



Prospects and challenges for policy convergence between the EU and China to address imported deforestation

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ABSTRACT

The EU and China are major importers of 'forest-risk' commodities and thus play a pivotal role in shaping the sustainability of those commodities supply chains. The EU recently introduced a regulation mandating due diligence by companies to ensure commodities are not sourced from recently deforested land. However, even if eventually successful in eliminating 'imported' deforestation to Europe, the regulation risks creating leakage to China and other markets. This possibility has prompted stakeholders to call for cooperation and policy alignment between the EU and China to address imported deforestation. This study applies the 'Brussels Effect' theory to identify what factors hinder or facilitate such policy convergence. We conducted 20 semi-structured interviews with key informants engaged in EU-China dialogues on the topic. Our findings suggest that, despite political signals from high-level Chinese leadership, it is unlikely that China will adopt trade measures requiring 'deforestation free' commodities in the foreseeable future. China's foreign policy stance of non-interference and concerns about its food security are key obstacles. While this limits the prospects of policy convergence in the short to medium term, a mix of market-based forces and cooperative mechanisms enabled by the EU regulation may lower the barriers and costs for companies to expand compliance with zero deforestation standards to other markets such as China, making some level of 'de facto' convergence plausible. We also note the importance of moving beyond a unilateral 'Brussels Effect' framing to consider the role of diplomacy, cooperation, and geopolitical conditions that promote, or run counter to, policy convergence.

1. Introduction

Agricultural expansion is the main direct driver of deforestation and biodiversity loss in the tropics (Curtis et al., 2018; Pendrill et al., 2022). It is estimated that international trade and consumption of agricultural commodities drive approximately one-quarter of forest loss in tropical areas (Pendrill et al., 2019a) and between 29 and 39% of tropical deforestation-related carbon emissions (Pendrill et al., 2019b). The increasing role of internationally traded agricultural commodities in driving deforestation has led to a corresponding increase in public pressure to harness those markets to halt forest loss (Lambin et al., 2018; Sun et al., 2023; Sotirov et al., 2022). Given the limited impact of voluntary multilateral agreements and corporate zero deforestation commitments (Garrett et al., 2019; Leijten et al., 2020; Schulte et al., 2019; Zu Ermgassen et al., 2020; Lambin and Furumo, 2023),

governments have been developing mandatory due diligence and demand-side regulations on global supply chains. The European Union (EU) has introduced the broadest legislation so far, in that it encompasses both legal and illegal deforestation (see Berning and Sotirov, 2024). The EU regulation on deforestation-free products, formally adopted in May 2023, imposes legal responsibility on importing and exporting companies to ensure supply chains are free of deforestation and 'forest degradation' after January 2021 and 'produced in accordance with the relevant legislation of the country of production'. It will also require information systems that link imported commodities to geolocated farms and concessions where commodities are produced (European Commission. Directorate-General for Climate Action, 2021).

Research to date has identified several challenges regarding the effectiveness and equity of consumer-country-led regulations, including the lack of producer-country participation in policy design, the

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offloading of the costs of stopping deforestation onto poorer countries and producers, the risk of excluding smallholders ill-equipped to comply with stricter supply-chain policies and weak implementation due to lack of imposed sanctions (Busch et al., 2022; Lyons-White et al., 2020; Schilling-Vacaflor and Lenschow, 2021; Sellare et al., 2022; Zhunusova et al., 2022; Partzsch et al., 2023; Sotirov et al., 2022).

In addition, a major challenge concerns the risk of ‘leakage’ (Meyfroidt et al., 2010; Bastos Lima et al., 2019; Köthke et al., 2023). That is, in the face of obstacles to accessing certain markets such as the EU, producers and traders may redirect commodities produced on deforested lands to other major importing markets such as China, potentially negating the possible additionality of those policies (Bager et al., 2021; Brandt et al., 2022; Drost et al., 2022). Previous research has shown the diversion of exports to less stringent markets in the case of tropical timber trade (Giurca et al., 2013; Masiero et al., 2015). This risk has prompted some stakeholders to ask for further international cooperation – notably between the EU and China – on coordinated measures to address agriculture-driven deforestation (Freundt, 2021; Schmidt-Traub et al., 2020).

China and the EU have a long history of bilateral cooperation on environmental issues, including dialogues at different spheres (e.g. the Environmental Policy Dialogue, held at ministerial level, and the EU-China High Level Environment and Climate Dialogue), high-level Annual Summits, and a number of isolated initiatives and specific programmes (e.g. Bilateral Coordination Mechanism on Forest Law Enforcement and Governance and Trade) (Christiansen, 2016). Yet research shows mixed outcomes from such joint efforts. On the one hand, their bilateral exchanges have led to a process of relative convergence of standards and regulations in some areas. Examples include regulations on hazardous substances and e-waste management (Selin and VanDeveer, 2006; Bradford, 2020), car emissions requirements (Pelkmans, 2020), and environmental multilateral treaties and commitments (Geeraerts, 2019; Pelkmans, 2020; Taylor, 2018). On the other hand, bilateral exchanges have not yielded convergence in regulations on clean energy (Holzer and Zhang, 2008; Zhang, 2021) or human rights (Taylor, 2020). With the EU regulation on deforestation and emerging policy efforts in China, including the new Strategic Framework for Greening Soft Commodities Supply Chains, land-use change and greenhouse gas (GHG) emissions associated with agricultural supply chains are set to have increasingly more relevance to EU-China cooperation (Bapna et al., 2021; Li et al., 2022). However, there is a gap in the literature regarding the potential for alignment and synergies of European and Chinese policies and strategies to address imported deforestation.

This study helps to fill that gap by building and expanding on the ‘Brussels Effect’ as a framework to analyse the prospects of policy convergence between the EU and China on imported deforestation. Bradford (2012) defines the Brussels Effect as the externalisation of European standards and norms beyond the EU’s jurisdiction through market mechanisms and regulatory power. One pathway is that other countries emulate European policies, as has happened in data privacy, food safety, and other domains (Bradford, 2020). Hadjiyianni (2021) argues that the implementation of unilateral measures can prompt the emergence of the Brussels Effect in particular when there is a lack of international consensus over a certain area or a failure of multilateral mechanisms (see also Bastos Lima and Gupta, 2014). In this regard, the unilateral approach the EU has taken on regulating its consumer market to address imported deforestation and the related engagement between the EU and China make the application of the Brussels Effect framework to this topic timely. Under certain conditions, which will be assessed in this paper, the regulation could trigger policy convergence between the EU and China. Our analysis also expands beyond the Eurocentric frame of the Brussels Effect to consider how international relations and trade may influence policy in multiple directions, where China is also a key actor shaping these dynamics.

The paper is structured as follows. After presenting the conceptual

framework utilised in this study, we analyse the relevance of the EU and China as major importing markets for forest-risk commodities. We then draw on interviews with expert informants to assess the main perceived motivations for cooperation between the EU and China on deforestation. Building on the underlying conditions of the Brussels Effect theory, we present the main factors that may be facilitating or hindering policy convergence. We then discuss the limitations of the existing framework for our application and propose additional factors for understanding convergence in international environmental trade regulations between large importing markets. Finally, we reflect on the implications of these findings and discuss elements that may galvanise China-EU cooperation to reduce deforestation.

2. The Brussels effect as a conceptual and analytical framework

While the EU has long played a role in driving deforestation overseas, it is also recognised for setting high standards on sustainability issues domestically and, increasingly, for its efforts to improve environmental standards internationally (Damro, 2012; Manners, 2002; Vogel, 2003). During the development of its regulation on deforestation-free products, the EU made it clear that its goal is to lead a worldwide transition away from agriculture-driven deforestation. The European Parliament’s report with recommendations to the Commission spells out such global ambitions unequivocally. It states that ‘[t]his Directive, by setting a European due diligence standard, could help foster the emergence of a global standard for responsible business conduct’ (European Parliament, 2020, p.11). Similarly, the European Commission notes that ‘[t]o have the greatest impact, Union policy should aim at influencing the global market, not only supply chains to the Union. Partnerships and efficient international cooperation with producer and consumer countries are fundamental in that respect’ (European Commission. Directorate-General for Climate Action, 2021, p.24).

The EU’s relative influence and ability to promulgate stringent standards and rules across non-member states stems from a range of factors. According to the Brussels Effect theory, there are five underlying elements that shape the EU’s ability to exert policy influence internationally: (1) a relatively *large market*, where the benefits of securing access to it outweighs the costs of adapting to its stringent requirements; (2) strong *regulatory capacity* to develop and enforce rules; (3) political willingness to adopt *stringent standards*; (4) the predisposition to regulate *inelastic targets*, i.e., targets that cannot flee due to increases in regulatory stringency, such as consumer markets, and unlike capital markets; 5) a high *non-divisibility* element, i.e., corporations find it technically, legally or economically hard to separate products destined for different markets and, therefore, prefer to streamline their operations according to a common set of standards (Bradford, 2012).

There are notable examples where research has found evidence of significant EU impacts on policies elsewhere. They include regulations on animal welfare, data privacy, and hazardous substances in electronic devices (Nakanishi, 2016; Selin and VanDeveer, 2006; Biedenkopf, 2012; Bradford, 2020). As argued by these authors, the EU’s development of stringent standards was found to have influenced market behaviour internationally by imposing conditional access to its large market. Producers or exporters have been required to demonstrate a change in practices according to the new requirements in order to access the EU single market. Hence, a consumer-producer relationship is a common characteristic that enables this process to occur. While the EU only regulates its internal market, multinational companies might have economic incentives to standardise their practices and adopt a single standard globally – creating what Bradford (2012) describes as a ‘de facto Brussels Effect’. In some cases, this process paves the way for legislative change abroad and, therefore, an emulation of the European standards (‘de jure Brussels Effect’) – creating a form of regulatory convergence (see Vogel, 1997, for initial work describing a ‘California Effect’ in the US, which inspired the notion of a Brussels Effect at the global level). For instance, China has followed suit on the EU Restriction

of Hazardous Substances Directive and its Emissions Trading Scheme (Bradford, 2020).

We apply the Brussels Effect framework in our analysis as follows. First, we take the market size and regulatory capacity (the first two elements of the Brussels Effect) of both the EU and China as a given. As seen, market size is recognised as a proxy for economic power, it provides the foundation for countries to exercise influence over their trade partners, and large importing markets therefore have a gravitational effect on producers (Bradford, 2012; Damro, 2012). The larger the market, the more likely producers are to comply with the importing country's standards in order to secure market access (Drezner, 2005).

Second, we combine the stringent standard and inelastic target elements to explore and discuss the incentives and barriers the Chinese government faces to adopt stricter rules. It is widely argued that the adoption of stringent environmental standards is highly dependent on political preferences and prevailing economic conditions that support a pro-regulation environment (Vogel, 1997; Guasch and Hahn, 1999; Bradford, 2012). In the context of the EU-China cooperation, and assuming that the EU will soon implement the approved regulation on deforestation-free products, we assume that China's political support and political economy conditions are key determinants for policy convergence.

Third, we explore the benefits and disadvantages for multinational companies to adopt uniform standards across the global marketplace, triggering the non-visibility element. Bradford (2012) argues that once companies change their business practices to comply with a new regulation, often they extend the new standards to their worldwide operations. In other words, due to economic and brand reputation reasons, it is in the companies' interest to have harmonised global standards (non-visibility) as opposed to customised practices.

In the context of this paper, the non-visibility element is most relevant to multinational companies that trade agricultural commodities internationally. Traders sit in a key node of the supply chain, linking producers to global importing markets. Hence, they hold significant leverage over the sustainability of forest-risk commodities and can play an important role in promoting or hindering EU-China convergence in addressing deforestation (Grabs and Carodenuto, 2021; Sexton and Xia, 2018).

The application of this framework does not imply an endorsement of the Brussels Effect's Eurocentric approach, nor does it regard the EU regulation as a 'gold standard'. However, the framework remains relevant given the economic and political significance of the EU regulations combined with the fact that the strength of the EU's influence on commodity markets depends significantly on the buy-in of other major importing markets – notably China's.

3. Background: The EU and China as major deforestation importers

The EU and China are top importing markets for forest-risk commodities. China is the world's largest importer of soy and beef, respectively taking up 42% and 28% of their global trade in 2020, and the second largest importer of wood products and palm oil (26% and 13%) (FAO, 2020; Resource Trade, 2020). The EU, in turn, is the largest global importer of cocoa, wood products and palm oil, accounting respectively for 53%, 33% and 20% of those imports in 2020. Europe also is the second-largest importer of soy (17%) and beef (15%) (FAO, 2020; Resource Trade, 2020). Given their market size, the EU and China can therefore play a pivotal role in shaping the sustainability of these commodity supply chains.

As a consequence of the above, China and the EU are also the importing markets most exposed to deforestation. Combined, they were exposed to approximately 40% of all tropical deforestation embodied in the trade of agricultural commodities in 2017 (Pendrill et al., 2020). Over 95% of China's trade-related deforestation in 2017 was linked to a handful of commodities, namely soy (37%), palm oil (20%), wood

products from plantations (19%), beef (16%), and rubber (4%) (see Fig. 1). In the case of EU imports, the top five commodities most linked to deforestation were palm oil (42%), soy (17%), wood products (9%), coffee (9%), and cocoa (8%).

4. Research approach and methods

4.1. Qualitative data collection

To investigate the challenges and opportunities for policy convergence from China in light of the European Union Deforestation Regulation (EUDR), this qualitative research utilises semi-structured interviews with key elite informants and their reported perceptions. Through purposeful sampling, we targeted three main groups of actors. The first group comprised stakeholders involved in the development of the EUDR, including representatives of the EU Commission, the EU Parliament, and independent consultants who played advisory roles. These were identified by the authors' extended networks and by soliciting recommendations from participants. The second group included stakeholders involved in official dialogues between the EU and China on deforestation associated with forest-risk commodities (e.g. diplomats, Chinese academics). Participants lists from public EU-China dialogues or workshops on deforestation and global supply chains were particularly helpful for selecting and recruiting participants of this group (see Corsetti, 2022). We also sought perspectives from academics, independent consultants, and representatives of non-governmental organisations (NGOs) who have in-depth knowledge on the topic or who have played an influencing role in EU-China dialogues.

We made a deliberative effort to pursue a balanced representation of participants from the EU and China to capture a diversity of views (Patton, 2015). Despite our deliberate efforts, it proved difficult to arrange interviews with direct representatives of the Chinese government due to political sensitivities and the government's stringent rules regarding participation in research interviews. To address this limitation and ensure a diverse array of perspectives, we interviewed Chinese academics and NGO representatives who have direct working relationships with the government. In total, 20 semi-structured interviews were conducted between June and August 2022, with 10 key informants from each side (see Table 1).

Semi-structured interviews enable flexible, open-ended interactions and therefore allowed for adapting the questions according to the participant's knowledge and interest in the topic (Patton, 2015). All interviews were conducted in English. The elements of the Brussels Effect theory combined with more open-ended inquiries were used to guide the interview questions and to structure the results and discussions. Informants were asked about the EU and China's motivations for engaging with each other on imported deforestation, factors that may be hindering or facilitating policy convergence, incentives and obstacles for China to adopt stringent standards to address imported deforestation, and potential mechanisms and opportunities for the EU and China to further cooperate on this issue. As will be outlined in the following sections, the analysis of these questions yielded a set of key themes that encompass both the Brussels Effect variables and additional issues the respondents raised and which suggest a less Eurocentric and more pluralistic view of policy change.

Due to the political sensitivity of the topic, all the information provided by interviewees has been anonymised. Quotations are widely used to present views or considerations in their own words, but without attribution. We instead use a reference format code to identify the actor type and their region of origin to distinguish the interviews.

All but three interviews were recorded and fully transcribed, resulting in over 200 pages of text being coded. A blended approach, with a combination of inductive and deductive coding, was applied to the interview transcripts (Graebner et al., 2012). The deductive approach was based on the Brussels Effect elements and allowed for capturing systemic information related to policy and strategy

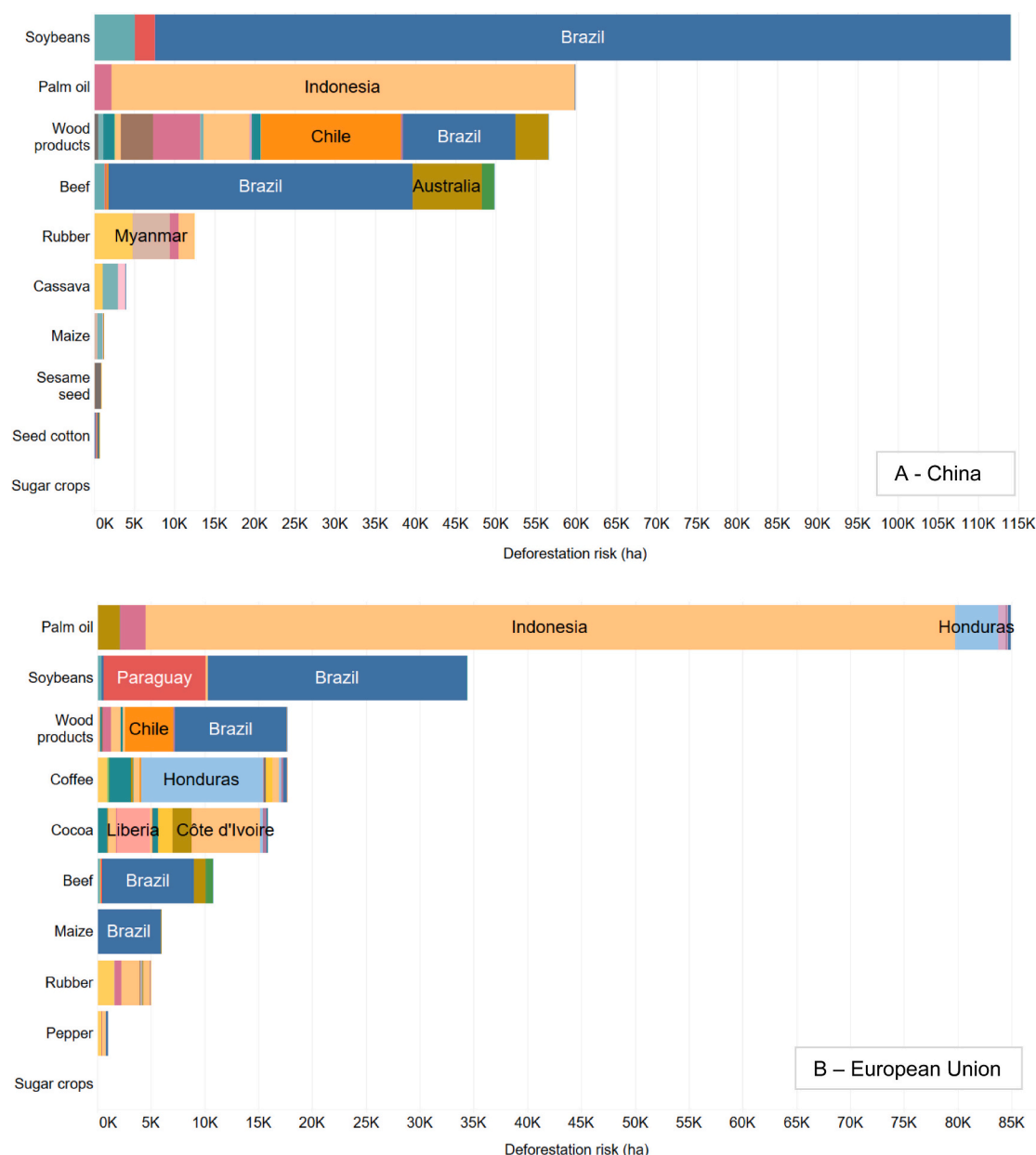


Fig. 1. Tropical deforestation associated with China's (A) and the EU's (B) imports of agricultural commodities in 2017 and their countries of origin (source: [Pendril et al., 2020](#)).

convergence. Inductive coding was applied to interview sections based on a more exploratory analysis that spanned beyond the Brussels Effect, such as perceptions about the EU's and China's motivations for cooperation.

4.2. Research limitations and boundaries

We recognise that expert informants interviewed in this study – including policy-makers, diplomats, and other stakeholders – may have avoided sharing sensitive information due to the political nature of their work. We also highlight that by targeting informants somehow involved with, and therefore at least partially endorsing, EU-China dialogues on deforestation we may have captured overly positive views. Yet, some participants also showed clear scepticism about EU-China cooperation. While a saturation point was reached in terms of the information collection, the number of participants was limited. The study would have undoubtedly benefited from insights and perceptions from Chinese

government representatives who, despite being contacted, were not available to be interviewed for this study. Further research which captures their perspectives on the topic would bring valuable contributions.

Importantly, this study is focused solely on the likelihood of EU-China policy convergence, specifically on the prospects that China may adopt more stringent measures against imported deforestation. We do not assess here the effectiveness or the equity of EU's deforestation policies (see [Zhunusova et al., 2022](#)).

5. Results

5.1. Key stated motivations for cooperation

Through our inductive coding, we have identified four main areas of stated motivations for cooperation between the EU and China against imported tropical deforestation ([Table 2](#)).

Table 1

List of interviewees and respective codes.

Code	Actor type	Region
CH NGO1	Civil Society Organisation	China
CH NGO2	Civil Society Organisation	China
CH NGO3	Civil Society Organisation	China
CH NGO4	Civil Society Organisation	China
CH NGO5	Civil Society Organisation	China
CH AC1	Academic	China
CH AC2	Academic	China
CH AC3	Academic	China
CH IC1	International Consultant	China
CH IC2	International Consultant	China
EU1	Policy-Maker	European Union
EU2	Policy-Maker	European Union
EU3	Policy-Maker	European Union
EU4	Policy-Maker	European Union
EU5	Policy-Maker	European Union
EU ST1	Governments representative	Member States (EU)
EU NGO1	Civil Society Organisation	International
EU NGO2	Civil Society Organisation	International
EU IC1	International Consultant	United Kingdom
EU IC2	International Consultant	United Kingdom

Table 2

Interviewee perspectives on the motivations for EU-China engagement to address tropical deforestation.

Environmental significance - Increase the effectiveness of EU actions on deforestation	
EU 3	'The EU would only succeed to curb deforestation if it managed to also get some support from other big importing countries'.
EU ST1	'Without China we will not hold deforestation or address the role of deforestation in climate change. [...] If you only clean up the European supply chains, it would be a bit of a futile endeavour'.
Global reputation	
CH NGO3	'China is gradually trying to take a lead on environmental issues...China has made quite a lot of revisions on regulations in recent years. We can see China's ambition in promoting environmental laws'. 'Back to 2000, China actually was sort of forced to engage in this illegal logging and associate discussion because China was accused as the biggest black market for the illegal timber globally by a lot of the [international] media ... and those voices were somehow 'voiced out' in some certain high political events, so that's where actually China start to look at that'.
CH AC1	
Learning exchanges	
EU 4	'China has its own legal system, but I think in China they take a lot of reference from EU's regulation framework on environment [and] climate'.
EU 2	'At all levels we were trying to get China into the mode where they would actually start interacting with us not only with regard to illegal logging but also with regard to the trade in agricultural products'.
CH NGO3	'China [is] making a lot of efforts to promote environmental rule of law. [...] Green value chain [concerns are] kind of new to China, so China is also eager to learn experience from other more developed mechanisms'.
Economic interests	
CH NGO2	'I believe that [it] is mainly the EU's interest in reaching out to China to ensure the consumer markets can have a level playing field, can have fair competition for the business sectors'.
EU NGO1	'If China were to adopt the same market access restrictions, then all the soy in Brazil would have to therefore become compliant and then the price of the higher quality stuff that EU was buying would correspondingly go down to a sort of average level'.

5.1.1. Environmental significance

There was consensus among EU representatives and stakeholders interviewed that one of the main reasons behind the EU's interest in pursuing cooperation – and thereby policy convergence – with China is to increase the effectiveness of its own actions targeted at reducing agriculture-driven deforestation. That relates in particular to the new

European regulation on deforestation-free products. EU representatives interviewed showed clear awareness of the risks of leakage from their unilateral measures, i.e., that imported deforestation could simply be displaced to other markets. They recognise that EU efforts will only have the desired impact on the ground with the support of other major importing countries, particularly China, due to its large importing market for forest-risk commodities (see Table 2). As articulated by one EU representative, *'There is still a large market for unsustainable products out there for producer countries and it is actually China that holds the key'* (EU2).

5.1.2. Global reputation

Some participants indicated that the EU's interest in encouraging China to adopt similar measures to tackle deforestation might be partly explained also by the EU's stated ambition to play a leadership role in environmental governance (CH NGO2; EU2; EU4). Indeed, the European Green Deal explicitly states the EU's goal to globally promote stringent environmental standards and sustainable development through the use of diplomatic and trade means (European Commission, 2019).

Similarly, several interviewees highlighted that a trigger for China to engage in dialogues on deforestation relates to its ambition to assume a larger leadership role in climate governance and be increasingly perceived as a global leader in environmental issues (CH NGO3; CH AC1; EU1; EU4; EU NGO2; EU NGO1). Furthermore, Chinese participants also suggested that the increased international recognition of deforestation driven by international agricultural trade and associated pressure on major importing markets to take actions may be also a trigger to motivate China to engage in the topic (CH AC1; CH NGO1).

5.1.3. Learning exchanges

Many participants highlighted that, particularly from China's side, one of the key motivations for engagement has been to have learning exchanges (CH NGO4; CH IC1; EU4; EU ST1). Europe and China's similar positions as major importing markets for forest-risk commodities mean they share similar policy challenges. While dealing with imported deforestation in trade at the scale of several agricultural commodities is a relatively new policy challenge for both the EU and China, the EU has been an early actor in this area. Chinese interviewees suggested that China recognises the EU as a strategic partner to observe and draw lessons from (CH NGO1; CH NGO3). They also pointed out that, over the last decades, China has scaled up investments in cooperation programmes to increase its capacity in environmental governance due to growing environmental concerns domestically (see Yang, 2017).

5.1.4. Economic interests

Lastly, some participants mentioned economic interests as a rationale for cooperation to create a level playing field for business (CH NGO2; EU NGO1). They claimed that, in light of the new regulation on deforestation-free products, the EU might want to prevent the loss of competitiveness of its market and protect European businesses. By adopting an unprecedented regulation targeting the trade of forest-risk and economically relevant agricultural commodities, the EU risks potential price increases in the import of these commodities.

Similarly, participants suggest that the EU may also wish to limit potential negative economic effects of its deforestation regulation on trade with China (CH NGO3; EU2). They mentioned that China is a significant importer of raw timber from third countries and a major exporter of wood products to the EU as an example. Therefore, collaboration and exchange can help predict and manage any potential negative disruptions to their bilateral trade, particularly regarding China's role as a key global trade node.

5.2. Building blocks for policy convergence

Here we build on the different elements of the Brussels Effect to report on the stakeholder's views regarding the factors that may hinder

or facilitate policy and strategy convergence between the EU and China in addressing imported deforestation. We then introduce additional perspectives brought forth by the informants on the importance of diplomacy and cooperative mechanisms in assessing policy and strategy convergence.

5.2.1. Market size and regulatory capacity

The EU and China are both major importing markets for forest-risk commodities and are important trading partners, fulfilling the ‘market size precondition’. The size of the Chinese market was highlighted by the EU representatives as a key motivation for EU-China cooperation.

According to the Brussels Effect theory, policy convergence also depends on a state’s capacity to regulate and enforce regulations. There was consensus among the interviewees that China has the regulatory mechanisms and capacity in place to adopt a similar regulation as the EU on deforestation-free products. Nevertheless, many participants (from both sides) reported that there is a lack of agreement and different views among the relevant Chinese ministries on China’s role in improving the sustainability of supply chains (CH IC1; CH IC2; CH NGO1; EU2; EU3). These respondents emphasised that the development of policies on the topic requires the involvement of different ministries and departments, especially due to the different economic relevance and characteristics of the commodities in question. However, some participants suggested that while the different levels of understanding and involvement from the ministries are to be considered, they are not necessarily impediments to policy and strategy convergence (CH IC1; EU2).

5.2.2. Factors mediating the adoption of more stringent standards

5.2.2.1. Incipient evidence of political support for acting on deforestation.

A preference for more stringent regulations is one of the building blocks for Europe’s Brussels Effect. Our results are mixed concerning China’s disposition to follow suit. Recently, there has been incipient evidence for growing political support favouring action against imported deforestation. EU representatives and other stakeholders from both sides regard recent commitments by the Chinese government as strong signals of political support to increase actions to address deforestation associated with their imports (EU1; EU3; EU NGO2; CH NGO5; CH AC1 EU IC1). These commitments include the Glasgow Forest Declaration and the EU-China joint communication released after the 2021 High Level Environment and Climate Change Dialogue. Both documents explicitly mention addressing deforestation associated with trade and provide potential frameworks for cooperation. In their joint communication, both parties ‘agreed to engage collaboratively in support of reducing global deforestation through enhancing cooperation in conservation and sustainable management of forests, making supply chains more sustainable...’ (European Commission. Directorate-General for Environment, 2021).

While some of those declarations might be seen as merely nominal, some interviewees expressed the view that top-down political signals from high-level government representatives are a critical first step for policy development in China (see Table 3; CH NGO2; CH IC1; EU4). Interviewed participants also shared that, besides setting policy development priorities in China, such high-level signals are important to encourage and promote research on the topic and to stimulate companies to take action (EU NGO2; EU IC1, see also Lingyu, 2021). In contrast, some study participants argued that the lack of clear goals and implementation targets means that those commitments may not necessarily be translated into concrete actions (EU2; CH NGO2).

5.2.2.2. Sensitivity to costs. Some participants suggested that costs are a major barrier for the Chinese government to adopt stringent standards on agricultural imports (CH NGO3; CH AC1; EU1; EU2) (see Table 4), especially in the context of recent food supply challenges and associated price increases (e.g., the Covid-19 pandemic and Russia-Ukraine war).

Table 3
Perspectives on political support for acting on deforestation.

Signals of political support	
CH AC1	‘China signed the Glasgow Declaration in the COP26. [It] means [the] Chinese government already gives the commitment to combat deforestation together with others...’
CH NGO3	‘[Look at the] drawing communiqué between [the] EU and China, where the Vice Premier in China mentioned to promote great supply chain-related work, so we got a clear political signal’
EU IC1	‘They’ve made a lot of fairly public announcements related to greening the Belt and Road [Initiative] and responsible supply chains and ecological civilization and you go through all this and you say, well, there’s a political base for doing this’
CH NGO3	‘China is gradually trying to take a lead on environmental issues ... China has made quite a lot of revisions on regulations in recent years. We can see China’s ambition in promoting environmental laws’
Political signals as part of policy development	
CH NGO2	‘The political signal is very important, and China always sees, I think, those [political signals] as a procedure’
EU 4	‘In China it works out from top down and then no matter what, they need to follow up and they need to deliver the leaders’ agreement’
CH IC1	‘In the end, it is the industry and the companies that really need to like take action.... the EU and China dialogue can help to hopefully give a little bit more of that encouragement and nudging for these companies’

Table 4
Interviewees’ perspectives on food security and sensitivity to costs.

EU1	‘Ensuring that food is affordable is a very important priority for the leadership in China, so they might find economic obstacles to do so’
CH NGO3	‘There is still a lot [of] hesitation also from the enterprises that if in China we also have those kind of due diligence requirements, traceability requirements that would [make] enterprises bear a lot cost’
CH AC3	‘China is afraid of any potential decrease in supply – it’s highly concerned about food security’
EU3	‘What is crucial for them is to secure their food supply, and that’s probably among the three first national priorities across everything’
EU ST1	‘I think by engaging in this particular dialogue and then investing in addressing climate change issues also in producer countries, I think it will enhance their food security’
EU NGO2	‘I think to the extent that China becomes directly affected by extreme weather events, for example, I think that will obviously drive the political agenda to a certain extent’

While China has been showing increasing levels of leadership with regard to climate change and has the stated ambition to become a global leader on environmental issues, it is still sensitive to the costs of measures that can constrain business profitability (EU1; EU NGO1; see also Engels, 2018). The willingness to adopt more stringent environmental standards also depends on market governance preferences. According to one of the interviewees, China still has a preference for market liberalisation on the international level, tends to embrace a free-market approach, and is more sensitive to the costs of regulatory action (CH IC1).

5.2.2.3. Food security. Participants from all the groups highlighted that food security is one of China’s top national priorities and an important factor that may limit the government willingness to adopt any stringent standards (CH NGO1; CH AC3; EU2; EU3; EU NGO2). Some interviewees pointed out that China’s food security currently relies on agricultural commodity imports (see Zhao et al., 2021). Therefore, concerns about a potential negative impact on food prices and food supply may be a key factor inhibiting companies and the government from introducing any measures to address imported deforestation (CH AC1; CH AC3; EU NGO2).

Conversely, some informants argued that improved supply-chain sustainability would also strengthen China’s long-term food security (EU ST1, EU IC2; CH IC1). An informant from an NGO in China believes

that ‘China would make changes and it would do something to green its supply chain for the sake of its own food security’ (CH NGO2). A representative of an international NGO, in turn, suggested that political support to introduce stringent standards may only come once China’s supply chains are directly impacted by extreme climate events (EU NGO2).

5.2.2.4. China’s foreign policy of non-interference. There was general agreement among all groups interviewed about non-interference as a key principle underpinning China’s foreign policy. One EU representative described it as ‘a political principle of non-interventionism’ (EU3). According to many participants, introducing measures that impose extraterritorial control, such as a requirement for zero deforestation supply chains, could be perceived by Chinese policy makers as undue interference in other countries’ sovereignty (CH NGO2; CH NGO3; CH IC1, EU1; EU IC1; EU IC2). This partly explains why some participants emphasised that China will not implement any measures focused on zero deforestation in the foreseeable future (EU1; EU NGO2; EU IC1; EU ST1).

Informants suggested that the Chinese government may be more supportive of adopting legality-based sustainability measures, as this would avoid interference in the producing countries’ ‘right to develop’ (EU1; EU NGO2; EU IC1) (see Table 5). The US-China Joint Statement on Climate Action was referred to as evidence of China’s political preference for supporting measures to tackle illegal deforestation rather than promoting zero deforestation (EU1). China and the US released a joint communication during the COP26 agreeing ‘to engage collaboratively in support of eliminating global *illegal* deforestation through effectively enforcing their respective laws on banning *illegal* imports’ (USDS, United States Department of State, 2021, emphasis added).

In addition, participants pointed out that China’s government is primarily focused on addressing domestic environmental issues (CH NGO1; CH IC1; EU2; EU3). An illustrative example is the recent developments around the Chinese Forest Law. Although an amendment in the law made it illegal to purchase, process or transport illegally sourced

timber, the new requirement does not apply to timber imports (MEE, Ministry of Ecology and Environment of the Republic of China, 2020).

5.2.2.5. Feasibility studies and impact assessments. Finally, a few informants identify the lack of evidence on the effectiveness of consumer-led measures, coupled with concerns about potential negative impacts on food prices and supply, as important factors that may hinder political support for developing and implementing stringent standards (CH NGO3; EU2; EU3; EU4) (see Table 6). A Chinese academic emphasised that ‘*pilots and feasibility studies are needed to show how this type of regulations and requirements can be implemented ... as well as the positive and negative impacts they will bring*’ (CH AC3). Robust scientific evidence, alongside impact assessments, are therefore viewed by informants as key factors for the Chinese government to adopt any regulations or measures against imported deforestation (CH AC3; CH NGO2; EU2; EU4).

5.2.3. Non-divisibility of production and the role of trading companies

Non-divisibility refers to the adoption of a uniform standard by multinational companies instead of tailoring their operations to comply with distinct regulatory standards (Bradford, 2012; Drezner, 2005). Traders may prefer to streamline instead of dealing with the technical or economic barriers to segregation, but such a choice cannot be taken for granted in the case of agricultural commodity trade. EU informants mentioned that commodity trading is different from factory line production, highlighting that traders can easily adopt different standards by simply sourcing from different areas (EU3; EU NGO2; EU IC2). In addition, an NGO representative argued that the Brussels Effect was conceptualised for places where there is a clear division between the state and the private sector (EU NGO2). In China, however, many trading companies are state-owned and thus have a direct relationship with the government (EU NGO2; Nepstad, 2017). According to one Chinese participant, companies ‘will be in need of support from the government, rather than pushing for regulation... especially in the case of commodities that China exports to the EU – like timber’ (CH NGO3).

Nevertheless, an EU representative highlighted that the European regulation on deforestation might facilitate convergence by promoting traceability. The respondent suggested that the EU regulation was strategically designed to support other consuming countries like China to develop similar policies (EU1). By requiring companies to implement what the EU defines as ‘full traceability’, the regulation may promote technology advances and enhance supply chain management. Once companies have demonstrated full traceability for the EU market, they will have the means to implement it across all their supply chains (see Table 7).

5.2.4. The role of diplomacy and cooperative mechanisms

There was general agreement among participants from both sides that dialogues and exchanges, both at a technical level and among high-level politicians, are important instruments to enhance the EU-China cooperation on deforestation (see Table 8). Participants emphasised that the highly institutionalised EU-China partnership and a long-term

Table 5
Interviewees’ perspectives on non-interference and related aspects influencing China’s willingness to adopt stringent standards.

Non-interference	
CH IC2	‘Some people think China will never ban whatever it is, also because China has this bottom line not to interfere other countries’ politics’
EU IC1	‘China is very reluctant to overstep what countries allow that it trades with. And I think [China] also takes the view that countries have the right to make decisions on their land use’
CH NGO3	‘I think a basic principle of China is to not infringe [the] development [of] producing countries’
EU NGO2	‘In terms of what we can expect from China, I’d say there was zero possibility ever of having the Chinese do anything like what the EU is doing. When I say ever, I mean no prospect of that happening within 10 years’
Action on illegal deforestation	
EU 1	‘The public statements that, for example, China has signed up with the US together in terms of deforestation, we see a dimension of illegal deforestation, so that as a potential shield against them being accused of interfering in the domestic affairs of other countries.’
EU NGO2	‘Emphasis on legality and proving legality might well prove to be a better model for China, and I agree with that.’
CH AC1	‘I think both sides should work more closely and can send a similar market signal globally, which should be that illegal deforestation related commodity does not have any market’
Focus on environmental domestic issues	
CH IC1	‘We have to resolve China’s domestic issues before resolving China’s sort of external challenges, so I think it again reflects how some of the ministries are probably simply prioritizing domestic issues.’
CH NGO1	‘China cares a lot [about] the deforestation inside China, because the forest provides [a] carbon sink. It is critical for China to achieve the carbon peaking before 2030 and carbon neutrality before 2060.’

Table 6
Interviewees’ perspectives with regard to the importance of feasibility studies and impact assessments.

The need for feasibility studies and impact assessments	
CH AC2	‘I think for China it’s very important, first of all, before China launches any official decision or make any regulation, the feasibility studies. I mean the impact assessments need to be done so they will not simply just do something that EU is doing ... We need to have very sound scientific proof in order to support the arguments’.
EU3	‘I think China will probably monitor very closely the implementation of this regulation to learn the result of what the EU is doing. Does it cause price increase? Does it cause any conflict? If they realize that, at the end of the day, for 90% of companies it works fine, maybe that’s what they need to know’.

Table 7

Interviewees' perspectives with regards to incentives and barriers for the non-divisibility element to take place.

Limitations of the non-divisibility element	
EU NGO2	'Commodity trade is fundamentally different ... their whole structure is geared around being very flexible about where they pull things in from, and so that is absolutely totally different situation to the one that manufacturing industry'
EU 3	'At the end, the timber that enters the factory comes from A or from B do [es] not create much complexity, so I think the benefit of harmonization will be limited unfortunately'
EU NGO2	'I mean, the Brussels Effect [was] kind of predicated on a clear separation between government and private sector, which doesn't exist in China'
EU NGO2	'Because they're state-owned enterprises, it's important to the government that they make money, and if the company says I'm having trouble making money because of this factor, then you know that will be something that the Chinese government would give weight'
Incentives for the non-divisibility element to take place	
EU 5	'We can already see that with the rather big companies who already have kind of due diligence systems in place, they were very much in favour of a European law'
CH NGO2	'There's also like a motivation behind the policy, such as facilitate technology innovation accelerate, then the demonstration and application of new technologies'
CH NGO5	'Given that the multinational traders will have to implement full traceability to comply with the EU regulation, China could see this as a benefit. It wouldn't be too much for China to ask the multinational companies for traceability too'
EU 5	'I think it has a lot to do with reputation, not only of the country itself but also of companies, because they don't want to be blamed for being exposed as being involved in deforestation; but at the same time many companies don't want to be the first ones to move because they are afraid of having a competitive disadvantage. So, for them actually a law might be advantageous'

Table 8

Interviewees' perspectives with regard to the importance of dialogues and cooperative mechanisms.

EU NGO1	'China and the EU have [a] more cordial relationship than China and the US do, so China does have some positive view of the EU as like an environmental first mover, and therefore, at least on that issue, might be open to sort of looking at [Europe] for inspiration'
EU 1	'I think that's the way to follow, to have periodic technical exchanges on policy, where we exchange on enforcement, where we explain to each other what we are doing and also have high-level bilateral meetings and international forum'
EU4	'I think we have a very good basis for mutual trust, in particular on [the] environment and climate topic... it really makes things different'
CH AC2	'The dialogue, it's more the higher [level] the better ... If we have this collaboration framework and have this on the same page for the high level, then the local level and also the policy makers would be easier to make it happen and push it forward'
EU3	'A key challenge is a deteriorating deep deliberation of international relations, because if the relations are already bad, it's even more difficult to talk about deforestation'
EU IC1	'You can have [a] dialogue where you only meet once or twice a year and you exchange a lot of pleasantries, and then ultimately you figure out that nothing much has happened'
EU NGO2	'I'm sure that a competent diplomat has a realistic idea of the limits of these processes, but at the same time it's still something worth doing because there's a number of productive partnerships and collaborations that can come out of it, and particularly on the science side'

relationship are critical for building trust between them (CH IC2; EU4; EU IC1). Collaboration is seen to help resolve conflicts and build agreement (CH NGO3; CH IC2; EU NGO2), to serve as a platform for knowledge diffusion (EU1; EU NGO1), and ultimately it can pave the way for policy and strategy alignment (CH AC1; CH AC2; EU1). In addition, informants highlighted that the existence of high-level EU-China dialogues on deforestation sends an important signal to encourage collaboration between European and Chinese government agencies,

research institutes, companies, and NGOs (CH AC2; EU NGO2).

Still, participants had contrasting views on the likelihood that such exchanges will lead to potential alignment between the two importing markets. A few informants believe that the obstacles presented above (i. e., food security, higher costs, the foreign policy principle of non-intervention) represent impediments to any concrete joint efforts and, thus, policy convergence in the short term (EU4; EU NGO2; EU IC1). Additionally, some interviewees also highlighted the broader EU-China diplomatic relations in the current geopolitical context as critical for influencing policy convergence or divergence between them (CH NGO4; CH AC3; EU3; EU ST1; EU NGO2).

6. Discussion

This study sheds light on some of the main factors influencing the prospects of policy convergence between the EU and China in addressing imported deforestation. Our findings corroborate previous research that argues China has markedly increased its ambitions to be viewed as a leader in tackling climate change (Yang, 2022; Teng and Wang, 2021) and has shown incipient political will for acting on imported deforestation. At the same time, our results suggest that China is unlikely to adopt any trade measures based on deforestation-free commodities (analogous to the EU regulation) in the foreseeable future. Hence, there are limited prospects for full policy convergence (i.e., *de jure* Brussels Effect) between the EU and China on this matter.

In particular, we have found that China's longstanding foreign policy principle of non-interference remains a critical constraint to adopting stringent standards targeted at deforestation overseas. China's preference for non-interference in foreign affairs is well established in the literature (Zheng, 2016; Cho Latt, 2022), though recent studies argue the country has been slowly shifting away from pure adherence to non-interference towards more adaptive and contradictory approaches (Kurita, 2022; Gazibo and Lema, 2022; Zou and Lee, 2020; Hirono et al., 2019). This shift is partly due to recent developments, such as China's stronger presence on the global stage, its growing international development programmes (e.g., the Belt and Road Initiative), and a changing geopolitical setting (Ginsburg, 2021). For instance, many authors have pointed to China's growing influence across Africa (Verhoeven, 2014; Duchâtel et al., 2014) and in Southeast Asia to secure its economic and political interests, with some going as far as calling the non-interference principle a myth (Po and Sims, 2022). Therefore, particularly considering China's increasingly assertive geopolitical posture, it seems wise to see some nuance and not take the non-interference principle at face value. Furthermore, China has taken action in the past for the sake of improving its global standing and reputation (e.g., banning ivory imports) (Permata and Wahyuni, 2020). Ultimately, whether it will go as far as introducing policy measures that impose extraterritorial control over agriculture will depend on its strategic concerns and commercial interests (see also Chaziza, 2023).

In the case of imported deforestation, our findings indicate that, for China, the perceived risks of adopting stringent measures currently outweigh their potential benefits. Chinese key informants highlighted that concerns primarily relate to the risks of increased commodity prices if additional barriers to trade were to be imposed and potentially an adverse effect on China's food security. Rapid urbanization, the lack of affordable food in the past, and the changing dietary preferences of an increasingly wealthier population towards higher meat consumption have made food security a top national priority for China (Liu and Zhou, 2021; Lu et al., 2015). Therefore, at least in the short term, food security is perceived as a factor that works against political support for stringent actions to decouple China's agricultural imports from deforestation. That said, food security may conversely help support environmental action overseas if climate impacts are seen to threaten China's food supply or to destabilise prices (Margulis et al., 2023). A growing number of studies have shown that increased deforestation and climate change lead to negative impacts in agricultural productivity in countries such as

Brazil and China (Leite-Filho et al., 2021; Ortiz-Bobea et al., 2021; Spera et al., 2020; Xie et al., 2020), but such concerns are yet to become substantive enough to translate into action from China.

Despite the limitations for full policy convergence (*de jure* Brussels Effect) due to China's different approach and priorities, our findings suggest that the new EU regulation on deforestation-free products can create potential enabling conditions that may lower barriers and encourage China to adopt guidelines and/or green supply chain policies, while also creating a space for a *de facto* Brussels Effect to happen. We have found some evidence that EU policymakers are aware of their limitations due to the risk of leakage, and therefore hope to bring other major importing markets – such as China – on board. By scaling up its standards to the global level, the EU would potentially prevent its market from eventually being shunned (see Gupta, 2008). Moreover, there is evidence of certain forest-risk commodity production sectors (e.g., Brazilian soy) being able to simply 'divide and conquer' and specialize in different importer requirements, without necessarily accruing significant changes on the ground (Bastos Lima and Schilling-Vacaflor, 2024). Therefore, getting China on board has been key for avoiding a simple reshuffling as a response to the EU's policy efforts.

Two mechanisms in the regulation have the potential to incentivise cooperation and policy alignment – *de jure* Brussels Effect. First, by requiring companies to implement full traceability to export to the EU market, the new regulation will make it technically easier for China to follow suit and require its companies to demand the same level of information from their suppliers. This may be reinforced by the fact that the main companies trading the three main forest-risk commodities – soy, beef and palm oil – to the EU and China are the same (Vasconcelos, 2022; Trase, 2020). Moreover, other importing markets (e.g., the UK and US) are also considering developing new policies against deforestation embodied in trade, a trend that may become increasingly appealing (see West, 2022; Jacobsen, 2022).

Second, the knowledge generated by the implementation of the EU regulation, including the technical design and enforcement of full traceability, may provide inputs for learning and capacity-building exchanges between the EU and China as well as inform the development of future bilateral mechanisms. This was highlighted by several participants as one of China's main motivations for the cooperation with the EU on environmental issues. In particular, the European regulation mandates the development and implementation of a benchmarking system which aims to categorise exporting jurisdictions by levels of sourcing risk based on rates of deforestation and their actions to combat deforestation (European Commission. Directorate-General for Climate Action, 2021). This creates further opportunities for the EU to engage with China in technical and learning exchanges.

Alternatively, measures focused on tackling illegal deforestation associated with Chinese imports may be a promising pathway for more immediate cooperation. Given China's default policy principle of non-interference, the country is more inclined to adopt measures that are in line with their trading partner's own land-use laws. Such a legality-based approach to regulating trade is what also other importing countries such as the UK and the US seem to favour.

In the hypothetical scenario where China adopts stringent regulations to tackle illegal deforestation, trading companies may be pushed towards non-divisibility, paving the way for a *de facto* Brussels Effect. Nevertheless, the lack of information on deforestation licences and data inconsistencies across countries means that verifying and monitoring illegal deforestation embodied in trade products involves more complex and costlier mechanisms than checking compliance with deforestation-free requirements (Wolosin, 2022; Vasconcelos et al., 2020). For some places, identifying and filtering out only illegal deforestation may be even unfeasible (Valdiones et al., 2021). Ultimately, that may lead to economic and technical incentives for trading companies to expand compliance with zero deforestation standards also to other markets such as China rather than developing more complex and costly solutions to deal only with illegal deforestation.

Finally, more attention is needed on the role of cooperation in the context of the Brussels Effect. The theory fundamentally presumes a unilateral process that relies purely on market forces and regulatory power. While the five underlying conditions are helpful in assessing policy convergence, our findings point to the importance of cooperative mechanisms and aligned geopolitical strategies – issues overlooked by the Brussels Effect theory. This is particularly evident when applying the framework to a case of potential policy convergence between two powerful importing markets.

While market forces and regulatory power create important incentives, diplomacy and cooperative mechanisms can also play a key role in enabling and catalysing policy convergence (Scott, 2007; Christiansen, 2016). Conversely, strained diplomatic relations and unrelated yet unfavourable geopolitical context, including changes driven by conflicts and wars, can result in greater polarisation among nations and regions, resulting in further diverging interests and policies. Furthermore, such conditions may hinder dialogues and exchanges between countries on issues that may not be perceived as immediate priorities, such as environmental concerns, ultimately posing challenges to achieving policy convergence. Although Bradford (2012) recognises that the Brussels Effect is not an exclusive pathway to regulatory convergence, the theory could be expanded to better account for the critical role of diplomacy and geopolitical conditions that promote, or run counter to, convergence. Besides extending the framework applicability to consumer-consumer collaboration, that could also be a pathway for exploring more balanced, equitable and participatory consumer-producer relationships.

7. Conclusion

Through a novel application and expansion of the Brussels Effect theory to two large importing markets, this study sheds light on the factors that may facilitate or constrain policy convergence between the EU and China to address imported deforestation. Our findings suggest that despite political signals from high-level Chinese leadership, it is unlikely that China will adopt regulations based on zero deforestation in the foreseeable future. Fears of hampering its own food security by impacting agricultural commodity prices or possibly disrupting supplies, coupled with a default policy attitude of non-interference in the domestic decisions of its trade partners, prevent China from enacting strict demand-side measures. Instead, the Chinese government may be more inclined to introduce voluntary guidelines and be more supportive of implementing legality-based regulations focused on addressing illegal deforestation. While this limits the prospects of full policy convergence in the short to medium term, implementation of the EU regulation offers a pilot and may already induce compliance in the same agricultural commodity traders that supply China, lowering the bar and possibly paving the way for action from the latter in the longer run.

It remains to be seen whether the possible convergence of EU and China policies to address forest-risk commodities leads to net positive or negative environmental and social outcomes. However, a modified and expanded application of the Brussels Effect framework does shed light on the likelihood that some form of policy convergence will occur. This convergence may be *de jure*, through the development of similar government policies, and/or it might be *de facto*, through market spillover. Regardless, more research is needed in the realm of cooperation. As emerging countries such as China gain further market share, they seem unlikely to just replicate Europe's take without accounting for their own different set of preferences, concerns, priorities, or distinct geopolitical and economic interests. Aligning international policy on agriculture and land use, therefore, seems to require some matching of those broader goals. Future research focused on understanding how trading companies respond to the new EU regulation (i.e., if there are shifts in sourcing patterns) can provide very valuable insights on the risk and implication of leakage effects and the potential for a *de facto* Brussels effect. New research can also explore how collaboration with exporting countries

can lead to policy convergence on agricultural sustainability. The Brussels Effect offers a starting point for understanding Europe's first-mover advantages, but in an increasingly multi-polar world, exploring more multifaceted ways of partnering will become increasingly essential.

Authors statement

The authors declare that the material presented in this manuscript has not been previously published nor is it simultaneously under consideration by any other journal.

CRediT authorship contribution statement

André Antonio Vasconcelos: Writing – review & editing, Writing – original draft, Visualization, Formal analysis, Data curation, Conceptualization. **Mairon G. Bastos Lima:** Writing – review & editing, Writing – original draft, Conceptualization. **Toby A. Gardner:** Writing – review & editing, Writing – original draft, Conceptualization. **Constance L. McDermott:** Writing – review & editing, Writing – original draft, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The data that has been used is confidential.

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