

US manufacturing plants cleaner as overseas suppliers do dirty work

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Toxic emissions from manufacturing plants in the United States have dropped as the production of more pollution-intensive goods shifted to low-wage countries, says a University of Michigan researcher.

"We found that domestic plants pollute less on American soil as their parent firm imports more from low-wage [countries](#). They also shift production to less pollution-intensive industries, produce less waste and spend less on pollution abatement," said Yue Maggie Zhou, assistant professor of strategy at U-M's Ross School of Business.

Zhou and co-author Xiaoyang Li of Shanghai Jiaotong University found that when a U.S. plant's owner increases imports from low-wage countries by 10 percent, the plant's toxic emissions at home fall 4 to 6 percent.

"Industries that experienced the greatest increase in imports from low-wage countries—printing, apparel and textile, rubber and plastics, and furniture—experienced some of the largest drops in air pollution emissions," Zhou said.

The researchers analyzed statistics of more than 8,000 [firms](#) and 18,000 plants from the U.S. Census Bureau at the firm level, where production-pollution decisions are made.

The cost to comply with environmental standards in the U.S. costs hundreds of billions of dollars each year. Less-developed countries

spend very little and avoid stricter policies that may slow economic growth.

They found that toxic emissions of major air pollutants by U.S. manufacturers fell more than half between 1992 and 2009, despite significant growth in real U.S. manufacturing output. Also during this period, their analysis showed that the share of U.S. imports from low-wage countries rose to 23 percent from 7 percent.

"Our evidence is consistent with a pollution-offshoring strategy," Zhou said. "We found that goods imported by U.S. firms from low-wage countries are in more pollution-intensive industries than goods imported from the rest of the world."

A 2014 study by researchers in China, the United States and Britain, found that 17 percent to 36 percent of four major air pollutants emitted in China are associated with the production of goods for export.

However, not all U.S. firms choose to "offshore pollution." Zhou and Li also found that the negative impact of imports from low-wage countries on emissions is stronger for U.S. plants located in countries with greater institutional pressure for environmental performance, but weaker for more productive firms and plants.

"Productive U.S. firms should actively engage in the policy debates in order to induce a regulatory framework that rewards firms that differentiate through corporate social responsibility," Zhou said.

Their research will appear in an upcoming issue of *Strategic Management Journal*.

Provided by University of Michigan

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