

Cost of Gas Consumption and Climate risk: evidence from Bayesian panel VAR of US

Haithem Awijen

Omnes, INSSEC Paris

haithem.awijen@gmail.com

Younes Ben Zaied

EDC Paris Business School, France

ybenzaied@edcparis.edu

Nidhaledine Ben Cheikh

ESSCA School of Management, France

nbcheikh@gmail.com

Extended abstract:

The climate risk is urgent, global, systemic, and irreversible, closely linked to the use of fossil fuels, omnipresent factors of economic development. This risk can be broken down into a physical risk, induced by the multiplication of extraordinary natural phenomena, as well as a transition risk, resulting from the constraint imposed on economic and political actors to limit greenhouse gas emissions. Conventional energy use is the major source of climate risk and is likely to increase rapidly the exposition to damages caused by climate changes.

This paper investigated the interplay between climate volatility measured by changes in temperature and the price and consumption of gas in the United States. We employ a Bayesian Panel VAR model with stochastic volatility exploiting data on fifteen US states from January 1973 to January 2022. Climate risk measured by the conditional volatility of monthly temperature could have a significant impact on the consumption of gas. However, the dimension of climate change through realized volatility of monthly temperature significantly increased the volatility of consumption of gas. The paper calls for an urgent switch to the use and adoption of clean energy rather than gas especially for the residential use of energy which represent an important part of energy consumption. The use of renewable energy could reduce the conditional volatility of temperature and therefore climate risk.

Keywords: Climate risk; temperature volatility; gas consumption; United-States; Bayesian Panel VAR; conditional volatility; realized volatility