

International Dimensions of Climate Change Policies

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Adapted from the articles: "Are Developed Countries Outsourcing Pollution?" by Arik Levinson and "Think Globally, Act Globally: Opportunities to Mitigate Greenhouse Gas Emissions in Low- and Middle-Income Countries" by Rachel Glennerster and Seema Jayachandran

INTRODUCTION

Climate change is one of the most critical challenges of the 21st century, which poses significant risks to the global economy, environmental sustainability, and human well-being. The urgency to address climate change has intensified, with South Korea emerging as a focal point in global climate politics due to its rapid industrialization, significant greenhouse gas emissions, and strategic location. Understanding the international dimensions of climate change policies is essential to understanding how different countries contribute to and can mitigate this global issue.

Also, the core of the impact of climate change is negative externalities, which are costs imposed on society and not reflected in the market prices of goods and services. These externalities manifest in many forms, including increased health care costs due to pollution-related diseases, loss of biodiversity, and economic disruptions caused by extreme weather events. The pervasive nature of these consequences underscores the urgent need for comprehensive policies that not only mitigate climate change, but also address the inequalities it exacerbates.

The social and economic burdens of climate change are borne disproportionately by vulnerable populations, both within and between countries. For example, low-income communities often live in areas that are prone to flooding or lack the resources to adapt to rising temperatures, leading to higher mortality rates and reduced economic opportunities. These differences make the ethical dimensions of climate change important.

Historically, developed countries have been the main cause

of global pollution due to their industrial activities since the industrial revolution. The United States, Europe, and Japan, among others, have significantly increased atmospheric greenhouse gas concentrations through widespread combustion of fossil fuels, deforestation, and industrial processes. These countries have accounted for a significant share of global greenhouse gas emissions and have laid the groundwork for today's climate crisis.

However, in recent decades, the global distribution landscape has changed. While developed countries have managed to reduce their greenhouse gas emissions through technological advances, policy measures and the transition to service-oriented economies, emerging economies have increased their share. Countries such as China, India and South Korea have seen a rapid increase in greenhouse gas emissions due to their industrial growth and economic development. Although developed countries' proportional share of global emissions has declined, their historical contribution remains significant and continues to influence current climate dynamics.

The interplay between historical responsibility and current greenhouse gas emissions underscores the need for comprehensive and just climate policies. Developed countries are increasingly investing in green technologies and committing to significant reductions in greenhouse gas emissions, acknowledging their historic role and ability to lead the transition to a low-carbon economy. Meanwhile, emerging economies balance economic growth with sustainability efforts that often require the support and cooperation of the international community.

This article deals with this complex issue by examining two sources. "Are Developed Countries Outsourcing Pollution?" by Arik Levinson examines the concept of pollution havens, where industries relocate to countries with weaker environmental regulations. We will also analyze "Think Globally, Act Globally: Opportunities to Mitigate Greenhouse Gas Emissions in Low- and Middle-Income Countries" by Rachel Glennerster and Seema Jayachandran. This article examines strategies for reducing greenhouse gas emissions in developing economies. By critically examining these sources, we aim to understand the complex relationship between business practices, development, and pollution levels worldwide.

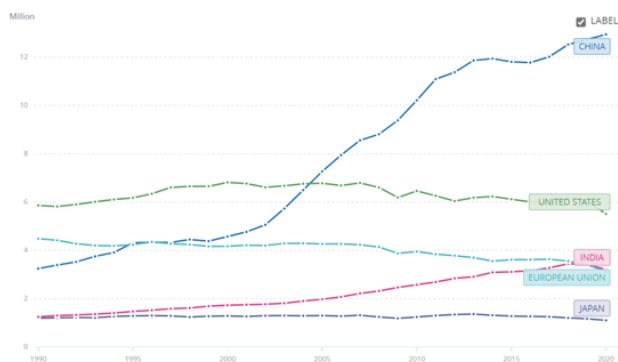


FIG. 1. figure 1: Total greenhouse gas emissions (kt CO2 equivalent)
Source: <https://data.worldbank.org/>

LITERATURE REVIEW

Literature Review of the Article "Are Developed Countries Outsourcing Pollution?"

The beginning of serious environmental control policies on pollution production was in the early 1970s, the public debates about the disadvantages of these measures are as follows:

- In developed countries, investment in cleaner technologies increases the cost of production and decreases by shifting the total supply curve to the left in the new production equilibrium.
- The relative cheapening of the goods of countries with less strict standards or in other words, the reduction of the real currency, their polluting industries transfer to them. Developed countries outsource the pollution by importing the goods they used to produce domestically.

As a result, domestic industries in developed countries were worried about losing jobs and market share to countries with weaker standards, and environmentalists believe that outsourcing will exacerbate pollution in developing countries. To solve these disadvantages, we have seen proposals and measures to prevent the outsourcing of pollution from American companies to foreign suppliers:

- Walter Cronkite (1980), longtime anchor of the CBS Evening News, proposed banning imports from countries with less stringent environmental standards to "protect both American industry and the environment.
- In 1991, Senator David Bourne of Oklahoma proposed the International Pollution Prevention Act. This law was supposed to impose a tax or tariff on imports of goods produced without strict standards.
- The 2022 Deflation Act provides more subsidies to American companies to reduce greenhouse gas emissions. Subsidies do not raise concerns about leakage because firms have no incentive to move abroad to avoid it.
- Europe imposes fees on carbon pollution. Until March 2023, permits were sold for more than 100 euros per ton of carbon.

Literature Review of the Article "Think Globally, Act Globally"

The authors of this paper argue that although most of the externalities of common air pollutants are local and primarily affect the people living in that country, even a small fraction of these pollutants can reach other countries. Include climate change. Because any amount of these pollutants circulates the world regardless of the country in which they are produced. As a result, this issue is important even for countries other

than the countries that produce these pollutants.

On the other hand, even though climate change affects all the countries of the world, its effects will be uneven. This means that some low-income and middle-income countries are expected to suffer the most from these changes. This argument is because many of these countries are now located in hot regions of the world, resulting in a warming Earth causing dangerous temperatures for the inhabitants of those countries. Also, due to the low and medium income of these countries, the options to deal with climate change are beyond their financial reach. As a result, it can be argued that countries that seek to reduce the emission of these pollutants, due to the lack of difference from which country this reduction occurs, can look for the most cost-effective reduction even outside their borders.

However, until now, the majority of the financial costs of countries to reduce these pollutants are done within the country's own borders. Despite all the efforts made, there is still a large gap between the current state of emissions and the emission reductions required to limit global warming to the planned level. Usually, when talking about reducing the production of pollutants to reach the target value, two questions are raised. One is who should pay these expenses and two is where these expenses should be spent. Usually, too much focus on the first question has weakened the effects of the second question, but this important question is addressed in this article.

The Abatement Cost Curve

There are countless ways to reduce pollutants. The cost-reduction curve helps us find the most cost-effective methods based on how much pollution they reduce at what cost. As we can see in Figure 1, which is the global cost reduction curve, each of the columns is a method, the height of the column shows the required cost of that method and the width of the column shows the amount of pollutant reduction of that method. It should be noted that the height and width of each method are not the same in different countries.[1] Also, some methods have a negative cost, which means that doing them has more benefits than the cost for them. For example, replacing incandescent lamps with LED lamps, which are more efficient in terms of energy consumption, despite their high cost, they have a very high efficiency for a positive collective benefit in the end. We use the cost-cutting curve in our subsequent arguments to answer the question, "Where should costs be spent?" we will use.

Relation of Two Articles

Both articles, although seemingly focused on different aspects, are very related to each other in the context of global pollution and climate change. The article "Are Developed Countries Outsourcing Pollution" by Levinson examines the

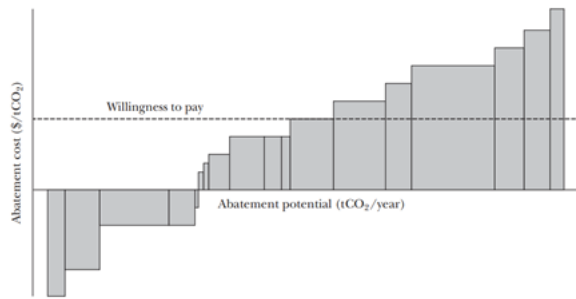


FIG. 2. Figure 2: Global Abatement Cost Curve. Source: "Think Globally, Act Globally."

concept of developed countries potentially reducing their domestic pollution by importing goods produced with higher levels of pollution in developing countries. This is directly related to Glennster and Jayachandran's Think Globally, Act Globally, which explores opportunities to reduce greenhouse gas emissions in low- and middle-income countries. By analyzing both, we can gain a comprehensive understanding of how international trade patterns and environmental regulations in developed countries affect pollution levels in developing countries.

GROWTH TRENDS, POLLUTION AND TRADE

As a starting point, we examine data from 24 high-income OECD countries. As can be seen in Figure 3, the real gross domestic product (GDP) has almost doubled in the last three decades, and two measures of air pollution:

- PM10 particles smaller than 10 microns, which represent local air pollution and are shown with small crosses.
- Carbon dioxide (CO₂), a global pollutant shown in small circles.

PM10 and CO₂ remained almost constant or even decreased. But how have high-income countries in the OECD managed to increase their real production scale without increasing local or global pollution? There are two possibilities here: technology and composition. Technology allows the same mix of goods to be created using less polluting production processes. High-income countries produce a different mix of goods and services due to outsourcing and consumption of cleaner products by citizens.

CAN IMPORTS INTO THE 24 OECD COUNTRIES FROM THE REST OF THE WORLD EXPLAIN THE GROWTH PATTERN WITHOUT EXCESS POLLUTION?

As the figure shows, trade between these 24 OECD countries and the rest of the world is eight to ten times larger today

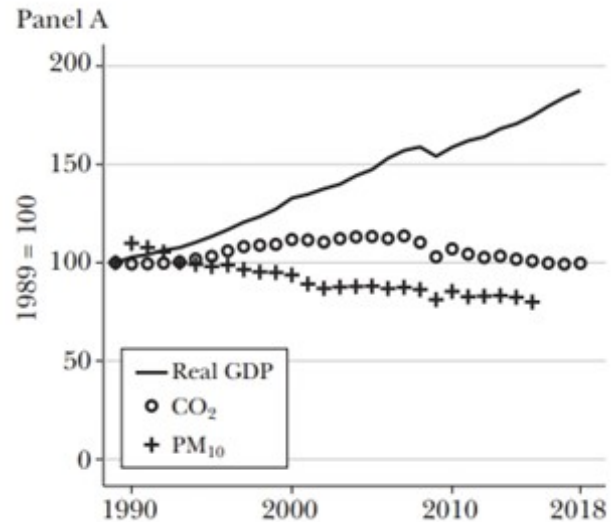


FIG. 3. Figure 3: Source: In-panel GDP in US dollars from the Organization for Economic Co-operation and Development (OECD) (data.oecd.org) adjusted using US GDP deflation from the Federal Reserve (fred.stlouisfed.org) has been Particulate matter pollution smaller than 10 microns (PM10) and carbon dioxide (CO₂) were taken from the Publications Database for Global Atmospheric Research (edgar.jrc.ec.europa.eu).

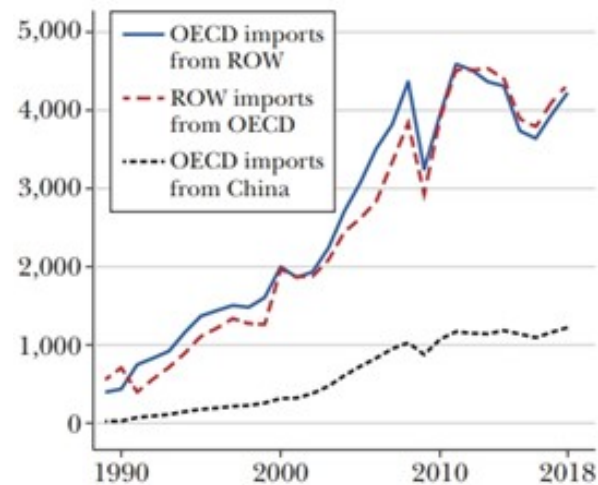


FIG. 4. Figure 4: Real GDP doubled while pollution remained constant or declined (Panel A). Trade between OECD countries and the rest of the world increased more than sevenfold (Panel B). Source: Trade volume from the United Nations (comtrade.un.org) as reported by importing countries.

than it was 30 years ago, a growth rate that is much faster than the doubling of overall economic activity.

But this information is not enough to conclude that we need the trade mix between these 24 OECD countries and the rest of the world.

WHAT IS THE PROBLEM OF POLLUTION OUTSOURCING?

First, we define outsourcing and pollution. Outsourcing means importing goods instead of producing them domestically. In economic terms, pollution is an input to production. Production of a good requires pollution as well as capital and labor.

Pollution outsourcing problems:

- Outsourcing local pollution such as soot or suspended particles can lead to the improvement of the environment in one country and its destruction in another country.
- In the case of global pollution such as CO₂ that causes climate change, moving production from one country to another does not affect the total global pollution unless the production methods of different countries cause different amounts of pollution.
- Pollution outsourcing can have different effects on the economy and the environment. For example, countries with higher incomes may have a greater demand for clean goods, and therefore countries with stricter environmental standards may have an advantage in producing these goods.
- Some countries may become pollution havens because their citizens may not want stricter environmental standards than citizens of wealthier countries.

ARE DEVELOPING COUNTRIES CLEANED UP BY OUTSOURCING POLLUTION?

In order to calculate the intensity of outsourced pollution, we divide the pollution produced per product in developed countries by its dollar value. We multiply the intensity of pollution by the total import value of each commodity to obtain the pollution displaced by this import. This tells us how much pollution the production of each of these imported goods would cause in developed countries if they were produced domestically instead of imported. We add these multiples in all imported goods to get the total amount of pollution in imports. This amount of pollution is "outsourced".

In order to facilitate the collection, analysis and dissemination of economic-statistical data, NAICS codes are designed by the North American Industrial Coding System. Each NAICS code represents a specific industry, and its hierarchical structure allows for a more detailed analysis of industries. Suppose that the paper sub-sector is defined by the first three digits of 322. 322110 includes pulp mills that convert raw wood into paper, which is one of the most polluting processes in all production, on the other hand, the six-digit code 322230 includes factories that purchase They produce stationery paper, a process that involves relatively little pollution. In 2017, the North American Industrial Classification System listed 21 manufacturing

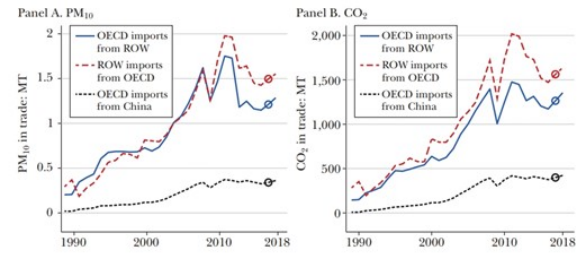


FIG. 5. Figure 5: Total Pollution in Trade Source: Trade data from comtrade.un.org

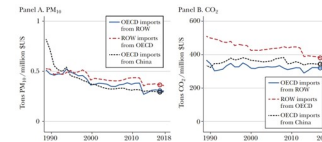


FIG. 6. Figure 6: Intensity of business pollution Source: calculations of the author of the outsourcing article

subsectors, including 360 six-digit manufacturing industries. This level of detail is daunting, but it is possible with the input-output table. Input-output tables show how much each sector of the economy uses the products and services of other sectors as inputs and how much of its output it sells to other sectors. Most studies of pollution outsourcing focus on the manufacturing sector. Other sectors are either not as polluting as manufacturing (finance, retail trade, warehousing) or cannot be easily outsourced (construction, transportation, utilities). To know the amount of pollution outsourced to a developed country by any imported good, we need to obtain the pollution emitted during the domestic production of that imported good, as well as the pollution emitted in the production of the production inputs to that good. Charts showing the severity of PM10 and CO₂ emissions in international trade: These graphs show the severity of PM10 and CO₂ emissions in international trade.

Changes over time: changes in the graphs indicate changes in the total volume of imports and exports and changes in the industries that make up this total.

Scale and mix of trade: Estimates of the scale and mix of pollution embodied in OECD imports have increased sharply over the past 30 years. From 0.2 to 1.29 million tons of PM10 and from 145 to 1,354 million tons of CO₂. Analyses show that high-income countries import fewer polluting goods and the composition of imported and exported goods has changed and moved towards cleaner goods.

DO ENVIRONMENTAL REGULATIONS IN HIGH-INCOME COUNTRIES CAUSE POLLUTION OUTSOURCING?

Studies show that environmental regulations impose small costs on most industries and are only one of many similar

costs that affect import decisions. In 2005, when the U.S. last looked at pollution abatement costs, they accounted for less than half a percent of the value of industrial output. But for some industries that are more polluting and easy to import or export, regulations may significantly outsource pollution.

For example, one of the first studies to address this issue examined whether industries with higher abatement costs in the United States were more likely to be outsourced to Mexico. They found that the coefficients associated with pollution costs were small and statistically insignificant, indicating that higher pollution costs in the United States do not significantly increase the likelihood of imports from Mexico.

Their conclusion was that US environmental regulations and enforcement play little role in outsourcing. As a result, more heavily polluted areas usually have stricter regulations, but may still remain polluted due to local advantages.

RESULT 1

For those concerned about the potential risks of pollution outsourcing from high-income countries to the rest of the world, an obvious solution is border taxes or tariffs based on embodied pollution on imports. Such a policy will have two goals:

- Border pollution taxes help prevent pollution outsourcing. However, if the main research results show that there is no meaningful outsourcing even without border taxes, then border taxes actually protect domestic industries from an imaginary threat.
- Border pollution taxes can be a way for high-income countries to encourage exporting countries in the rest of the world to set stricter environmental standards.

If the question is whether developed countries cleaned up their pollution by importing polluting goods, the answer is "no". Imports and exports of developed countries have grown significantly. But the composition of imported goods has shifted towards cleaner industries over the past three decades.

THE REASONS FOR THE COST-EFFECTIVENESS OF METHODS TO REDUCE THE EMISSION OF POLLUTANTS IN DEVELOPING COUNTRIES

Cost-effective methods have already been used in high-income countries.

Usually, most cost-effective methods to reduce greenhouse gas emissions[2] have been used in high-income countries, but on the other hand, in low-income or middle-income countries, they have not yet fully used these methods. This untapped potential offers a unique opportunity to significantly reduce greenhouse gas emissions at relatively low costs. In other words, some of the remaining emission reduction methods in

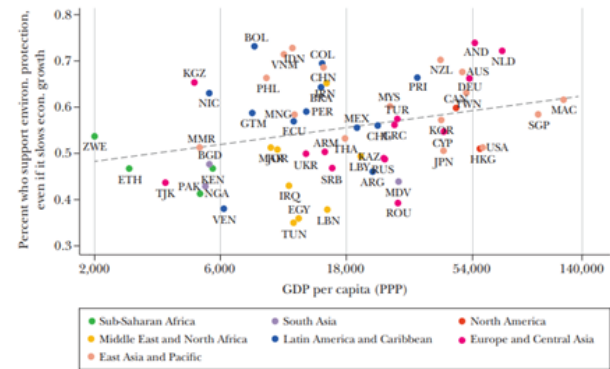


FIG. 7. Figure 7: Comparison of environmental and technological concerns of countries according to GDP per capita. Source from the article "Think Globally, Act Globally."

low- and middle-income countries are cheaper than the best remaining opportunities in high-income countries.

The fact that many of these countries have not yet started to implement the methods can be due to various reasons. According to surveys, there is a direct relationship between countries' income levels and their willingness to pay for environmental protection. Because low-income countries have other and bigger concerns to increase their relatively low standard of living than to preserve the environment, which they do not see a big and direct impact on their tables. Another reason for not following these methods in low/middle income countries is their limited access to capital. Because these methods often require initial capital to start, and the cost of providing capital for these governments is higher, which makes the final cost higher for them, because the profitability of such an investment depends on whether the borrower has access to sufficient capital with a low interest rate. Or not, that high income countries can help in providing this initial capital.

Also, the lack of regulatory infrastructure can be an explanation for not performing negative cost methods in these countries. For example, high-quality insulation in a home will save on heating and cooling bills, but builders who invest will have no incentive to invest in insulation in a rental unit if they don't internalize the benefits. In such cases, the regulation or proper regulatory system essentially requires an agent to act in a way that may be in conflict with his or her individual primary interests.

Low cost of inputs in low/middle income countries

Although the opportunity cost of using skilled labor may be lower in high-income countries due to its abundance, reducing the cost of abatement for them, many investment opportunities require large inputs of land and unskilled labor that can be of the same type. To make pollution reduction activities cheaper in low and middle-income countries than in high-income countries due to cheap capital and unskilled labor. For

example, it can be seen that the productivity of agricultural land[3] is lower in low/middle income countries due to geographical reasons or the initial capital of crop production, for example the yield of cereals per hectare in New Zealand is almost ten times higher than in the Democratic Republic of Congo, this reduces the cost. The opportunity to use the land to build a new forest and thus reduce the cost of capital needed to build a forest. Also, the price of land permits is lower in low/middle income countries, for example, agricultural land rents in England are more than 4 times more expensive than in Malawi, which reduces the capital cost needed to create new forest.

Green construction versus green retrofitting

When starting the construction of infrastructures, there are many programs and methods that can be cost-effective in infrastructures in terms of reducing pollutants, and also if we think about the efficiency of energy consumption at the stage when the construction is finished, then we need to take one step more than the state during construction. We wanted to do it. For example, removing the existing and built windows in the building and then replacing them with double-paned cages has one more work step than installing double-paned windows during construction. As a result, green construction is significantly cheaper than retrofitting. As infrastructure in low/middle-income countries is currently relatively underdeveloped and population and urbanization growth in these countries is now very rapid, it follows that most of the world's infrastructure growth in the coming decades will be in low-/middle-income countries. As a result, it can be said that pollution reduction methods in low/middle income countries due to green construction are much cheaper than green retrofitting methods in high income countries. It should be noted that green construction versus retrofitting applies not only to buildings, but also to other infrastructures such as transportation systems, etc.

General Equilibrium Effects and Targeting Benefits

In this matter, the economy should always be considered international, because the decisions of a country to reduce the level of CO and CO₂ production have an indirect effect on other countries as well. These effects are all shown as a balancing effect. Also, a change in one field affects other fields. For example, when Brazil decides to reduce deforestation caused by meat production, or similarly, Indonesia makes such a decision to produce palm oil. This severely overshadows global supply and drives up prices. This price increase causes other countries to imagine more profit to enter this market, which means that these industries start to work extensively in another country, which means deforestation again. This means that the local balance, in a country, leads to a feedback in the global market and this deforestation is in balance

with the economy, and if it decreases, the economic system will automatically tend to return to the same balance as before, but Elsewhere, it provides.

This balance is not necessarily a bad thing. For example, this theorem can be used to change the location of greenhouse gas production and transfer it to places with lower production density. Deforestation due to palm oil production is one of the main causes of CO₂ production, but only a part of it is due to cutting down trees, most of it (90percent) is due to the loss of vegetation in plantations[4], which makes plantation soil that is The severity of the CO₂ content exposes it to destruction. This huge part of CO₂ production, which is due to deforestation in Malaysia and Indonesia for the production of palm oil, will be reduced if it is transferred to another area that carries out deforestation instead of plantation in another soil. That is, the targeted reduction strategy is extremely useful in this field.

CRITICISM OF ARGUMENTS

Economic criticism

Several economic factors run counter to the reasons we have argued so far that carbon reduction methods can be more cost-effective in high-income countries. We know that carbon emissions per person are higher in countries with higher incomes, and hardly any carbon is produced in low-income countries. Now, some carbon reduction methods become cost-effective when implemented at high levels of carbon production. For example, passing a law to limit greenhouse gas emissions from automobiles in a country with higher car ownership is more effective and ultimately costs less per unit of reduction.

Despite these obstacles, the authors believe that for many important types of carbon reduction methods, costs are likely to be lower in middle-income countries that currently have relatively high and growing carbon emissions than in high-income countries. This is especially true for countries such as China, India, Indonesia, and Pakistan, where greenhouse gas emissions are rising, with relatively inexpensive opportunities to reduce emissions still untapped.

But for low-income countries, these calculations are different. Because the low amount of pollutant production per person and the very low levels of energy consumption in these countries, when the cost of the method is fixed, make the methods ineffective. For example, the small scale of land in many low-income countries can increase the costs of accessing enough land to undertake carbon reduction investments. Programs involving large numbers of smallholder farmers can be introduced to achieve significant mitigation effects.

Moral criticism

Assuming that our arguments are correct, the question that arises is, how can we be sure that such policies are approved

with the consent of the host countries and are not done in a way that makes them poorer or harms them? Some argue that this global trade to protect the environment allows high-income countries to ease their consciences by paying other countries to continue producing, which is unethical. But it should be stated that the purpose of this article is not to cut costs for reducing pollutants at the borders of high-income countries, but to argue that if part of the costs are sent to low/middle income countries, it will be more beneficial for the whole world. Also, paying to eliminate the conscience of polluters occurs even within high-income countries, so it's not just because of global trade to protect the environment that it's happening.

With the consequentialist view that the ultimate measure is measured by the consequences of a behavior, forcing equal non-monetary sacrifices to improve the environment would be extremely costly and inefficient. So, taking into account the limited resources available for this issue, such policies reduce the efficiency of reducing environmental damage. Low- and middle-income countries, which are currently most vulnerable to climate change, will therefore suffer the most from weak mitigation policies. Furthermore, despite concerns about the voluntariness of environmental market exchanges, especially for vulnerable parties, most climate mitigation projects offer co-benefits such as air pollution reduction and technology transfer that can improve the welfare of these vulnerable countries. Therefore, the importance of allowing low- and middle-income countries to participate and benefit from global harm reduction efforts is imperative.

But, even when mitigation agreements are made voluntarily by national or local governments, the benefits do not necessarily reach everyone, especially the least powerful, such as indigenous groups. That is, corruption can lead to special benefits for politicians, if the cost falls on vulnerable groups. High-income countries have an obligation to consider the distributional implications of mitigation projects and ensure that they do not exacerbate poverty or other harms. They should avoid both paternalism and exploitation, and instead work to reduce environmental damage in democracies with functioning legal systems and land rights. This approach can help ensure fair compensation and transparency, making it more likely that exploitative behavior will be exposed and addressed, leading to fairer and more effective climate mitigation outcomes.

DOES THE CARBON BORDER ADJUSTMENT TAX ENCOURAGE THE EFFICIENT ALLOCATION OF ABATEMENT ACTIVITY?

Carbon pricing is seen as the best way to deal economically with climate change, through emissions taxes and carbon storage bonuses around the world. However, implementation of a global carbon tax is unlikely due to political challenges. An alternative, particularly considered in the EU, is the Carbon Border Adjustment Tax (CBAT). This tax is applied to imports based on carbon content and carbon pricing in the ex-

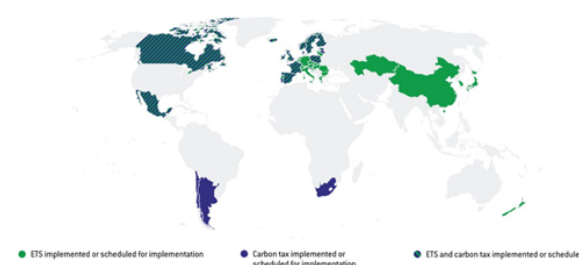


FIG. 8. Figure 8: CBAT member countries Source: <https://www.wita.org/blogs/carbon-border-mechanism/>

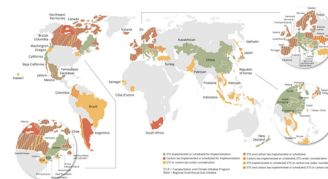


FIG. 9. Figure 9: Countries that internally price carbon. Source: <https://strategicvalue.org/2021/03/08/putting-a-price-on-carbon-internal-carbon-pricing-icp/>

porting country and aligns the carbon cost of domestic and imported goods. The purpose of this is to prevent the transfer of carbon by rich countries to poorer countries. But, despite extensive study, CBATs, if universally adopted by rich countries, are unlikely to fully achieve the projected CO₂ reductions, as detailed data on product carbon intensity is required and with only a few commodities. Carbon starts like steel. CBATs encourage emission reductions only for exports to countries using CBATs and do not encourage measures for domestic use or exports to countries without CBATs. Furthermore, CBATs do not promote non-production measures such as forest protection or methane sequestration in low-income countries. While CBATs can reduce emissions, they may unfairly impose abatement costs on poorer countries, unlike systems where rich countries invest directly in effective global mitigation efforts.

THE SKELETON OF AN EFFICIENT INTERNATIONAL CARBON REDUCTION PAYMENT SYSTEM

Creating a successful system in which rich countries allocate resources to reduce greenhouse gas emissions in poorer countries is complex. Key principles include extending “nationally designated partnerships” beyond borders, as outlined in agreements such as the Paris Agreement. Priority should be given to implementing Article 6 of the Paris Agreement, which allows border reduction efforts to support low-cost projects in poorer countries. On the other hand, advanced verification and monitoring of mitigation efforts is critical to ensure credibility in international markets. For this reason, we should learn from past mechanisms such as the Clean De-

velopment Mechanism and emphasize the need for strict standards and reliable intermediaries to accurately measure carbon output. Investing in innovative monitoring technologies, such as satellite data to measure carbon in forests or agriculture, is therefore essential. Public funding for these innovations (perhaps through awards for effective solutions) is critical because these technologies benefit everyone globally. Finally, countries that invest in such innovations or research and development to improve greenhouse gas reductions should be recognized for their contribution to reducing global emissions.

CONCLUSION

The international dimensions of climate change policies emphasize the complex relationship between developed and developing countries in addressing global environmental challenges. Developed countries' historical contribution to greenhouse gas emissions has set a precedent for their responsibility to lead climate mitigation efforts. This is further complicated by contemporary trends of economic globalization, where polluting industries are often outsourced to developing countries. Eric Levinson's article, "Do Developed Countries Outsource Pollution?" It shows the trend of developed countries moving their polluting industries to countries with stricter environmental regulations. This practice not only shifts the environmental burden to developing countries, but also complicates global efforts to reduce emissions. But this article states that this is not exactly the case, and in general, the evidence so far has not shown that regulations have significantly caused outsourcing. For all the media and policy talk about pollution outsourcing, there is little empirical evidence that high-income countries increasingly and disproportionately import products from the most polluting sectors.

On the other hand, the article "Think Globally, Act Globally" written by Glanster and Jaichandran emphasizes the importance of global cooperation in dealing with climate change. They argue that climate change is a fundamental global problem where the actions of one country can have significant spillover effects on other countries. Therefore, unilateral actions are not enough and there is a fundamental need for coordinated international efforts. Their analysis suggests that developed countries should take the lead by setting ambitious emission reduction targets and providing financial and technological support to developing countries. This collaborative approach can ensure that climate policies are effective and equitable and facilitate the global transition to a sustainable low-carbon economy.

In conclusion, addressing the international dimensions of climate change requires a dual approach: recognizing the historical responsibilities of developed countries and understanding the complexities introduced by global economic practices. Developed countries should recognize their role in historical publications and take proactive measures to direct global efforts. At the same time, strict international regulations must be in place to prevent the outsourcing of pollution to developing

countries and ensure that global emissions are truly reduced. Unaccounted for costs, such as health effects, economic instability, and environmental degradation, require us to rethink our approach to growth and development. By internalizing externalities through policies such as carbon pricing, stricter environmental regulations, and investment in green technologies, we can begin to reduce harm and create a more resilient and sustainable future. In addition, raising public awareness and fostering a culture of environmental stewardship is critical in guiding the collective action needed to effectively combat climate change. Addressing the negative externalities of climate change also requires a commitment to equity and justice, ensuring that the most vulnerable populations receive the support they need to adapt and thrive. This includes international cooperation, financial assistance and technology transfer to help developing countries build resilience to climate impacts. By strengthening global cooperation and implementing equitable policies, the international community can effectively combat climate change and promote sustainable development for all.

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- [1] This means that, for example, the same method in one country can reduce the same amount of pollutants in another country at a lower cost and...
 - [2] Emission of greenhouse gases or GHG is one of the good proxy variables for measuring pollutants.
 - [3] In order to directly measure the lost output.
 - [4] Dry swamp wetland.
 - [5] K. A. Abay, G. Berhane, J. F. Hoddinott, and K. Tafere, *Assessing response fatigue in phone surveys: Experimental evidence on dietary diversity in Ethiopia*, Vol. 2017 (Intl Food Policy Res Inst, 2021).
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