

Designing Fiscal Instruments for Sustainable Forests



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Contents

7. National tax policy for cross-border deforestation problems	DIRK HEINE & ERIN HAYDE	172
BOX 7.1 Missing environmental policy can distort trade flows		173
BOX 7.2 Ensuring the compliance of environmental taxes on imported deforestation with the sovereignty and property rights of exporting countries		178

7

National Tax Policy for Cross-Border Deforestation Problems

DIRK HEINE & ERIN HAYDE

Trade-Related Deforestation

In many tropical countries, deforestation can be linked to internationally traded commodities.

Between 30 and 40 percent of global greenhouse gas emissions from deforestation are estimated to be driven by international trade: “This is substantially higher than the share of fossil carbon emissions embodied in trade, indicating that efforts to reduce greenhouse gas emissions from land use change need to consider the role of international demand in driving deforestation” (Pendrill et al. 2019). The *World Development Report 2020* finds that “through more efficient production and lower prices, trade and Global Value Chains (GVCs) increase the global quantity demanded of certain agricultural resources and commodities. The result can be deforestation, biodiversity loss, and other environmental problems in countries where resources are concentrated” (World Bank 2020). As an example, the report points to Côte d’Ivoire, which has lost 60 percent of its forest cover since 1990, 80 percent of which was caused by land clearing for agricultural commodities, mostly cocoa, almost all of which is exported. In a vicious circle, deforestation is harming productivity of cocoa farming by depleting nutrient sources, changing rainfall patterns, decreasing biodiversity, and threatening long-term cocoa sustainability. While deforestation is a “national disaster” (World Bank 2018), cocoa however accounts for 58 percent of the country’s export earnings. It is thus paramount to find policies that continue to enable this important growth factor while converting to deforestation-free commodities. “Building environmental sustainability directly into both the production and governance models guiding GVCs will be increasingly critical to their ongoing viability. That effort will require a combination of appropriate pricing, regulations, and cooperative arrangements” (World Bank 2020).

In principle, the problems of trade-related deforestation might best be addressed through a global treaty. If countries acted together, environmental policies could be tightened much more significantly without concerns over competitiveness losses—which today is a significant concern causing “regulatory chill” (World Bank 2020). A global forestry treaty could also improve the efficiency of global trade itself, by preventing distortions to trade streams (see box 7.1) presently caused by non-enforcement of environmental regulations (Chichilnisky 1994) and failure to tax environmental damages (Stiglitz 2006).

BOX 7.1 MISSING ENVIRONMENTAL POLICY CAN DISTORT TRADE FLOWS

Environmental policies provide two broad functions for global value chains. First, they can protect the environment itself and ensure the sustainability of certain increasingly depleted resource bases on which many GVCs depend. Second, well-designed policies can reduce an important distortion to international trade. The second function is less well known and hence the focus of this box.

To maximize value creation in the global economy, production should be allocated on the basis of comparative advantages that arise from differences in countries' factor endowments or technological progress. It is possible for countries to distort their comparative advantages, for example, when they subsidize local production or when they make other countries pay for part of the cost of producing a good. For example, suppose a country produces steel, emitting air pollution, and the costs of this air pollution are borne by citizens of a neighboring country. In this case, the producer country can artificially reduce its private cost of production just like with a distortionary production subsidy. A lack of regulating or pricing

environmental damages can therefore seriously distort trade (Chichilnisky 1994; Stiglitz 2006). To ensure that goods are produced in the location where the opportunity cost to society is the lowest, policies can ensure that polluters pay for their true costs of production. One hundred seventy countries have agreed in the UN General Assembly to the "Polluter Pays Principle,"^a to "eliminate unsustainable patterns of production and consumption,"^b and attain sustainable development.^c Countries also agreed that global trade shall be a force to achieve this sustainable development,^d and they have called for the abolishment of distorting subsidies. Yet there are still very sizable production costs imposed on third parties, such as for fuels and deforestation-related agricultural commodities. Such "external costs" or subsidies can distort trade patterns. If they are well designed, environmental policies can help further improve the efficient allocation of trade and thereby increase the value creation from GVCs. Against this ideal, however, wrongly designed environmental policies can equally be a barrier to international trade.

a. Rio Declaration, Principle 16 (UN General Assembly 1992).

b. *Ibid.*, Principle 8.

c. *Ibid.*, para. 1–27.

d. Agreement Establishing the World Trade Organization, para. 1 (WTO Agreement 1994).

However, in the continued absence of a global solution, given the pace and irreversibility of deforestation, policy makers have no alternative than to use national policy for cross-border deforestation problems. This can work well despite all its challenges. "At the country-industry level, higher compliance with social and environmental standards is correlated with economic upgrading" (World Bank 2020). For deforestation driven by traded commodities, the *World Development Report 2020* recommends combining private sector solutions like sustainability certification and industry roundtables with public policy. While sustainability certification is praised, "the appropriate regulations and policies will, however, have to be put in place for achieving large scale impact." Certification alone is not enough.

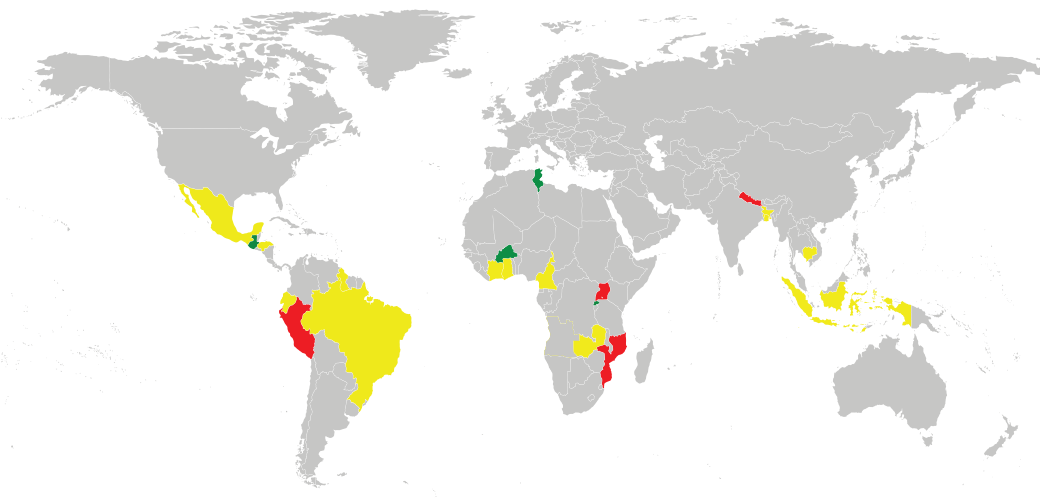
Fiscal Policy for Sustainable Exports

The present reliance on export taxes

Many low-income countries use export taxes or even export bans for deforestation-related commodities (figure 7.1 illustrates FIP member country use of these taxes and bans). The common application is a tax on exported wood products (logs, sawn wood, veneers, and plywood, among others). For example, Cameroon charges a 30 percent tax on log exports (Deckson 2018); the

Democratic Republic of Congo uses a combination of log export quotas and a 10 percent tax on log exports and a 5 percent tax on sawn wood (REM 2013); Suriname charges a 20 percent tax on roundwood exports (PHS 2018); and in the Central African Republic, export fees comprise a 1 percent charge of the FOB value and an additional 19 percent VAT charge (Forest Legality Initiative 2013). Besides reducing deforestation, the motivations include revenue mobilization and incentives for creating domestic processing industries.

FIGURE 7.1
FOREST INVESTMENT PROGRAM MEMBER COUNTRY USE OF FOREST-RELATED EXPORT TAXES AND EXPORT BANS



Source: World Bank staff.

Note: Countries shown in green use neither a timber export tax nor a wood product export ban; countries shown in yellow use a timber export tax; and countries shown in red use either a timber export tax and wood product export ban or a wood export ban by itself.

While addressing deforestation, these taxes also create distortions in domestic processing.

There is an economic cost when a country has such a low efficiency in processing that a given log loses value in processing compared to the value that could be realized by exporting it as a log and processing it elsewhere. In other words, there might be a lack of comparative advantage in the wood processing industry. This could be the case if there are relatively high production costs or lack of domestic markets on which to sell the product, as has been demonstrated for Gabon (Karsenty and Ferron 2017). Therefore, the impact of export taxes and bans on domestic industry might prompt countries to implement mechanisms that reduce the impact on domestic industry, like targeted transfers. Export taxes designed to impact domestic processing can also lead to overcapacity. When a tax on log exports depresses domestic prices compared to international markets, even inefficient sawmills can remain competitive (Karsenty and Ferron 2017). Export taxes can also directly discriminate against high-value processing. For example, in Liberia the export tax is halved on processed timber but is charged based on the value of the wood product. This creates a bias against high-value processing, as the tax bill would increase with higher value (Krelove and Melhado 2010). This overcapacity in low value-added industries can create a demand that outpaces sustainable supply (Barr 2001). In combination with low governance capacity, this can exacerbate unsustainable timber outcomes (Hicks 2018).

For some countries, however, the choice has been between taxes or outright export bans.

Log export bans can play a role in stopping deforestation. Hansen and Lund (2018) show that

a ban can create the incentive for firms to increase recovery rates in primary and secondary processing by reducing domestic competition as well as distorting log prices. But bans are a drastic instrument. Karsenty and Ferron (2017) show the significant tax revenue loss when Gabon replaced export taxes with bans. In these cases, it may be more desirable to replace log export bans with log export quotas that are distributed through public auctions (Hansen and Lund 2011, 2018; Karsenty 2000). In Equatorial Guinea, “production plummeted, from more than 500,000 m³ in 2007 to 13,700 m³ in 2009” (Karsenty and Ferron 2017) after a log export ban was introduced. The ban was revoked, and exports are now taxed \$0.85 per cubic meter with certain tax exemptions offered to certified companies.

Gradually phasing out export taxes and converting them to environmental taxes

There are good reasons to consider replacing export taxes. But countries should do so carefully because the alternative could be worse. Export taxes inhibit a country’s participation in GVCs. Hence, countries are considering phasing them out and several bilateral trade agreements include such conditions (see chapter 9). However, export gates still provide some of the strongest tax chokepoints available in countries with weak tax administrations. Whereas many countries struggle at enforcing internal taxes on the production of commodities, it is often much easier to administer the collection of a tax at the export gate. Replacing export taxes with internal taxes too quickly can thus encourage tax evasion. Even worse, the actors most likely to evade internal taxes may be the ones with the worse production techniques. This is a large problem given the close overlap between the deforestation problems and governance capacities of countries. Repealing an export tax at a central chokepoint seaport and instead levying taxes on many small producers within the rural interior of the country could be dangerous if it is not preceded by sufficient governance capacity building.

A familiar additional problem of current export taxes is that their rates do not vary by the sustainability of the production method. For example, in Côte d’Ivoire cocoa export taxes vary depending on the level of processing and not on the inherent sustainability in the production process. Thus, the present export taxes may only provide incentives to produce less of the commodity. Instead, a solution is needed that will enable countries to continue exporting large quantities but to decouple the export of the commodity from deforestation.

The effectiveness of the taxes can be improved, and the phaseout of export taxes be organized gradually, by granting reduced rates for sustainable commodities. Given the need for caution with phasing out export taxes because of the risks for evasion and lower production standards, and the simultaneous problem that export tax rates do not vary with the sustainability of production, a good reform could be to center the reduction of export tax rates on sustainable commodities only. In this setup, the previous export tax rate would continue to be charged unless a commodity is produced in a sustainable manner.

This reform could be implemented using the combination of tax discounts and sustainability certification instruments from chapter 6. Administratively, the mechanism would be the same, but the export gate would be its chokepoint.

This implementation of the tax and certification mechanism would have several synergies with present initiatives to improve the sustainability of international trade. As the *World Development Report 2020* explains, in GVCs many industry roundtables are trying to improve sustainability via private standards. Often these are organized by lead firms seeking to clean

up the supply chain to protect their brand reputation. “Because lead firms have a brand name to protect, they pay attention to how their supply chains function in terms of social and environmental standards” (World Bank 2020). The more stringent industry roundtables use third-party sustainability certification as an enforcement instrument. Sustainability certificates abound for trade-related deforestation issues. Accordingly, especially for export taxes, fiscal authorities could make ready use of already prevalent sustainability certificates to implement the variation of commodity tax rates.

The market price premiums for certified products are generally higher in developed-country consumer markets than in most developing countries. Accordingly, the gain for a developing country government from inciting an uptake of certification among its domestic producers is also greater for exported products. That is not to say that the use of certification for taxation would not make sense for purely domestic products—it does because of its ability to enable the variation of tax rates according to production standards. But the synergies from at the same time also yielding premium consumer prices is greater for the export commodities.

Another synergy is with current efforts of several developing countries to induce international companies to take greater responsibility for their domestic supply chains and invest in sustainability. Some roundtables stay at the level of marketing commitments without leading to substantive change because companies lack incentives to follow through. The tax policy would create these incentives.

For some deforestation-related commodities, there are presently threats of trade embargoes. The suggested mechanism could contribute to avoiding these. For example, in the Amsterdam Declaration several European countries threatened to stop purchasing any chocolate that does not come from deforestation-free cocoa. This is a major concern for economies like Côte d’Ivoire and Ghana, not only because much of their cocoa is not deforestation-free but also because even the subset that is will not be able to reveal its type. The tax-induced greater uptake of certification would help these developing countries prove the status of their commodities and avoid such negative consequences.

Fiscal Policy for Sustainable Imports

The problem of imported deforestation

When deforestation occurs in the production of a commodity that is afterward exported, this deforestation is jointly caused by both the producer firm/exporting country and the consumer/importing country. Both sides contribute to deforestation. The exporting country could have produced the commodity without deforestation, but the importing country could equally have demanded a sustainable product. Thus, both sides could have avoided imposing the global external costs of deforestation on the rest of the world. By financing the production of deforestation-related commodities, developed countries therefore share a responsibility for deforestation caused by the products they demand. This problem is referred to as “imported deforestation” or “embodied deforestation.”

Even though most deforestation today happens in developing countries, developed countries have a responsibility to implement policy for the sustainable consumption of imported forest products. In Europe, for example, “Deforestation embodied in EU27 consumption is almost entirely due to imports, as deforestation within the EU is negligible” (Cuyppers et al. 2013). Given that deforestation caused by European consumption imposes a global burden, the EU has a duty to improve the sustainability of its consumption. Because deforestation physically happens overseas, this implies a duty to act beyond its borders. However, reducing deforestation outside one’s borders may not involve “extraterritorial regulation” and needs to be implemented in a manner that respects the sovereignty and property rights of the exporting countries. As box 7.2 explains in greater detail, importing countries can legitimately act, not by directly intervening overseas but by altering their own participation in the causation of overseas harms by changing their consumption patterns through domestic tax policy. So, whereas it would be extraterritorial for an importing country to impose a legal tax liability on overseas commodity producers who deforest, it is legitimate for the country to tax its own citizens for unsustainable consumption of both domestic and imported commodities. These policy actions must be proportionate and nondiscriminatory, but they are called for because of the importing states’ economic co-responsibility for overseas deforestation.

As a result of carbon leakage, countries may also need to address imported deforestation to effectively raise the sustainability of production of their domestic commodities. The natural starting point for a country eager to raise global forest protection is its own forests. Nevertheless, since deforestation-related commodities are traded internationally, protecting only the forests within a given open economy may give rise to carbon leakage. As the price of domestic commodities rises with increased requirements for their sustainable production, consumers may substitute those domestic products with cheaper imports from unsustainable forestry overseas. A proportion of the country’s efforts at raising the overall sustainability of the commodities is then lost. This loss may be large.¹ To overcome this problem, a country that raises the sustainability of its own forests must simultaneously also deal with the forestry sector in other countries, either directly or through its imports from those foreign producers.

¹ For GHG mitigation from the forestry sector, estimates range from 23 percent (Meyfroidt and Lambin 2009, 16143) to 20–40 percent (Murray, McCarl, and Lee 2004), 71–85 percent (Nepal et al. 2013), 45–92 percent (Grieg-Gran 2008), and above 100 percent in particular regions (Boer et al. 2007; Haim, White, and Alig 2015).

BOX 7.2**ENSURING THE COMPLIANCE OF ENVIRONMENTAL TAXES ON IMPORTED DEFORESTATION WITH THE SOVEREIGNTY AND PROPERTY RIGHTS OF EXPORTING COUNTRIES**

The use of taxation for traded forestry products is contested by some legal philosophers, who argue that countries importing deforestation-related commodities would generally have no justification for interfering with the production decisions in overseas forestry sectors. This “eco-imperialism” literature takes up legitimate concerns of developing countries contesting the continued intervention of past colonizers.

One strand of this literature argues that the sovereignty of countries producing deforestation-related commodities means that other nations have no legal right to interfere with domestic decisions over forestry management (Anderson and Grewell 2000; McCleary 1991). This is legally correct to the extent that commodity-importing countries are not allowed to intervene in the internal affairs of other countries. States have “the sovereign right to exploit their own resources pursuant to their own environmental policies.”^a However, while safeguarding the sovereignty of commodity-exporting countries, the sovereignty of commodity-importing countries must also be respected. The sovereignty of the importing states means that they have the right to govern their own domestic markets, including the right to pass taxes and to apply them evenly in the domestic forestry sector as well as at the customs gate.

Economically, the use of taxes can even be required to maintain the sovereignty of nations in forestry policy. One reason is the existence of transboundary harms. Unsustainable forestry in one state creates external costs for other states, undermining the sovereignty of other states by taking away their ability to control their borders (“interdependence sovereignty”)^b and their markets (“domestic sovereignty”).^c By internalizing those external costs through Pigouvian taxes, the importing state regains these powers. The second case requiring taxes for the maintenance of sovereignty is emissions leakage. The systematic occurrence of leakage implies that commodity-importing countries are not free from foreign interference in the governance of their forestry sectors (cf. Dietsch 2015, 121; Ronzoni 2009, 248, 250). They face pressure to keep the sustainability of their own forestry sector lower than they may otherwise prefer. The downward

pressure on environmental standards caused by the leakage removes people’s self-determination of the sustainability of their domestic commodities production. By reducing leakage, the taxation of the importation of unsustainable forest products restores the ability of each state to manage its own forests. Such a restoration of sovereignty has efficiency benefits described by the concepts of the “tragedy of the commons” and “race to the bottom”: As states regain the ability to manage their forests without leakage, their power to exclude access to rivalrous forestry resources increases. Isolating domestic forests from leakage turns an open-access resource into a national club good, reducing pressures for overexploitation. And as the use of taxes internalizing environmental costs at the border reduces leakage effects, nations are enabled to compete on prices instead of on mutually harmful unsustainable production methods. This is a particular benefit to small countries that could otherwise not improve the terms of competition between nations.

Critics have also claimed that the property rights of commodity producers forbid foreign interference with production standards. The argument goes that, because the property right over a forest includes the right to destroy, other countries must not penalize unsustainable forestry practices (McCleary 1991). Only domestic regulators in the commodity-producing state could intervene, as they define the extent of domestic property rights. Overseas governments would have to accept the consequences of production decisions taken by domestic commodity producers exercising their domestically defined property rights. This argument overlooks, however, that for traded commodities, the property right for the product is passed on to consumers. The state where these consumers are located can tax its citizens for unsustainable consumption. There is no conflict with property rights; the taxation just follows the same principles as for other domestic products with externalities, such as gasoline. A consumer is free to purchase gasoline and has full property rights over it, but the state may nevertheless tax the consumer to internalize the costs of pollution. Such a Pigouvian tax restores—not contradicts—the protection of property (of others) because it internalizes external costs.^d

The imposition of environmental taxes on unsustainable forestry products has also been criticized as a violation of free competition (Anderson and Grewell 2000; McCleary 1991). These critiques ignore that the very foundation of free-market economics requires that all exchanges are voluntary, between freely consenting trade partners, without forcing third parties to pay for external costs arising from the transaction.⁸ Because unsustainable forestry causes these external costs, Pigouvian taxes restore free competition rather than inhibit it.

Another critique has been that commodities-consuming states may lack the ethical legitimacy to interfere with the production techniques used by commodities-producing states (McCleary 1991). Principles for the ethical legitimacy of state action are notoriously controversial between different schools of thought, but it is widely agreed that a state may legitimately act on a problem if it either suffers from or contributes to the problem itself.¹ A country has a legitimate interest in minimizing harm to its own population as well as harm originating from its own population. Legally, states are under the obligation to “ensure that activities within their control do not cause damage to the environment of other states.”⁹

Economically, activities in one’s control may occur overseas. A timber-importing country financially supports overseas timber productions, thereby sharing in the causation of the overseas timber production, including its production standards. Unsustainable timber production as a commercial activity occurs because there is a demand for it; therefore, the state from which this demand originates holds an economically defined control. Third-party states, as opposed to those states that are importing and exporting the timber, are suffering from the importing state’s financing of unsustainable timber production. If the importing state does not act, it does “cause damage to the environment of other states” (McCleary 1991). The importing state accordingly has a legitimate interest that its own consumption should not contribute to the causation of damages to humanity. Consequently, it can legitimately act, not by directly intervening

overseas but by altering its own participation in the causation of overseas harms by changing its consumption patterns through domestic tax policy.

Taxes do, however, have the downside of embracing an ahistorical view of global forestry problems. Today’s deforestation is concentrated in developing countries because many developed countries cleared their forests long ago (Mather 1992). Both current and past deforestation contribute to today’s precarious state of climate change and biodiversity losses. A first-best Pigouvian solution would have required taxing deforestation both then and now. Given that we cannot change past policy, the remaining second-best policy should at least be to mitigate current deforestation. The optimal choice of policy instruments for this second-best mitigation action can be understood through two worldviews. One worldview is that countries deforesting today impose an external cost on the world, so they should face a Pigouvian tax to internalize the incentive to protect these forests. The other worldview is that countries that still have significant forests today are providing an external benefit to the world, on which other countries that cleared their forests in the past are free riding (McCleary 1991; Whalley and Zissimos 2001). The free riders should then provide subsidies for protecting the remaining forests overseas. At first sight, these two worldviews contradict each other; on a closer look, they are simultaneously true if one considers that deforestation today would still cause external costs even if past deforestation had not taken place. Past deforestation adversely affected the marginal cost of current deforestation, since the marginal cost of deforestation rises with the scarcity of forests^h—but even in the absence of past deforestation, cutting forests still releases greenhouse gases and reduces ecosystem services, so marginal external costs still exist. Accordingly, Pigouvian taxes on current deforestation are justified despite their absence during past deforestation. Additional to taxation, however, countries that deforested their land in the past must compensate those that preserved their forests. The optimal policy mix then uses both tax and expenditure policies jointly. Using both instruments together can provide efficient incentives containing

current deforestation and a fair share of the burden reflecting the differentiated responsibility of countries for past deforestation. Looking at the present policy mix, however, REDD+ exists as a form of compensation

payments, but there is very little use of environmental taxation for imported deforestation. Hence, the focus here on taxes to improve the policy mix.

- a. This rule is upheld all across environmental treaties, from Principle 21 of the Stockholm Declaration 1972 to Principle 2 of the Rio Declaration 1992 and derivative treaties (Desertification Convention 1994, Preamble; Forestry Principles 1992, Principle 1a; Biodiversity Convention 1992, Article 3; Climate Change Convention 1992, Preamble).
- b. Krasner (2001).
- c. *Ibid.*
- d. Economically, a nonpecuniary externality (of the type for which the victim does not contribute to causation) is a forced transfer like an expropriation.
- e. The first fundamental theorem of welfare economics, which shows that a free market generates a Pareto-efficient competitive equilibrium, requires that external costs are internalized (for example, Arrow 1951; Lange 1942; Lerner 1934). The very idea of forcing third parties to bear the cost of an exchange contradicts the idea of a free market. Besides, "It is unjust that the whole of society should contribute toward an expense of which the benefit is confined to a part of the society" (Smith 1776, section 1.4). "In the race for wealth, and honours, and preferments, [man] may run as hard as he can, and strain every nerve and every muscle, in order to outstrip all his competitors. But if he should jostle, or throw down any of them, the indulgence of the spectators is entirely at an end. It is a violation of fair play, which they [society] cannot admit of" (Smith 1759, section 2.2.2).
- f. In the former case, a state can act based on the "right to protect." In the latter situation, every state has "responsibilities to protect its own people and avoid harming its neighbors" (United Nations 2004, 17), constituting "sovereignty as responsibility in both internal functions and external duties" (ICISS 2001, 13). The responsibility on states to act to prevent the imposition of harm on other states includes environmental obligations, such as "eliminating unsustainable patterns of production and consumption" (UN General Assembly 1992, Principle 8) under the general agreement of states to pursue sustainable development (UN General Assembly 2015, para. 54; UN General Assembly 1992, para. 1–27). Whereas the legal force of these environmental duties of states toward mankind is only emerging (Schrijver 1997, 239ff.; 2002; 2008, 208ff.), they do provide legitimacy for states acting upon them.
- g. Legally, see UN General Assembly 1972, Principle 21; UN General Assembly 1992, Principle 2; UN General Assembly 1994, Preamble; UN General Assembly 1992b, Principle 1a; UN General Assembly 1992a, Article 3; UN General Assembly 1992d, Preamble. Philosophically, see Perrez (1996).
- h. For deforestation, as for any activity emitting GHGs, the marginal social cost of carbon rises in the concentration of GHGs already present in the atmosphere (US-IAWG 2013). Similarly, for biodiversity the marginal cost of destroying a species' habitat rises when previous habitats of the same species have already been destroyed so that they risk extinction.

Promises and constraints of current efforts for addressing imported deforestation

The main public policy instrument that importing countries use today for addressing imported deforestation is bans. Australia, the European Union, and the United States established bans on the production and import of illegal timber through regulatory law applicable in their internal markets,² requiring companies placing the timber on these internal markets (through domestic production or import) to exercise "due diligence" that the timber was not illegally sourced. Outside timber, similar bans do not exist for many other deforestation-related commodities.

The clout of a market foreclosure on overseas producers hinges on the size of that market, so countries with large timber imports could leverage their position as consumer markets for political influence; aggregate consumer demand then yields state power for cross-border forestry policy. This points to a challenge because the listed developed countries that implemented these bans are no longer the main markets for certain types of timber. Extending this policy so it also covers large emerging markets would be much more effective.

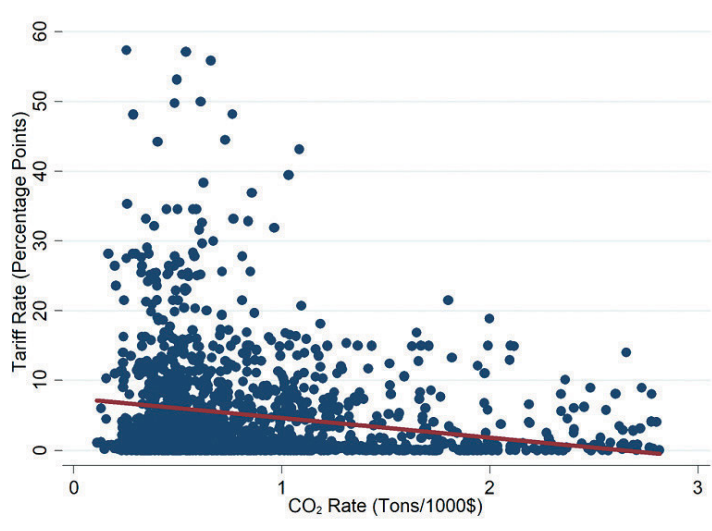
² Internal in the sense of GATT 1994 Article III.

The main private sector instrument has been sustainability certification. The consumer labels, presented in more detail in chapter 6, have had most of their uptake in developed-country consumer markets.

Both instruments have important roles to play but leave important incentive gaps and have efficiency costs. Bans on illegal timber have been effective at reducing the prevalence of the worst type of production methods for timber. “For the first time there are potentially real consequences for not demonstrating legality when trading in timber” (Othman et al. 2012, 110; see also EC 2016). However, bans provide neither incentives to go beyond mere legality toward sustainability nor dynamic incentives for continuous improvement of production methods over time. Sustainability certificates do provide incentives to go beyond legality, but they suffer from all the constraints discussed in box 6.1. Hence, we next discuss how importing countries could improve this policy mix.

In this policy mix, trade-related tax policy is not just underused. It frequently even undermines sustainability objectives by taxing emissions-intensive products less than low-carbon ones. “In most countries, import tariffs and nontariff barriers are substantially lower on dirty than on clean industries, where an industry’s ‘dirtiness’ is defined as its carbon dioxide (CO₂) emissions per dollar of output” (Shapiro 2020) (figure 7.2). That is true for the distribution of tariffs between industries. Within industries, it is important to additionally consider that most tariffs are ad valorem taxes and that unsustainable products impose a share of production costs on third parties (that is, that they externalize costs), whereas for sustainable products the production costs are included in the private product price. Ad valorem tariffs scale up any cost advantage that unsustainable products gain from externalizing costs. Hence, tariffs presently twice distort product choices against sustainable consumption. To deal with the first distortion (tariffs across industries), Shapiro (2020) shows that rebalancing tariffs per tonne of carbon to reach a level playing field would lower emissions while avoiding reducing output. To address the second distortion, we need to vary tariff rates within industries by the sustainability of production. Next, we show how this could work for trade-related commodity taxes and make tax policy play a constructive role in the overall policy mix for addressing imported deforestation.

FIGURE 7.2
NEGATIVE RELATION OF TARIFF RATES AND CARBON INTENSITY OF GOODS



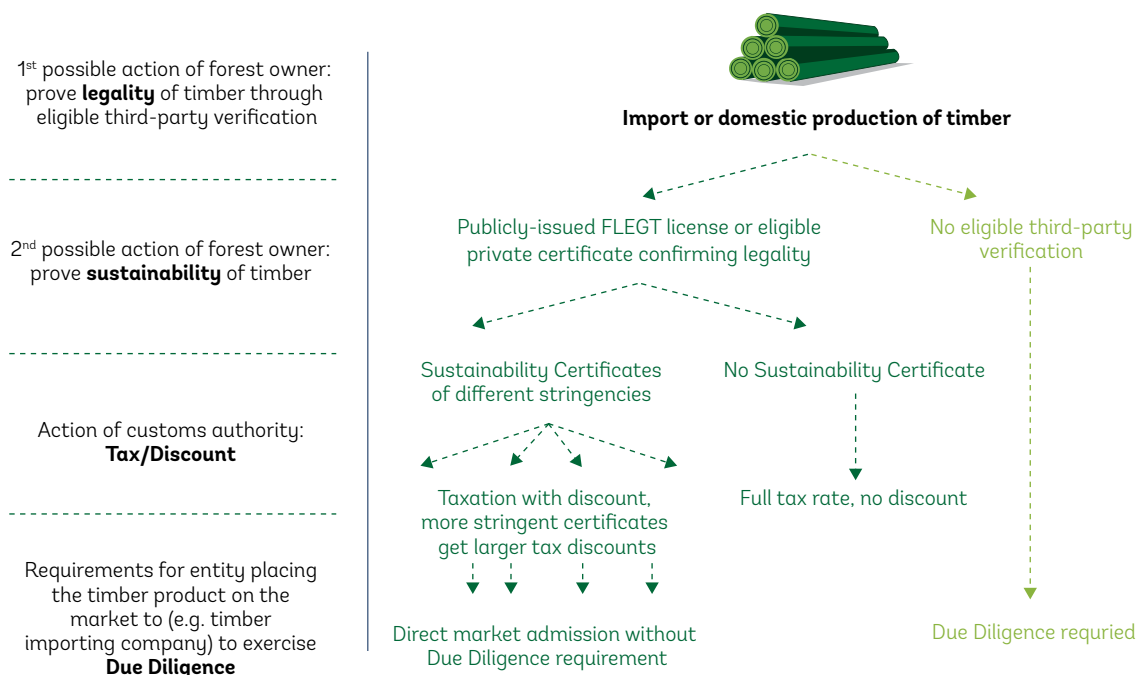
Source: Shapiro 2020.

Note: Data represent all countries in the world. Each circle is one industry in one country. Red line is the linear trend.

Boosting the price signal from certificates with differentiated product taxes

The proposition is again to use sustainability certification for tax policy: implementing consumption tax rates that vary with the sustainability of domestic and overseas production. The mechanism consists of a tax imposed by a commodity-importing country on a default assumption regarding the sustainability of the commodity, combined with a tax discount that is provided on the receipt of proof that the sustainability was higher than assumed. When a commodity arrives at the customs gate without a sustainability certificate, it is taxed on the assumption that the production was not sustainable. When a commodity arrives with its sustainability certified, the tax rate is reduced. The more stringent the sustainability certificate carried by the commodity, the greater the tax discount. Figure 7.3 further suggests how this tax policy could be combined with existing bans on illegally produced commodities, using the example of timber.

FIGURE 7.3
POLICY MIX FOR ADDRESSING DEFORESTATION FROM TIMBER PRODUCTION



Source: Heine, Faure, and Lan 2017.

Design considerations to avoid market or trade distortions

A major problem for letting taxes on imported commodities vary by the sustainability of production is the importing country's access to data. The mechanism solves this problem.

Unless there is a special treaty (voluntary partnership agreement, or VPA), consumer countries have very limited authority to access data about the sustainability of production by overseas firms. They are not allowed to send public officials to measure sustainability overseas and differentiate tax rates accordingly. Besides legal restrictions, this data raising would also be administratively costly. However, forest sustainability can take a solution to the legality and feasibility problems from the area of product safety regulation. There, consumer countries use

accredited certification companies. These certification companies are commissioned by overseas exporters to gain market access; that demand solves the legal access to the information, and the involvement of the certification agency avoids the administration costs of needing to directly involve government officials with production reviews. The same approach can be used for environmental taxation of commodities. The difference is that, unlike product safety rules that impose fixed standards, the importing state would allow imports of varying levels of sustainability. To show which level of sustainability a product complies with, the customs authorities would not legally force anyone to reveal data on overseas production standards, but it would significantly improve incentives for voluntary data sharing and collaboration. Overseas producers of a commodity taxed using this mechanism have the free choice not to provide information about production standards. In this case, their product will just be taxed at the default values. Economically, however, foreign producers face an incentive to reveal those production standards to certification agencies and hence to the taxing state. Thus, the customs authority is applying an economic incentive for commodity producers to reveal data on their production standards where it does not have the jurisdiction to apply legal force for getting this data to vary commodity tax rates. And efficiently, it uses the private sector solution of certification companies to keep administration costs in check.

This design avoids extraterritorial regulation but still provides both domestic and overseas producers with granular incentives to improve the sustainability of production. Recall that countries may not tax overseas firms for their deforestation as doing so would fall under the prohibition of extraterritorial regulation. Attributing the tax liability to the domestic importer of the commodity avoids this extraterritoriality while still providing incentives for overseas producers to raise the sustainability of their production up to a certified standard. This solution exists because, economically, it does not matter whether the tax liability is attributed to the overseas commodity producer or the domestic importer. The tax incidence—the proportion of the tax that an agent ends up paying after deducting the share of the tax bill that he manages to pass on to his transaction partners—is the same in both cases.³ If the tax were on the foreign commodity exporter, that person would impose a proportion of the tax bill on his domestic transaction partner in price negotiations. Equally, if the tax is on the domestic importer, that person will negotiate a different timber price with his supplier and thereby pass on the same proportion of the tax. Whereas economically the effects are the same, legally the change of liability makes the difference and prevents the extraterritoriality problem. For example, when the domestic importer imposes some of his tax costs onto a foreign timber supplier, that pass-through is part of private contract law, for which there are no extraterritoriality constraints. This is unlike the counterfactual situation where the government directly imposes the same payment onto the foreign timber supplier, in which case the same payment falls into the domain of public international law and is prohibited. So, changing the attribution of the legal tax liability solves a legal problem, without causing an economic distortion.

This mechanism should be applied not just to imported commodities but also to domestic production.⁴ Like domestic products should be subject to the same tax scheme. In addition

3 The economic incidence of a tax that falls onto the transaction partner charged is not changed by the legal attribution of the tax liability (Logue and Slemrod 2010).

4 We started this section pointing out that for any country, the natural starting point for raising forest sustainability globally is its own forestry sector. We then identified the need to flank domestic policies with a mechanism to raise the sustainability of overseas timber, first to prevent leakage effects for the sustainability of internationally traded timber products, and second to have the necessary clout to make a real difference if most deforestation happens overseas.

to conforming to international trade law,⁵ this broad tax coverage has the added benefit of impacting a wider section of the timber industry and therefore reducing leakage.

This is not a tariff. It is an internal consumption-based excise tax, which may be levied at the border. Legally, it is essential that the tax is imposed on domestic consumers, at the point where the commodity is placed on the internal market. This is much like a VAT or a tobacco or alcohol tax, which are all internal taxes in the sense of GATT Article III:2. Administratively, they can be levied at the point of import, to use an important chokepoint, without falling under the restrictions of tariff rates. They are also not tariffs in spirit—their purpose is not to provide domestic market protection but to ensure that demand from the domestic market is not causing damage to the world. Furthermore, the equal application to commodities from domestic and overseas production ensures there is no discrimination (see chapter 9).

International Collaboration

All the reasons for international collaboration that are mentioned in chapter 6 hold true also in this application, plus a few more that stem from synergies with trade policy.

The world as a whole benefits when trade flows are allocated along true comparative advantages, and they are presently distorted because relative production costs can appear low in a place merely because a lack of environmental policy means that producers and consumers can pass on a share of production costs to unrelated third parties (Chichilnisky 1994; Stiglitz 2006; see also box 7.1). The suggested mechanisms would alleviate these problems in a manner that is hard to evade. The resulting improvement in the efficiency of global trade would benefit all countries. Accordingly, there is also a case for global collaboration in implementing such mechanisms, especially for developed countries to support developing ones.

If developing countries implement the mechanism at exports, there is no need for developed countries to implement it at imports too. This would spare system costs for developed countries, justifying that they share in the system costs of developing countries. Several developed countries have also made the twin demand on developing countries to both reduce export taxes and raise the sustainability of production. We explained that this is a formidable challenge, given how many of the producer countries are struggling so much at enforcing environmental regulations and the relative robustness of export gates as a tax chokepoint. But the suggested mechanism offers a solution. For developing countries there can, however, be important up-front costs. Developed countries should then consider sharing in the start-up costs—for example, through the setup described in chapter 6.

Conclusion

As pointed out by the *World Development Report 2020*, international trade is a cause of deforestation (World Bank 2020). Between 30 and 40 percent of global greenhouse gas emissions from deforestation can be attributed to traded commodities (Pendrill et al. 2019). “Building environmental sustainability directly into both the production and governance models guiding Global Value Chains will be increasingly critical to their ongoing viability. That effort will require a combination of appropriate pricing, regulations, and cooperative arrangements” (World Bank 2020). This chapter proposes how environmental taxation can contribute to these policy solutions.

⁵ See chapter 9 for further analysis on this design for trade law compliance.

When deforestation occurs in the production of a commodity that is afterward exported, this deforestation is jointly caused by both the exporting country and the importing country. Therefore, not just the countries where the deforestation is happening need to act; the countries whose demand for unsustainable products finances the deforestation bear a responsibility too. Responsibility is also shared because all UN member states have accepted that “states should reduce and eliminate unsustainable patterns of production and consumption.”⁶

And both countries exporting and importing deforestation-related commodities have indeed implemented policies for addressing this issue. But while the existing policies have important roles to play, they are insufficient. Integrating environmental taxation can help improve the policy mix.

A leading policy instrument among low-income countries is the taxation of exports of deforestation-related commodities. While these do address deforestation, they inhibit the participation in GVCs and create distortions in domestic processing. The environmental efficiency is also limited because tax rates do not vary according to the sustainability of production. There are good reasons to consider replacing export taxes. But countries should do so carefully because the alternative could be worse. Whereas many countries struggle at enforcing internal taxes on the rural sector production of commodities, it is often much easier to administer the collection of a tax at the export gate. Replacing export taxes with internal taxes too quickly can thus encourage tax evasion. Even worse, the actors most likely to evade internal taxes may be the ones with the worse production techniques. This is a large problem given the close overlap between the deforestation problems and governance capacities of countries. Repealing an export tax at a central chokepoint seaport and instead levying taxes on many small producers within the rural interior of the country could be dangerous if it is not preceded by sufficient governance capacity building. It is thus important to be careful in removing export taxes as a key current instrument for trade-related deforestation. Instead, countries should improve them.

The environmental effectiveness of the taxes can be raised, and the phaseout of export taxes be organized gradually, by granting reduced rates for sustainable commodities. In this setup, the previous export tax rate would continue to be charged unless a commodity is produced in a sustainable manner. This mechanism is a trade-related application of chapter 6—again using the information of sustainability certificates to vary the rate of commodity taxation according to the sustainability of production. Applying this mechanism to exports uses several synergies with present initiatives to improve the sustainability of international trade. Certificates are already better known and administrative systems more established for commodities destined for exports. The market price premiums for certified products are generally higher in developed-country consumer markets than in most developing countries. Accordingly, the gain for a developing country government from inciting an uptake of certification among its domestic producers is also greater for exported products than for products destined to internal markets. The mechanism also supports current efforts of several developing countries to induce international companies to take greater responsibility for their domestic supply chains and invest in sustainability.

In commodity-importing countries, tax policy has played only a minor role in efforts for reducing deforestation. Tariffs are instead biased against clean production currently. Analysts have also pointed out several factors complicating the use of environmental taxation for embodied deforestation. Restrictions on extraterritorial regulation prevent countries from requiring most information about overseas production and directly imposing environmental taxes. However,

6 UN General Assembly (1992c), Principle 8.

there is increasing agreement that importing countries can legitimately take action, not by directly intervening overseas but by altering their own participation in the causation of overseas harms by changing their consumption patterns through domestic policy on consumers. The main public-policy instrument here has been bans on the import of illegal timber, enforced through due diligence rules on the agent first placing the product onto the importing country's market. Unfortunately, this policy instrument only prevents illegality—it does not provide fine-grained incentives to improve sustainability. This has been achieved to an extent by the main private sector instrument of consumer countries: sustainability certification. But the effectiveness of certification is equally limited by a series of constraints. Both instruments have important roles to play but leave important incentive gaps and have efficiency costs. In this policy mix, trade-related tax policy is not just underused. The proposition is again to use sustainability certification for tax policy: implementing consumption tax rates that vary with the sustainability of domestic and overseas production. The scheme circumvents several standard problems of border tax adjustments. It raises data on overseas production without hard legal requirements; it keeps administration costs of varying tax rates in check by using a tested private sector mechanism for enforcing public policy; and it avoids extraterritoriality by charging domestic consumers instead of overseas firms while still sending price signals to them for improving their production methods.

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