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Does Inflation Affect Emissions Reduction? Experimental Research in Vietnam

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ABSTRACT

Inflation and sustainable development are two important factors in the economic development of most countries. This study will use empirical analysis to examine how macroeconomic variables, including the money supply (M2), economic growth rate (GRR), trade openness (TO), and inflation (INF), related to CO2 (the environment variable) in Vietnam from 1995 to 2022. The effect of detecting emitted CO2 can be considered both in the short and long term. This study uses the research analysis method of the self-healing distributed slow (ARDL) model. Several independent variations are proposed in the model, including M2 supply, economic growth rate, trade expansion rate, and issuance rate, to evaluate the influence of increasing emission waste. Research results show that the impacts are statistically significant in the short and long term. Finally, the study also offers some policy tips for Vietnam to adjust economic variables to achieve a better level of development and move towards sustainable economic development.

KEYWORDS:

CO2 emission, sustainable development, environment, economic development

A widespread increase in an economy's price is known as inflation, which leads to a general decrease in the value of a currency. Inflation can have negative as well as positive effects. The negative impacts on the economy are reducing people's purchasing power, increasing production costs due to the increase in the price of raw materials and labor, reducing the profit of enterprises, and increasing the price of goods. When inflation is high, people consume with savings, slowing economic development (Dotsey & Sarte, 2000). High inflation also increases societal inequality because middle and low-income populations are more vulnerable than high-income populations. However, inflation also has positive effects, such as making the economy more competitive than other economies because the devaluation of the currency makes the economy's goods and services cheaper than in different countries. If the government can maintain inflation at a stable level, it can benefit the economy by stimulating consumption, encouraging investment, and promoting competition. Moderate inflation can help eliminate weak businesses and promote businesses that can operate more efficiently, leading to sustainable economic growth. Factors that affect the adjustment of the level of core inflation include economic growth, wages, supply and demand of goods, and external factors such as war, natural disasters, or high oil prices. In addition, policymakers can also use several inflation control tools such as monetary policy, fiscal policy, and trade policy. However, when aiming for sustainable economic growth, a stable financial system and macroeconomic factors play an essential role (Bai

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et al., 2006). A stable financial sector will promote economic development through domestic and foreign direct investment activities.

Moreover, most countries aim for sustainable development so that foreign investors will prioritize green technology projects (Olsen & Fenhann, 2008). Thus, financial stability not only promotes economic growth but also the operation of capital sources toward the goal of sustainable development. A financial system with price stability will promote investment activities and thus can affect sustainable development goals positively and negatively. Shahbaz's (2016) research shows that volatile inflation reduces consumer purchasing power and economic activity and will increase environmental quality.

Vietnam is in the process of developing to achieve sustainable development and neutralizing emissions by 2030. Therefore, Vietnam can simultaneously achieve objectives such as stabilizing the macroeconomy and moving forward to sustainable development. The country also needs flexible policies to adjust inflation and achieve the committed targets for sustainable development and the target committed at COP26 (Pham & Phung, 2022). Although several studies have evaluated the relationship between inflation and CO2, they consider each region or a subsample of several countries in the area, as in the study by Ahmad et al. (2021). However, there have been no studies evaluating this relationship in Vietnam.

Furthermore, our paper evaluates inflation rates and CO2 emissions based on total emissions. We find that a better understanding of the relationship between macroeconomic variables and pollution is needed to provide policy implications for policymakers on the trade-offs between net economic variables and less economically oriented variables, such as environmental pollution. In addition, this study provides a multi-dimensional view of inflation and other macroeconomic factors in the Vietnamese context. This study also adds to the growing knowledge of decarbonization capabilities to support emissions reductions and achieve carbon neutrality, as Vietnam has committed to using an autoregressive distributed lag approach. ARDL is used to evaluate the study variables regardless of the series' integration (i.e., I(0)/I(1)) in the long-term connectivity model; the ARDL model outperforms other standard cointegration methods. Finally, we have added some macroeconomic variables to avoid bias in the research results and allow for more convincing results. Our research results confirm the cointegrating relationship between the research variables. The ARDL test results also show that inflation impacts carbon emissions, providing some policy implications for Vietnam in adjusting inflation levels and achieving emissions reduction goals.

LITERATURE REVIEW

For sustainable growth, emissions are an essential factor. During the Climate Change Summit, the United Nations Secretary-General called on countries to set ambitions to reduce greenhouse emissions in line to keep global temperature rise at 1.5° Celsius, in which high-emitting countries need to take the lead in reducing greenhouse gas emissions, developed countries need to achieve net zero emissions by 2040 at the latest, and large emerging economies by 2050. Therefore, reducing emissions towards sustainable development is one of the top goals of many countries worldwide, including Vietnam. However, to reduce CO2 emissions, it is necessary to adjust many factors related to economic development, such as economic growth, inflation, unemployment, and financial and banking development.

Relationship Between Economic Growth and CO2 Emissions

Scholars often use the Environmental Kunets Curve (EKC) to evaluate the relationship between economic growth and environmental pollution. The EKC theory states that when a certain level of development is reached, environmental pollution decreases as GDP increases (Kaika & Zervas, 2013). When a certain level of development is reached, the government of that country will pay more attention to the environment, introduce more stringent requirements for investment, and move towards more sustainable growth. This is also consistent with the theory that higher-income people