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Utilizing Structural Equation Modelling to Evaluate Factors Affecting Investment Capital Attraction and Sustainable Development in Vietnam

Do Thi Lan Dai[1], Phan Thanh Tam[2,*]

[1]*Board of Lac Hong University (LHU), Bien Hoa City, Dong Nai Province, Vietnam*

[2]*Faculty of Postgraduate Studies, Lac Hong University (LHU), Bien Hoa City, Dong Nai Province, Vietnam*

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Abstract

Vietnam and several nations globally are facing unparalleled effects of climate change, the progressive exhaustion of natural resources, and the global COVID-19 pandemic alongside non-traditional security threats. These tremendous challenges and occurrences underscore the significance of harmonious and balanced development among the three pillars of economics, society, and the environment. Moreover, sustainable development has emerged as an imperative necessity and an unavoidable trajectory in the evolution of human society. Thus, this study examines the principal aspects influencing investment capital attraction and sustainable development, consequently offering suggestions to enhance this process. The study employed two methodologies: qualitative research, executed via interviews, and concentrated on 15 economic expert group talks to modify the substance of observable factors to align with the business's features. Quantitative research was conducted on 800 representative managers from three Vietnamese provinces and one city to evaluate the model and 11 research assumptions. The results indicate five elements influencing the attraction of investment capital, with a significance level of five percent, and the attraction of investment capital impacting sustainable development in Vietnam. This contribution enhances academic significance and is a reference for future studies on sustainable development in Vietnam. Five policy implications and contributions exist to advancing sustainable development in Vietnam, fostering innovation and enthusiasm. The novelty of this study is that sustainable development will establish Vietnam's working and living environment by concurrently advancing three dimensions: sustainable economic growth, a prosperous and equitable society, stable cultural diversity, a pristine environment, and preserved resources maintained sustainably. Consequently, a comprehensive framework of ethical principles for sustainable development encompasses the concepts of sustainability across the economic, social, and environmental dimensions.

Keywords: Structural Equation Modelling, Economic, Social, Environmental Dimensions, Investment Capital Attraction, Sustainable Development

1. Introduction

In the 2023 Sustainable Development Index (SDI), Vietnam is positioned 49th among 166 nations, improving five places from the 2022 rating, and has attained a score exceeding the Asia-Pacific regional average. Nevertheless, up to 10 Sustainable Development Goals (SDGs) will encounter obstacles and challenges to completion, with 2 goals being particularly arduous to attain by 2030: SDG 12 concerning sustainable consumption and production and SDG 14 about the conservation and sustainable utilization of oceans, seas, and marine resources. Out of 115 particular targets, 54 are achievable (about 47%), whereas 48 (about 41.7%) will encounter significant problems, and 13 (around 11.3%) will be exceedingly difficult to accomplish by https://www.mpi.gov.vn/portal/Pages/2024-7-31.

The remaining Sustainable Development Goals may be more challenging to achieve by 2030 because of the COVID-19 pandemic. Goals 1 and 2 of the COVID-19 pandemics eradicate poverty and hunger, while goals 3 and 4 promote good health and well-being, quality education, gender equality, economic growth, decent work, and social inequality. Unfortunately, the COVID-19 pandemic has made achieving many of these goals harder. The COVID-19 epidemic concurrently affects the execution of other Sustainable Development Goals in both the medium and long term. The SDGs are intrinsically interwoven and interconnected, indicating that alterations and effects in one domain will influence results in other domains.

Moreover, the present socio-economic development context continues to exhibit numerous unsustainable challenges. Economic growth has neither diminished the disparity nor enabled convergence with other regional countries. The

***Corresponding author: Phan Thanh Tam (tampt@lhu.edu.vn)**
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economy's productivity, quality, and competitiveness are inadequate and not fundamentally grounded in science, regional connectivity, and innovation. The growth strategy significantly relies on external factors, neglecting the domestic value chain and supply. Social management and development exhibit numerous limitations, failing to meet developmental demands. Instances of moral decline, lifestyle choices, behavioral norms, and occurrences of spousal violence and child abuse have incited social anger. The disparity between the affluent and the impoverished continues to widen; many individuals, particularly in distant regions, ethnic minority communities, and areas impacted by natural catastrophes, face significant hardships. Furthermore, the developmental divide among localities, regions, and areas remains considerable. Deforestation, along with the illicit extraction of sand, stone, and gravel, persists in numerous locations [1]. The quality of the environment has declined in innumerable places, particularly in metropolitan regions, industrial districts, artisanal villages, and river basins. The efficacy and efficiency of economic and social working and living environment and management in certain areas remain insufficient. The competencies, attributes, and discipline of some cadres, civil servants, and public employees are inadequate; harassment and corruption persist, leading to discontent among the populace and enterprises. Opportunities and advantageous conditions in international integration have not been effectively leveraged or used [2].

The official development assistance (ODA) capital source exhibits a distinct declining trajectory, particularly following Vietnam's designation as a lower middle-income country in 2010. Vietnam is progressively ceasing to receive favorable ODA loans and will transition to borrowing at commercial interest rates. Simultaneously, the world faces intensifying and interrelated crises and conflicts as the global economic recovery post-COVID-19 epidemic remains feeble. Moreover, droughts and floods linked to escalating temperatures significantly affect populations globally, exacerbating poverty and instability. The present circumstances present unparalleled difficulties and obstacles to attaining sustainable development goals by 2025. The authors employed structural equation modeling to assess the determinants influencing investment capital attraction and sustainable development in Vietnam, highlighting its significance and contributions to scientific inquiry and practical governance policy recommendations.

2. Literature Review and Hypothesis Development

2.1. Sustainable Development (SUS)

Sustainable development is a growth strategy aimed at meeting present needs without compromising the ability of future generations to meet their own needs. The aim is to create a civilization where living conditions and resources meet human needs while maintaining planetary integrity. Sustainable development aims to reconcile the demands of the economy, environment, and social well-being [3], [4]. To date, sustainable development has garnered widespread worldwide support, and pursuing sustainable development has been established as a millennium objective. Sustainable development is an all-encompassing phrase that denotes the process of economic, social, and environmental advancement, fulfilling the current generation's requirements without jeopardizing future generations' capacity to satisfy their own demands for subsequent generations. Sustainable development represents an equilibrium between economic advancement, environmental conservation, and the promotion of social equity.

2.2. Investment Capital Attraction (CAP)

Attracting investment capital is the process by which a country, organization, or business takes measures to attract financial resources from domestic and foreign investors to serve the purpose of economic development economy, improving infrastructure, and expanding production and business [5]. Methods of attracting investment capital may include creating an attractive investment environment through economic policies, preferential laws, improving infrastructure systems, or providing favorable conditions to attract investors. Some critical factors in attracting investment capital include Investment incentive policies: Countries or regions can offer policies such as tax exemption, tax reduction, or capital support for new investment projects to encourage investors [6]. Successfully attracting investment capital helps increase financial resources for the economy, promotes technology transfer, improves management capacity, and creates more job opportunities for people and labor.

2.3. Investment Policies (POL)

The policy influences institutional transformation, while institutions impact policy implementation. A sound tax policy aligns the advantages for both firms and the State while also anticipating future investments, production, and company

strategies, as articulated. The studies showed that reforming and enhancing the ability and efficacy of institutions and sanctions and the economy, administration, and national and local judiciary is essential for effectively safeguarding the State's and enterprises' interests [7]. Investment policies with appropriate incentives, support, and reforms directly and positively impact the ability to attract capital for economic development. The government and related organizations must continuously improve and adjust these policies to maximize benefits from investment capital flows [8]. Consequently, the authors proposed hypotheses H1 and H2 in figure 1.

H1: Investment policies positively influencing investment capital attraction.

H2: Investment policies positively influencing sustainable development.

2.4. Working and Living Environment (ENV)

The living environment and working environment are closely related to each other. A healthy living environment will help improve the health and spirit of workers, thereby increasing work performance. On the contrary, a good working environment can help reduce stress and improve psychological health, improving quality of life [9], [10]. When firms engage in regions that attract investment, international investors are mainly concerned with the living and working conditions in the host country, as foreign direct investment (FDI) is a long-term endeavor. Investors frequently reside and operate in this location, even relocating their entire families to facilitate their investments in living arrangements. Consequently, the authors must meticulously evaluate the host country's social services and facilities to ascertain their adequacy in fulfilling living requirements. Thus, the authors presented hypotheses H3 and H4 in figure 1.

H3: Working and living environment positively influencing the investment capital attraction.

H4: Working and living environment positively influencing the sustainable development.

2.5. Regional Connectivity (CON)

Regional integration is essential in socio-economic development, especially in promoting equal development between regions and creating momentum for comprehensive growth. It refers to the cooperative relationship between economic areas to promote each region's strengths and enhance overall financial stability. Regional connectedness exhibited various regional linkages, notably the ubiquitous type, which arises organically within the development process. Impartiality in the developmental process [11], [12]. Transport links between regions are essential in helping to move and transport goods efficiently, creating conditions for economic cooperation. Road, railway, seaport, and airport projects linking the region help increase connectivity. Thus, the authors presented hypotheses H5 and H6 in figure 1.

H5: Regional connectivity positively influencing investment capital attraction.

H6: Regional connectivity positively influencing the sustainable development.

2.6. Human Resources (HUM)

Human resources are one of the most critical factors in developing any organization, business, or country. It is not only related to the quantity of labor but also includes people's quality, skills, and development ability. The labor force serves as a determinant for attracting and optimizing the utilization of foreign investment capital. Labor credentials that meet the criteria and have strong management capabilities will enhance labor productivity. Moreover, foreign investors will partially diminish training expenses and shorten training duration, ensuring project progress and efficacy align with established objectives [13], [14]. Investing in education, training, and health care will help improve the quality of these resources, thereby promoting overall socio-economic development. Thus, the authors presented hypotheses H7 and H8 in figure 1.

H7: Human resources positively affecting the investment capital attraction.

H8: Human resources positively affect the sustainable development.

2.7. Technology (TEC)

Technology is a central element in the development of modern societies and economies, helping to improve performance, efficiency, and quality in many areas. It includes hardware and software devices and applying scientific knowledge to solve practical problems. Technology manifested in innovations and enhancements in production [15],

[16]. Despite particular challenges, with continued development, technology will continue to bring significant improvements to human life, contributing to building a more efficient, more connected, and sustainable world that is more solid. Thus, the authors presented hypotheses H9 and H10 in figure 1.

H9: Technology positively influencing investment capital attraction.

H10: Technology positively influencing the sustainable development.

2.8. Investment Capital Attraction Affecting Sustainable Development

Attracting investment capital is essential in promoting sustainable development, as it provides the financial resources necessary to implement projects with long-term economic, social, and environmental impacts. Effective investment contributes to economic growth, supports environmental protection, and improves quality of life [16], [17], [18]. Capital investments in renewable energy projects such as solar power, wind power, and small hydropower can reduce dependence on fossil fuels, contributing to environmental protection and reducing greenhouse gas emissions. This is a critical element in the goal of sustainable development. Thus, the authors presented hypothesis H11 in figure 1.

H11: Investment capital attraction affecting sustainable development

3. Research Methodology

The authors constructed the research model by examining and integrating the theoretical framework and pertinent domestic and international studies. Following establishing a research model, the authors developed a proposed scale, evaluated both the model and the scale, and gathered preliminary data to assess the scale's reliability and validity preliminarily. After formulating a primary scale, the authors gathered official data to evaluate the research model and hypothesis. The authors draw conclusions and propose policy implications to entice investment money. The paper employed the scale development research process, which was executed through the subsequent steps:

Step 1: The authors established conceptual content grounded in a theoretical framework.

In phase 1, the research encompassed three components: A theoretical overview to examine themes such as capital, capital attraction, and sustainable development. Factors influencing sustainable development; (2) Establish the correlation among the concepts of the research model; (3) Develop the preliminary scale for the research concepts that possess a scale, namely the scale of factors influencing sustainable development [12].

Step 2: The authors developed variables for quantifying concepts via empirical study and discussions among 15 managers concerning capital attraction. This step involves two distinct tasks: (1) Modifying and augmenting the scale of existing concepts and (2) Establishing a set of variables for the scale of new images incorporated into the model.

Preliminary research was conducted to modify and enhance the essential scales via focus group talks. Focus group interviews were executed. Several groups were formed and interviewed, including business directors and departmental executives. This stage results in modifying the original scale, called the changeable scale. The authors elucidated how feedback from the focus groups influenced the construction or modification of the study model. The authors can delineate which themes, factors, or concepts were directly impacted by the input from these groups and how their insights contributed to hypothesis testing or scale modifications [12].

Step 3: Gather data: The authors performed the first quantitative research through direct interviews with individual clients, utilizing the questionnaire developed after step 2. The sample size for data collection consists of n = 150 business leaders interviewed throughout three provinces.

Step 4: Conduct a preliminary evaluation of the scale utilizing Cronbach's alpha confidence coefficients and exploratory factor analysis on the dataset gathered in Step 3.

The modified scale was evaluated via an initial quantitative study with a sample of n = 150 business leaders, utilizing a random sampling procedure. The scales were calibrated using two primary techniques: (1) the reliability coefficient method of Cronbach's Alpha and (2) exploratory factor analysis (EFA). The Cronbach's Alpha coefficient analysis assesses the scale's reliability. The scale attains dependability when this coefficient exceeds 0.6. The population variable correlation coefficient represents the correlation of a variable with the mean of other variables measured on

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the same scale. A more significant coefficient indicates a stronger correlation among the variables within the group. Item-total correlation for variables must exceed 0.3. Cronbach's Alpha asserts that variables exhibiting total variable correlation coefficients below 0.3 are deemed inconsequential and eliminated from the scales [12].

The authors examined the EFA employed to assess the scale validity of the concepts. Following the exploration of EFA, the authors proceeded with confirmatory factor analysis (CFA) and structural equation modeling (SEM) analysis; thus, it is crucial to consider the scale structure and the differentiation between the variables. The authors have conducted an EFA; the performance criteria are as follows: (1) Employing the Principal Axis Factoring extraction method with Promax rotation; (2) Criterion 2: The maximum coefficient factor loading for each variable must be ≥ 0.4; (3) Criteria: For each variable, the most significant factor loading must be ≥ 0.3 to assure distinct factor differentiation. The total variance extracted must be at least 50%. KMO is greater than or equal to 0.5, and the Bartlett test is statistically significant ($p < 0.05$). After assessing Cronbach's Alpha coefficients and exploratory factor analysis, the authors utilized the remaining variables from the official quantitative research questionnaire [12].

Step 5: Persist in data collection: The authors conducted the official study in Vietnam, including three provinces and one City: Dong Nai Province, Ba Ria – Vung Tau Province, Binh Duong Province, and Ho Chi Minh City throughout this phase. The poll aims to gather data from business executives in the three provinces mentioned above. The information-gathering method involves direct interviews utilizing a structured questionnaire with a sample size of n = 800 business leaders (managers). A probability sampling method and a random sampling strategy for evaluation were employed, but 785 samples were valued, lacking 15 samples. Data was encrypted, entered, cleaned, and analyzed using SPSS version 20.0 and AMOS software; following collection, only 785 samples were processed.

Step 6: Assess the reliability of the scales using Cronbach's Alpha on the dataset obtained in Step 5. In this phase, the authors reassessed the dependability of the scales by evaluating the coefficients. Cronbach's Alpha is derived from data obtained in formal research.

Step 7: The authors assessed the scale value using a mix of the EFA and confirmatory factor analysis (CFA) inside the structural equation modeling (SEM) framework. The authors integrated EFA and CFA analyses within the SEM model to substitute step 7 in the methodology proposed [12]. The EFA was conducted using a scale reliably evaluated by Cronbach's alpha coefficients in step 6, utilizing data gathered in the official study in step 5. Analytical methodologies the CFA is employed to determine the validity of the scales. Presented below are often utilized indications: (1) Goodness-of-Fit Index (GFI) > 0.90; (2) Root Mean Square Error of Approximation (RMSEA) < 0.08; (3) Comparative Fit Index (CFI) > 0.90; (4) Standardized Root Mean Square Residual (SRMR) < 0.08; (5) Tucker-Lewis Index (TLI) or Non-Normed Fit Index (NNFI) > 0.90; (6) Chi-Square/Degrees of Freedom (χ^2/df) < 5.0 [12].

Step 8: The authors developed a standardized scale using SEM to assess the study model and assumptions. This SEM method evaluated the model's alignment with the theoretical framework, enabling the authors to examine the established research hypotheses rigorously. The SEM analysis results established a foundation for drawing inferences on the relationships among variables, facilitating the development of study hypotheses. The findings were utilized to inform the formulation of policy implications about the examined elements.

Step 9: In light of the SEM analysis findings, the authors put up policy proposals emphasizing the elements significantly affecting the attractiveness of investment capital and sustainable development in Vietnam. These proposals address critical areas highlighted by model testing, providing insights on optimizing investment capital techniques to foster long-term, sustainable growth within the Vietnamese context.

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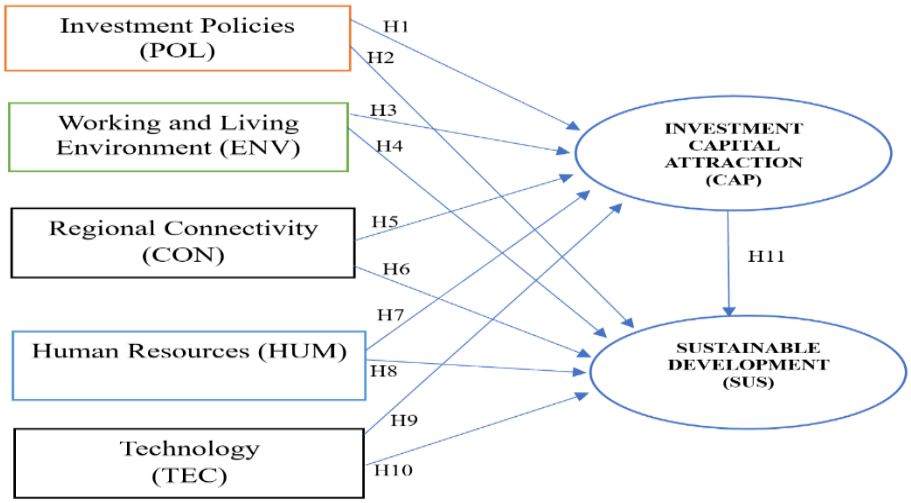

Figure 1. A research model for factors affecting investment capital attraction and sustainable development

4. Result and Discussion

4.1. Descriptive Statistics for Factors Affecting Investment Capital Attraction and Sustainable Development

Table 1 displays the descriptive statistics and reliability metrics (Cronbach's Alpha) for the elements influencing investment capital attraction and sustainable development. The following are essential insights derived from the statistics in table 1.

Table 1. Descriptive statistics for factors affecting investment capital attraction and sustainable development

Code	Cronbach's Alpha	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Mean	Std. Deviation
POL1	0.866	0.698	0.837	2.333	0.657
POL2		0.782	0.802	2.431	0.676
POL3		0.648	0.856	2.381	0.656
POL4		0.741	0.819	2.431	0.713
ENV1	0.956	0.903	0.94	3.041	0.993
ENV2		0.864	0.952	3.048	1.000
ENV3		0.878	0.947	3.085	0.964
ENV4		0.928	0.932	3.071	0.999
CON1	0.856	0.732	0.805	3.382	0.873
CON2		0.705	0.815	3.502	0.961
CON3		0.633	0.846	3.315	0.972
CON4		0.737	0.802	3.363	0.892
HUM1	0.943	0.878	0.921	3.012	0.990
HUM2		0.853	0.929	3.045	0.989
HUM3		0.844	0.931	3.090	0.947
HUM4		0.879	0.92	3.065	0.991

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TEC1	0.956	0.897	0.941	3.074	0.988
TEC2		0.857	0.954	3.061	1.008
TEC3		0.887	0.944	3.110	0.963
TEC4		0.933	0.931	3.103	0.982
CAP1	0.940	0.854	0.928	3.412	0.950
CAP2		0.912	0.883	3.327	0.969
CAP3		0.859	0.925	3.289	0.979
SUS1	0.869	0.677	0.850	2.325	0.653
SUS2		0.792	0.804	2.418	0.677
SUS3		0.660	0.857	2.371	0.656
SUS4		0.760	0.817	2.413	0.702

Table 1 presents the results of the descriptive statistical study about the variables influencing investment capital attractiveness and sustainable growth. The variables comprise minimum and maximum mean values of 1.0, 5.0, and 3.0. The standard deviation was around 1.0. Table 1 also provides a detailed analysis of five key factors influencing investment capital attraction and sustainable development in Vietnam. The factors include Investment policies (POL), Working and living environment (ENV), Regional connectivity (CON), Human resources (HUM), and Technology (TEC), along with their influence on Investment capital attraction (CAP) and Sustainable development (SUS). Each factor is associated with specific items representing various aspects impacting investment decisions.

Table 1 presents the descriptive data for the aspects influencing investment capital attractiveness and sustainable development following: The mean score for investment policies was 2.394, suggesting that although initiatives like tax clarity and aggressive local leadership are acknowledged, there remains potential for enhancement in cultivating increased investment confidence. The working and living environment received a higher mean score of 3.062, indicating a significant impact on attracting investments, primarily attributable to Vietnam's education, healthcare systems, and environmental quality. Regional connectedness achieved the highest mean score of 3.390, underscoring its critical role in emphasizing the significance of supply chains, interprovincial collaboration, and the promotion of regional enterprises. The mean for human resources was 3.053, identified as a crucial element concerning vocational training and workforce discipline. The technology component had a mean score of 3.087, signifying constant endorsement for technological improvements, training, and intellectual property protection, which favorably impacts investment decisions. Furthermore, the attraction of investment capital attained a notable mean of 3.343, indicating contentment with financial investments. Sustainable development achieved a mean score of 2.382, indicating that enhancements in sustainable development initiatives are essential to bolster long-term economic success. The results in table 1 offer significant insights into the determinants of investment capital attraction in Vietnam and indicate areas where policies and infrastructure can be enhanced to promote sustainable development.

The results in table 1 show the detailed analysis of Cronbach's alpha values for each factor: (1) Investment policies with Cronbach's Alpha is 0.866, indicating good internal consistency. This suggests that the items related to investment policies are well-correlated and reliably measure the overall construct of investment policies in Vietnam. (2) Working and living environment had a high Cronbach's Alpha of 0.956, demonstrating excellent reliability. The items within this factor are strongly consistent, indicating that respondents' perceptions of Vietnam's working and living environment are measured reliably. (3) Regional connectivity had the Cronbach's Alpha for this factor is 0.856, which is in the excellent range. The items measuring regional connectivity are reliably consistent, though slightly less so than ENV. (4) Human resources had the Cronbach's alpha value of 0.943, signifying excellent internal consistency. This high reliability means that the items related to the quality of human resources effectively capture respondents' views on this factor. (5) Technology was similar to ENV; this factor has a high Cronbach's Alpha of 0.956, reflecting excellent internal consistency.

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4.2. Testing Factors Affecting Investment Capital Attraction and Sustainable Development

The five factors of investment policies, the working and living environment, regional connectivity, human resources, and technology collectively influence the attraction of investment capital. This, in turn, supports Vietnam's sustainable development goals by fostering economic growth, enhancing the quality of life, and promoting environmental responsibility based on testing confirmatory factor analysis for factors affecting investment capital attraction and sustainable development in table 2 below.

Table 2. Testing SEM model for factors affecting investment capital attraction and sustainable development

Relationships			Standardized estimate	Unstandardized estimate	S.E	C.R	P	Result
CAP	←	POL	0.164	0.086	0.059	2.794	0.005	Accepted H1
CAP	←	ENV	0.076	0.087	0.027	2.776	0.006	Accepted H3
CAP	←	CON	0.172	0.168	0.034	5.090	***	Accepted H5
CAP	←	HUM	0.084	0.104	0.026	3.293	***	Accepted H7
CAP	←	TEC	0.481	0.540	0.030	16.300	***	Accepted H9
SUS	←	CAP	0.179	0.332	0.023	7.951	***	Accepted H11
SUS	←	POL	0.149	0.145	0.033	4.503	***	Accepted H2
SUS	←	ENV	0.074	0.157	0.016	4.761	***	Accepted H4
SUS	←	CON	0.069	0.125	0.019	3.705	***	Accepted H6
SUS	←	HUM	0.028	0.065	0.013	2.238	0.025	Accepted H8
SUS	←	TEC	0.141	0.292	0.019	7.335	***	Accepted H10

*** Significant at 1 percent level.

Table 2 shows that the results of the provided structural equation modeling reveal the relationships between various factors and their influence on investment capital attraction and sustainable development in Vietnam. Each relationship tested is represented by an unstandardized estimate, p-value, and the outcome of the hypothesis test. All hypotheses have been accepted, implying that the data supports the model well. Table 3 shows a detailed analysis of factors affecting investment capital attraction. Furthermore, table 2 demonstrates that technology is the most influential element in attracting investment capital, with a normalized value of 0.481. Investment capital attraction is a critical driver of sustainable development, as evidenced by the solid positive link. Investment policies, working and living environments, regional connectivity, and human resources all play important roles in attracting investment capital and promoting sustainable development, albeit to varying degrees. The model findings reveal a substantial interplay between these elements, emphasizing the importance of technology in attracting investment and promoting sustainable development.

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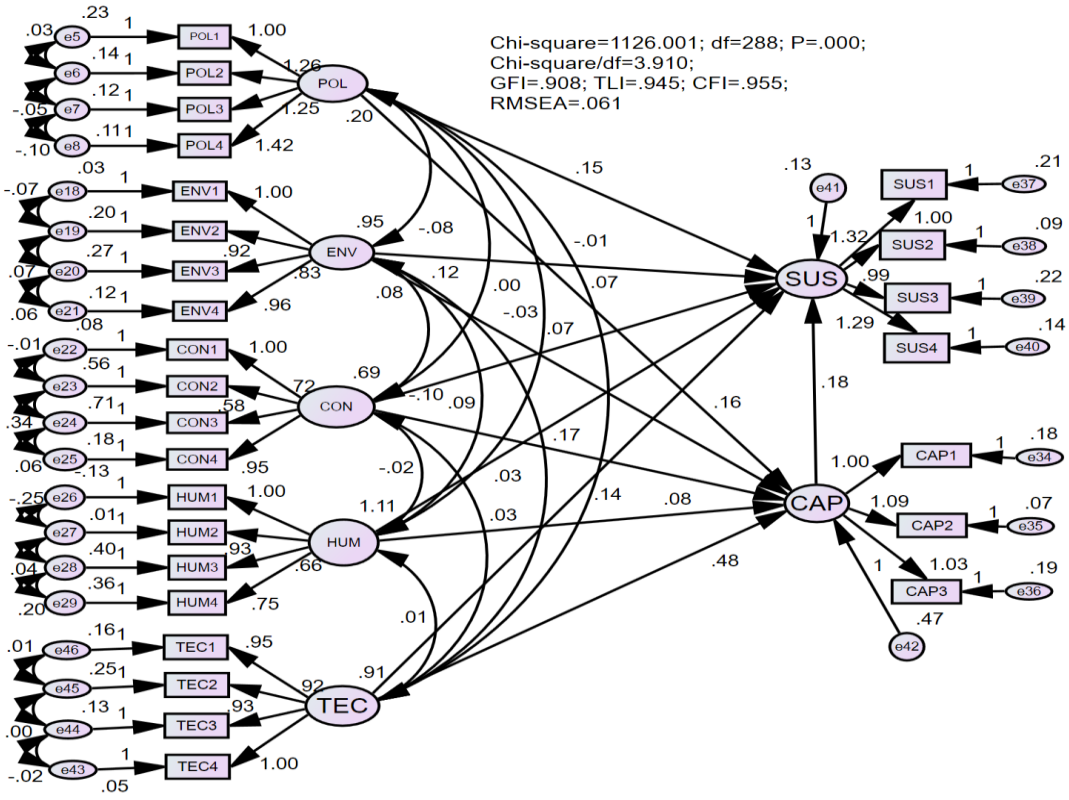

Figure 2. Testing research model for factors affecting investment capital attraction and sustainable development

Figure 2 illustrates the assessment of multiple elements affecting the attraction of investment capital and sustainable growth. Upon the issuance of the recommendation, precedence is accorded to the technology. Structural equation modeling is an intricate statistical technique that analyzes and ascertains correlations among variables inside a sophisticated theoretical framework. Statistical results indicate that the model's indicators fulfill the criteria and satisfy the conditions for formulating policy implications. The test results indicate that 11 hypotheses were accepted at a significance level of 5%.

Table 3. Testing Bootstrap for factors affecting investment capital attraction and sustainable development

Parameter			SE	SE-SE	Mean	Bias	SE-Bias	C.R
CAP	←	POL	0.081	0.002	0.147	0.008	0.005	1.60
CAP	←	ENV	0.028	0.001	0.074	0.002	0.003	0.67
CAP	←	CON	0.042	0.001	0.166	0.002	0.003	0.67
CAP	←	HUM	0.029	0.001	0.075	0.002	0.002	1.00
CAP	←	TEC	0.041	0.001	0.481	0.000	0.001	0.00
SUS	←	CAP	0.025	0.001	0.183	0.004	0.003	1.33
SUS	←	POL	0.054	0.001	0.132	0.007	0.004	1.75
SUS	←	ENV	0.017	0.000	0.068	0.002	0.003	0.67
SUS	←	CON	0.021	0.000	0.063	0.004	0.003	1.33
SUS	←	HUM	0.021	0.000	0.032	0.003	0.002	1.50
SUS	←	TEC	0.021	0.000	0.138	0.002	0.003	0.67

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Table 3 displays the outcomes of a Bootstrap test utilizing 60,000 samples to examine the influence of diverse factors on the attraction of investment capital and sustainable development at a significance level of 0.05. Table 3 demonstrates that the bootstrap test in structural equation modeling yields parameter estimates, relationships between factors together with standard errors (SE), bias, and critical ratios (C.R). Bootstrapping is used to assess the stability of the model by repeatedly sampling the dataset and recalculating the parameters to check for consistency. Moreover, the SDG discourse should highlight Vietnam's principal challenges in securing investment capital while promoting sustainable development. (1) The challenges of regulatory obstacles are inconsistent rules and regulatory frameworks that may deter prospective investors, generating uncertainty regarding long-term commitments. (2) Environmental sustainability: It is essential to reconcile economic expansion with environmental preservation. Green technology and infrastructure investments are crucial for aligning with sustainable development goals pertaining to climate action and sustainable industry.

4.3. Research Result Discussion

The research results present the results of a structural equation modeling analysis of the five key factors affecting investment capital attraction in Vietnam. These factors include investment policies, working and living environment, regional connectivity, human resources, and technology. The analysis ranks the factors by priority based on their unstandardized estimates and significance levels. Detailed analysis of the five factors affecting investment capital attraction following:

Technology: The strongest predictor of investment capital attraction is technology, with a substantial unstandardized estimate of 0.540 (estimate = 0.292, $P < 0.001$) and high statistical significance ($P < 0.001$) [19]. The acceptance of H9 & H10 underscores the pivotal role of technological advancement in promoting investment. The availability of advanced technology, consistent support for innovation, and a solid intellectual property regime can give businesses the competitive edge needed to succeed. Therefore, Vietnam should prioritize technological innovation by providing financial assistance for research and development and enforcing rigorous intellectual property rights. Knowledge transfer and collaborations between international and domestic enterprises should be encouraged, along with subsidies or tax incentives for businesses investing in innovative technologies.

Regional connectivity: Regional connectivity has a substantial and highly significant effect estimate = 0.168, $P < 0.001$ (estimate of 0.125 and $P < 0.001$) [20], [24]. This confirms H5 & H6, showing that infrastructure and inter-regional cooperation are crucial in attracting investment. Investors are drawn to locations with well-developed transportation networks, access to supply chains, and coordination between provinces that facilitate trade and economic activities. Therefore, Vietnam should enhance regional cooperation by advancing infrastructure development and integrating supply chains among provinces. Policies that foster inter-provincial trade and investment collaboration, together with the advancement of ancillary sectors, will augment regional connection.

Human resources: The contribution of human resources is moderate, estimate = 0.104, $P < 0.001$ (estimate = 0.065, $P = 0.025$) [21], [24]. This supports H7 & H8, emphasizing that skilled human capital is a vital component of investment capital attraction. While the effect is smaller than the top three factors, the significance of this relationship highlights the importance of a skilled and adaptable workforce. Therefore, Vietnam should allocate resources toward human capital development by enhancing technical and vocational education programs aligned with industry requirements. Policies must prioritize the enhancement of both low-skilled and highly skilled workforce, ensuring adaptability to technology improvements and industrial innovation.

Working and living environment: With a similar optimistic estimate of 0.087 and a P-value of 0.006 (estimate = 0.157, $P < 0.001$) [22], [24], H3 & H4 accepted. The working and living environment and investment capital attraction are also significant, suggesting that improvements in these areas can draw more capital. Therefore, Vietnam should prioritize improving working and living conditions through improving education and healthcare systems and the equitable and transparent resolution of labor disputes. This can be accomplished by incorporating additional vocational training that corresponds with the requirements of burgeoning businesses and enhancing workers' access to inexpensive, high-quality healthcare.

Investment policies: The optimistic unstandardized estimate of 0.086 with a significance level of 0.005 (estimate of 0.145, $P < 0.001$) supports the acceptance of H1 & H2 [23], [24]. This indicates that effective investment policies

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significantly enhance capital attraction. This suggests that favorable policies, such as transparent legal frameworks, advantageous tax systems, and efficient governance, are the most critical factors for encouraging investments. Therefore, Vietnam should enhance its investment policies by emphasizing regulatory clarity and procedural efficiency. Land leasing and tax regulation regulations should be more conducive to investors, streamlining legal procedures and providing enhanced clarity regarding tax advantages. This would cultivate a more favorable investment climate and improve long-term capital inflows.

Finally, investment capital attraction: The significant positive effect of capital attraction on sustainable development (estimate = 0.332, P < 0.001) supports H11 [25], [26]. This suggests that increased investment capital significantly contributes to long-term sustainability. The SEM analysis provides clear evidence of the relative importance of the five factors affecting investment capital attraction in Vietnam. Moreover, investment policies must emphasize industries that foster economic growth and sustainability. This may entail offering tax incentives or subsidies to enterprises that engage in renewable energy, sustainable agriculture, or environmentally friendly technologies and promote corporate social responsibility (CSR) programs with sustainable development goals.

5. Conclusions and Recommendations

5.1. Conclusion

In recent years, with the competitive advantage of an open investment environment, stable political and macroeconomic environment, and abundant human resources at low costs, Vietnam has become an attractive country with domestic and foreign investors. Recent reality shows that Vietnam still faces many difficulties, challenges, and barriers in attracting green investment, such as Vietnam does not have enough experience, mechanisms, and environmental standards to prepare Effectively filter investment capital projects that do not fully anticipate the potential risks of environmental pollution. No complete and transparent criteria for attracting green investment capital can be compared and applied. Based on the information gathering method involves direct interviews utilizing a structured questionnaire, with a sample size of n = 800 business leaders (managers), employing a probability sampling method and a random sampling strategy for evaluation. The results presented in this study reflect the outcomes of a structural equation modeling analysis, examining the impact of various factors on investment capital attraction and sustainable development. The key relationships, their unstandardized estimates, significance values, and acceptance of hypotheses (from H1 to H11) are outlined in the recommendations below.

5.2. Recommendations

The model and research assumptions were evaluated in a study based on quantitative research that included 800 managers from one city and three provinces in Vietnam. At the 5% significance level, the results show that five factors affect investment capital attractiveness, affecting sustainable development in Vietnam. This work adds to the knowledge of sustainable development in Vietnam and will serve as a springboard for additional research. Finally, the authors have offered five suggestions for future policy changes that could help Vietnam move closer to sustainable development following.

The proposed technology policy must establish conducive conditions and support for businesses to adopt advanced, modern, and environmentally sustainable machinery and equipment that utilize less energy while encouraging the transfer of technical expertise and technological knowledge. Furthermore, the province requires technological plans and procedures, solutions, specifications, schematics, technical diagrams, formulas, software applications, data information for production optimization, and diverse novel technologies for firms. Finally, Vietnam should enhance its digitalization initiative to enable enterprises to efficiently engage in economic restructuring, advance the transformation of production and business sectors, and innovate production methods and technologies. Cities and provinces must establish a science and technology development fund for enterprises, supplemented by cash mobilized from other legitimate sources. Cities and provinces consistently safeguard copyright and brand equity. Furthermore, enterprises may obtain a maximum interest rate of 2% per annum from the Provincial Technology Innovation Fund and from the science and technology development funds of ministries, ministerial organizations, government entities, provinces, and municipalities. Centrally administered municipalities offer financing for technology transfer in sustainable and eco-friendly initiatives.

The government is urged to expedite the expressway projects to enhance regional connectivity. In addition to strengthening transportation infrastructure, Vietnam should leverage its locational advantages, demographic potential, geological characteristics, and initiatives to bolster provincial competitiveness and improve the business environment. Investing in administrative change and engaging with businesses has enabled provinces to attain significant investment attraction outcomes. Enhance vertical and horizontal instruments in the linkage processes and policies, including connecting economic areas and integrating the organizational framework. Finally, Vietnam should establish advisory committees for municipalities inside the Construction Area, emphasizing significant investment initiatives, sustainable projects, and those that are viable, effective, and aligned with the planning of each locality. During investment projects, if difficulties concerning mechanisms, policies, and inter-local interactions emerge during construction and operation, the Council will assess these matters and provide recommendations swiftly determined to establish a markedly open economy domestically and globally. Local leaders in the region must assume a catalytic role and oversee the execution of interconnected content for each locality. Provincial leaders must enhance collaboration in the planning and coordinating of infrastructure development, particularly transport infrastructure, metropolitan areas, economic zones, industrial parks, and inter-regional projects to optimize efficiency, variety, and ecological preservation.

Policy implications for human resources concentrated on refining the management framework for human resource development, revitalizing management techniques, and enhancing the ability, effectiveness, and efficiency of the management apparatus for human resource development. Revise policies, methods, and instruments for human resource development and management, encompassing work environment, employment policy, remuneration, insurance, social protection, housing conditions and living circumstances, settlements, adherence to standards for superior human resources, and skill. Finally, Vietnam needs to focus on perfecting the human resource development management apparatus, innovating management methods, and improving the capacity, effectiveness, and efficiency of the human resource development management apparatus from central to local levels. Reform policies, mechanisms, and tools for human resource management and development, including working environment, employment policies, income, insurance, social protection, housing conditions, living conditions, living environment, care about guiding high-quality human resources and have policies to attract talents in the field of high technology.

The policy implications for enhancing the working and living environment are to be executed concurrently, establishing processes, methods, and solutions to cultivate human resources and exceptionally high-quality talent in critical sectors and domains. Furthermore, Vietnam improves the quality of human resources in conjunction with the swift transition of the labor structure, particularly in rural regions. Diversifying the relationship between labor supply and demand while efficiently enforcing the quality of human resources. Finally, businesses need to create a professional, friendly working environment and a comfortable working space to motivate employees to interact positively with each other at work. In addition, businesses must regularly develop clear regulations on work processes, responsibilities, and the authorities of each job position, as well as transparent and fair remuneration and reward policies. Every employee wants to work in an environment with clear rewards and punishments and be recognized for their contributions to the business. Building corporate culture is considered a fundamental factor, playing an essential role in the long-term development of a company. Corporate culture is like a thread connecting different enterprise members toward a common development goal.

Implications for investment policy persisted in evaluating the comprehensive financial policies, particularly the tax regulations aimed at attracting foreign direct investment, to modify, revise, and enhance them to establish a cohesive system. Efficient taxation with little compliance expenses. Furthermore, Vietnam is persistently assessing the exhaustive inventory of industries, professions, and places eligible for investment incentives, in conjunction with evaluating the overall efficacy of investment incentive policies, especially financial policies, concerning scale. Policymakers should continue to refine investment policies to create an investor-friendly environment while aligning them with sustainability goals. Policies that encourage green investment, renewable energy, and sustainable practices should be prioritized. Finally, Vietnam should continue to evaluate its comprehensive financial policies, particularly tax policies aimed at attracting foreign direct investment, and make necessary adjustments, amendments, and enhancements to establish a robust and efficient tax system. Minimal compliance fees and operational efficiency. Furthermore, provinces and cities persist in thoroughly assessing the businesses, occupations, and sectors eligible for investment incentives, focusing on the efficacy of investment incentive programs overall and financial laws

specifically. Project framework, technological advancements, and environmental conservation. Investment capital, realized capital, the ratio of recognized capital to invested capital, the number of employed people generated, export revenue, and localization rate concerning tax expenditures. Tax incentives should be selected to promote long-term corporate investments, minimize tax exemptions, shorten exemption durations, and implement policies that support environmental preservation initiatives.

Limitations and future research recommendations: Recognizing these limitations is crucial for accurately presenting the research outcomes. The study provides significant insights into investment capital attractiveness and sustainable development determinants. The research concentrates on a particular location or nation, thereby constraining the applicability of the results to other areas with distinct economic, social, or political circumstances. Subsequent studies may broaden its focus to encompass comparative evaluations across various countries or regions. The study finds crucial aspects such as investment policies, technology, and human resources; however, additional variables, including political stability, economic cycles, and environmental regulations, may also affect the attractiveness of investment capital and sustainable growth, various variables to facilitate a more thorough examination. Integrating this comparative research will offer a more comprehensive perspective on Vietnam's difficulties and underscore potential solutions by using the experiences of other countries, thus enhancing the study's contributions.

6. Declarations

6.1. Author Contributions

Conceptualization: D.T.L.D. and P.T.T.; Methodology: P.T.T.; Software: D.T.L.D.; Validation: D.T.L.D. and P.T.T.; Formal Analysis: D.T.L.D. and P.T.T.; Investigation: D.T.L.D.; Resources: P.T.T.; Data Curation: P.T.T.; Writing Original Draft Preparation: D.T.L.D. and P.T.T.; Writing Review and Editing: P.T.T. and D.T.L.D.; Visualization: D.T.L.D.; All authors have read and agreed to the published version of the manuscript.

6.2. Data Availability Statement

The data presented in this study are available on request from the corresponding author.

6.3. Funding

The authors received financial support for the research by Lac Hong University.

6.4. Institutional Review Board Statement

Not applicable.

6.5. Informed Consent Statement

Not applicable.

6.6. Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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