High air pollution causes firms to be less efficient at investing

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Firms that are based in a city with high levels of air pollution have much lower efficiency when it comes to corporate investments, according to new research from Durham University Business School.

Guanming He, Professor in Accounting at Durham University Business School, alongside Tiantian Lin, from Beijing Jiaotong University, found that air pollution adversely impacts managers' mood, judgement, and decision-making on corporate investments, and thereby reduces the investment efficiency of firms.

To do so, the researchers used data from the Air Quality Index (AQI) - constructed and published by the Ministry of Environment Protection of China in 2014 - and compared recorded pollution levels to the financial, governance, and stock market data for 2174 Chinese listed firms for the period 2014–2019, according to the Chinese Stock Market and Accounting Research Database.

These firms were based over 230 cities in China, and the researchers found that the degrees of inefficient investments, over-investments, or under-investments by firms located in the worse polluted cities are, on average, 7.6%, 8.6%, and 5.5%, respectively, higher than those located in the less polluted cities.

Professor He says,

"As investment efficiency of a firm is lowered by air pollution, the firm might face shrinking profitability and deteriorating performance, losing their competitive advantage in the long term. Managers might also suffer, as their compensation and career prospects are often tied to the profitability and performance of their firms."

However, the researchers discovered that a city's green space coverage and humidity did not have direct impacts on firms' investment efficiency.

The study also explored whether other characteristics of Chinese firms, such as firm size, profits etc., had any impact on the efficiency of their investments in polluted areas. The researchers found that the negative impact of air pollution on firms' investment efficiency is stronger for small firms, non-state-owned firms, financially constrained firms, and firms faced with high business risk or fierce industrial competition.

The researchers proposed two ways to mitigate the negative impact of air pollution on firms' investment efficiency. First is to improve the indoor air quality of the working places for the managers and employees. For example, firms might use ecological and healthy green building materials, air purifiers, houseplants or even adopt working from home practices, to ensure managers are breathing less polluted air.

Secondly, firms may have investment decisions made in their branch offices, which have higher air quality. If moving locations for the decision-making is not at all possible, having investment decisions reviewed by the investment experts whose work base is not in an air-polluted city is advised.

The researchers state that the findings of their paper clearly show how the environment can help or hinder an economy by affecting the decision-making process at the c-suite, and provides valuable learning opportunities for managers.

For firms, this showcases that air pollution is a very clear barrier to being as efficient as possible in the important decision-making for firms, and firms should look into ways to alleviate this. For policymakers, the researchers suggest their findings underscore the importance of reducing air pollution (via, e.g., enforcing related environmental policies), given the essential role of corporate investments in promoting a country’s economic growth.