

ECONOMIC GROWTH, FOREIGN DIRECT INVESTMENT,
ENVIRONMENT AND ENERGY CONSUMPTION: EVIDENCE
FROM VIETNAM

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論 文 内 容 の 要 旨

The Renovation (Doimoi) reform launched in 1986 has dramatically transformed Vietnam's war-torn economy to be one of the fastest growing economies in Asia with the growth rate of gross domestic product (GDP) averaging 6.3 per cent per annum over the 2005-2018 periods. This impressive economic performance was largely attributable to the opening up of the economy to foreign markets and investors. Foreign direct investment (FDI), and foreign trade, particularly exports, are considered to be the key driving forces of economic growth in Vietnam over the past few decades. However, rapid export driven economic growth enhanced by large investment inflows from abroad has come at cost. The level of environmental pollution in Vietnam has increased significantly as a result of high energy consumption and economic growth over the past decades.

In this thesis, we firstly investigate the so called pollution haven hypothesis (PHH); we then examine the income – pollution nexus for industrial pollution emissions at provincial level in Vietnam as well as examine the impact of all economic sectors on waste emissions; and finally, we observe the nexus between energy consumption and economic growth at national and city level in Vietnam. This thesis is organized into six chapters.

Chapter 1 provides research background by conducting a literature review. In addition, we present structure of thesis, and the research objectives.

In the following chapter, we carefully evaluate the body of work on the current circumstance of Vietnamese economy, FDI, environment and energy consumption. At the same time, it reviews the extant literature, discusses central findings and states the research questions of this thesis.

Chapter 3 examines the relationship between FDI, economic growth, and carbon dioxide (CO₂) emissions in Vietnam during the period 1988 – 2015 by applying the autoregressive distributed lag (ARDL) approach. We find that in the long-run, the causality relationship is found among variables; GDP has a significantly positive impact on CO₂ emission while FDI has a slightly negative effect. However, in the short-run, the causality relationship cannot be found for all variables. The results reveal that pollution haven hypothesis does not exist in Vietnam

since FDI is good for environment in the long-run.

In Chapter 4, we investigate the relationship between economic growth and industrial waste emissions in Vietnam by using panel data for 63 provinces in Vietnam between 2000 and 2013. In addition, we separate the impact of state economic sector, non-state economic sector and foreign investment economic sector on waste emissions including gaseous, solid waste and liquid waste. By applying two-way fixed effects and random effects error component models, the results reveal that economic development will induce more industrial pollution emissions, that is, the net effect of economic growth on environment quality is negative. Notably, the increase in income induces more liquid waste than gaseous and solid waste due to large amount of waste water discharged from industrial zones, and manufacturing establishments without properly treatment as well as the subsectors significantly contributed in water pollution. In respect to the impact of economic sectors on waste emissions, the results suggest that state economic sector tended to have relatively more high waste emissions in all kind of wastes, and foreign investment economic sector also had relatively high waste emissions in gaseous and liquid waste; whereas the outcome for non-state sector is insignificant in all kind of wastes.

The last empirical analysis is in Chapter 5. Here, we examine the direction of causality and sign (in the panel sense) between energy consumption including coal, oil, and electricity and GDP for total 63 provinces in Vietnam between 2000 and 2013. The results from our empirical tests show that there is a long-run equilibrium relationship among the variables, and the majority of energy consumption variables have a positive sign, indicating that an increase in GDP would lead to a greater use of energy. When turning to the city specific coefficients, the relationship between energy consumption and GDP across provinces is positive, and statistically significant; but it changes slightly among cities due to the geography location, population, and natural resources. This research results suggest that energy consumption is not a limiting factor for the Vietnam's economic growth, and it implies that the rise in energy prices can be a good opportunity for the economy to promote substitution and technological innovation.

From the Granger causality test, there is a short-run unidirectional causal relationship running from GDP to energy consumption. This implies that in the short-run, economic growth leads to energy consumption in Vietnam, and energy is only one of essential inputs to production in Vietnam, supporting the conservation hypothesis.

Finally, Chapter 6 offers an integrated summary, the contribution of thesis, and lays out the agenda for future work.