

Article

## Trade Policy and Ecological Transition

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### Abstract

While the global pandemic has taken the front stage since the spring of 2020, environmental issues remain as pressing as ever. In this article, I question whether the current liberalized trade and investment regime is consistent with the possibility of an ecological transition and argue that it is not. The organization of a large part of economic activity on a world scale by multinational corporations, with profitability imperatives and relatively short planning horizons, is inherently conducive to an intensification of resource extraction and commodity production. A liberal trade and investment regime gives free rein to these dynamics, which should instead be curtailed in order to achieve the necessary adjustments to sustainable living. As such, this article will explore ways in which the trade and investment regime could be subordinated to ecological and social concerns and contribute to, rather than hinder, an ecological transition.

### Keywords

ecological transition; environment; financial liberalization; trade policy

### Issue

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### 1. Introduction

Environmental issues have been mounting over the last decades. As accelerating climate change is putting increasing pressure on ecosystems and communities (Intergovernmental Panel on Climate Change, 2022) and many resources are getting depleted (International Resource Panel, 2019), the unsustainability of current economic practices is made manifest. Still, the pace of transition towards more ecologically sustainable practices is slow (International Resource Panel, 2019), putting in question the adequacy of current institutions and policies to reach such a transition. In this article, I focus on the international trade and investment regime and analyse whether or not and in what ways it fosters sustainable economic practices.

While environmental issues are global, coordination at that level is difficult. In the end, national governments have limited control over what other national governments do, leaving national or local initiatives as their main policy focus. At the same time, the world economy is increasingly integrated, with value chains span-

ning the globe. This reduces the scope of what governments can do nationally to reorient economic practices. Governments have some control over trade and investment flows through the rules and restrictions they put in place, but the level of intervention has generally decreased in recent decades, leaving it to private entities to decide on the scope and direction of these flows.

There is some debate regarding the effect of trade and investment liberalization on the environment. Some argue that it could help global sustainability, notably by ensuring that economic activity at different stages, such as recycling, takes place where it is most efficient (Yamaguchi, 2018). Others note that liberalization could have detrimental effects, say, for example, by leading to a race to the bottom in environmental standards (Sheldon, 2006). I assess some of the terms of that debate in the next section and conclude that it is unlikely that trade and investment liberalization contributes positively to ecological sustainability.

Section 3 reviews different strategies currently employed in existing trade and investment agreements to favor good environmental practices. These

agreements are found lacking, in part because the environment is often a secondary consideration, subordinated to economic growth and commerce. Section 4 explores ways in which trade and investment policy could be framed to give more importance to environmental outcomes and thus foster an ecological transition. Finally, I offer some concluding remarks in Section 5.

## 2. Trade and Investment Liberalization and the Environment

Economic analysis of international trade typically regards countries as trading partners (Krugman et al., 2018) and investigates how countries will specialize if trade is liberalized. These analyses highlight factors such as the level of technology, the existence of certain resources, or the availability of various productive inputs. They typically conclude that liberalization usually brings an improvement in efficiency and overall welfare, at least in the short run, since production is allocated to the countries where it can be done relatively more efficiently. This is true even if some countries are less efficient than others at everything since they can always specialize in what they are relatively less inefficient in producing. There are various wrinkles to this basic narrative, such as the way welfare gains get distributed amongst the population of each country and how potential losers are to be compensated, but that there should be productive gains overall is seldom under dispute.

In that framework, trade can impact the environment through two important channels (Copeland & Taylor, 2004). First, if it leads to economic growth, the increase in production can lead to an increase in pollution. However, increasing income could also lead to changes, such as technological improvements or a shift in people's priorities towards a cleaner environment, thus inducing more stringent policies which could be positive for the environment. One hypothesis that has been put forward is that the relationship between growth and environmental degradation could follow an inverted U, with increasing levels of degradation as income increases up to a turning point, after which further growth leads to an improvement in environmental outcomes. Second, pollution could shift between countries, either because some environmental costs are included in production costs and are thus part of the overall calculation of relative costs or simply because some production lines imply more pollution than others, so that specialization implies a concentration of pollution in certain countries. One possibility is that there is a "pollution haven" effect, with some countries specializing in polluting production based partly on relatively laxer environmental regulations.

Further environmental impacts are entailed by the usual contention that liberalization will imply a gain in efficiency as countries specialize in "what they do best." In essence, if there are no barriers to trade or capital flows and industries locate where it is most efficient for

them to operate, one could imagine a circular economy on a world scale which minimizes costs of production and optimizes resource use. This would include trade in second-hand products so as to optimize usage and recycling done where it is most efficient to extract the raw material and make it available for the next round of production. Yamaguchi (2018) outlines such a possibility, noting that any attempt to raise barriers would distort financial and commodity flows and prevent potential gains in efficiency.

Empirical evidence for an inverted U relationship between growth and environmental degradation is mixed at best (Shahbaz & Sinha, 2019; Stern, 2017). Essentially, two tendencies seem to compete: economic growth in itself appears to increase emissions, but there often are also concomitant efforts at reducing pollution. In cases where growth is relatively slow, such as in many high-income countries, pollution-reduction efforts may sometimes dominate the negative effect coming from economic growth (Stern, 2017). Meanwhile, in rapidly growing middle-income countries, the negative impact of growth clearly dominates (Stern, 2017). As such, to the extent that international trade could improve growth prospects, it is unclear that this would favour the environment at this stage. As for pollution shifting, there is indeed some evidence for the existence of a "pollution-haven" effect (Copeland & Taylor, 2004; Kolcava et al., 2019).

These last results are not surprising given that it is not countries which trade, but firms and individuals. Firms will locate their production according to particular local conditions and the ease with which it can be moved along the value chain all the way to consumers. As such, the liberalization of capital and commercial flows are complementary in that the first will ease the allocation of capital on a world scale, and the second will facilitate the separation of loci of production and use. Trade and financial liberalization will thus facilitate the segmentation of production lines and the relocation of parts of them abroad. In fact, about a third of all trade occurs between subsidiaries of the same firms (Dunn, 2015). Accordingly, while some concentration of specific types of production is to be expected, countries do not specialize per se, and certainly not in a way that would be driven by overarching efficiency considerations. Rather, it is firms that decide to expand, cut, or relocate their production, and they will do so based on a narrow profitability frame.

This last point is worth emphasizing. The vision of a worldwide circular organization of the economy (Yamaguchi, 2018) that would optimize resource use, reduce waste, and minimize pollution relies on a level of planning that goes well beyond what individual firms and agents do. Large multinational corporations do plan extensively, making an assessment of resource availability, production possibilities, consumption needs, etc., on a global scale (Whyte, 2020). Consequently, the argument is less between planning and markets than about

the modalities of planning. For a capitalist enterprise, environmental efficiency is not a criterion in and of itself, only one of the dimensions that impact its profitability and sustainability. A classic example is that of externalities: If firms can transfer the costs of pollution or poor working conditions to third parties, they will not take them into account in their own calculations. Beyond externalities, there is no particular reason why a given firm should promote the sustainability of a specific resource or supply source unless it imperatively needs it to continue functioning. Capital is mobile and fungible, all the more so if financial flows are liberalized, and if some ways of making money dry up, other business ventures can be started. Competitive pressures and the profit imperative will thus incite firms to exploit resources as they become available without necessarily planning long-term for any of them. In fact, under some circumstances, it can be profitable to deplete a given resource relatively fast to maximize short-run return and reorient the proceeds elsewhere.

While there is often no particular incentive for sustainable practices from the production side, help is unlikely to come from consumers (Dufour, 2022). Theoretically, if ecological production practices were of paramount importance for consumers, market signals could entice firms to abide by certain standards in order to be able to sell their products. In practice, however, the amount of information required to make an enlightened decision for every consumption product in an era of globalized supply chains is prohibitive. This part could be facilitated by eco-labels, but there are hundreds in existence, each with its own set of standards, and being certified is not always a guarantee of good environmental practices (Brad & Lenikus, 2018). Moreover, even with the relevant information, buying products with good environmental standards is likely to be relatively expensive. Some consumers may simply lack the necessary resources to make that choice, while others could be tempted to free ride and buy the cheaper product if their consumption decision has little global consequence and the price difference is significant.

In short, there is no mechanism within capitalism to align resource use and extraction, as well as production, with environmental efficiency. Trade and financial liberalization will exacerbate the issue by decoupling even more economic processes from specific locations, reducing the dependency of firms on specific sources of labor or resources. Regulation thus has to come from the outside, for example, via sets of governmental policies to impose product norms or regulate firms directly, but these can be hard to put in place in some contexts.

Criteria used by firms in making decisions about the location of production will vary, but costs and ease of management or investment will probably play a role. To the extent that environmental regulation can be costly or create difficulties for a given firm, it will likely act as a disincentive for investment, especially for industries that are more polluting, thus encouraging relocation where

policies are laxer. This holds even for businesses in the environmental sector, such as recycling, for which there will be an incentive to operate where regulations are less stringent. The same will be true for labor costs and regulation. To the extent that investment is desired by a given national government, there is thus a structural temptation to lower regulatory standards. This will be exacerbated by trade and financial liberalization since the increasing mobility of capital and commodities pushes governments to make their country attractive as loci of production. Many factors can contribute to making a specific location of interest for firms, such as education levels and political stability, so the level of environmental standards may not always be a dominant factor in every context. However, since lower standards are typically more attractive than high ones, there could be a scope for coordination between governments to prevent a race to the bottom.

One way for governments to coordinate could be to attempt an upward multilateral harmonization of regulations or product norms. For example, if governments agree to set environmental standards at the same level as the jurisdiction where they are the strictest, this could put a floor that would prevent downward pressure. Alternatively, rules could be set at a supra-national level, such as in the EU for all member countries. Unfortunately, this is often easier said than done. Kinderman (2020, p. 675) documents how difficult it was to pass the European Union non-financial disclosure Directive 2014/95/EU in 2014, which mandates companies to “report on their social, environmental, and human rights impacts.” These initiatives faced substantial resistance despite the fact that the directive only mandates reporting, which is much less stringent than regulation, and the subprime crisis and disasters such as the BP oil spill in the Gulf of Mexico in 2010 or the Rana Plaza factory collapse in Bangladesh in 2013 created demand for political action. The initial proposal was watered down during the negotiations, notably in response to preoccupations about adjustment costs in the private sector. Consequently, while clearly not impossible, an agreement on meaningful upward multilateral harmonization of environmental regulations or product norms is hard to achieve.

When environmental provisions are not incorporated into trade and financial liberalization, these agreements could favor a harmonization of standards and practices downwards. For example, Vesilind (2015) documents how the North American Free Trade Agreement (NAFTA) led to the displacement of family and commercial hog and poultry farms by high intensity livestock operations, largely geared towards foreign markets, with deleterious environmental impacts. Similarly, the agreement may have led to a greater prevalence of genetically modified organisms (GMOs) in Mexico (Beyranevand, 2015). NAFTA’s agricultural provisions were seen by many as favoring the US over Mexico, as the latter’s economically sensitive products were not properly

protected (Beyranevand, 2015). Given the prevalence of GMOs in the US, increased exports to Mexico, and labeling rules that did not require disclosing the presence of GMOs in bulk commodity shipments if it was below 5% of content (which is the same percentage as in the US, but much higher than the EU's 0.9%) may have led to an increase in GMOs in Mexico (Beyranevand, 2015). In both cases, competitive pressures without sufficient countervailing regulatory oversight led to a convergence towards practices in place in the US and Canada while largely preserving the status quo in those two countries.

Besides a harmonization of standards, another way for governments to coordinate around environmental issues would be to directly include environmental provisions in trade agreements. While this has been the practice in recent times, are they efficacious in containing possible environmental downsides associated with liberalization?

### 3. Environmental Provisions in Trade Agreements

There are four types of environmental clauses in recent trade agreements (Castellarin, 2018; Dufour, 2021; Lattanzio & Casey, 2022; Morin & Gauthier Nadeau, 2017).

First, some clauses seek to maintain existing environmental standards. The broad principle is to prevent a downward regulatory spiral by prohibiting a lowering of standards aimed at gaining a competitive edge. By having states agree that they will not compete with each other to attract investment or favor domestic firms based on low environmental standards, this would seem to address the coordination issue mentioned above. This is reinforced in recent agreements by reiterating states' "right to legislate," in particular on environmental matters. In practice, however, these clauses are more statements of principles than actual safeguards (Castellarin, 2018), notably because it is very hard to show that any given regulatory change was done specifically to give a competitive advantage to domestic firms.

Direct and active regulatory cooperation is encouraged in a second category of clauses. These clauses range from simple commitments to foster dialogue around best practices (without any commitment to harmonize rules across jurisdictions) to setting up actual institutions to foster direct government collaboration. These clauses may include indications of how policies ought to be designed and implemented. This second category of clauses seems somewhat more efficacious, at least when states really do collaborate (Castellarin, 2018). Despite this, the link between trade and capital flows is somewhat tenuous. It is certainly a good idea that governments discuss and coordinate environmental policies when possible, but this should be standard practice, not something done specifically as part of trade agreements.

Thirdly, "environmental goods and services," i.e., commodities which contribute to environmental protec-

tion (Castellarin, 2018), are sometimes given favourable treatment. For example, tariff barriers on such commodities were completely lifted in a recent agreement between Taiwan and New Zealand (Morin & Gauthier Nadeau, 2017). Of course, such clauses are only pertinent if barriers are maintained on other commodities, so their relevance decreases as trade is liberalized.

A final category of clauses, largely based on Article XX in the 1994 General Accord on Tariffs and Trade (World Trade Organization, 1994), allows states to unilaterally limit trade for environmental reasons. As long as they do not constitute "an arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade," measures can be adopted to "protect human, animal or plant life or health" or "relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption" (World Trade Organization, 1994). Modern agreements either simply reiterate this or specify what is covered. However, just as with the first category of measures, it is difficult to target specific commodities without appearing discriminatory (Castellarin, 2018), and the track record of appeals filed under Article XX is not great (Wu & Salzman, 2014). Usually, the appellate body has maintained the original judgement when a country has tried to defend against a negative ruling by the World Trade Organization about one of its policy measures by claiming it should be exempted on environmental grounds under Article XX. Trade considerations thus seem stronger than environmental concerns in that forum, although it has been mentioned by the appellate body that the rulings should not be interpreted as being against the environment or environmental measures per se. Be that as it may, this can easily lead to what is termed "regulatory chill," i.e., a reluctance to even try to implement such measures out of a fear of being accused of using the environment as a pretext to restrict commerce.

There is still debate regarding the actual impact of environmental clauses in trade agreements, but there is some evidence that their presence does not reduce the ecological footprint of traded commodities (Kolcava et al., 2019). From a logical standpoint, it seems improbable that these clauses would have much positive impact on environmental outcomes. The ability to maintain existing regulations implies a bias towards the status quo while favoring environmental commodities has little importance if the trade regime is otherwise liberalized. Regulatory coordination could be effective, but the various rounds of negotiations around emissions are typically followed by missed targets, thus demonstrating that collaboration on such issues remains difficult even when that is the stated intent. Finally, to the extent unilateral measures could be used, it may have been discouraged by the relatively bad track record of exemption clauses. Consequently, one could expect that the environmental provisions of trade and financial

liberalization agreements are unlikely to effectively mitigate the impact coming from that liberalization.

Is this borne out in practice? NAFTA offers an interesting case study, as environmental preoccupations voiced during its negotiation led to an environmental side agreement, the North American Agreement on Environmental Cooperation (Gladstone et al., 2021). In evaluating the agreement's overall impact after 25 years on the environment at the US–Mexico border, Gladstone et al. (2021) find mixed results. There was some institutional collaboration on environmental issues, notably through three institutions established as part of the agreement: the Commission for Environmental Cooperation whose purview was the whole NAFTA region, and the Border Environment Cooperation Commission and the North American Development Bank, both of which targeted the US–Mexico border and merged in 2017. The Commission for Environmental Cooperation's responsibilities included conducting research studies and reviewing complaints from citizens, the Border Environment Cooperation Commission's intent was to build capacity and certify environmentally sustainable projects, while North American Development Bank was put in place to finance environmental infrastructure projects (Gladstone et al., 2021). Gladstone et al.'s (2021) results suggest that these institutions did favor projects and practices that had positive impacts at the border, notably in areas like wastewater management, and a general improvement in institutional commitments to environmental issues and increased civil society mobilization, especially in the early years. In terms of environmental outcomes, they observe improvements in urban air quality, potable water access, and access to sanitation (Gladstone et al., 2021). However, they state that “there is little evidence of any concrete impact of the NAFTA environmental governance institutions other than the projects to improve potable water and waste management infrastructure along the border, and these with diminished funding over the years” (Gladstone et al., 2021, p. 30).

Meanwhile, Gladstone et al. (2021) note that depletion and degradation of groundwater, as well as increased water pollution, can be attributed to an expansion of mining and export agriculture related to NAFTA in the context of relatively weak enforcement of environmental regulations. In fact, they argue that enforcement is especially lax when environmental issues conflict with “powerful economic, political and social interests” (Gladstone et al., 2021, p. 25). This is congruent with Gallagher's (2004) finding of increased pollution in Mexico following trade liberalization in the 1980s and 1990s, which he attributes to increases in the scale of production unmitigated by proper environmental protection. In some ways, it can be argued that this dominance of economic interests was built into NAFTA, notably through Chapter 11, which protected foreign investment. For example, Dufour (2013) shows how in the Ethyl Corporation case, the firm was able to use Chapter 11 to

successfully fight environmental provisions put in place by the Canadian government, showing how that chapter reduced states' ability to enact environmental legislation, especially if that legislation stemmed from a principle of precaution.

In short, while NAFTA's trade and investment liberalization provisions seem to have generally had a negative impact on the environment, the North American Agreement on Environmental Cooperation appears to have indeed contributed to better collaboration on environmental issues on the part of the signatories and favored positive environmental outcomes. Yet these positive impacts did not seem sufficient to mitigate the negative ones in many areas, with economic interests often trumping environmental considerations. This underlines the limits of a trade policy centered on economic outcomes, with the environment as a constraint rather than an explicit objective. In order to foster an ecological transition, it may be useful to look for an altogether different frame for trade policy than the generalised liberalization of recent decades.

#### 4. Principles for a Pro-Environment Trade Policy

The current approach to trade policy is to liberalize subject to a few constraints, including an environmental one. This presupposes that trade liberalization is good in itself, while deleterious environmental side effects are addressed via additional provisions in trade agreements. As the previous sections demonstrate, it should be expected trade and financial liberalization will have harmful impacts on the environment, and these are unlikely to be resolved by existing provisions in trade agreements. If the goal of liberalization supersedes other considerations, this limits the scope and strength of the safeguards that can be put in place. It will likely be necessary to dispose of that framework to effectively foster ecologically sustainable practices. Abbas (2013) calls for a “reglobalization” that would be compatible with the fight against climate change. This would require a trade policy that is subordinated to the project of ecological transition.

One way to effect this would be to re-embed trade policy in a pro-environmental industrial policy. Given the difficulty of coordinating internationally around environmental priorities (Maslin et al., 2022) and the pro-liberalization orientation of the current multilateral regime, a proactive national industrial policy may be the only short-term option for green systemic transformation. In that context, trade policy becomes a sort of interface between that domestic industrial policy and the rest of the world. Instead of prioritizing the elimination of barriers to ensure a level playing field at home and abroad, this approach seeks a precise set of environmental and social norms in order to assess what to import from abroad and what to produce at home. For example, trade could be reserved for cases when domestic production units will not be able to produce a given commodity

with a lower ecological footprint within a relevant time frame, under similar working conditions, and accounting for transport and possible dynamic industrial changes.

Trade policy has a double role within such a framework. First, it helps create a context that favors the emergence of “good practices.” Shielding the domestic economy from the competition of products generated under unsustainable environmental conditions creates a space wherein new ecological processes can emerge without being immediately stifled. The existence of such a space helps innovation outside of what may be directly encouraged by the state’s industrial policy. State policy is important as a general impetus for change (Mazzucato, 2013) but is unlikely to provide solutions for every context. At the same time, to the extent that foreigners want to export to the domestic economy, it also serves as an incentive to improve their production processes. If this logic spreads to a critical mass of countries, it could generate an upward spiral in norms rather than the current incentives to decrease domestic regulation. Second, trade policy serves its classical role of protecting these “good practices” once they are in place so that they can thrive and spread. The difference, in this case, is that protection is not put in place on the basis of the provenance of the commodity but in relation to the conditions in which it is produced.

A trade interface that reflects the domestic definition of good practices could be put in place in order to foster sustainable economic processes, protect those which are present, and let commodities trade when production conditions and practices are actually better abroad. There are three orientations that could be given to this trade interface, depending on the desired level of international involvement.

First, one can imagine a sort of domestic “retreat” whereby the only focus is on domestic production. That is to say, internal regulations are put in place with respect to production, and then agents are free to trade what they wish, subject to trade barriers aligned with internal environmental standards. This would be an improvement from the current state of affairs in that better domestic production practices would be fostered. In particular, it would protect domestic producers from “environmental dumping.”

At present, much of the international effort on environmental regulation relates to processes that are global in scope, such as carbon emissions. Governments are finding it hard to implement efficacious measures in that realm. Even if they were successful in doing so, it would do virtually nothing to improve practices whose impacts are confined to a single country, such as local pollution or unsustainable resource use. For example, policies on climate change will not prevent the production units of a given country from depleting a resource for export purposes if they are allowed to do so domestically. The depletion and degradation of groundwater in Mexico in relation to the agriculture and mining industry (Gladstone et al., 2021) is a good example of a situa-

tion that would not be impacted by climate change agreements. Some cases are mixed, such as the deforestation of the Amazon in Brazil (Amigo, 2020). It is both a case of resource overuse, with wood being cut and exported as land is cleared to make way for beef or sugar cane production, and a factor in climate change (Boulton et al., 2022). That said, international schemes to preserve that forest typically refers to global components, such as biodiversity or its role in the carbon cycle (Leonte, 2019).

From a selfish standpoint, unsustainable resource use is not problematic for firms or consumers who import the products of that country, which is perhaps why there is not that much pressure to address this. Impacts on firms and consumers are not immediate, and they benefit from lower prices. However, it also incites a lowering of environmental regulations to attract capital or support domestic cost competitiveness. Adding barriers in sync with sustainable production processes at home would shield domestic firms from these competitive pressures. This would favor an ecological transition domestically but may be limited in the promotion of such practices abroad. It would likely not prevent the depletion of certain resources over time. Moreover, barriers would likely not apply to commodities that are not produced in the domestic economy, such as tropical fruit in Northern countries, unless there are worries it might harm substitutes.

In order to address these issues, a second option would be for a country to give itself a consumption budget in addition to ecological norms of production. Trade would be allowed if production targets are reached (say in terms of emissions or resource use), but the embedded characteristics of exports and imports would be taken into account in the calculation of domestic consumption levels. This would further prevent pollution havens and mitigate material transfer from poor to rich countries.

These first two options raise two important issues: (a) How are products to be compared through that interface so as to determine what should be let through and what should not? And (b) how are environmental targets to be determined and modulated through the interface?

Comparing products is not really an issue in the current regime. Since all commodities come with a price tag, there is already a single metric to compare them. Relative prices across borders can thus be modified through tariffs, for example. However, from an environmental standpoint, many important dimensions of the production process are incommensurable, such as the rate of depletion or use of certain resources, emissions, the impact on wildlife, etc. (Planning for Entropy, 2022). As such, they cannot be measured on a single, standardized scale and then added up once we have the information on the actual impact of a given production process. The situation becomes even more complex if other things are considered, such as work conditions or social impacts. These different aspects thus need to be measured separately, which could be done within a multidimensional accounting framework encompassing the full life cycle of a given product and the way economic processes

associated with it impact society and the environment in general (Planning for Entropy, 2022).

Once various dimensions have been measured, it will be difficult to relate two different products or even two similar products with substantially different production processes. For example, if a process to grow tomatoes uses more energy but less water than another, which one is to be preferred? Could imputed values be determined to bring everything back to a single monetary scale, which could then be used to adjust possible barriers? Various methods have been devised to give monetary values or prices to ecosystemic services (Liekens et al., 2014), but they typically rely either on subjective assessments or an estimation based on market prices of costs if there is a change in the ecosystem (e.g., calculating the cost of remediation). Relying on individual subjectivity raises the same problem as before regarding what individuals or firms actually take into account while costing methods seem hard to implement if dimensions are truly incommensurable and there is no simple process to reverse the consequences of a given action (for example, if some non-renewable resources are used). Consequently, it is likely illusory to think that a tax could simply be tacked onto the basic market price and represent adequately everything that prices are not accounting for.

Quantitative (and qualitative) targets are obvious alternatives, especially since environmental realities have little to do with pricing. For example, it is the number of tons of carbon emitted that impacts climate outcomes, not the price that was paid for them. As long as firms and consumers can switch their budgets around, modifying the price without fixing strict limits in amounts will not allow precise quantitative targets to be met. Quantitative targets do not provide a single standard with which to compare different products either. This leaves two possibilities. Either one dimension, say carbon, is deemed more essential, or it is taken as a reference point, or several aspects are evaluated, and an arbitrage process between them is put in place. The decision on this front will, in turn, influence the second issue mentioned above, i.e., the determination of targets.

Suppose one overriding dimension is selected—let us take carbon again as an example. In the first option, with a trade interface relating only to domestic production norms, indicators such as carbon emissions per unit of product could be used so that domestic emission efforts are not undermined by foreign practices. For instance, importing a product could be allowed only if its production, transport, etc., entails a lower amount of carbon emissions than a stated maximum—in essence, a product norm in terms of embedded carbon. Alternatively, if society gives itself a quantitative production and consumption “budget” along that dimension, such as in the second option, trade will then have to be done in a way that this society does not exceed its budget. A combination of quantitative targets in domestic production and consumption would make sure that emissions are not simply rendered invisible through import or export.

If production targets are reached, trade could be allowed only to the extent that adding the carbon embedded in net imports to the portion of production retained for domestic consumption does not amount to a level above the domestic consumption target. If there is only one factor, the situation is not too complex since there is once more a single standard with which products can be compared. However, it is unclear whether ecological sustainability can be reduced to a single dimension.

If many dimensions are under consideration, then there can also be internal budget and production norms for each of them separately, but it makes things much more complex on the trade front. With respect to protective barriers for production, a simple option would be to put minimum standards for each dimension and force any trading entity to follow them, there again creating a sort of multidimensional product norm. If this is deemed too difficult, then there arises an issue of arbitrage: What is fair compensation for being below standards for a given dimension? For example, could exemplary water usage compensate for emissions that are slightly above required levels? This would likely have to be determined by policy. Adding consumption targets in the picture further complicates things, notably with respect to its allocation. With carbon quotas, there could, for example, be a market for the quotas so that arbitrage between products can simply be done through market processes. If quotas are set for all sorts of dimensions, individual accounting and decentralised trade will become more complex. An arbitrage could be done ex-ante, say by an institution responsible for the trade interface, but that would require a fair amount of planning with respect to consumption and production and, thus, a systemic transition at the same time as an ecological one.

One way to reorganize the economy to make this possible would be to implement processes of democratic planning, whereby production and consumption are planned collectively by the communities concerned instead of being left to market forces. Several theoretical models have been devised in an attempt to demonstrate that it could be done at the level of a complex economy, all of which would require a trade interface, and there is currently a lively debate in that field (Planning for Entropy, 2022; Tremblay-Pepin, 2022). A careful study of these models is beyond the scope of this article but suffice it to say that the institutional changes required would be relatively comprehensive.

It is certainly technically feasible to put in place a trade policy to support the sustainability of domestic production processes and even to regulate overall consumption. While the first one may not be sufficient for an ecological transition, the implementation of the second one requires a fair amount of institutional and systemic change in the economy once the multidimensionality of ecological sustainability is taken into account. This may be hard to put in place in the short run. In the meantime, a third orientation for trade policy could help foster change in that direction.

Instead of setting barriers to protect production at large or devising production and consumption budgets, the trade interface could be linked to an explicit strategy of eco-substitution, akin to the traditional strategies of industrial substitution but with a specific environmental focus. In this case, the trade interface would be modulated to protect specifically some domestic initiatives, such as sustainable agriculture, and to ward off certain precise foreign practices, such as export-focused farming degrading groundwater resources, both in view of developing shorter value chains and a greener and more resilient domestic economy. If planned properly in a dynamic fashion, this could pave the way for a more comprehensive change in the structure of the economy and perhaps herald a systemic and ecological transition.

## 5. Conclusion

The need for an ecological transition is ever more present, and efforts must be made on many levels to favor it. This article explores some strategies whereby trade policy could be made to contribute to such a change. While trade and financial liberalization are probably hindrances to a transition and environmental provisions in current agreements seem relatively weak, an active trade policy subordinated to a project of ecological transition could prove to be useful. The implementation of such a policy would require important institutional work, but well designed, it could complement an industrial policy aimed at reorganizing the economy to make it more sustainable.

Many details remain to be worked out. For example, setting targets for production and consumption along many environmental dimensions, or arbitrating between some of these dimensions, would probably require institutions of their own to manage political and expert debates. Reversing the current liberalising trend would not only require different trade agreements in the future, but it would also probably entail a renegotiation of existing ones given the primacy they give to trade. Of course, such a paradigmatic shift will likely be accompanied by a fair amount of political resistance. All in all, the goal may be conceptually relatively simple, but its implementation can be expected to be complex. Nevertheless, given the urgency of the situation, it is better to start working to this end sooner rather than later.

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## References

- Abbas, M. (2013). Libre-échange et changements climatiques: "Soutien mutuel" ou divergence? [Free-trade and climate change: "Mutual support" or divergence?]. *Mondes en développement*, 162, 33–48.
- Amigo, I. (2020). When will the Amazon hit a tipping point? *Nature*, 578(7796), 505–507. <https://doi.org/10.1038/d41586-020-00508-4>
- Beyranevand, L. J. (2015). Agricultural biotechnology and NAFTA: Analyzing the impacts of U.S. and Canadian policies on Mexico's environment and agriculture. In H. L. Kong & L. K. Wroth (Eds.), *NAFTA and sustainable development: History, experience, and prospects for reform* (pp. 169–190). Cambridge University Press.
- Boulton, C. A., Lenton, T. M., & Boers, N. (2022). Pronounced loss of Amazon Rainforest resilience since the early 2000s. *Nature Climate Change*, 12, 271–278.
- Brad, A., & Lenikus, V. (2018). *The false promise of certification*. Changing Markets Foundation.
- Castellarin, E. (2018). L'articulation entre le commerce et l'environnement dans les accords de libre-échange de l'Union Européenne [The articulation between trade and the environment in the free trade agreements of the European Union]. In J. Auvret-Finck (Ed.), *La dimension environnementale de l'action extérieure de l'Union Européenne?* [The environmental dimension of the external action of the European Union?] (pp. 105–129). Pedone.
- Copeland, B. R., & Taylor, M. S. (2004). Trade, growth, and the environment. *Journal of Economic Literature*, 42, 7–71.
- Dufour, G. (2013). L'impact du Chapitre 11 de l'ALÉNA sur la capacité de l'État d'adopter des mesures protégeant l'environnement et la santé publique: Les travaux récents de chercheurs en santé publique jettent un nouvel éclairage sur l'affaire Ethyl Corporation [The impact of NAFTA's Chapter 11 on the ability of the state to adopt measures protecting the environment and public health: Recent work by researchers in public health throw some new light on the Ethyl Corporation case]. *Revue du Barreau canadien*, 90(3), 561–599.
- Dufour, M. (2021). Quelle politique commerciale pour une transition écologique? [Which trade policy for an ecological transition?]. *Revue Interventions économiques*, 2021. <https://doi.org/10.4000/interventionseconomiques.14802>
- Dufour, M. (2022). Mondialisation et écologie: Le rôle de la politique commerciale dans la transition écologique [Globalization and ecology: The role of trade policy in relation to the ecological transition]. In J.-F. Bissonnette, J. Dupras, & A. Zaga-Mendez (Eds.), *Une économie écologique pour le Québec: Comment opérationnaliser une nécessaire transition* [An ecological economy for Québec: How to operationalize a necessary transition?] (pp. 311–328). Presses de l'Université du Québec.



- Dunn, B. (2015). *Neither free trade nor protection: A critical political economy of trade theory and practice*. Edward Elgar.
- Gallagher, K. (2004). *Free trade and the environment: Mexico, NAFTA and beyond*. Stanford University Press.
- Gladstone, F., Liverman, D., Sanchez Rodriguez, R. A., & Morales Santos, A. E. (2021). NAFTA and environment after 25 years: A retrospective analysis of the US-Mexico border. *Environmental Science and Policy*, 119, 18–33.
- Intergovernmental Panel on Climate Change. (2022). *Climate change 2022: Impacts, adaptation, and vulnerability—Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press.
- International Resource Panel. (2019). *Global resources outlook 2019: Natural resources for the future we want*. United Nations Environment Programme.
- Kinderman, D. (2020). The challenges of upward regulatory harmonization: The case of sustainability reporting in the European Union. *Regulation and Governance*, 14(4), 674–697.
- Kolcava, D., Nguyen, Q., & Bernauer, T. (2019). Does trade liberalization lead to environmental burden shifting in the global economy? *Ecological Economics*, 163, 98–112.
- Krugman, P., Obstfeld, M., & Melitz, M. (2018). *International economics: Theory and policy* (11th ed.). Pearson.
- Lattanzio, R. K., & Casey, C. A. (2022). *Environmental provisions in free trade agreements (FTAs)*. Congressional Research Service. <https://crsreports.congress.gov/product/pdf/IF/IF10166>
- Leonte, A. (2019, September 5). Brazil needs compensation if it is to protect the Amazon. *Financial Times*.
- Liekens, I., De Nocker, L., Broekx, S., Aertsens, J., & Markandya, A. (2014). Ecosystemic services and their monetary value. In S. Jacobs, N. Dendoncker, & H. Keune (Eds.), *Ecosystem services: Global issues, local practices* (pp. 13–28). Elsevier.
- Maslin, M., Parikh, P., Taylor, R., & Chin-Yee, S. (2022, November 21). COP27 will be remembered as a failure—Here’s what went wrong. *The Conversation*.
- Mazzucato, M. (2013). *The entrepreneurial state: Debunking public vs. private sector myths in innovation*. Anthem Press.
- Morin, J.-F., & Gauthier Nadeau, R. (2017). *Environmental gems in trade agreements: Little-known clauses for progressive trade agreements* (CIGI Papers No. 148). Centre for International Governance Innovation.
- Planning for Entropy. (2022). Democratic economic planning, social metabolism and the environment. *Science and Society*, 86(2), 291–313.
- Shahbaz, M., & Sinha, A. (2019). Environmental Kuznets curve for CO<sub>2</sub> emissions: A literature survey. *Journal of Economic Studies*, 46(1), 106–168.
- Sheldon, I. (2006). Trade and environment policy: A race to the bottom? *Journal of Agricultural Economics*, 54(3), 365–392.
- Stern, D. I. (2017). The environmental Kuznets curve after 25 years. *Journal of Bioeconomics*, 19(1), 7–28.
- Tremblay-Pepin, S. (2022). Five criteria to evaluate democratic economic planning models. *Review of Radical Political Economics*, 54(3), 265–280.
- Vesilind, P. (2015). Downward harmonization: Mexico’s industrial livestock revolution. In H. L. Kong & L. K. Wroth (Eds.), *NAFTA and sustainable development: History, experience, and prospects for reform* (pp. 149–168). Cambridge University Press.
- Whyte, J. (2020). Calculation and conflict. *South Atlantic Quarterly*, 119(1), 31–51.
- World Trade Organization. (1994). *General agreement on tariffs and trade*.
- Wu, M., & Salzman, J. (2014). The next generation of trade and environmental conflicts: The rise of green industrial policy. *Northwestern University Law Review*, 108(2), 401–474.
- Yamaguchi, S. (2018). *International trade and the transition to a more resource efficient and circular economy: A concept paper* (OECD Trade and Environment Working Paper No. 2018/03). Organisation for Economic Co-Operation and Development.

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