actual impacts of green tax policies in the context of an economy transitioning toward sustainable development.

Funding: This study is the result of a student research project, funded by Hanoi University of Industry.

References

- An, Q., Wang, R., Wang, Y., Pavel, K., 2024. The impact of the digital economy on sustainable development: evidence from China. *Frontiers in Environmental Science* 12, 1341471.
- Chen, J., Jiskani, I.M., Jinliang, C., Yan, H., 2020. Evaluation and future framework of green mine construction in China based on the DPSIR model. *Sustain Environ Res* 30, 13. <https://doi.org/10.1186/s42834-020-00054-8>
- Chin, W.W., 1998. The partial least squares approach to structural equation modeling, in: *Modern Methods for Business Research*. Psychology Press, pp. 295–336.
- Goulder, L.H., 1995. Environmental taxation and the double dividend: a reader's guide. *International tax and public finance* 2, 157–183.
- Henseler, J., Sarstedt, M., 2013. Goodness-of-fit indices for partial least squares path modeling. *Computational statistics* 28, 565–580.
- Hock, M., Ringle, C.M., 2010. Local strategic networks in the software industry: An empirical analysis of the value continuum. *International Journal of Knowledge Management Studies* 4, 132–151.
- Imperatives, S., 1987. Report of the World Commission on Environment and Development: Our common future. Accessed Feb 10, 1–223.

- Khan, M.K., Trinh, H.H., Khan, I.U., Ullah, S., 2022. Sustainable economic activities, climate change, and carbon risk: an international evidence. *Environment, Development and Sustainability* 24, 9642–9664.
- Li, H., Wang, J., Zhang, R., Duan, M., 2025. Research on the impact of corporate ESG performance on sustained innovation in the VUCA context: Evidence from China. *Sustainability* 17, 5304.
- Ling, F., Zhen, H., Wang, C., Li, J., Zhao, J., 2025. Environmental protection strategic alliance and enterprise green innovation. *Humanit Soc Sci Commun* 12, 1726. <https://doi.org/10.1057/s41599-025-05998-z>
- Morley, B., 2012. Empirical evidence on the effectiveness of environmental taxes. *Applied Economics Letters* 19, 1817–1820.
- Nguyễn, T.H.B., 2023. Chính sách thuế xanh nhằm phát triển bền vững.
- Pachar, S., Garg, S., 2020. Corporate sustainability development business model: A study on Indian perspective.
- Pigou, A., 2017. *The economics of welfare*. Routledge.
- Thi, H.D., Thi, K.A.V., Phuong, D.L., Thu, V.P., Minh, C.H.T., 2020. IMPACT OF ENVIRONMENTAL TAX COLLECTION ON CO2 EMISSION IN VIETNAM. *IJEPP* 10, 299–304. <https://doi.org/10.32479/ijepp.10153>
- West, J.K., 2019. An introduction to online platforms and their role in the digital transformation. Available at SSRN 4669281.
- Xuan, H.T., Hung, N.T., 2025. Green growth and environmental degradation: An empirical study in Vietnam.
- Zheng, Q., Li, J., Duan, X., 2023. The impact of environmental tax and R&D tax incentives on green innovation. *Sustainability* 15, 7303.