

DISSERTATION INFORMATION PAGE

Title of the Dissertation: Factors Influencing the Sustainable Development of
Transportation Enterprises in Ho Chi Minh City

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1. SUMMARY OF THE DISSERTATION

The dissertation analyzes and measures the influence and degree of influence of the institutional environment of Ho Chi Minh City (HCMC), capital resources and fixed assets, as well as the capacity for technological investment and application, on the sustainable development of transportation enterprises in HCMC, within the context of rapid urbanization, environmental pressures, and the increasing demand for digital transformation. Grounded in institutional theory, the Resource-Based View (RBV), dynamic capabilities theory, and sustainable development theory, the dissertation constructs a comprehensive theoretical framework and research model tailored to the practical characteristics of HCMC's transportation enterprises. Specifically, North (1990, 2005), Zucker (1977, 1987), and DiMaggio & Powell (1983), emphasize the role of formal institutions in fostering enterprises' operational efficiency and competitive advantage. In contrast, Zucker (1987) and Acemoglu and Robinson (2012) highlight how informal institutional factors may undermine business efficiency and hinder development. Moreover, North (2005) and DiMaggio and Powell (1983) stress that law enforcement capacity and state regulatory policies serve as mediating factors that can either promote or obstruct sustainable development. The RBV, initiated by Wernerfelt (1984), explains why some firms achieve sustainable competitive advantage while others do not. A firm's resources include all assets, capabilities, organizational processes, firm attributes, information, and knowledge under its control, which allow performance improvement (Barney, 1991). RBV clarifies how heterogeneous, inimitable resources can be combined into unique capabilities that create long-term economic competitive advantage (Carter &

Rogers, 2008; Barney et al., 2011), also termed “sustainable competitive advantage” (Barney, 1991, 2012; Olavarrieta & Ellinger, 1997; Molloy et al., 2011). Dynamic capabilities theory, introduced by Teece et al. (1997), emphasizes learning, adaptability, and technological innovation as key elements enabling firms to enhance competitiveness and contribute to economic, social, and environmental development goals. Sustainable development theory, as highlighted by Schaltegger and Wagner (2011), views sustainable business models as essential tools to integrate social and environmental factors into corporate strategy, thereby ensuring long-term growth. Such models require continuous innovation not only to maximize profit but also to create positive value for society and the environment. Figge et al. (2002) introduced the sustainability balanced scorecard as a strategic tool to embed sustainability into management, integrating social, environmental, and economic dimensions into a comprehensive system. Elkington (2020) further advanced the “integrated value creation” approach, aiming to generate benefits simultaneously for the economy, society, and the environment.

The dissertation employs a mixed-methods approach, combining both qualitative and quantitative methods. Among these, the quantitative method plays a central role in measuring and identifying the influence and the degree of influence of the institutional environment of HCMC, capital resources and fixed assets, as well as the capacity for technological investment and application of transportation enterprises in HCMC on their sustainable development. The qualitative component consists of exploratory surveys and confirmatory surveys. Quantitative methods, including Principal Component Analysis (PCA), were employed to construct representative index groups for the three dimensions of sustainable development of transportation enterprises in HCMC, namely economic development, social development, and environmental development. On this basis, a composite index reflecting the overall sustainable development of these enterprises was established from the three component indices, also through PCA. Subsequently, panel data were tested and estimated using Pooled Ordinary Least Squares (Pooled OLS/POLS), the fixed effects model (FEM), the random effects model (REM), feasible generalized least squares (FGLS), and the generalized method of moments (GMM). These methods were applied to analyse and measure both the direction and magnitude of the influence exerted by the institutional environment of HCMC, capital resources and

fixed assets, as well as the capacity for technological investment and application, on their sustainable development.

The proposed research model specifies that the institutional environment of HCMC, including transparency, legal frameworks, and enterprise support policies; the capital resources and fixed assets, including total capital resources and fixed assets; and the capacity for technological investment and application, including basic construction investment, technological innovation investment, and automation, all influence the sustainable development of HCMC transportation enterprises.

The dissertation employs secondary data sources, including aggregated data from published research in reputable international scientific journals, statistical data from the HCMC Statistics Office for the period 2015 - 2023, provincial competitiveness index data for HCMC published by the Vietnam Chamber of Commerce and Industry and the United States Agency for International Development for the period 2020 - 2023; and enterprise-level transportation data collected by the HCMC Statistics Office for the period 2020 - 2023.

The findings of the dissertation reveal that transparency exerts a negative influence on the sustainable development of transportation enterprises in HCMC, with a coefficient of -0.6750 (p-value = 0.000). Enterprise support policies also demonstrate a negative effect, with a coefficient of -0.4286 (p-value = 0.000). In contrast, total capital resources show a positive influence, with a coefficient of 3.02E-13 (p-value = 0.010), while fixed assets exhibit a negative effect, with a coefficient of -2.78E-13 (p-value = 0.028). Moreover, basic construction investment presents a positive impact, with a coefficient of 9.71E-13 (p-value = 0.025).

Macro-level Policy Implications:

To foster the sustainable development of transportation enterprises in HCMC, priority should be given to enhancing transparency within the institutional environment. Planning and legal information must be disclosed comprehensively, promptly, consistently, and in an accessible manner, particularly through digital platforms. The government should publish clear policy roadmaps, limit short-term adjustments, and establish formal consultation mechanisms prior to implementation, thereby strengthening enterprises' forecasting capacity and strategic decision-making. At the same time,

informal barriers should be eliminated by streamlining information disclosure processes, organizing regular policy dialogues, and leveraging information technology to capture business feedback in a comprehensive and objective manner. Investments in upgrading digital infrastructure, such as user-friendly government websites with integrated, up-to-date databases, would further support enterprises in accessing, retrieving, and responding to information effectively. In parallel, enterprise support policies should be reoriented toward promoting sustainability. Specifically, the quality and diversity of training programs must be improved through workshops, online courses, and practical advisory platforms. The allocation of business premises should be based on transparent criteria and simplified administrative procedures, with priority given to innovative enterprises that generate employment and contribute to local socio-economic development. Low-cost legal advisory centers, open-access market information databases, and practice-oriented vocational training programs tailored to enterprise needs should be implemented, while expanding opportunities for vulnerable groups and ensuring gender equality. Furthermore, investments in specialized international trade information platforms, the establishment of rapid-response policy inquiry channels, and the provision of online tools will enable enterprises to fulfill international commitments more effectively.

Micro-level Policy Implications:

Leveraging capital resources for the sustainable development of HCMC transportation enterprises: Total capital resources, comprising both equity and funds mobilized from banks, capital markets, or share issuance, not only provides opportunities for business expansion but also carries potential financial risks such as interest burdens. Therefore, enterprises should strategically align capital use with intelligent investment strategies, prioritizing assets that are valuable, scarce, and difficult to substitute, in line with the RBV. Capital resources should also be directed toward investments in green technologies, infrastructure, and intangible assets, thereby enhancing operational capacity, driving process innovation, and reinforcing sustainable competitive advantage.

Adjusting fixed asset investment strategies for sustainable development of HCMC transportation enterprises: In many transportation enterprises, traditional fixed assets have not been managed as strategic resources but instead have become burdens that hinder sustainable development. To overcome this challenge, enterprises should

restructure and strategically realign fixed asset utilization toward green technologies, digitalization, and efficiency optimization.

Enhancing the role of basic construction investment in sustainable development of HCMC transportation enterprises: Basic construction investment reflects the sensing capability of enterprises when they proactively identify technological trends, particularly green operational solutions and carbon reduction initiatives, thereby shaping sustainable development strategies. In the context of Industry 4.0, HCMC transportation enterprises must employ dynamic capabilities to build digitalized infrastructure and integrate green technologies, thereby improving economic efficiency and fostering process innovation. The policy implication is to prioritize strategic investment restructuring, focusing on long-term, value-added infrastructure that can be seamlessly integrated with emerging technologies, thereby reinforcing sustainable development.

2. NEW FINDINGS OF THE DISSERTATION

A key finding of this dissertation is that transparency, enterprise support policies, and fixed assets exert a negative impact on the sustainable development of transport enterprises in HCMC, whereas investment in technological innovation and automation shows no statistical significance. These results reflect the particularities of local institutions and resource structures. Specifically, while transparency facilitates access to information and enables firms to anticipate policy changes, it simultaneously compels strict compliance with multiple regulations. This increases compliance costs, reduces organizational flexibility, and constrains long-term investment decisions, particularly for small and medium-sized enterprises (SMEs). Although transparency fosters a fairer business environment, institutional costs may undermine operational efficiency and hinder sustainable development. Similarly, enterprise support policies, though theoretically intended to create favourable conditions, are in practice accompanied by multiple simultaneous requirements, thereby increasing costs and reducing adaptive capacity. Firms cannot rely on informal relationships or hidden information, but must comply rigorously with formal standards, which limits effectiveness. In terms of fixed assets, most resources are homogeneous, easily replicable, and quickly obsolete. When investments remain concentrated in traditional assets without orientation toward green technologies or innovation capabilities, depreciation burdens, operating costs, and financial pressures become obstacles to sustainability.

In the SME context, investments in technological innovation and automation only generate positive effects on sustainable development when accompanied by organizational capabilities. According to dynamic capabilities theory, three core capacities, sensing, seizing, and transforming, are decisive. Enterprises must sense technological and policy trends, seize

opportunities through resource mobilization and strategic positioning, and transform by restructuring, renewing organizational models, and upgrading skills. In practice, if automation is introduced merely as a technical solution without integration into strategy and organizational capabilities, its benefits remain limited. Recent studies also emphasize that the application of advanced technologies in SMEs is only effective when combined with appropriate organizational capacity (Gayer et al., 2022; Mendonça Santos A & Oliveira Sant'Anna, 2024).

3. PRACTICAL APPLICATIONS / POTENTIAL FOR APPLICATION IN PRACTICE OR UNRESOLVED ISSUES REQUIRING FURTHER RESEARCH

One of the current limitations of the dissertation lies in the use of binary (yes/no) observed variables, such as the variable on automation, the variable on female employees holding managerial positions in transportation enterprises in HCMC, as well as variables related to the types of energy sources used in transportation activities, electricity, crude oil, gasoline, and fuel oil, within the environmental development dimension. Binary variables may be limited in their ability to capture the scale or intensity of use across enterprises. For future research, it is necessary to develop continuous quantitative datasets that more clearly reflect the scale or intensity of technology deployment and energy usage in transportation enterprises in HCMC. Specifically, measurements may include the proportion of vehicles equipped with automation technologies, total investment and operating costs of technologies over different periods, and the consumption levels of electricity, crude oil, gasoline, or fuel oil across operational cycles. Collecting continuous data will enhance the ability to capture the scale or intensity of use among enterprises and provide a more concrete empirical basis for policy recommendations ranging from the micro to the macro level.

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