



Is Manufacturing Products for Export to the West Compromising Environmental Health in China?

The respected *New Scientist* magazine interprets new data published in *Nature* on the mortality impacts from manufacturing and international trade and concludes that more than 100,000 people die every year as a result of the noxious emissions caused by making China's exports to the United States and Western Europe. We asked an expert panel for their views on this hypothesis.

The potential for environmental regulations to weaken the competitiveness of domestic manufacturing has played a role in policy debates since the emergence of modern environmental legislation in the 1970s. These competitiveness concerns reflect the so-called "pollution haven" hypothesis that suggests that firms relocate economic activity from places with high regulatory costs to those with lower costs. There are other competitiveness factors affecting plant location as well, and these include access to skilled labor, energy, and natural resources as well as industrial policies in exporting countries that promote manufacturing.

For local pollutants, such as ozone and fine particulate air pollution, adverse competitiveness effects would result in better air quality in the United States at the expense of jobs and manufacturing output. At the same time, "In our global economy, the goods and services consumed in one region may entail production of large quantities of air pollution — and related mortality — in other regions," according to *Nature*.

"If the cost of imported products is lower because of less stringent air pollution controls in the regions where they are produced, then the consumer savings may come at the expense of lives lost elsewhere," the study authors say. "There is some evidence that the polluting industries have tended to migrate to regions with more permissive environmental regulations . . . suggesting that there may be tension between efforts to improve air quality in a given region and to attract direct foreign investment."

Study co-author Steven Davis of the University of California says the West can no longer point fingers at emerging economies for lax controls when access to cheaper goods serves as a driver of polluting behavior. By the same token, most observers would agree that Beijing in the last few years has made impressive strides in imposing new pollution legislation and implementing rules and in empowering its environmental agencies and NGOs.

We ask our expert panel, Have we substantiated the pollution-haven hypothesis? Are people in countries such as China suffering in support of western lifestyles? What can be done to mitigate the mortality and other health and environmental effects of international trade on manufacturing economies?

As always, we remind readers that the opinions of these Debaters are not necessarily those of the Environmental Law Institute or its funders.



“Drawing from a variety of policy tools, the U.S. can work with other countries to craft effective emission-reduction policies tailored to their domestic contexts.”

Joseph E. Aldy
Associate Professor of Public Policy
HARVARD KENNEDY SCHOOL OF
GOVERNMENT



“If the worry is pollution havens in the form of dirty production processes abroad, unilateral action by importing states may violate World Trade Organization law.”

Joel P. Trachtman
Professor of International Law
FLETCHER SCHOOL OF LAW AND
DIPLOMACY



“In 2014, President Xi Jinping’s administration woke up the country from its emit-first-clean-up-later slumber and declared a ‘war on pollution.’”

Jennifer L. Turner
Director, China Environment Forum
WOODROW WILSON CENTER FOR
SCHOLARS



“China will not stop polluting because western nations ask. It will only stop when the people of China protest.”

Leo W. Gerard
President
UNITED STEEL WORKERS UNION



“As it undergoes continued economic transformation, China is turning from high-polluting, low-valued-added manufacturing to ‘double win’ green technologies.”

Zhao Huiyu
Associate Professor, Environmental and Natural Resource Law
SHANGHAI JIAO TONG UNIVERSITY

Trade Shifts Pollution More than Regs Shift Trade

By JOSEPH E. ALDY

Burning coal to power manufacturing contributes to premature mortality in the United States and in developing countries alike. Despite stringent environmental regulations, U.S. coal-fired power plants still cause tens of thousands of early deaths each year. Any factor that causes manufacturing activity to shift from the United States to other countries can also shift the demand for coal-fired power — and its pollution — to these other countries. The U.S. trade balance could change in response to currency exchange rates, tariff policy, labor costs, and other reasons besides the burden of environmental regulations.

For example, in 2017, the United States had its highest level of net imports since 2008. This obviously did not reflect a major Trump administration push for more stringent environmental regulations. Indeed, the empirical evidence shows that U.S. environmental regulations have quite modest impacts on trade flows. In one analysis of trade with Canada and Mexico, environmental regulations represented only 10 percent of the change in net imports with these two countries.

Why do environmental regulations cause few companies to move their factories to countries with weaker rules? A company's decision on where to locate manufacturing will depend on access to appropriately skilled labor, natural resources, and low-cost capital. Close proximity to other firms that produce key inputs or purchase a company's outputs — so-called agglomeration economies — may discourage relocation to another country. Transportation costs may also weaken the incentive to relocate a factory far

away from major markets. Empirical evidence on these factors undermines the pollution haven hypothesis claim that manufacturing firms will seek out the weakest regulatory jurisdictions to operate in.

Understanding the mechanism — the role of trade in shifting pollution versus the role of pollution regulations in shifting trade — is critical for designing effective public policy. For example, if the shift in air pollution from the United States to China reflects the shift in trade resulting from Chinese market reforms and WTO accession, then weakening U.S. environmental regulations will have little impact on the location of pollution from manufacturing.

What are the U.S. interests in mitigating pollution in other countries? If international trade results in a shift in manufacturing and conventional air pollutants, such as fine particulate matter, then this delivers a trade-off for Americans: less manufacturing activity in exchange for lower pollution and lower premature mortality. In contrast, if the pollutant in question is carbon dioxide, then the global impact of carbon pollution means that Americans could enjoy little to no climate benefits from the reduction in domestic emissions as manufacturing shifts to developing countries.

Indeed, if the carbon intensity of manufacturing in other countries is higher than in the United States, then the climate benefits would be negative. From the U.S. domestic perspective, it's a jobs versus environment question with local air pollutants, but a jobs *and* the environment question with global pollutants like carbon dioxide.

The combination of fewer jobs and factories without the climate benefits has motivated consideration of a border tax in U.S. climate change policy. Such an instrument would tax imports based on their embedded carbon content — i.e., the carbon emissions associated

with the production of the good in question — to ensure that all goods competing in the U.S. market would face a common carbon price.

The 2009 Waxman-Markey bill coupled a border tax policy with its greenhouse gas cap-and-trade program, and recent proposals for a carbon tax on both the left and the right have called for a border tax. Such a tax could mitigate concerns that the policy's climate change benefits could be undermined by manufacturing shifting to countries with weaker carbon dioxide regulations and policies. Given the empirical evidence countering the pollution haven hypothesis, however, this may reflect a political calculus more than an economic need.

While the United States has a clear interest in ensuring other countries' carbon emissions don't increase in response to U.S. policy, the U.S. interest is more ambiguous in the context of local air and water pollution. Why should the United States weigh in on another country's environmental policy that doesn't affect Americans' public health? In some contexts, such as human rights abuses and child labor, a values-based argument has motivated U.S. diplomatic efforts to influence other countries' domestic policies. This is less common in the context of local air and water pollution, and reflects a general deference to national sovereignty on many issues.

Indeed, Americans usually don't like being told what to do by other countries either. But the United States could assist developing countries, which may have an interest in reducing their local air pollution but lack the resources and know-how to do so. Drawing from a long track record with a variety of policy tools, the United States can work with other countries to craft effective emission-reduction policies tailored to their domestic contexts.

Joseph E. Aldy is associate professor of public policy at the Harvard Kennedy School.

Trade Law Fuzzy on Powers of Importing States

By JOEL P. TRACHTMAN

International trade law constrains the permitted responses of importing states to dirty production and processing methods in exporting states. It often leaves it to international environmental law, requiring cleaner standards under exporting-state domestic law, to induce exporting states to improve their standards. In this brief post, I will lay out the constraints and the types of responses that are permitted.

Under Article III of the General Agreement on Tariffs and Trade, which is a component of the World Trade Organization treaty, WTO member states are required in their regulation, and internal taxes applied to products, not to treat imported products less favorably than domestically produced ones. You might say, fine, then we can simply impose carbon taxes, other pollution taxes, or prohibitions on sales of goods produced in an environmentally unsound way, so long as we treat the imports as well as we treat the domestically produced goods. It is not so simple, however, because the “process and production method” doctrine, or PPM, which is not firmly a part of WTO law but is more likely than not to be applied, would constrain this approach, in one of two ways.

First, an exporting state might say that the conditions for application of Article III are not met because the national regulation is not “applied to products,” but is applied to PPMs. If Article III does not apply, this is not a win for the importing-state regulation, because then, instead, Article XI of GATT, which is a flat prohibition on quantitative restrictions applied to imported products, would apply

to product regulation, and Article II, which is a prohibition on taxes on imports above the permitted tariff, would apply to product taxation.

Second, in another form of the PPM doctrine (as I said, it is not fully a part of WTO legal doctrine, so we do not know which form might be applied), the PPM is not a cognizable regulatory difference — we only focus on regulation of products as such. This would mean that an importing state would be automatically violating Article III by conferring “less favorable treatment” based on differences in PPMs. It is, in effect, discrimination because the importing state is treating differently, and less favorably, products that are “like” in their physical characteristics and consumer perception — even though they are different in their PPM. Even though the PPM doctrine is still somewhat contested, most trade lawyers believe that it is likely to be applied in one of these two forms when it comes up.

But all is not lost. The GATT also contains exceptions to these prohibitions, specifically designed for environmental protection. These exceptions are Article XX(b), permitting actions that are “necessary” to protect human, animal, or plant life or health, and Article XX(g), permitting actions that are “related to” the conservation of exhaustible natural resources. These provisions are subject to the lead-in, or *chapeau*, of Article XX, which requires that the measures taking advantage of these exceptions not be means of arbitrary or unjustified discrimination between countries where the same conditions prevail, which then are disguised restrictions on trade.

There are three problems under Article XX. First, it is not clear that it permits protection of human, animal, or plant life, or conservation of exhaustible resources, located outside the territorial jurisdiction of the regulating state. It might, but it is contested and the WTO Appellate Body

has avoided deciding the issue. Thus, global pollutants, such as carbon, make it easier to justify import-state regulation than local pollutants, such as groundwater contamination.

Second, the “necessary” qualifier in Article XX(b) imposes a requirement that the importing state seek the least trade-restrictive means of achieving the protective goal reasonably available. So, for example, the importing state would have to seek to negotiate an international environmental agreement addressing its concerns before acting unilaterally. Of course, this condition might be met.

Third, it is not clear what types of unilateral measures by the importing state might be considered “arbitrary or unjustifiable” under the chapeau. Here again, the support of an international environmental agreement would help avoid charges of arbitrariness, and an importing state may be required to seek this less trade restrictive alternative under this provision as well. In the Shrimp-Turtle case, the WTO Appellate Body has said that “as part of the less trade-restrictive alternative analysis, one question is whether the respondent has made sufficient attempts to engage in ‘cross-the-board negotiations with the objective of concluding bilateral or multilateral agreements’ regarding the concern at issue.”

If the worry is pollution havens in the form of dirty production processes abroad, unilateral action by importing states may violate WTO law, and an exception may not be available because the persons sought to be protected are outside the territorial jurisdiction of the importing state, or because the importing state has not done enough to seek a less trade-restrictive means of achieving its environmental goal. The law is somewhat uncertain in all of these areas, but these are the likely parameters.

Joel P. Trachtman is professor of international law at the Fletcher School of Law and Diplomacy.

China's Pollution From U.S. Exports: Takes Two to Tango

By JENNIFER L. TURNER

Hidden behind the ubiquitous “Made in China” label that most of us in the United States have on our computers, phones, and clothes is a tragic pollution crisis — the sickening and shortening of the lives of many people in the manufacturing country. On the path to becoming an economic powerhouse this major exporter has blackened its skies and contaminated its soil and water.

The Chinese government began passing pollution control legislation in the early 1980s, but economic growth was long the priority, so green laws were weak and poorly enforced. In 2014, following two winters in which Beijing was blanketed heavily in smog, President Xi Jinping’s administration woke up from an emit-first-clean-up-later slumber and declared a “war on pollution.”

China is now aggressively working to correct thirty-plus years of degradation that has come from being the world’s factory. Yet greening the exporter’s massive supply chain is also the responsibility of the international companies that manufacture products and source parts from hundreds of thousands of factories in the huge country.

We western consumers are blind to the pollution left in the wake of our chinos. China produces over half the world’s textiles, and for decades the plants dumped dye chemicals into rivers instead of recycling them. In Guangdong Province, denim-hued rivers flow out of Xintang, the jeans capital of the world.

But it takes two to tango — China produces and we consume.

The dance partners need to come together to prevent this pollution, which ultimately will mean the computers and phones you and I tap on and the pants we wear will have to become more expensive.

The Chinese government is changing the tune by requiring pollution information transparency from cities and industries and threatening real economic punishments. Cities must publish air pollution levels or risk cuts in central budget allocations. In 2017 some provincial officials in Gansu were fired for not halting the development of polluting industries in the Qilian Mountain reserve, an oasis of biodiversity surrounded by deserts in northern China. In this first-ever sacking of high-level officials for pollution the central government is sending a clear warning.

But not all officials are scared enough to stop the pollution — some rivers are still multicolored in Guangdong, and while Beijing has closed its last coal-fired power plant, new ones have opened up in the dry desert regions of western China to supply electricity to the capital and other eastern cities and factories. China leads the world in installed wind and solar power, but coal still dominates, powering textile mills and other factories. In fact, almost a quarter of China’s predominantly coal-powered electricity goes to manufacture goods that are sold around the world.

It is tough to enlighten U.S. and European consumers about the pollution and carbon footprint of their purchases, which is why it is encouraging that some corporations and NGOs are stepping up to help green supply chains in China through innovative partnerships and pressure on polluters.

The Natural Resources Defense Council’s “Clean by Design” initiative works with major western clothing manufacturers to help them train Chinese textile dying plants in

some low-cost/no-cost management and technical steps to lower water pollution and electricity use. This project is a roadmap that other western companies should use.

IPE, a Beijing-based green group, has created online pollution maps and related apps to shine a spotlight on factories and cities that violate air and water emission standards. IPE also investigates foreign companies that do not openly disclose environmental information of their suppliers. This naming and shaming has been effective, and many international companies now work with IPE and its partners to verify improvements in their sourcing of resources and parts.

Green Hunan is a Chinese NGO whose network of 500 volunteers patrol three river basins in the province where most of the screens on our iPhones are made, taking water samples as evidence of illegal dumping. These citizen-scientists have become an invaluable early warning system for the local environmental protection bureau, helping the agency quickly fine and sometimes close polluting plants. The Alibaba Foundation is funding an expansion of this model along the entire Yangtze River basin.

More creative partnerships are needed to pressure or otherwise help Chinese industries clean up their supply chains, particularly as they extend their sourcing to developing countries. An example is the toxic pollution from lithium mines in southern Africa that supply the metal for batteries for electronic devices built in China and consumed by us. So things made in China are increasingly creating pollution elsewhere, and the exotic pas-de-deux continues.

Jennifer L. Turner has been director of the China Environment Forum at the Woodrow Wilson Center for Scholars in Washington, D.C., for two decades. The center’s **Lyssa Freese** contributed to this article.

While China Pollutes, Its People and World Suffer

By LEO W. GERARD

In China, air polluted with hazardous toxins and water poisoned by industrial dumping kill millions of people. Researchers at Berkeley Earth in California put the number at 4,000 a day. Sometimes the air is so dense with deadly pollution that the government temporarily closes factories, as it did to appease frightened international athletes just before it hosted the 2008 Summer Olympics.

The suggestion by some that this pollution was transferred to China by western countries that purchase its manufactured products is deeply offensive. The inference that pollution is killing people in China to support our lifestyles is even more odious. China pollutes because it chooses to pollute. The government could stop or severely curtail pollution, as western nations have. But China has decided instead to spend its money attempting to dominate our markets by violating international trade laws, stealing intellectual property, paying its workers a pittance, and polluting with abandon.

China's polluting industries and predatory trade tactics destroy North American manufacturers, confiscate jobs, and damage communities. They also rain pollution down on other countries. China's noxious air travels across the Pacific and engulfs the North American west coast. A study published in *Environmental Science and Technology* found that 29 percent of air pollution in the San Francisco Bay Area comes from China. This means American workers breathe air polluted by the very Chinese factories that have stolen their manufacturing jobs — ranging from steel forging and aluminum smelting to tire building and paper making.

Since 2001, when China gained

entrance to the World Trade Organization, more than 60,000 U.S. factories have closed and millions of family-supporting U.S. jobs have disappeared. Cheap imported T-shirts and electronics in no way compensate.

Beijing contributes to this loss in several ways. One is that it uses perks like free land to lure North American manufacturers to China. Another is that its corrupt practices bankrupt western factories. This occurs when Asian manufacturers export products at prices below production cost. Because Chinese factories get government subsidies, pay dirt-cheap wages, and shirk the cost of pollution control, their prices are unrealistic.

Also to lower prices on exports, China violates international trade laws it agreed to abide by when it gained entrance to the WTO. These breaches have included currency manipulation, forced technology transfer, cyber hacking, and trans-shipping. Steel is a good example. When China entered the WTO, it produced 150 million metric tonnes of steel. Last year, it forged a record high of 831.73 million tonnes. That was half the steel produced in the entire world.

Beijing promoted this massive ramping up of production. China gives steelmakers gifts like interest-free loans, subsidized energy, and underpriced raw materials. And it permits mills to pollute. The Chinese steel industry produces at least 200 percent, and possibly 300 percent, more greenhouse gases per tonne than the U.S. steel industry does. The U.S. steel industry cut pollution by more than the amount required under the Kyoto Protocol. And the industry did so voluntarily, since the United States never ratified the treaty.

China also assists its domestic industry by stealing trade secrets. In 2014, the U.S. Justice Department indicted three Chinese military officials for hacking into the computer systems of the United Steelworkers, U.S. Steel, and specialty steelmaker Allegheny Technologies, stealing intel-

lectual property.

China produces far more steel than it needs and exports the excess. It has shipped an average of nearly 90 million tonnes annually over the past five years at bargain-basement prices. The flood of this underpriced steel on the international market has suppressed the price and bankrupted less-polluting mills in North America, Britain, Spain, and other countries.

When the U.S. government places tariffs on imports in an attempt to stop trade violations, Chinese companies circumvent them, using trans-shipping and other ruses. Trans-shipping is when China transfers products it makes like steel to a country such as Vietnam, marks it as made there, then ships it tariff-free to the West.

North America and Western Europe have repeatedly negotiated with China to stop the prohibited practices and cut its excessive steelmaking. On at least six occasions since 2009, China has agreed to do so. But each time, it increased production instead.

Our union has long pushed Congress to include a border tax in any energy policy that puts a price on carbon. This fee on imported manufactured goods from nations with lax environmental standards would mitigate the price advantage Chinese mills now get by polluting. It would also push Asian companies to control pollution in order to lower or eliminate the surcharge.

It's not as if China can't afford to control pollution. It plans to spend untold billions to become the world's leader in artificial intelligence by 2030. Some of that money could go to limit pollution instead. China will not, however, stop polluting just because western nations ask it to. Its broken pledges to reduce steel production prove that. It will only stop when the people protest and force China to reduce pollution.

Leo W. Gerard is president of the United Steel, Paper and Forestry, Rubber, Manufacturing, Energy, Allied Industrial and Service Workers International Union.

China's Products Already Starting to Green the World

By ZHAO HUIYU

If it's true that when Americans and Europeans go to the store and "buy a lawn chair, it's a few cents cheaper, and as a result, people are dying in China," is this a sad fact of the global economy or a distorted view of the relationship between international trade and environmental protection? Is this the only choice or is there a third alternative? These questions have been the subject of considerable dispute inside China.

China embraced economic reform and opened to the world 40 years ago. Globalization and trade have provided economic benefits for the Chinese people, no doubt stimulating economic and technological development. But it has come at a high price in environmental deterioration. Should China have halted its economic development to preserve the natural endowment of the Earth? This would have been inconceivable to most Chinese today, particularly the hundreds of millions who have been lifted out of poverty.

Globalization has made the Chinese more dependent on trade and investment. Economic development has become essential for the country's 1.4 billion people. Trade has enabled the Chinese to purchase essential products, including natural resources and agricultural products from around the world. And according to many empirical studies, the overall pollution impacts of international trade and foreign direct investment are lower than those caused by China's domestic economy.

Through application of modern technology, production of cheap industrial products does not have to come at the cost of greater pollution. The environmental Kuznets Curve also plays a role in China.

Trade restrictions are not conducive to the development of environmental protection either. Protection of the environment will not solve the problems of poverty and ignorance. It has been difficult for ordinary citizens to understand the new concepts and mechanisms of environmental protection that have become necessary in modern society after the industrial revolution.

Globalization undoubtedly has strengthened citizens' awareness of environmental problems. An obvious example is how the Chinese public responded to information concerning levels of PM_{2.5} around the year 2010, when they were first publicized by the U.S. Embassy. The data were shared privately among citizens and rapidly became a national concern, spurring Beijing to regulate PM_{2.5} for the first time. There are many other environmental NGO campaigns that show the impact of global awareness of environmental protection on China.

Globalization and competition among countries may affect the environment in three ways: They may contribute to a race to the bottom; they may chill regulatory policy; or they may spur a race to the top. Different responses may occur in different industrial sectors with different economic development needs and policies. Because of China's large size and uneven regional development, industrial policy strategies are not uniform among different regions. The environmental performance of large multinational companies may be no worse than that of local companies, but their behavior is likely to attract greater concern.

In the past China's environmental problems were due to inadequate environmental laws and lax enforcement. The motivation for this was the impulse of local governments to promote economic development. The benefits to many local political and economic interests made them willing to adopt a race-to-the-bottom strategy. Therefore, it requires considerable

regulatory strength to counter this impulse.

Now, however, greater awareness and pressure from civil society and from Beijing all push local governments to improve environmental enforcement. As a result, China has increased the central government's supervision and management of localities, strengthened environmental legislation and enforcement, and provided more specialized guidance to local governments.

These trends are enhanced by more transparent governmental and corporate information, greater public participation on behalf of environmental justice, and an increase in public interest litigation. Importantly, there is also an increase in the economic penalties imposed on polluters. All of this has happened in recent years, in large part due to the landmark 2014 amendments of China's basic Environmental Protection Law and President Xi's personal commitment to environmental protection.

Globalization has had profound effects on the development of China's environmental laws, legal system, and policies over the years. We have learned from many other countries, as illustrated by China's adoption of environmental impact assessment, permitting, and ministry reform, all influenced by American practices. China is continuously learning how to improve its environmental standards, legislation, and jurisprudence.

Finally, as it undergoes continued economic transformation, China is turning from high-polluting, low-valued-added manufacturing to "double win" green technologies. In the past decade it has become a leader in solar and wind energy installation and is now targeting electric car development. China's industrial products are already starting to green the world.

Zhao Huiyu is associate professor at the Institute of Environmental and Natural Resource Law, KoGuan Law School, Shanghai Jiao Tong University.