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IPS Paper

Review of firm-level carbon emissions statistics

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Brief Description

Climate change related risks have been increasingly recognised as a major threat to economic growth and financial stability.

However, frequent data gaps make it challenging to evaluate firm's exposure to the climate risks.

This session reviews current statistical methods for estimating firm-level carbon emissions, analyses their strengths and limitations, and proposes essential statistical considerations to improve the accuracy and reliability of such estimates.

Abstract

Climate change related risks have been increasingly recognised as a major threat to economic growth and financial stability, leading to an increased focus on the exposure of firms to climate change risks in investment and policy decisions. Firms directly exposed to physical and transitional risks from climate change face the immediate challenge of mitigating its impact. Having reliable and relevant data is essential to identify, quantify and tackle such risks. Therefore, an increasing number of firms are reporting data on carbon emissions produced throughout their business activities since the Paris Agreement (December 2015).

While there have been improvements, the frequent data gaps make it challenging to evaluate a firm's GHG performance and exposure to climate risk over time or in comparison to other firms. The lack of mandatory international reporting standards and the differing disclosure policies across firms and countries poses a challenge when building aggregates at the sector, country, or regional levels that accurately represent the impact of industrial activities on the environment.

To address this challenge, a variety of statistical techniques are being used to estimate missing carbon emissions data. However, existing approaches to estimate these emissions have both strengths and weaknesses. This paper aims to review current statistical methods for estimating firm-level carbon emissions, analyse their strengths and limitations, and propose essential statistical considerations to improve the accuracy and reliability of such estimates.