

# Assessing firms' environmental performances

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A SMU researcher and her co-researchers have investigated whether, and if so how, foreign environmental standards influence global sourcing decisions.

In their paper titled "Follow the smoke: The [pollution](#) haven effect on global sourcing" which has been published in the *Strategic Management Journal*, SMU Assistant Professor of Strategic Management Narae Lee, along with co-researchers Heather Berry and Aseem Kaul, analyze the environmental performances of a wide range of industries to assess the environmental performances of US firms which had outsourced their manufacturing to countries with weak environmental standards.

By basing their study on US Census Bureau data tracking imports into the US for 82 manufacturing industries across 77 countries over 11 years, the researchers took a different approach to previous studies which had focused on foreign direct investment or FDI and so had not studied the impact of outsourcing. The data was broken down into imports from related parties (offshore integration) and imports from third parties (offshore outsourcing).

Professor Lee, who has just joined SMU, told the Office of Research & Tech Transfer it was "quite surprising that no one has actually looked at the outsourcing aspect. Obviously firms have two different types of sourcing: 'insourcing' (by the firm itself) and 'outsourcing' (via a third-party supplier)."

## **The pollution haven effect**

At the core of the study is what is known as the 'pollution haven effect' by which multinational firms have been shown to prefer to locate factories in countries with weak environmental standards.

Professor Lee and her co-researchers extended the previous research in this area to show that firms not only manufacture products in countries with weak pollution standards at their own plants, but also from third-party foreign suppliers.

The reason why previous studies had failed to investigate the impact of outsourcing may have been, Professor Lee speculates, because economists had not taken into consideration the differences between insourcing or outsourcing by firms as their research was not usually at the firm level. In addition, this might have been due to the limitations of the available data.

"Maybe they were thinking that, by just looking at insourcing, this would provide enough evidence of the pollution haven effect," Professor Lee said. However, the researchers state in the paper, 'this is a serious omission, since offshore outsourcing makes up a substantial share of firms' overall global sourcing'. Consequently, previous studies risked 'severely underestimating the extent to which firms take advantage of pollution havens.'

"When a firm faces stricter environmental regulations, that means higher production costs," Professor Lee said. "So that would definitely affect sourcing decisions, especially outsourcing. But we wanted to back up our estimation with data and provide strong evidence for that."

The study also discerned differences between industries. "That's another contribution of our paper, that pollution havens exist but the 'pollution haven effect' differs from industry to industry."

The researchers found "consistent evidence" showing that the stringency of a country's environmental standards "is negatively related to its share in sourcing by US manufacturing firms." It adds that this holds for both offshore integration and offshore outsourcing, and also holds across a range of manufacturing activities. "Overall, these findings provide strong evidence of a pollution haven effect for both owned and unrelated third party global sourcing."

"We argue and show that, in many instances, firms may choose to take

advantage of weak foreign institutions through arm's length transactions with third-party providers."

## **Short-term benefits vs long-term sustainability**

The study also highlights a tension between policies that produce "short-term benefits for a country and those that advance long-term global sustainability." It also suggests that although the Kyoto Protocol sought to cut CO<sub>2</sub> emissions to limit climate change, the efforts of countries may have been "at least partially undermined by the decisions of firms to increase their global sourcing from countries with weaker emission standards."

The implication, then, is that although developing countries may not want to discourage FDI by having stricter pollution controls, a multilateral approach may be required. "Those developing countries already suffer from bad pollution," Professor Lee said. "If differences in environmental regulations give more incentives for companies to go to those developing countries and pollute more, it's going to be a race to the bottom."

"It explains why developing countries should invest in developing their industries to attract more tech industries, rather than polluting [manufacturing industries](#)."

## **Local-owned = better for environment**

In another study, Professor Narae Lee and co-researcher Jiao Luo focus on the impact of corporate ownership and community conditions on firms' pollution output. Their paper, "Are native plants green? Assessing environmental performances of locally-owned facilities," has yet to be accepted for publication but has already been presented at conferences.

In it, the researchers show that locally-owned firms have lower levels of toxic emissions, but are also less likely to report greenhouse gas emissions. When they do report them, however, the levels of GHG emissions are higher and the effects are stronger when the owners only have operations in their local state. "Our study suggests that while the pressures of local embeddedness may drive firms to be more environmentally responsible towards their local community, they also make firms more indifferent to their global environmental impact."

## **A moral hazard**

This suggests, they say, a "moral hazard problem where firms are doing good things for the local community but harming the global communities."

"Locally-oriented companies can be good when it comes to pollution that is limited to the local community," Professor Lee told the Office of Research & Tech Transfer. "But when it comes to global-level pollution, they may not be such a good performer. They may even be a bad performer."

"So, we have to be careful when evaluating firms' environmental performance. Do not look only at toxic chemicals that have limited local impact. Do not only look at greenhouse gases that have global-level impact. 'Corporate pollution' covers a wide spectrum. That's the main story of the paper."

The study was based on a sample of 14,369 US manufacturing facilities between 2010 and 2018 and clearly has implications for environmental regulations. In their paper, the authors state, "This highlights the need for a more comprehensive approach when seeking to promote firm environmental performance through policy."

Even if managers are dedicated to environmental sustainability, Professor Lee acknowledged, they may have to choose between various clean technologies to tackle the different types of pollution. "But if your resources are limited, you'll have to decide which one is more urgent."

**More information:** Heather Berry et al, Follow the smoke: The pollution haven effect on global sourcing, *Strategic Management Journal* (2021). [DOI: 10.1002/smj.3288](https://doi.org/10.1002/smj.3288)

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