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Factors Affecting Green Growth Policy in Vietnam

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Abstract

Green growth is becoming a global priority as countries increasingly recognize the importance of combining economic development with environmental protection. Green growth policies and strategies are designed to reduce greenhouse gas emissions, promote the use of renewable energy, and improve resource efficiency, contributing to the goal of sustainable development and combating climate change. Government green growth policies are influenced by many economic, social, environmental, and political factors that determine the effectiveness and sustainability of these measures. Essential factors include public awareness, international pressure, economic and financial policies, technology and innovation, local environmental issues, politics and leadership, and public-private partnerships (PPPs). Vietnam has implemented the "National Strategy on Green Growth" for 2021-2030 with clear goals and has achieved many significant results, such as reducing greenhouse gas emissions and increasing forest coverage. However, there are still many limitations in terms of capital, technology, and supporting policy mechanisms. By proposing a qualitative research model on influencing factors and quantitative methods, specifically multivariate linear regression analysis, the author has shown the model results of these influencing factors on green growth policy, contributing to proposing recommendations to improve green growth policy in Vietnam.

Keywords: green growth; affecting factors; public policy; Vietnam

Introduction

Various economic, social, environmental, and political factors influence government green growth policies. These factors directly impact the formulation and implementation of policies and determine the effectiveness and sustainability of green growth measures. To develop and implement effective green growth policies, it is necessary to consider and analyze the following key factors: public awareness, international pressure, economic and financial policies, technology and innovation, local environmental issues, politics and leadership, and public-private partnerships (PPP). Public awareness is vital in promoting and implementing government green growth policies. When people understand and support environmental protection measures, they will create positive pressure on the government to implement

stronger policies. Research shows that public awareness and engagement can improve the ability to implement climate change adaptation policies and generate support for environmental plans and environmentally friendly products (Bahauddin & Semali, 2021; Cohen, 2022). At the same time, international pressure from organizations such as the United Nations, the World Bank, and the OECD also plays a vital role in promoting green growth policies of states. These organizations provide support frameworks, policy principles, and tools to help countries implement sustainable development measures. Pressure from international commitments and environmental agreements also forces countries to adjust their domestic policies to comply with global environmental protection standards (World Bank, 2012; OECD, 2011).

Government economic and financial policies are important in promoting green growth by directing capital flows and supporting sustainable initiatives. Establishing financial mechanisms such as preferential taxes, green credits, and investments in environmentally friendly technologies can provide an excellent impetus for sustainable development projects. These policies help minimize environmental negative impacts and facilitate businesses and individuals to engage in sustainable economic activities (Phung et al., 2023; Jia, 2023). In addition, technology and innovation are also among the most critical factors influencing government green growth policies. Developing clean and sustainable technologies helps reduce environmental pollution and promotes economic and social efficiency. Government support through incentive policies such as green credits and environmental taxes can encourage businesses to invest in green technology, creating a sustainable business environment (Fan et al., 2023). Local environmental problems, such as air, water, and soil pollution, can pressure governments to establish stricter environmental protection measures. Countries with high pollution levels often face criticism from the international community and are forced to adopt new technologies and policies to reduce pollution. Policies for sustainable resource management and promoting the use of renewable energy are also crucial in protecting the local environment (Tawiah et al., 2021).

Political and leadership factors are important in promoting and implementing government green growth policies. Commitments and priorities from political leaders can create strong incentives for authorities to implement environmental policies and build trust from the public and the international community. Strong commitment from political leaders to environmental goals can create a favorable regulatory environment and attract stakeholder participation to promote sustainable development (Chen & Jia, 2023). Public-private partnerships (PPPs) are important in promoting government green growth policies. These projects combine private sector resources with public sector management capabilities, creating greater efficiency in implementing sustainable development projects. An important element in developing PPP projects is the appropriate allocation of risks among the parties involved, ensuring that each risk is assigned to the party that best manages it. Public-private partnerships in PPP projects require transparency and community participation to ensure the viability and social acceptability of the project (Badran, 2013). Factors such as public awareness, international pressure, economic and financial policies, technology and innovation, local environmental issues, politics and leadership, and public-private partnerships all play an important role in formulating and implementing government green growth policies. A harmonious combination of these factors will create a solid foundation for sustainable

development and environmental protection in the long term. Therefore, a long-term strategy and strong stakeholder commitment are needed to ensure sustainable and effective development of green growth policies.

In 2021-2030, Vietnam has implemented the "National Strategy on Green Growth" to promote a green economy, reduce greenhouse gas emissions, and preserve natural ecosystems. One of the first breakthroughs was the Prime Minister's issuance of Decision No. 1658/QD-TTg on October 1, 2021, setting out essential tasks: reducing greenhouse gas emissions, greening economic sectors, greening lifestyles and promoting sustainable consumption, greening the transition process on the principles of equality, inclusion, and enhancing resilience. This policy has created positive changes in the awareness and actions of people and businesses. The implementation of this strategy has achieved many significant results. Greenhouse gas emissions from energy activities decreased by 12.9% compared to the standard development scenario, energy consumption per GDP declined by 1.8% per year, and forest coverage in 2020 reached 42%. The rate of industrial enterprises with awareness of cleaner production increased from 28% in 2010 to 46.9% in 2020. In particular, wind, solar, and waste-to-energy projects have attracted substantial investment, creating a wave of green investment. This helps Vietnam improve the environment and promotes sustainable economic development (Chinhphu.vn, 2023). However, the strategy implementation process also revealed some limitations. Some green projects still face difficulties in capital and technology, as well as in tiny and medium enterprises. In addition, the policy mechanism supporting green growth is not yet synchronous and effective, leading to the implementation not achieving the desired results. Moreover, the awareness and actions of some ministries, branches, localities, and enterprises are still limited, and they are not actively participating in greening production and sustainable consumption.

The article applies SPSS analysis to study the factors affecting the state's green growth policy from data collected and coded following the research model. Descriptive statistical analysis is conducted to understand better variables such as community awareness, international pressure, economic policy, technology and innovation, local environmental issues, politics and leadership, and public-private partnerships (PPP), and regression analysis to determine the relationship and level of influence of these factors on green growth policy. Finally, the study's results will be interpreted to conclude each factor's influence level, thereby providing scientific and practical bases for perfecting green growth policies in Vietnam in the current period.

Literature Review

Public Awareness

Public awareness is important in promoting and implementing green growth policies in the state. Research by Bahauddin and Semali (2021) indicates that public understanding and participation can improve climate change adaptation policies, creating public support for environmental plans and policies. Cohen (2022) emphasizes that environmental awareness is becoming more widespread and is of more significant concern to senior managers in the private

sector, contributing to shaping new environmentally friendly products and services. Environmental awareness helps people understand the fragility of the environment and the importance of protecting it, promoting individual and community behavioral change.

Tawiah, V., Zakari, A., & Adedoyin, F. F. (2021) mention that decentralized environmental policy and green economic growth depend on renewable energy policies, which require public awareness and understanding to be successful. Green Info (2023) emphasizes that raising environmental awareness is necessary to protect nature and promote sustainable development goals such as quality education and consumption.

Furthermore, according to EY (2023), cooperation between elements of society, from individuals to international organizations, is necessary to achieve sustainable development goals. Fillet (2023) also emphasizes that promoting community participation can help achieve sustainable development by using collective intelligence to make decisions appropriate to local needs. Lawrence and Beamish (2013) add that sustainability education and environmental awareness help communities better understand environmental challenges and how to deal with them effectively. Government policies must also include community engagement to ensure that the measures implemented are appropriate and directly serve the community (Ardoin, N. M. et al., 2020).

Public awareness is essential in promoting and implementing government green growth policies. Public understanding and engagement help improve climate change adaptation policies, generate public support for environmental plans, and shape environmentally friendly products and services. Environmental awareness helps communities understand the environment's fragility, promote individual and collective behavior change, and support renewable energy and sustainable development policies. Community collaboration and participation are essential to achieving sustainable development goals, harnessing collective intelligence, and ensuring that measures are appropriate and directly serve the community.

International Pressure

International pressure plays an important role in promoting governments' green growth policies. International organizations such as the World Bank and the OECD have created a framework to support countries implementing sustainable development policies. The World Bank report emphasizes that green growth requires governments to manage both markets and regulations well, as well as to take advantage of immediate benefits and avoid long-term problems such as the difficulty of reversing unsustainable policies (World Bank, 2012). Economic and financial policies also play an essential role in promoting green growth, especially in the context of global environmental commitments (OECD, 2011).

The United Nations Green Economy Guide emphasizes raising public awareness and financial support for green technology projects (United Nations, 2012.). Other OECD reports also discuss policy principles and provide a toolkit to support countries in implementing green growth policies while providing indicators to assess performance and consider the political-economic factors affecting green growth (OECD, 2011).

The World Bank also emphasizes that green growth strategies must be adjusted to political realities, and inherent habits in society, as well as the role of financial instruments in implementing green projects (World Bank, 2012). These documents show that international pressure promotes and guides countries in developing practical and sustainable green growth policies.

International pressure from organizations such as the World Bank, OECD, and the United Nations is important in promoting and guiding countries in developing green growth policies. These organizations provide supporting frameworks, policy principles, support tools, and performance indicators to help countries manage markets and regulations well. At the same time, they also emphasize the importance of economic and financial policies, raise public awareness, and provide financial support for green technology projects. In short, international pressure promotes and provides specific guidance, helping countries develop effective and sustainable green growth policies.

Technology and Innovation

Technology and innovation are among the most important factors influencing the state's green growth policy. Developing clean and sustainable technologies helps reduce environmental pollution and promotes economic and social efficiency. These technologies include recycling, renewable energy, and environmentally friendly production methods.

Some studies have shown that government support and incentive policies can promote green technology innovation. For example, the adoption of incentive policies such as green credits, environmental taxes, and mandatory environmental protection regulations can encourage enterprises to invest in green technology (Fan et al., 2023; Gao & Wang, 2021).

Moreover, studies have also emphasized the importance of cooperation between government, market, and society in improving the efficiency of green technology innovation. A multi-stakeholder collaborative analysis model shows that the combination of government and market can effectively promote green technology innovation, especially in core areas, with strong support from the government and external markets (Fan et al., 2023; Cheng & Chen, 2023).

In addition, green technology innovation initiatives should be promoted through research and development (R&D) programs and investment in science and technology education. Research has shown that investment in R&D and education can have a positive impact on green technology innovation, and more attention from the government is needed to ensure the sustainable development of these technologies (Gao & Wang, 2021; Farrukh et al., 2022).

In short, technology and innovation play a key role in implementing the state's green growth policy. Government support through incentive policies such as green credits and environmental taxes can encourage businesses to invest in green technology, creating a sustainable business environment. At the same time, cooperation between the government, the market, and society is necessary to improve the efficiency of green technology innovation, especially in areas with strong support from many sides. Investment in research and

development (R&D) along with science and technology education is also important in promoting the sustainable development of green technology, contributing to reducing environmental pollution and improving socio-economic efficiency. Therefore, a long-term strategy and strong stakeholder commitment are needed to ensure these technologies' sustainable and effective development.

Local Environment

Local environmental issues are important in shaping and promoting government green growth policies. High air, water, and land pollution levels can pressure governments to institute stricter environmental protection measures. Countries with high pollution levels often face international criticism and are forced to adopt new technologies and policies to reduce pollution (Tawiah, Zakari, & Adedoyin, 2021; Shahbaz et al., 2019). For example, in Colombia, policy reforms have reduced air pollution in major cities by 24% and increased clean energy production in rural areas (World Bank, 2020).

Climate change can directly affect ecosystems and human life, forcing vulnerable areas to adopt rapid adaptation policies to protect communities and the environment (Kirby, 2021). Protecting natural resources and reducing greenhouse gas emissions are also crucial in protecting the local environment. Overexploitation and using natural resources can lead to environmental depletion and destruction, so sustainable resource management policies and the promotion renewable energy are necessary (Kilinc-Ata, 2017). Public pressure and collaboration between public and private organizations can also promote the implementation of green projects, helping to reduce the financial burden on governments and create an environment conducive to green growth (Tawiah, Zakari, & Adedoyin, 2021; Kirby, 2021). Cooperation between central and local governments is also important in environmental protection. The central government can establish incentive and supervision mechanisms to ensure local governments comply with environmental protection regulations. The coordination between central and local land inspection agencies in China has helped reduce land use violations and enhance the effectiveness of local environmental management. These inspection agencies have greater authority and deterrence power in their assigned areas, which helps reduce land violations and improve land management procedures. However, they may reduce investment in environmental pollution control (Ma, S., & Zhang, Y., 2024; Yang et al., 2024). In addition, local governments can adjust green industrial policies and implement environmental protection actions to meet the standards and targets set by the central Government (Florini & Pauli, 2018).

Public-Private Partnerships

Public-private partnerships (PPPs) are important in promoting the government's green growth policies. These projects combine private sector resources with public sector management capabilities, creating greater efficiency in implementing sustainable development projects. An effective PPP usually has a long-term contract period with flexible terms to adapt to changes in technology, environment, and politics throughout the project cycle. This ensures the stability and sustainability of the project in the long term. Research has shown that PPPs improve the quality and efficiency of infrastructure, reduce carbon emissions, and promote

more sustainable economic development (Guo, Chen, & Feng, 2022; Global Center on Adaptation, 2021; Ra & Li, 2018).

An important element in developing public-private partnership (PPP) projects is the appropriate allocation of risks among the parties involved. The main principle of risk allocation is that each risk should be assigned to the party that best manages it. Specifically, the private partner often bears cost and schedule risks because they have expertise in project implementation. In contrast, the state often bears political risks or risks related to land acquisition because they have better control (Badran, 2013; Tallaki & Bracci, 2021). Performance guarantees and legal means for international dispute resolution are important protection mechanisms to mitigate risks for private investors. This makes the private partner feel more secure in investing and ensures that projects will be completed on time and to the agreed quality (Rasheed, Shahzad, Khalfan, & Rotimi, 2022).

Public-private partnerships in public-private partnership (PPP) projects require transparency and participation from the community and stakeholders to ensure the viability and social acceptability of the project. In particular, projects with large environmental and social impacts, such as highways or hydropower dams, require transparency and community participation to minimize risks and increase public acceptance.

Transparency in PPPs is key to building trust among stakeholders and ensuring that project information is accessible publicly. The World Bank's OCDS PPP Extension, designed to standardize and publicize PPP data, is a good example of how it can enhance transparency, prevent fraud, and improve monitoring (World Bank, 2019).

Furthermore, community participation can help projects better meet the needs and interests of people while creating sustainable social value. A transformative approach to community engagement is needed to ensure people can participate in decision-making and project management, thereby creating innovative solutions to social challenges through co-ownership and project management (Afieroho et al., 2023).

Politics and Leadership

Political and leadership factors are important in promoting and implementing green growth policies in the state. The commitments and priorities of political leaders can create strong incentives for authorities to implement environmental policies and build trust from the public and the international community. Research shows that officials' political incentives greatly influence the performance of green policies and innovation in this field. The strong commitment of political leaders to environmental goals can create a favorable regulatory environment and attract the participation of stakeholders to promote sustainable development. A study by Chen and Jia (2023) has shown that the local government's political incentives and priorities can greatly influence enterprises' carbon emission reduction performance. In addition, leaders with a vision and commitment to green growth can develop long-term strategies and effective policies to address environmental challenges (Chen et al., 2013; Eva et al., 2019). Pressure from international organizations and global commitments, such as the Paris Agreement on Climate Change, has forced national leaders to adjust domestic policies to comply with environmental protection standards. Multilateral environmental agreements

(MEAs) play an important role in international environmental governance and international environmental law. They promote international cooperation to address environmental issues such as ozone layer protection, biodiversity conservation, and sustainable management of hazardous chemicals and waste (Britannica, 2024; UNEP, 2023). For example, the Montreal Protocol on Substances that Deplete the Ozone Layer has phased out nearly 99% of these substances, allowing the ozone layer to recover and protect people from harmful UV rays (UNEP, 2023). In addition, countries that are party to the Paris Agreement have been required to develop and implement national climate action plans to reduce greenhouse gas emissions and promote socio-economic transformation based on the best available science (Grantham Research Institute on Climate Change and the Environment, 2019).

Political leadership plays a key role in managing conflicts of interest among stakeholders, promoting public-private partnerships (PPPs), and encouraging innovation in the design and implementation of green growth policies. Effective conflict management requires fostering a culture of cooperation and trust among stakeholders. This can be achieved through regular stakeholder engagement, transparent communication, and balancing diverse stakeholder interests with broader environmental goals (Nonet et al., 2022; Álvarez-Herránz et al., 2017). Promoting PPPs is another important area where political leadership can significantly impact. PPPs combine the strengths of both the public and private sectors, enabling more innovative and effective solutions to sustainability challenges. For example, successful PPPs can mobilize private sector finance for sustainable infrastructure projects, essential to achieving long-term green growth goals (Álvarez-Herránz et al., 2017).

Encouraging innovation within policy frameworks also requires strong leadership. Policymakers must create an enabling environment for technological advancement and sustainable practices. This includes establishing regulatory frameworks supporting green innovation and incentivizing businesses to adopt sustainable technologies. These strategies promote economic growth and help achieve environmental sustainability goals (Álvarez-Herránz et al., 2017; Buso & Stenger, 2018).

Finance and Economic Policies

The state's finance and economic policies are important in promoting green growth by directing capital flows and supporting sustainable initiatives. Establishing financial mechanisms such as tax incentives, green credits, and investments in environmentally friendly technologies can provide a major impetus for sustainable development projects. These policies help minimize environmental negative impacts and facilitate businesses and individuals engaging in sustainable economic activities.

OECD countries have seen a significant increase in investments in renewable energy thanks to green credit and green bond policies. Studies have shown that these policies help attract private capital and create financial stability for clean energy projects (Phung, Rasoulinezhad, & Thu, 2023; Qadir et al., 2021). In addition, Jia (2023) also found that green financial instruments such as green bonds positively impact carbon emission reduction efforts in countries such as China, Russia, and the United States, thereby supporting sustainable development goals and combating climate change.

Furthermore, improving financial and environmental regulations is also important. Kong (2022) emphasized the need to strengthen the legal framework for green finance, including creating an enabling environment for developing sustainable financial services in China. Similarly, Amighini et al. (2022) proposed redirecting the Green Climate Fund (GCF) to leverage both public and private capital to increase the efficiency and scale of financing for climate projects.

State economic and financial policies promote green growth by establishing financial mechanisms and legal frameworks that support sustainable initiatives. Instruments such as tax incentives, green credits, and investments in environmentally friendly technologies help reduce negative impacts on the environment and facilitate the participation of businesses and individuals in sustainable economic activities. Thanks to these policies, OECD countries have witnessed a significant increase in investment in renewable energy. At the same time, green financial instruments such as green bonds have proven effective in reducing carbon emissions. In addition, improving the legal framework and environmental finance regulations is indispensable to support the development of green finance, creating an environment conducive to sustainable development. These efforts not only contribute to the goal of sustainable development but also play an important role in the fight against global climate change.

Research Method

Qualitative research method

The research was conceived and conceptualized when the Prime Minister issued Decision No. 1393/QD-TTg approving the National Strategy on Green Growth for 2011 - 2020 and vision to 2050. By 2021, when the National Strategy on Green Growth for 2021 - 2030 and Vision to 2050 were issued, the factors affecting green growth policy were observed, and a research model was proposed. The research focused on many groups of subjects to have an overall view of the impact of green growth policy. The survey data was randomly collected, and most subjects were citizens, followed by officials, civil servants, public employees, lecturers of some universities, administrators, and office staff of enterprises. The collection of survey samples is influenced by the author's relationships and the place of residence (Binh Duong province). Therefore, the survey results will also be limited in terms of research space, focusing mainly on large provinces and cities in the South but still ensuring the criteria for random sample distribution in some provinces and cities in the North and the Central region, specifically surveying in Binh Duong, Ho Chi Minh City, Hanoi, Da Nang, Dong Nai and Can Tho. The author also consulted with several experts who are officials and civil servants in charge of the fields of economics, finance, budget, digital transformation, science, and technology... related to green growth policy issues; many lecturers in the faculty of economics and finance who conduct in-depth research on green growth to edit and perfect the research model and survey data set to suit the research context. Quantitative research method

The quantitative research was conducted by the author through basic analysis such as statistics, Cronbach's alpha reliability assessment, EFA factor analysis, and linear regression model using SPSS 20 statistical software from survey data of 250 subjects including citizens,

officials, civil servants, public employees, lecturers of some universities, administrators, and office staff of enterprises in Vietnam and collected 231 valid survey data. The quantitative research results reflect the factors affecting the green growth policy in Vietnam at the current time.

The quantitative research results specifically reflect the factors affecting green growth policy in Vietnam. The sample size applied in the study is based on the requirements of exploratory factor analysis (EFA). According to the study by Hair J.F. (1998), Hoang Trong, and Chu Nguyen Mong Ngoc (2008), and according to the study of Bollen K.A. (1989), the sample size must be at least 5 times the number of variables in factor analysis. With the number of observed variables being 30, the minimum sample size must be 150. With the expectation that the valid sample will account for more than 50% of the total collected sample, the study chose a sample size of n = 250. The study sample was selectively allocated based on the practical situation of the research subjects, which are people, businesses and state agencies, to suit the study's subjects, scope and objectives. The study sent 250 questionnaires (220 online and 30 in person) and received 231 responses (201 online and 30 in person). The collected survey forms were checked for validity and reliability to eliminate unqualified responses, including blank responses, inappropriate responses, and responses with only 01 answer, ensuring that most of the questions were answered... The study used statistics on Excel software to summarise the results of online responses. In cases where online responses were collected, but some questions of the observed variables were missing, the author estimated the average value to fill in the answers (in cases where too many were missing, not enough to estimate the average value, the sample was eliminated). With direct paper responses, the selective study was conducted by manual ballot counting. After screening, the remaining responses were 231/250 (19 no-response), coded and analyzed using SPSS 20 software.

The survey results of 238 subjects showed that the proportion of men and women was 50.8% and 49.2%, respectively; the highest proportion of those with a university education was 51.9%; the age group from 25 to 35 years old was the highest at 36.5%. The highest proportion of those working as civil servants at higher education institutions was 42.4% (see Table 1).

Table 1. Descriptive statistical results

Variable	Content	Frequency (person)	Rate (%)
Gender	Female	112	48.48
	Male	119	51.52
Academic level	Elementary/ High school	115	49.78
	Bachelor Degree	54	23.38
	Post graduate	62	26.84
Age	Under 25	51	22.08
	From 25 to 35	79	34.20
	From 35 to 45	73	31.60
	Over 45	28	12.12
Job	Worker	79	34.20
	Free Labor	36	15.58
	Office staff	24	10.39

Variable	Content	Frequency (person)	Rate (%)
	Public servant	45	19.48
	Lecturer	33	14.29
	Student	14	6.06

Source: SPSS 20 analysis results

Table 2 below presents the results of the scale of factors in the research model based on the criteria presented in the theoretical basis section of the study, including community awareness, international pressure, innovative technology, local environment, public-private partnership, political leadership and economic and financial policies.

Table 2. Scales of factors in the research model

No	Factor	Encode	Scale	Source
1	Public awareness	PA1	Public awareness of climate change affects the effectiveness of government green growth policies	Bahauddin và Semali (2021)
		PA2	Community participation in environmental protection activities can improve government environmental policies and plans.	Cohen (2022)
		PA3	Raising environmental awareness in the community will promote changes in individual and community behavior toward environmental friendliness.	Author's recommendation
		PA4	The state's green growth policies need participation and consensus from the community to achieve the highest efficiency.	Tawiah, V., Zakari, A., & Adedoyin, F. F. (2021)
		PA5	Collaboration between individuals and organizations is essential to achieve sustainable development goals.	EY (2023)
2	International pressure	IP1	Pressure from international organizations such as the World Bank and OECD promotes the development of green growth policies by governments.	World Bank, 2012; OECD, 2011
		IP2	Support frameworks and policy principles from international organizations help countries better manage regulations and markets in sustainable development.	OECD (2011)
		IP3	Global environmental commitments and performance indicators from organizations such as the OECD significantly influence governments' implementation of green growth economic and financial policies.	OECD (2011)

		IP4	Guidance and financial support from the United Nations and other international organizations are important factors in implementing green technology projects in the country.	United Nations (2012)
		IP5	International pressure is important in raising public awareness of green growth and sustainable development.	United Nations, 2012; OECD, 2011
3	Innovative technology	IT1	The government has issued incentive policies such as green credits and environmental taxes to encourage businesses to invest in green technology.	Fan et al., 2023; Gao & Wang, 2021
		IT2	Cooperation between government, market, and society is needed to improve the efficiency of green technology innovation.	Fan et al., 2023; Cheng & Chen, 2023
		IT3	Investment in R&D, science, and technology education can positively impact green technology innovation.	Gao & Wang, 2021; Farrukh et al., 2022
		IT4	Developing clean and sustainable technologies helps reduce environmental pollution and promote economic and social efficiency.	Gao & Wang, 2021
		IT5	Through policies and incentives, government support is an important factor in promoting the development of green technology.	Fan et al., 2023
4	Local environment	LE1	The level of air pollution in your locality is putting great pressure on the government to establish stricter environmental protection measures.	Tawiah, Zakari, & Adedoyin, 2021
		LE2	Your local water pollution problems are prompting governments to enact green growth policies.	Shahbaz et al., 2019
		LE3	The depletion and environmental destruction caused by the over-exploitation of local natural resources require the government to implement sustainable resource management policies and promote the use of renewable energy.	Kilinc-Ata, 2017
		LE4	Community pressure and collaboration between local public and private organizations are driving green project implementation, helping to reduce the financial burden on governments.	Tawiah, Zakari, & Adedoyin, 2021

		LE5	Local governments in your area are adjusting green industry policies and implementing environmental protection actions to meet standards and targets set by the Central Government.	Florini & Pauli, 2018
5	Public–Private Partnership	PP1	Public-private partnerships (PPPs) are important in promoting the state's green growth policies.	Guo, Chen, & Feng, 2022
		PP2	Public-private partnerships (PPPs) help improve the quality and efficiency of sustainable development projects.	Global Center on Adaptation, 2021
		PP3	Appropriate risk allocation among the parties in a PPP project is critical to the project's success.	Badran, 2013; Tallaki & Bracci, 2021
		PP4	Legal safeguards to mitigate risks for private investors in PPP projects are essential.	Rasheed, Shahzad, Khalfan, & Rotimi, 2022
		PP5	Transparency and community participation are key to ensuring PPP projects' viability and social acceptability.	World Bank, 2019; Afieroho et al., 2023
6	Politics and leadership	PL1	Political commitment and environmental priorities of political leaders strongly influence the implementation of state green growth policies.	Chen và Jia (2023); Chen et al. (2013); Eva et al. (2019)
		PL2	Pressure from international organizations and global commitments motivate national leaders to adjust domestic policies to comply with environmental protection standards.	UNEP (2023); Britannica (2024); Grantham Research Institute (2019)
		PL3	Effective political leadership in managing conflicts of interest among stakeholders can promote cooperation and sustainable development.	Nonet et al. (2022); Álvarez-Herránz et al. (2017)
		PL4	Promoting public-private partnerships (PPPs) is an important strategy of political leadership in achieving green growth goals.	Álvarez-Herránz et al. (2017)
		PL5	Encouraging innovation in designing and implementing green growth policies is an important task of political leadership.	Álvarez-Herránz et al. (2017); Buso & Stenger (2018)
	Economic and financial policy	EP1	Preferential tax policies for sustainable projects help promote green growth.	Phung, Rasoulinezhad, &

				Thu, 2023; Qadir et al., 2021
7		EP2	Providing green credit supports the development of environmentally friendly technology projects.	Phung, Rasoulinezhad, & Thu, 2023; Qadir et al., 2021
		EP3	Investing in environmental technology can help reduce negative environmental impacts and promote green growth.	Phung, Rasoulinezhad, & Thu, 2023; Qadir et al., 2021
		EP4	Green finance instruments such as green bonds effectively attract private capital for sustainable projects.	Jia, 2023
		EP5	Improving financial and environmental regulations will facilitate the development of sustainable financial services.	Kong, 2022; Amighini et al., 2022
8	Green growth policy	GP1	People and communities are well aware of the importance of the state's green growth policy.	Cohen, 2022; World Bank, 2012; OECD, 2011
		GP2	Government support can promote innovation in green technology and improve local environmental issues.	Fan et al., 2023; Gao & Wang, 2021; Tawiah, Zakari, & Adedoyin, 2021; Shahbaz et al., 2019
		GP3	Public-private partnerships improve sustainability project performance, and community awareness is important in promoting green growth policies.	Guo, Chen, & Feng, 2022; Tallaki & Bracci, 2021; Cohen, 2022
		GP4	Strong political leadership and economic policies such as green credits and tax incentives can promote sustainable development projects.	Chen & Jia, 2023; Eva et al., 2019; Phung, Rasoulinezhad, & Thu, 2023; Qadir et al., 2021

Source: Compiled by author

From the theoretical basis presented above, the author proposes the following research model:

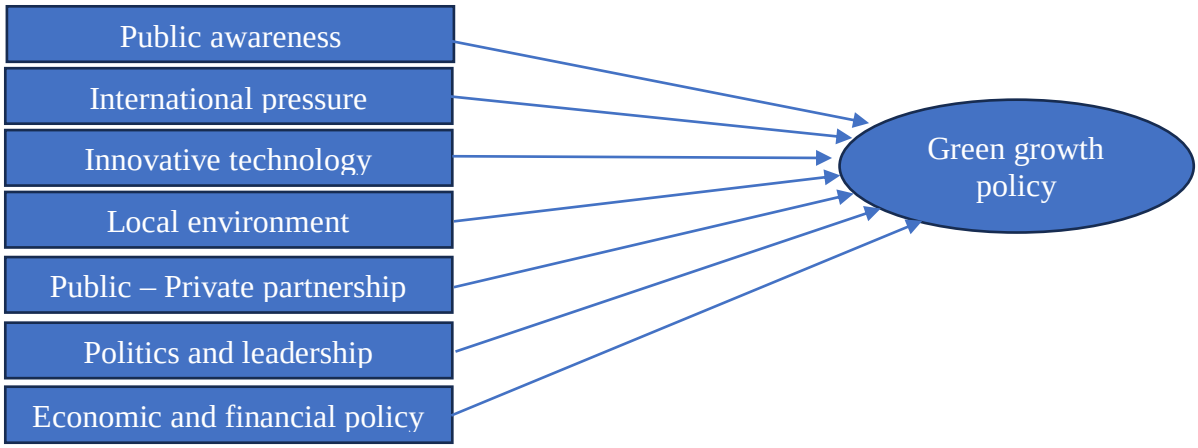

Figure 1. Research model
Source: Compiled by author

Result and Discussion

Conducting Cronbach's alpha reliability assessment is the first step in implementing the linear regression model, with 39 variables of 8-factor groups included in the analysis, including PA (public awareness), IP (International pressure), IT (Innovative technology), LE (Local environment), PP (Public – Private partnership), PL (Politics and leadership), EP (Economic and financial policy) and GP (Green growth policy), all variables meet the requirements (variable-total correlation coefficients are all greater than 0.3). Also, all Cronbach's Alpha coefficients are from 0.6 or higher.

Table 3. Summary of Cronbach's alpha coefficient

Factor	Number of initial variables	Cronbach's alpha coefficient	Number of valid variables
Public awareness	5	0.803	5
International pressure	5	0.864	5
Innovative technology	5	0.847	5
Local environment	5	0.833	5
Public–Private Partnership	5	0.814	5
Politics and leadership	5	0.876	5
Economic and financial policy	5	0.877	5
Green growth policy	5	0.651	4

Source: SPSS 20 analysis results

Thus, after evaluating the reliability of Cronbach's alpha, the study has 39 suitable variables belonging to 8 factors to be included in EFA factor analysis to explore the scale structure of 7 independent factor groups, including PA (public awareness), IP (International pressure), IT (Innovative technology), LE (Local environment), PP (Public - Private partnership), PL (Politics and leadership), EP (Economic and financial policy) and 1 dependent factor GP (Green growth policy). The results of the first EFA factor analysis included all 35 observed variables, but the PP1 variable did not converge due to its lack of strong correlation with other variables, no significant loading on any factor, and possible interference with the

overall factor structure. To improve the stability and significance of the model, the PP1 variable was removed based on criteria such as weak loading or low popularity, high loading on many factors, and low contribution to the model's overall fit. After removing PP1, EFA was rerun, and the remaining factors were identified with a KMO index of 0.768 (greater than 0.5), Bartlett's test was statistically significant ($p < 0.05$). After removing PP1, the EFA model showed better clarity and explanatory power, providing a solid basis for further analysis and theoretical model development.

Table 4. Results of EFA analysis of variables belonging to independent factors

	Component						
	1	2	3	4	5	6	7
EP1	.834						
EP5	.821						
EP4	.819						
EP2	.807						
EP3	.792						
PL1		.837					
PL5		.832					
PL3		.826					
PL2		.801					
PL4		.780					
IP2			.842				
IP3			.811				
IP5			.791				
IP1			.773				
IP4			.767				
IT2				.853			
IT3				.790			
IT1				.773			
IT5				.769			
IT4				.714			
LE2					.853		
LE5					.784		
LE4					.744		
LE3					.736		
LE1					.711		
PA1						.826	
PA4						.795	
PA2						.772	
PA3						.715	
PA5						.604	
PP2							.824
PP4							.815
PP3							.718
PP5							.558
KMO = 0.768; Bartlett's Test of Sphericity = 3560.854; Sig. = 0.000							
Eigenvalues	4.648	3.740	3.366	2.763	2.602	2.461	2.032
Variance (%)	13.672	11.000	9.899	8.126	7.653	7.237	5.977
Cumulative (%)	13.672	24.672	34.571	42.697	50.349	57.586	63.563

Source: SPSS 20 analysis results

In addition, the EFA factor analysis results of the variables belonging to the independent factors show that the stopping point at the 7th row with the eigenvalue of 2.032 is greater than 1, which confirms that the variables included in the analysis are arranged into 7-factor groups and the total variance extracted at the 7th row is 63.563% greater than 50%; showing that the level of variation in the data is explained to 63.563%. Not only that, the factor rotation results show that 34 variables belonging to the independent factors included in the analysis are specifically arranged into 7-factor groups, including PA (public awareness), IP (International pressure), IT (Innovative technology), LE (Local environment), PP (Public - Private Partnership), PL (Politics and leadership), EP (Economic and financial policy) according to the specific results in Table 5.

Table 5. Results of EFA analysis of variables belonging to the dependent factor

	Component
GP3	.891
GP1	.876
GP2	.797
KMO = 0.688; Bartlett's Test of Sphericity = 255.190; Sig. = 0.000	
Eigenvalues	2.196
Cumulative (%)	73.188

Source: SPSS 20 analysis results

The first EFA analysis for the dependent variable GP (Green growth policy) showed that the GP4 results had not converged. After reviewing the data and model, the author removed the GP4 variable because it did not contribute much to the first principal component, which explained most of the variance in the data (55.642%). Retaining GP4 did not bring much value to the current analysis objective of the study. The second EFA factor analysis result of the GP variable showed that the KMO value was 0.688 (greater than 0.6 and improved compared to the first time), which confirmed that the KMO value ensured the appropriateness of the exploratory factor analysis and the significance level of the data entered into the factor analysis. The Chi-Square statistic of the Bartlett test was 255.190, with a significance level of Sig. = 0.000 (less than 0.05), which shows that the KMO test result is statistically significant at the 5% significance level.

The analysis of the variance extracted from the dependent variables shows that the total variance extracted reaches 73.188%. This value indicates that 73.188% of the variation in the data is explained by one factor. Although this level is not very high, it is still enough to confirm that this factor has a significant influence and the measured variables have a certain relationship. This shows that the observed variables are strongly correlated and the extracted factor is meaningful.

The factor loading coefficients of the component variables GP3; GP1; GP2 are 0.891, 0.876, and 0.797, respectively, all greater than 0.5. This shows that the component variables of the dependent factor are guaranteed to be included in the data analysis.

Based on the results of factor correlation analysis (Table 6), we see that the dependent factor GP (Green growth policy) has a positive correlation with the independent factors,

specifically, the Pearson correlation values of the factors PA (public awareness), IP (International pressure), IT (Innovative technology), LE (Local environment), PP (Public - Private Partnership), with the factor GP (Green growth policy) are 0.355; 0.287; 0.422; 0.354; 0.375 respectively and they are all greater than 0 and the Sig. Coefficients of the factors are all less than 5% (less than 0.05), which ensures that the correlation between the factors is statistically significant for the author to run the linear regression model. However, the variables PL (Politics and leadership) and EP (Economic and financial policy) showed no correlation with the dependent variable GP (Green growth policy). Specifically, the PL variable showed a positive correlation of 0.032, a fairly low rate, but the Sig. Coefficient was 0.626, greater than 5%, so it was not statistically significant. The EP variable showed a negative correlation of -0.42, indicating no correlation between the EP variable and the dependent variable GP. The reason may be that the survey participants did not clearly understand the meaning of the questions or were not fully aware of the role and impact of these factors. Participants may have misunderstood the questions, causing them to not properly assess the importance of political leadership and economic and financial policies in promoting green growth policies. This leads to inaccurate answers or not reflecting reality, thereby distorting the results and not properly representing the relationship between these variables. This is also a limitation that should be considered in future studies. Finally, the author eliminated PL and EP concerning the dependent variable GP to facilitate the linear regression. The remaining model has 5 variables: PA, IP, IT, LE, PP, PL and the dependent variable GP.

Table 6. Results of Pearson correlation analysis

		PA	IP	IT	LE	PP	PL	EP	GP
PA	Pearson Correlation	1							
	Sig. (2-tailed)								
IP	Pearson Correlation	.095	1						
	Sig. (2-tailed)	.148							
IT	Pearson Correlation	.069	.133*	1					
	Sig. (2-tailed)	.296	.044						
LE	Pearson Correlation	.126	.158*	.149*	1				
	Sig. (2-tailed)	.056	.016	.024					
PP	Pearson Correlation	.082	.164*	.197**	.136*	1			
	Sig. (2-tailed)	.216	.012	.003	.039				
PL	Pearson Correlation	.060	-.092	.002	.001	-.027	1		
	Sig. (2-tailed)	.367	.161	.976	.990	.679			
EP	Pearson Correlation	-.034	.054	-.112	-.012	.006	-.030	1	
	Sig. (2-tailed)	.608	.413	.089	.860	.929	.654		
GP	Pearson Correlation	.355**	.287**	.422**	.354**	.375**	.032	-.042	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.626	.523	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Listwise N=231

Source: SPSS 20 analysis results

The results of the regression model analysis (Table 7) show that the factors that positively affect the GP (Green growth policy) factor include PA (public awareness), IP (International pressure), IT (Innovative technology), LE (Local environment), PP (Public –

Private Partnership); that is, these variables affect GP in the same direction. The R square coefficient is 0.434; this result shows that the model's suitability is 43.4%, or in other words, 43.4% of the variation in the entrepreneurial intention factor is explained by 5 factors: PA (public awareness), IP (International pressure), IT (Innovative technology), LE (Local environment), PP (Public – Private partnership). Low R-squared (below 0.5) is acceptable in some fields, such as social sciences, because the phenomenon is complex and has many influencing factors. Meanwhile, in fields such as engineering, higher R-squared is often required (Cohen, Cohen, West, & Aiken, 2003; Field, 2013). If the goal is prediction, higher R-squared is more useful. If the goal is to explain the relationship between variables, lower R-squared is acceptable as long as the regression coefficients are statistically significant (Kutner, Nachtsheim, & Neter, 2004; Frost, 2020). Using the F-test in ANOVA analysis of variance shows that the F-value is 34.573 with a significance level of Sig. 0.000, which is less than 0.05, shows that combining the 5 independent factors in the model can explain the variation in GP (Green growth policy).

Table 7. Results of linear regression analysis

	Unstandardised Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
Model	B	Std. Error	Beta			B	Std. Error
1 (Constant)	-.512	.299		-1.714	.088		
PA	.243	.045	.273	5.381	.000	.974	1.027
IP	.118	.042	.147	2.839	.005	.943	1.061
IT	.247	.042	.304	5.872	.000	.938	1.066
LE	.180	.043	.219	4.238	.000	.940	1.063
PP	.221	.048	.239	4.592	.000	.932	1.073

R square = 0.434; Adjusted R square = 0.422; F = 34.573 (Sig. = 0.000); Durbin Watson = 1.843
Dependent Variable: GP.

Source: SPSS 20 analysis results

Thus, the regression analysis model is written as follows:

$$GP = \beta 0 + \beta 1PA + \beta 2IP + \beta 3IT + \beta 4LE + \beta 5PP + \varepsilon$$

The unstandardised regression equation shows the relationship between factors affecting GP (Green growth policy) as follows:

$$GP = -0.512 + 0.243PA + 0.118IP + 0.247IT + 0.180LE + 0.221PP + \varepsilon$$

The regression equation according to the standardised coefficient Beta shows the relationship between factors affecting GP (Green growth policy) as follows:

$$GP = 0.273PA + 0.147IP + 0.304IT + 0.219LE + 0.239PP + \varepsilon$$

Based on the standardized coefficient Beta, we can see that the highest level of influence on GP (Green growth policy) is Innovative technology (IT has Beta = 0.304; positive influence); when Innovative technology (increases by 1 unit), GP (Green growth policy) increases by 0.304 units. Public awareness (PA has Beta = 0.273; positive influence), when Public awareness is better (increases by 1 unit), GP (Green growth policy) increases by 0.273

units. Public – Private Partnership (PP has Beta = 0.239; positive influence), when public–private partnership is better (increases by 1 unit), GP (Green growth policy) increases by 0.239 units. Local environment (LE has Beta = 0.219; positive influence), when Local environment is better (increases by 1 unit), GP (Green growth policy) increases by 0.219 units. Finally, International pressure (IP has Beta = 0.147; positive influence). When International pressure is better (increases by 1 unit), GP (Green growth policy) increases by 0.147 units.

Along with that, the results show that the VIF coefficients of the factors PA (public awareness), IP (International pressure), IT (Innovative technology), LE (Local environment), and PP (Public - Private Partnership) are respectively 1.027; 1.061; 1.066; 1.063; 1.073 are all within the allowable range (less than 2), indicating that the model is not multicollinear. The value of d (Durbin Watson) = 1.843 is within the acceptable range (from 1.5 to 2.5), meaning that the model does not have first-order serial autocorrelation (Trọng, H., & Ngọc, C. N. M., 2008).

Conclusion

The study has clarified the theoretical basis and quantitatively analyzed the factors affecting green growth policies, thereby emphasizing the important role of these factors in promoting sustainable development in Vietnam. Factors such as innovative technology (IT), public awareness (PA), public-private partnership (PP), local environment (LE), and international pressure (IP) all have positive effects on green growth policies. The combination of these factors promotes sustainable development activities and contributes to solving economic and social challenges. Investing in innovative technology and raising public awareness creates a favorable environment for sustainable development, increasing productivity and improving the quality of human resources. Cooperation between the public and private sectors helps implement environmental projects and creates more job opportunities, improving Vietnamese people's income and quality of life. International pressure ensures that global standards and commitments on environmental protection are complied with, contributing to sustainable development and enhancing Vietnam's reputation internationally.

From the proposed research model and the results of multivariate linear regression of factors affecting green growth policies in Vietnam, the author proposes some recommendations as follows:

First, investing heavily in research and development (R&D) is necessary to promote technological innovation. The government should provide tax incentives and financial support for businesses investing in green technology. In addition, encouraging cooperation between research institutions and businesses will help promote technological innovation more quickly and effectively.

Second, it is necessary to organize educational campaigns and widely disseminate information on environmental protection. These programs should be integrated into the national education system and mass media. In addition, organizing community activities such

as tree planting, beach cleaning, or environmental protection competitions will also help raise awareness and participation of the community.

Third, to strengthen public-private partnerships, it is necessary to build transparent policy mechanisms and encourage private enterprise participation in sustainable development projects. The government should facilitate public-private partnership projects through support and incentive policies. In addition, measures should be taken to ensure transparency and fairness when implementing these projects.

Fourth, improving the local environment, including pollution control, sustainable natural resource management, and developing protected areas, is necessary. The government should encourage using renewable energy and environmentally friendly solutions locally. In addition, there should be programs to support local communities in implementing environmental protection measures.

Fifth, the government should actively participate in international environmental protection and sustainable development agreements. Compliance with international standards will help enhance the country's reputation in the global arena and promote sustainable development. In addition, it is necessary to learn and apply the experiences of developed countries in implementing green growth policies.

For the two variables PL (Politics and Leadership) and EP (Economic and Financial Policy), there is no statistically significant correlation with the dependent variable GP (Green growth policy), indicating that it is possible that survey participants are not fully aware of the role of political leadership in promoting green growth policies or there are differences in perceptions of the importance of political leadership in different contexts and do not understand economic and financial policies well or because economic and financial factors are considered unimportant or not effectively applied in specific contexts. Therefore, the author cannot propose recommendations for these two variables. This is also a limitation of the study.

In addition, the author acknowledges some other limitations of the study as follows: the scope of the survey and sample size is limited; subjective factors from the survey participants; risk allocation in public-private partnership projects have not been fully considered; and the elimination of variables may cause the model not fully to reflect all factors affecting green growth policy. These limitations need to be considered and overcome in future studies to provide a more comprehensive and accurate view of the factors affecting green growth policy in Vietnam in the current period.

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